THE INFLUENCE OF INTERACTIVITY AND ONLINE STORE ATMOSPHERICS OF A 3-D RETAIL STORE IN SECOND LIFE ON CONSUMER PURCHASE INTENTIONS

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Second Life, a 3-D virtual world, has evolved as a shopping channel for both consumers and retailers. This channel of retailing offers interactive environment, allows designing atmospherics, and provides enjoyable shopping experience as compared to website stores. The purpose of the study was: (1) to identify the key features of Second Life stores and (2) to determine the relationship of the Second Life store features with consumer purchase intentions. The online survey was administered in Second Life by an external research agency, and 249 usable surveys were collected. The data were analyzed utilizing factor analysis and regression.

Three key features of Second Life stores were explored in this study. These three features were: (1) interactivity via the two components of two-way communication and active control, (2) store atmospherics, and (3) shopping enjoyment. Regression analysis showed that shopping enjoyment and two-way communication (i.e., the presence of an avatar sales representative) were significant predictors of purchase intention in Second Life stores, while active control and store atmospherics did not influence purchase intentions.

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CHAPTER 1

INTRODUCTION

In 2011, the United States (U.S.) Census Bureau reported that annual retail sales reached approximately $348 billion, of which online retail sales contributed 13% (see also Wauter, 2011). The contribution of online retailers is less compared to retailers' brick-and-mortar stores (Aoyama, 2001; Shang, Chen, & Shen, 2005); however, online retailing offers great marketing potential due to its advantages of instant market access and global reach. The adoption of online channels is rapidly increasing due to the tremendous potential for them to be used as marketing tools as well as sales channels (Pentina, Pelton, & Hasty, 2009). Sage (2010) revealed that by 2014, online retail sales in the U.S. are expected to reach $248.7 billion, representing a 60% growth from 2009. This retail sales forecast represents a remarkable increase in online retail sales within the last two years and could be attributed to the increase of Internet users in the country which has doubled since 2000 (Internet World Stats, 2010). Currently, there are more than 266 million Internet users, which accounts for 77.3% of the total U.S. population (Internet World Stats, 2010). Therefore, it can be inferred that the rise in the number of Internet users would lead to growth in online retailing.

With the increase in the number of Internet users, the rapid adoption of websites for commerce purposes has been ongoing, and a web presence has become imperative for most retailers (Doherty-Ellis & Chadwick, 2000; Wen, Chen, & Hwang, 2001). Regardless of retailer size, the Internet offers an affordable alternative to opening a brick-and-mortar store and provides innovative ways of doing business (Francis, 2009). Other than the low cost, retail websites offer benefits such as a huge customer base and consumer data for database marketing (i.e., "who is buying what, when, and how" Doherty & Ellis-Chadwick, 2000, p. 955). The

Internet allows retailers to (1) target specific consumers; (2) invest less capital and bear lower risk than a physical store in terms of: inventory, sales associate salaries, store maintenance, rent, real estate purchase for the stores, utilities and property taxes, (3) operate 24 hours a day and 7 days a week; and (4) provide sufficient product options and service information to consumers (Doherty & Ellis-Chadwick, 2000; Duparcq, Hanna, & Berger, 2009).

Doherty and Ellis-Chadwick (2000) explained that U.S. retailers perceive online retailing as an additional channel that can be utilized as a communication tool for attracting new consumers, expanding into new markets, promoting the brand, and facilitating consumer retention. From the consumers' perspective, online shopping is convenient, saves time, provides information on product prices and retailer services, and enables price comparisons quite easily (Cole, Suman, Lunn, & Maguire, 2000). The competition in online retailing has intensified as consumers have become more comfortable using the Internet for online shopping (National Mail Order, n.d.; Sage, 2010). Therefore, retailers greatly need to differentiate between themselves in the market in order to generate sales and establish their brands.

As the Internet has evolved as a shopping channel for both consumers and retailers, it is important to consider some of the major drawbacks associated with online retail stores. For example, the interactivity level of online stores is usually very low (e.g., customer assistance and communication with sales representatives is nearly absent from online shopping). In addition, it is very difficult to engage consumers in shopping at an online store when store atmospherics (store surroundings such as colors, music, or display) are absent. Kotler (1973-1974) explained "in some cases atmosphere is the primary product" (p. 48), and atmosphere could be a leading factor in product purchase decisions. In comparison with brick-and-mortar stores, consumers experience less shopping enjoyment in an online store (Shang, Chen, & Shen, 2005). Thus, an

interactive website with appropriate store atmospherics and the presence of online "shopping assistants" are the significant factors, and if store atmospherics are unavailable, consumers could be hindered from obtaining product information or having pleasurable shopping experiences (Holzwarth, Janiszewski, & Neumann, 2006). Consequently, due to increase in sales as well as competition in online retailing, marketers constantly work to enhance their website features to make their websites and products more appealing to consumers, but the overall success of online retailing depends upon consumers' Internet access, usage, and experiences with online shopping. The drawbacks mentioned above have been somewhat eliminated by the enriching experience and interactivity of virtual stores in the virtual worlds such as Second Life (SL).

There are several three-dimensional (3-D) virtual worlds, which are categorized for different types of users depending upon specific age groups or hobbies. These include Active World and Cyber Town. Some are specially meant for gaming purposes, such as World of Warcraft or Star War Galaxies (Goozee, 2010; Hemp, 2006; Virtual Worlds, n.d.); however; the first virtual world, SL falls under all of the above mentioned categories because it is extremely similar to the real world, because its residents can live like they live in the real world. For instance, SL allows the residents to interact, socialize, shop, travel around the world, and rent or buy land. Also, SL has emerged as an effective platform for fashion designers to display their creative work, hold virtual business meetings, and fill classrooms with distance learners (Book, 2004; Justin, 2001; Lemon & Kelly, 2009; Novak & Steffey, 2007).

SL was created by San Francisco based Linden Labs in 2003. Currently, more than 18 million residents dwell in SL (Winder, 2010). This virtual world represents a shared space with a 3-D graphical environment in which several users can simultaneously interact with each other and perform activities similar to those they perform in the real world. SL can be accessed via the

Internet and is considered a Massively Multiplayer Online Role-Playing Game (MMORPG), a genre of computer role playing games. The interface facilitates interactions among players in a shared 3-D space via fictional characters called "avatars." An avatar in SL is a virtual body, or a 3-D representation of an SL resident (Robbins & Bell, 2008). The user can control the avatar's appearance, movement, and speech. Avatars in SL can communicate via local chat or global instant messaging which is called IM for instant messaging. According to information available on the SL website, even though the environment is virtual, the interactions among the players are real (SL, n.d.). Thus, SL is an online virtual world as a MMORPG that is parallel to the real world, and in SL, residents represent themselves under the guise of their avatars.

SL is rapidly emerging as a business hub. Approximately $150 million are being spent every day by virtual vendors, virtual real estate agents, and residents (Second Life's new leader, 2010). The virtual currency used in SL is Linden dollar (L$). The exchange rate varies, but usually $1 U.S. dollar (USD) equals L$250 to L$300 (Currency exchange, n.d.). The avatars lead real lives inside this virtual world. Customization of avatar body and appearance (e.g., hair styles, skins-colors, shapes of the body parts, clothing, accessories, and footwear) has provided opportunities to retailers to sell services and products to the residents or avatars (Book, 2004). Avatars buy all these products to enhance their looks (Hemp, 2006; Odrejka, 2004).

After closely observing SL, it was noticed that this virtual world is not only limited to gaming and entertainment but it also has several advantages. SL facilitates face-to-face interaction of avatars because of its 3-D graphical environment. SL engages consumers as they interact and obtain product information through their avatars or sale representatives (Tate et al., 2010). Additionally, SL provides innovative experiences to consumers by allowing them to examine products in the interactive, 3-D graphical environment where they can take 360 degree

view of the product on the computer while changing colors and using apparel try-on technology which allows consumers' avatars to wear clothing instantly. All of these features increase interactivity with SL stores that provide realistic shopping experiences and help engage consumers.

Hemp (2006) emphasized that virtual worlds offer untapped marketing potential for real-world products and services, mainly because of their ability to generate sustained consumer engagement with a brand. Therefore, similar to online retail stores, SL could be considered as an additional retail channel. SL offers the advantage of being able to experiment with new ideas, products, or promotions at very minimal cost and time, as the highest paid money for a weekly classified in SL is L$300,002 as of November 1, 2010 (Linden Lab Official, 2010). Thus, SL could serve as a launch pad for a new product, enabling retailers to launch new products in SL to gage consumer response before launching any new product into the real world. For example, Levi Strauss lunched a new style of jeans in an SL store to predict consumer response in real-life (Hrastnik, 2007). From a financial perspective, SL has the potential to be profitable for real life retailers since many people make real life money from virtual businesses (Hemp, 2006).

Rationale

The top selling online products include apparel, footwear, and accessories (Symons, 2010). The increase in online sales has been attributed to the growing numbers of Internet users. Symons (2010) also pointed out that apparel, footwear, and accessories along with consumer electronics and computers (including both hardware and software) have dominated online retail sales and account for 40% of all the total online retail sales across the country. Symons included the following statement by the executive director of shop.org, "Retailers are doing such a great job online that in some cases it's easier to find and buy clothing on the Web than it is in a store."

Furthermore, the success of the influx of new retailers has been attributed to liberal shipping policies on return and exchanges. Additionally, the growth in online sales has increased due to the integration of new technologies that engage consumers by providing realistic shopping experiences. The integration of several modern technologies, such as rich-imagining zoom and rotate and product views in different colors, enhances interactive nature of retail websites. Due to these technologies, consumers are more comfortable in making online apparel purchases. Goldsmith and Flynn (2004) found that "online apparel buying is motivated more by the Internet innovativeness than by clothing innovativeness" (p. 84).

Similar to online retailing, apparel shopping is the number one activity in SL. In SL, a large amount of money is spent on avatar outfitting and appearance by residents (Guiniven, 2006; Ondrejka, 2004). In fact, apparel (i.e., virtual) and avatar stores (where avatar skins and hair are sold) were the first businesses to start in SL (Ondrejka, 2004). SL's rapidly growing internal economy (Ondrejka, 2004) indicates that this medium has a potential to become another successful channel for apparel retailing. Ondrejka (2004) also mentioned that residents spend more time and money on shopping than on other activities in SL, which has boosted the number of designer stores in SL. According to Hemp (2006), several SL apparel designers have been approached by real world fashion houses to work on real life fashion projects. For example, Martina Karapetrić, a fashion designer from Croatia opened her boutique in SL. Her SL creations caught attention of fashion aficionados which helped her earn many real-life projects including shows on European runways (Otawara, 2010). The reason many fashion designers have been stepping into SL is the ease with which real life dresses can be recreated in SL and the interactive features of SL which make apparel appear real. The virtual dresses look the same as real ones. This is possible because of the numerous options available to the designers in SL such as virtual

fabric textures, colors, and drapes. As a result, SL is emerging as a hub for virtual commerce and has possibilities both for professionals who want to have sideline businesses (e.g., designers who want to showcase their creations) and for real life retailers. The avatar operated and owned SL businesses are burgeoning and are translating into "real-life" profitable businesses (Hemp, 2006).

A real life apparel brand, American Apparel, started its brand promotion by selling its apparel to avatars and offering coupons for their real life purchases at their brick and mortar and online stores. Similarly, Levi Strauss launched its new pattern jeans on SL, and based on the responses the company obtained, Levi's introduced the new product into the actual market (Hrastnik, 2007). Even though Adidas sold over 15,000 virtual shoes to SL avatars in a time span of four weeks (Second Life lessons, 2006), big retail chains continue hesitating to invest time and money in SL. This hesitation indicates that irrespective of the interactive features that SL provides (including avatar sales representatives, voice chat, 360 degree product view, and virtual try-on technology) retailers do not take complete advantage of this medium. SL provides better technological features than retail websites and at minimum cost. Therefore, it is very important to investigate the effect of SL's interactivity on consumer purchase intentions. The current study aims to explore the potential of SL as a retail channel. Even SL can be utilized for brand building, promoting products, or introducing new products to increase sales in the real world. Regardless of these advantages, retailers are currently not very active in SL (Hemp, 2006).

The purpose of this paper is to identify main features of SL stores which could possibly attract and engage consumers toward shopping in online 3-D virtual environments. Upon an extensive review of literature, the following variables serve as important influences of consumer purchase intentions in SL: (1) interactivity, (2) store atmospherics, and (3) shopping enjoyment. Interactivity refers to how consumers communicate in an SL store, whether face-to-face i.e.,

through avatars using Voice over Internet Protocol (VoIP; i.e., voice chat) or through IM. Interactivity also refers to the response time (slow or fast) to consumers' requests (e.g. price check of the product or navigation in the SL store). This feature of SL could be very beneficial to retailers, since in online stores interactivity is an important component which affects consumer shopping decisions to a greater extent (Ballantine, 2005; Liu, 2003).

Store atmospherics mainly explain the store ambience, that is, the look and feel of stores' interiors in term of colors used, merchandise displayed, or music played in the store. Shopping enjoyment is defined as the fun experienced during shopping in an SL store. Nevertheless, as stated earlier, SL offers more advantages than a retail website in terms of interactivity, allows designing atmosphere, and enjoyment and this study's aim was to explore the SL retail store's potential influence on purchase intention. Additionally, based on data analysis, suggestions were made as to how retailers can explore how to use SL as a new retail channel.

Purpose of the Study

Most retailers, including American Apparel, Adidas, and Nike, entered into SL mainly for the purpose of brand building and setting a market presence (Driver & Jackson, 2008). However, none of them were able to mark their presence (Ohrstrom, 2008). SL offers several great features to enhance the consumer-shopping experience, which have not been realized to full potential by most of these retailers. American Apparel, one of the early adopters of SL, was widely reported to be empty of shoppers most of the time because it offered no sales representative to assist the consumers (Lyons, 2008). The lack of a sales representative could have led to consumers' disinterest in the brand, as interaction with consumers is a crucial process in a business. Thus, the main purpose of this study is: (1) to identify the key features of SL

stores and (2) to investigate the relationship between the SL store features and consumer purchase intentions. Therefore, this study was based on the following propositions:

1. SL stores' functional mechanisms, such as interactivity in terms of presence of an avatar as sales representatives, response time, and control over navigation affect consumers' perceptions of their shopping experiences and purchase intentions.
2. SL store environmental cues, such as interior color-combination and product display, are associated with more favorable consumer purchase intentions (Babin, Harsey, & Suter, 2003; Eroglu, Mechleit, & Davis, 2003).
3. Shopping enjoyment plays a significant role in consumer's adoption of a medium for shopping and leads consumers to make purchases through the store/medium (Ha & Stoel, 2009). Thus, the enjoyment experienced while shopping in an SL store leads to positive purchase intentions.

Therefore, based on these propositions, this study was aimed toward providing marketers with insight on consumers' expectations from SL stores. Also, this study was important as no other studies have been solely focused on SL store features or explored consumers' purchase intentions via SL store. This study explores a new method of operating retail. In addition, this study's findings might help marketers understand and improve the main features of SL stores to facilitate consumer browsing and shopping at the store and making purchases from these stores.

Operational Definitions

Second life. SL is a 3-D virtual world which facilitates socializing, communication, and customization of avatars through the extremely interactive technology called Massively Multiplayer Online Role-Playing Game (MMORPG).

Linden dollar. The currency used in SL is the Linden dollar which is written as L$. Usually, $1 U.S. dollar is equivalent to L$250 to L$300.

Avatar. This word is originally taken from an ancient Indian language, Sanskrit which describes the worldly incarnation of the Hindu god Vishnu (Hemp, 2006). In the context of SL, an avatar is basically an SL user who can acquire any form, such as a human body, animal, or even an object.

3-D store. These are the retail stores in SL.

Interactivity. In online media, interactivity is associated with two-way communication, user control, time to perform web activities, such as a monetary transactions, or downloading webpages.

Store atmospherics. Kotler (1973-1974) defined store atmospherics as "the conscious designing of space to create certain effects in buyers. More specifically, atmospherics is the effort to design buying environments to produce specific emotional effects in the buyer that enhance purchase probability" (p. 50).

Shopping Enjoyment. The emotional response of pleasure obtained by shopping.

Limitations

This study of purchase intentions from SL stores was limited to the three features of SL stores that were interactivity, atmosphere, and enjoyment. Hence, the study did not include other aspects of the SL stores, such as technology acceptance. This study was limited to the examination of SL store features, but did not compare consumer purchase behaviors in SL stores to online stores, a currently, widely accepted sales channel. Additionally, the sample was selected from all over the world, and the study was not focused solely on American consumers.

CHAPTER 2

LITERATURE REVIEW

Marketers are utilizing the Internet to provide product and service information and to sell products and services to consumers. Marketers are using the Internet to reach consumers who would otherwise be difficult to reach globally (i.e., through traditional print and advertising media) because of high cost (Peter & Olson, 2001). According to Carrillat, Riggle, Genbhart, and Less (2009), to develop a consumer-oriented business, it is crucial to acquire the advanced understanding of customers (e.g., feedback). This is especially important for online retailing since it is extremely hard to engage consumers in an online medium as compared to a brick-and-mortar store (Häubl & Figueroa, 2002). Häubl and Figueroa (2002) further explained that any lack of involvement in an online shopping environment could be attributed to consumer's inability to physically examine products before making purchase decisions, and they suggested that this problem could be overcome by using three-dimensional (3-D) environments, known as virtual realities.

Second Life (SL) is a dynamic virtual world environment entirely driven by the users. A study revealed that out of 1,259 SL residents, the majority of the residents are in SL for personal reasons, such as fun and creativity, social networking, and shopping (Driver, 2008). The remaining respondents utilized SL for professional purposes, such as networking, conducting business and research, bringing a real life business into SL, and running a business in SL. Solis (2011) suggested that the usage of SL by retail brands will increase by 11%. Solis indicated that in SL, avatars not only engage in gaming but also exist in a social environment that allows users to generate money similar to real world dollars. As stated earlier, the number of apparel stores in

SL has been increasing, and a study exploring the layout and other atmospheric features of such stores would be of relevance.

There are numerous features available through SL, which make activities in this virtual world mimic real life activities. The presence of features like 3-D stores, products, and avatars who can communicate with each other via voice chat enables the information of sharing and ability to gather feedback (7 things, 2008). Additionally, SL offers plenty of interactive features, such as the presence of avatar sales representatives in SL stores which is similar to the presence of real sales representatives in brick-and-mortar stores.

The consumers' virtual experiences in SL stores resemble real life shopping experiences and allow consumers to interact with products (Li, Dauherty, & Biocca, 2001). Virtual experience incorporates visual control and functional control, which together enable a higher level of interactivity (Jiang & Benbesat, 2007). Visual control means consumers can use the website to view products through different angles, and functional control refers to consumers' ability to control actions performed during website navigation. Virtual experience refers to realistic product experiences obtained over the Internet (Li et al., 2001). But due to the lack of any documented studies on SL stores and their features, the literature was built by comparing the similarities between the online retail stores and SL stores. Based on the literature available on online stores, three important features of SL stores were identified. The three identified features were the following: (1) interactivity, (2) store atmospherics, and (3) shopping enjoyment.

Ballantine (2005) reported interactivity to be the most documented feature among several features of an online store. Interactivity in an online environment entails two-way communication, active control, and response time (Liu & Shrum, 2002; McMillan & Hwang, 2002). Liu and Shrum (2002) explained active control as the user's ability to freely participate in

a communication over the Internet. Liu and Shrum stated that active control is an important element in order to perform communication easily and emphasized that the interactive nature of an online store allows consumers to communicate via a one-on-one basis. Better control means greater ability to perform actions or gain experiences within an online medium. Ballantine (2005) found that higher levels of interactivity increase consumer satisfaction. Similarly, Constantinides (2004) found interactivity of an online medium to build positive customer experience.

As compared to interactivity, the atmospherics of an online store represent a relatively new concept that emerged in late 1990s (Manganari, Siomkos, & Vrechopoulos, 2009). The transition from brick-and-mortar to online retail stores has attracted many researchers to study store atmospherics in the context of the online environment. Also, store atmospherics (of both brick-and-mortar and online stores) were documented as the important aspect of a store, which significantly affects consumers' attitudes and intentions to purchase products (Bellizzi & Hite, 1992; Koo & Ju, 2010; Kotler, 1973-1974). Store atmosphere includes anything that affects the design or ambience of a store, such as music, scent, and color (Koo & Ju, 2010). Similar to online stores, most of the stores in SL have similar layouts and open areas with signboards on the walls. The signboards display product information and advertise the products the stores sell. These sign boards also act as a point of sale, which means the product displayed on the signboard can be purchased by a consumer who simply clicks the computer mouse over the product's signboard. In SL stores, product information is readily available, and money transactions and virtual product delivery happen extremely quickly. Additionally, the 3-D layout of SL stores helps mimic the atmospherics of a brick-and-mortar store and includes the use of music, mannequins at the display window, wall colors, and display units highlighting the products

(Robbins & Bell, 2008). Thus, based on previous research, store atmosphere has been identified as an important feature of SL stores.

Along with interactivity and store atmospherics, shopping enjoyment is an important feature of online shopping. Consumers who experience enjoyment during shopping sprees are more likely to make purchases (Guiry, Mägi, & Lutz, 2006; Kim, Fiore, & Lee, 2007). SL stores provide enjoyable experiences (Grassian, Trueman & Clemson, 2006; Jin & Bolebruch, 2009) due of the presence of several fun elements (e.g., avatars and the 3-D interactive interface). Therefore, interactivity, store atmospherics, and shopping enjoyment were identified as the primary design features of SL stores that affect consumer intentions to make purchases at SL stores.

Interactivity

Websites provide numerous features (Dholakia & Zhao, 2009), yet certain features such as interactivity or realistic product experiences (e.g., product trial or touch and ability to feel products) that are absent from online media. Several authors have identified interactivity as one of the most important aspects of the online stores (Ballantine, 2005; Dolakia & Zhao, 2009; Fortin & Dholakia, 2005). Chen and Yen (2004) acknowledged interactivity to be a very important feature of an online business that helps to improve "communication quality."

Constantinides (2004) stated that interactive retail websites enhance web experiences and provide the opportunity to retailers desiring to differentiate themselves in the marketplace. Constantinides also classified interactivity as a functional element of a website which facilitated two-way communication between the seller and the buyer and as a way to help establish relationships with other users. Furthermore, Constantinides explained customer service and after sales service (i.e., customer's feedback) and two-way communication are some of the important

components of interactivity between customers and online vendors. Constantinides asserted that interactivity is an important marketing tool which can be controlled by the marketer effectively designing the website. Similarly, Coyle and Thorson (2001), Hoque and Lohse (1999), and Fiore, Jin, and Kim (2005) explained that a higher level of interactivity increases the online retailer's chances of success. All these researchers emphasized the impact of interactivity on online retail websites. According to Dholakia and Zhao (2009), interactivity strengthens the buyer-seller relationship due to faster information exchanges. In addition, interactivity can be used with consumers to deliver virtual product experiences and resemble direct experience of a product (Li et al., 2001). According to Ballantine (2005), several features of the design of a website interface contribute to its success. Interactivity of a medium is affected by the speed with which the information is shared or the amount of time required to respond consumers' requests (Ballantine, 2005; Steuer, 1992). Ballantine further mentioned that shorter response time adds value to real time interaction and as a result provides more realistic experiences. The studies related to interactivity were primarily focused on the following aspects: (a) control, (b) two-way communication, and (c) response-time (Ballantine, 2005; Dholakia & Zhao, 2009; Liu & Shrum, 2002; McMillan & Hwang, 2002). Liu (2003) developed a scale to measure the interactivity levels of websites. This scale was a multidimensional scale with the three distinct dimensions of active control, two-way communication, and synchronicity.

Similar to websites, interactivity plays a pivotal role in providing realistic experiences in SL. SL does a better job at providing interactive features to its users. Daugherty and Biocca (2009) explained that the 3-D environment is the most powerful media over all the other media sources (i.e., print and broadcast), because consumers can interact with the products and the 3-D presentations of the products outperform two-dimensional (2-D) pictorial presentations of online

stores (Li, Daugherty, & Biocca , 2003). Therefore, it can be inferred that interactivity is an important functional mechanism of SL stores. In addition, SL provides interactive features, such as communication with sales representatives at the store and gathering feedback via IM or VoIP, that allow consumers to receive quicker responses about their queries. Due to presence of these interactive features (i.e., active control, two-way communication, and synchronicity) in SL, these were identified as sub-features of the interactivity of an SL store. Thus, based on previous studies on online retailing, interactivity was identified as an important feature of an SL store.

It is important to understand that each of these interactivity variables may have different degrees of interactivity and can affect customer experience of an online environment differently. For example, presence of an avatar sales representative at an online storefront provides a more realistic shopping experience to customers (Dholakia & Zhao, 2009) and facilitates faster responses. The user interface (MMORPG) of SL itself suggesting that interactivity is an integral and an important feature of SL stores. Thus, it can be inferred that interactivity in SL is an important variable and needs to be further examined. Ballantine (2005) explained Rafaeli's (1998) interpretation of interactivity, according to which interactivity requires the mutual exchange of communication via both face-to-face and real time responses. This feature is available in SL stores in the form of the avatar who provides real time information, faster response times, and face-to-face communication. Ballantine found that increased levels of interactivity result in higher consumer satisfaction while shopping online. Therefore, to keep the interactivity of SL stores high, web developers constantly work to make the SL store more similar to the brick-and-mortar store because higher levels of interactivity in SL stores allow consumers to relate to the shopping experience more easily (7 things, 2008).

Table 1

Literature Involving Interactivity

Researchers	Application	Constructs	Components	Results
Ballantine (2005)	Online stores (retail website)	Online shopping environment	Interactivity and product information	Level of interactivity has significant affect on consumer satisfaction
Constantinides (2004)	Online stores (retail website)	Web experience components	(Functional- usability and interactivity, psychological- trust and credibility, and content elements- aesthetic and marketing mix)	Interactivity leads to a positive customer experience
Coyle and Thorson (2001)	Internet marketing sites	Telepresence	Interactivity and vividness	Higher levels of interactivity leads to stronger attitudes toward the website.
Dholakia and Zhao (2008)	Online store (retail website)	Interactivity	Objective and subjective	Interactivity positively impact online shoppers' satisfaction and behavioral intentions

(table continues)

Table 1 *(continued)*.

Researchers	Application	Constructs	Components	Results
Lee et al. (2006)	(retail website)	Interactivity	Image interactivity technology (IIT)	Interactivity positively affects consumers' attitude toward an online retailer.
Liu (2003)	Website	Interactivity	Active control, two-way communication, and synchronicity	Developed a scale to measure interactivity.
Mollen and Wilson (2010)	Website	Engagement	Interactivity, flow and involvement	Developed a framework with constructs: engagement, interactivity, flow, and involvement to measure consumer experience.
Stuer (1992)	Technological hardware (e.g., computer, head-mounted displays, and headphones.	Telepresence	Vividness and interactivity	Developed a definition of virtual reality and the application of virtual reality.

Store Atmospherics

According to Kotler (1973-1974), store atmospherics are formed from "the conscious designing of space to create certain effects in buyers" (p. 50). There are many atmospheric cues that influence consumers which are provided in brick-and-mortar stores as well as in online stores. The atmospheric cues mainly incorporate lighting, noises, smells, temperature, shelf space and displays, signs, colors, and merchandise (Peter & Olson, 2001). According to the authors, these are also called in-store stimuli. Peter and Olson suggested that store atmospherics are the major marketing tools which heighten consumers' sensory awareness, enhance their purchase probability, and influence their behavior (Chang, 2000). Peter and Olson described sensory awareness as resulting from the visual, aural, olfactory, and tactile experiences that stimulate consumers' senses upon entering a store.

Kim and Kim (2004) pointed out that many retailers perceive online stores as unappealing to a wide range of senses (e.g., smell, touch, sight, and so on) and as hindering consumers' ability to examine merchandise prior to making purchases. Kim and Kim pointed out that especially for sensory products like clothing, jewelry, and accessories, more than one of the five senses are used. In the absence of experience with merchandise through the senses, the elements involved in online store design such as background colors, fonts, images, logos, and shopping procedures become very important. In this study, color, brightness, size, and shapes are categorized as visual dimensions; volume and pitch represent the aural dimension; scent and freshness are part of the olfactory dimension; and softness, smoothness, and temperature are categorized as part of the tactile dimension.

Further, Kim and Kim (2004) classified atmospherics into the two categories of the intended atmosphere and the perceived atmosphere. The intended atmosphere is carefully

designed to stimulate consumers' senses via customizing particular color schemes or the lighting effects found in the store. In contrast, perceived atmosphere varies for different consumers. For instance, men are less attentive toward store atmospherics than women, because men are goal oriented and focused on merchandise only during shopping (Grewal, Baker, Levy, & Glenn, 2003; Otnes & McGrath, 2001). Also, people of different cultures associate particular colors with particular occasions. For example, in Asian cultures, the color of white is associated with funerals, and in the European or Western cultures, the black color is the funeral color. Essentially, perceptions about store atmosphere may be different to consumers of different cultures (Davis, Wang, & Lindridge, 2008). Therefore, the usage of this marketing tool depends largely on the place where the product is purchased or consumed. Normally, atmospheric elements like color, music, signboards, graphics, scents, and lighting are present in brick-and-mortar stores and can be utilized effectively.

On the other hand, many of these elements (e.g., scent or lighting) are not present in online stores. Shergill and Chen (2005) pointed out that online stores cannot fully replicate the ambience of a brick-and-mortar store. Thus, in the absence of some atmospheric elements from online environment, it is very difficult to create the effective and dynamic atmosphere to be similar to brick-and-mortar stores. However, the loss of the traditional in-store ambience can be compensated by the effective design of the online experience. For example, advancements in modern technology including flash player to provide 360 degree views of products, 3-D product displays, and zooming in to see products more closely in online stores aid in creating interactive atmospheres in online environments. Eroglu, Machleit, and Davis (2001) mentioned that websites are capable of providing full-color presentations. Likewise, Manganari et al. (2009) described color as an omnipresent element on websites. These elements are crucial in building a

positive online experience (Constantinides, 2004). Appropriate usage of color can enrich the online store layout and enhance the hedonic shopping experience to offer an ambience analogous to those found in brick-and-mortar stores (Hausman & Siekpe, 2009; Menon & Kahn, 2002). Algharabat and Dennis (2009) created a hypothetical website and provided 3-D product visualization, and they found that an authentic 3-D atmosphere within a website could help retailers succeed in providing realistic experiences to consumers. Algharabat and Dennis demonstrated that colors in a 3-D environment provide realistic experiences and positively affect behavioral intention. Thus, a properly designed website with suitable atmospheric elements, such as color, animation, and control, enriches consumer experiences (both hedonic and utilitarian) and facilitates consumers forming positive attitudes toward online retailers (Bellizzi & Hite, 1992; Childers, Carr, Peck, & Carson, 2001; Coyle & Thorson, 2001; Crowley, 1992; Fiore, Kim, & Lee, 2005b, Fiore, Yah, & Yoh, 2000; Wang, Hernandez, & Minor, 2010). Online store atmosphere is relatively a new area, especially in the context of online stores. Likewise, SL store atmospherics is an even newer concept needing to be explored in order to use SL stores for the purpose of retailing.

Table 2

Literature Involving Store Atmosphere

Researchers	Application	Constructs	Components	Results
Algharabat and Dennis (2009)	Website (3D product stimulus)	Atmosphere	S-O-R [Stimulus (color & control), organism(hedonic & utilitarian), responses (behavioral intentions)]	Atmospherics of a 3D virtual model adds more information, fun and enhances consumer responses towards the online retailer.
Bellizzi and Hite (1992)	Brick-and-mortar stores	Atmosphere	Colors (red and blue)	Studied differential effects of red and blue colors. The color blue positively affects purchase intention.
Eroglu et al., (2001)	Website	Atmosphere	S-O-R refers to Stimulus (online environmental cues), organism (internal states e.g., affect and cognition), and responses (shopping outcomes e.g., approach and avoidance)	Research implications are provided with the help of derived propositions.

(table continues)

Table 2 *(continued)*.

Researchers	Application	Constructs	Components	Results
Koo and Ju (2010)	Website	Atmosphere	Graphics, colors, menu, links	Colors and rest of the components have effect on consumer purchase intentions.
Kotler (1973-1974)	Brick-and-mortar stores	Atmosphere	Visual (colors, brightness, size, shapes); aural (volume, pitch); olfactory (scent, freshness); and tactile (softness, smoothness, temperature)	Atmospherics affect consumers' purchase intention.
Manganari et al. (2009)	Website	Atmosphere	Virtual layout & design, virtual atmospherics (background color, color scheme etc.), virtual theatrics, and virtual social preference.	Effective layout, atmospherics, and theatrics are marketing tools and determine consumers' overall responses.

Shopping Enjoyment

Shopping enjoyment in brick-and-mortar stores and in online stores has been broadly discussed by several researchers (Arnold & Reynolds, 2003; Carpenter & Moore, 2009; Guiry et al., 2006; Hsiao, 2009; Kim et al., 2007; Kim & Kim, 2008; Lee, Fiore, & Kim, 2006; Wolfinbarger & Gilly, 2001). However, this phenomenon has not yet been investigated with regard to SL stores. Hence, this section of the literature review addresses the importance of shopping enjoyment in SL stores.

A large number of authors found that shopping enjoyment is an important concept and prompts consumers to make impulse purchases (Guiry et al., 2006; Kim et al., 2007; Kim & Kim, 2008; Lee et al., 2006). According to Guiry et al. (2006), the hedonic consumers who are seeking pleasure are more likely to spend money shopping while the utilitarian consumers were not, irrespective of the channel of purchase. Dawson, Bloch, and Ridgway (1990) explained that shopping motives can encourage consumers to visit marketplaces, but consumers' purchase preferences largely depend upon the type of experiences they get in stores. Thus, hedonic consumers are more likely to notice the effect of retail attributes such as product display and store décor, which could affect their purchase intentions, although some authors revealed insignificant results (Kim & Stoel, 2004; Koufaris, 2002). Based on previous literature, Kim and Stoel (2004) identified six dimensions of website quality. Those six dimensions were web appearance, entertainment, informational fit-to-task, transaction capability, response time, and trust. Among these dimensions, only informational fit-to-task, transaction capability, response time were significant predictors of consumer satisfaction, and shopping enjoyment was an insignificant predictor. Similarly, Koufaris (2002) found that shopping enjoyment has no effect on consumers' unplanned purchases.

Shopping enjoyment has been studied by many researchers in the context of the 3-D virtual environment (Algharabat & Dennis, 2009; Daugherty, Li, & Biocca, 2008; Holzwarth et al., 2004; Jiang & Benbasat, 2007; Kim & Forsythe, 2008; Li et al., 2001). However, the above-mentioned findings did not relate to SL directly, but these studies incorporated the 3-D visualization of products (Daugherty et al., 2008; Jiang & Benbasat, 2007), that is, 3-D avatars (Holzwarth, Janiszewski, & Neumann, 2004) as a sales representative and virtual try-on technology (Kim & Forsythe, 2008) with 360 degree product views available in online stores. Algharabat and Dennis (2009) found that the 3-D virtual model provides a high level of enjoyment to consumers. Also, Fiore, Kim, and Lee (2005b) described virtual environments as heightening hedonic value such as enjoyment. Algharabat and Dennis designed an experiment which allowed participants to control the content and form of 3-D flash on a "pseudo" website of electronic products retailer. For example, participants could zoom in to take a closer look at a product or out farther to look at the product as a whole, rotate the product to view it in 360 degree angles. In addition, participants could change the colors of the products. Algharabat and Dennis concluded that enabling participants to control website contents (i.e., zoom in or out and rotate) increased the enjoyment element of the website and facilitated consumers' positive intentions toward the website. Similar to this study, many scholars reported that the 3-D virtual environment is the main contributor in enhancing shopping enjoyment (Heeter, 1992; Lombart & Ditton, 1997; Song, Fiore, & Park, 2007).

Childers et al. (2001) suggested that online shopping incorporates both hedonic and utilitarian factors. On this note, it could be assumed that the experience of shopping enjoyment can play a significant role in consumers' use of SL stores. Correspondingly, Kim and Forsythe (2007) mentioned that the main reasons behind consumers using 3-D product visualization are to

have more fun, enjoyment, and entertainment. Online retailers can add these fun elements by providing 360 degree rotations of products, zoom in or out, color change options, etc. However, in SL, retailers do not have to spend money on these technologies as the virtual environment has all these facilities inbuilt. Most of the SL residents use the virtual environment for fun and are more likely to notice the fun factor they associate with a store. Therefore, this research was focused on shopping enjoyment as experienced by SL residents.

Table 3

Literature Involving Shopping Enjoyment

Researchers	Application	Constructs	Components	Results
Algharabat and Dennis (2009)	Website	Atmospherics	S-O-R [Stimulus (color & control), organism(hedonic and utilitarian), responses (behavioral intentions)]	Atmospherics of a 3D virtual model adds more information, fun and enhances consumer responses towards the online retailer.
Daugherty et al. (2008)	Website	3D product visualization	Product knowledge, brand attitude, and purchase intention.	Use of 3D product visualization increases enjoyment.
Kim and Forsythe (2008)	Website	Virtual try-on technology	Information, interactivity, and entertainment	Virtual try-on technology increases entertainment value.
Kim and Stoel (2004)	Website	Dimensions of website quality	Web appearance, entertainment, informational fit-to-task, transaction capability, response time, and trust.	Informational fit-to-task, transaction capability, response time are significant predictors of shopping satisfaction.

Purchase Intention

Purchase intention is a measure of response behavior and consumer reaction to certain experiences (Daugherty et al., 2008). The main objective of applied social science or business research is to establish a relationship between the psychographic characteristics of individuals and the behaviors of these individuals (Young, DeSarbo, & Morwitz, 1998). Psychographic characteristics are related to personal values, attitudes, interests, and so on. For example, the goal of this research was to determine consumer purchase intentions from SL stores based upon their experiences and psychographic characteristics. Therefore, based upon measured consumer purchase intentions (via answers to questions asked in a questionnaire), this research tested whether consumers would purchase products if retailers actually sold real products through SL stores. However, in the real world it is not feasible to observe actual purchase behavior of individuals. Consumers' responses (i.e., self-reported purchase intention) in the survey about SL stores being used to sell real products were used as a proxy variable to predict consumers' actual purchase intentions. Therefore, on the basis of consumers' responses on the purchase intention scale, this research was used to explain consumers' SL store purchase intentions when using an SL store by a real life retailer selling its products.

Research Model

As a result of the ongoing developments in software technology, especially in high efficiency computers and high-resolution graphics, there are plenty of chances for SL to be adopted as a new retail channel. Also, constantly growing competition in the retail sector pushes retailers to avail themselves of new technologies such as SL. Having discussed the opportunities for retailing through SL in the previous sections, this study was used to identify crucial factors that might prompt consumers to make purchases from SL stores. Upon extensive research,

interactivity, store atmosphere, and shopping enjoyment were determined as the three dimensions of SL stores which influence consumers' purchase intentions. Most of the reviewed literature attributed store atmosphere and shopping enjoyment to purchase intentions. Also, interactivity was the main contributor to increasing consumers' online store purchase intentions. Since these factors are important in an online environment, the same features were adopted for SL stores. Thus, identifying the importance of SL store features toward consumers' purchase intentions, the study utilized interactivity, store atmospherics, and shopping enjoyment as the predictors of purchase intention in an SL store. The first predictor, interactivity incorporated the sub-features of control, two-way communication, and response-time. All these elements were combined into one construct called interactivity.

To study consumers' purchase intentions from SL stores, it was important to understand the influence of interactivity, store atmospherics, and shopping enjoyment on purchase decisions. In the case of online stores, even though they are capable of providing important information about their products effectively, they are unable to provide realistic product experiences to consumers (Daugherty et al., 2008). As a result, consumers experience a lack of the same interactivity they would experience in a brick-and-mortar store. This flaw of online retail stores has been somewhat eliminated by the 3-D environment (Daugherty & Biocca, 2009). Daugherty and Biocca emphasized that 3-D environments are capable of providing realistic or direct experiences like those found in brick-and-mortar stores. These direct experiences elevate consumers' purchase intentions from that store since the 3-D virtual environment allows consumers to interact with the product and to analyze the product carefully. According to Shim, Eastlick, Lotz, and Warrington (2001), consumers are likely to purchase a product through the same medium at which they have examined the product. Thus, consumers who are likely to

analyze the products in an SL store will probably make their purchases through the same SL store. Also, Kim et al. (2007) suggested retailers adopt 3-D virtual product presentation technology in their stores to attract and retain consumers. SL presents information completely through 3-D technology, including products, avatars, stores, and so on. Therefore, it would be beneficial to use SL for retailing instead of using expensive 3-D technology in online stores.

Kim and Kim (2004) stated that online stores have the potential to influence consumer purchase intentions if they are convinced that online shopping is interactive by providing rich information about the product and two-way communication and offering good store layouts in terms of quality graphics and pictures. Additionally, virtual image technology such as 3-D product visualization encourages consumers to shop online (Kim et al., 2007; Verton, 2001). The 3-D environment of SL and the colors used in SL stores create an entirely different atmosphere for consumers than the environments created through conventional online stores. Li et al. (2003) found that 3-D virtual product presentation technology outperformed 2-D pictorial presentation of a product. Thus, SL stores' atmosphere closely resembles those of brick-and-mortar stores.

Jin and Boleburch (2009) stated, "enjoyment in both offline and online shopping situations is critical" (p. 52). The 3-D virtual technology found in online stores increases consumers' experience of enjoyment during shopping and leads to increased online sales (Kim et al., 2007). This finding implies that due to the presence of the 3-D environment in an SL store consumers can enjoy shopping and experience increased purchase intention.

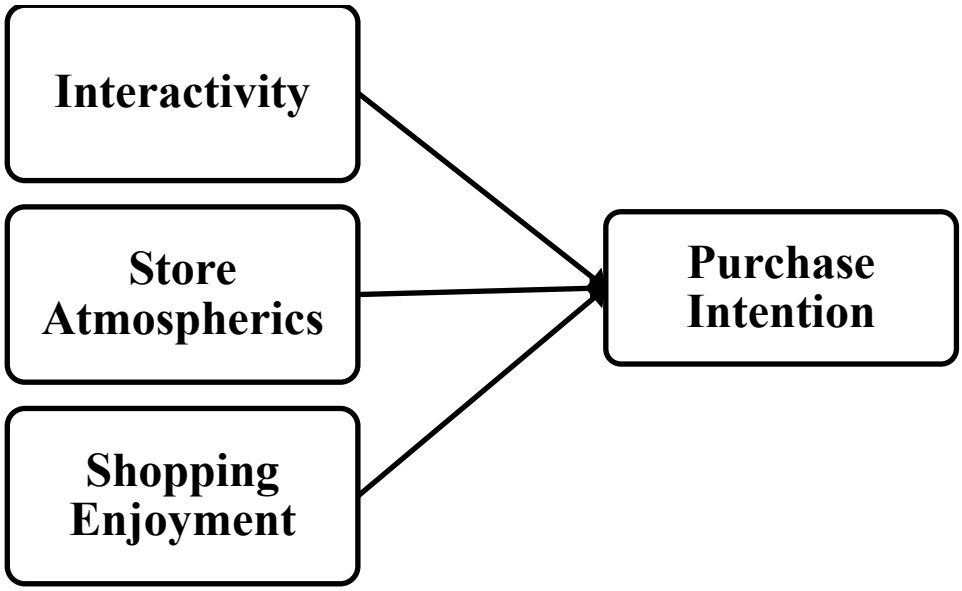

Figure 1. The impact of interactivity, store atmospherics, and shopping enjoyment on purchase intention.

Hypotheses

Influence of Interactivity on Purchase Intention

Previous studies demonstrated that online stores' interactivity influence consumers' purchase intentions and their satisfaction (Ballantine, 2005; Daugherty et al., 2008; Jiang & Benbasat, 2007; Lee et al., 2006). The timeliness of information provided on a retailer's website results in better interaction for consumers and has a significant effect on consumer satisfaction, as better interactivity of an online store allows consumers to have greater control over their shopping experiences (Algharabat & Dennis, 2009; Ballantine, 2005; Dholakia & Zhao, 2008). Constantinides (2004) defined interactivity as a combination of customer service and after sales interaction with company personnel and network effects. All these elements preexist in an SL store. Previous researchers revealed that interactive retail websites, with the inclusion of an animated character (or avatar) as a customer representative, increase consumers' purchase intentions (Häubl & Trifts, 2000; Holzwarth et al., 2004; Moon, 2000; Nass, Lombard,

Henriksen, & Steur, 1995). Therefore, on the basis of previous research and SL stores' preexisting features the first research hypothesis was stated as the following:

H_1: Interactivity of an SL store positively affects consumer purchase intention.

Influence of Store Atmospherics on Purchase Intention

Kotler (1973-1974) found that store atmospherics were important and decisive factors in determining consumers' purchase intentions. Thus, the background including wall colors and colors of the signboards used to highlight and display merchandise in an SL store are collectively used to define store atmospherics. Store atmospherics are an integral part of SL stores, which could be noticed consciously or subconsciously by a consumer and could impact consumers' purchase decisions. The literature review formed a foundation to select store atmospherics as predictors of purchase intentions.

Earlier researchers indicated that store atmosphere can influence consumers' purchase intentions when shopping in brick-and-mortar stores (Baker, Grewal, & Levy, 1992; Bellizi, Crowley, & Hasty, 1983; Kotler, 1973-1974; Milliman, 1982). Researchers have investigated store atmospherics in reference to color, lighting, or music and found that these aspects of store atmospherics significantly influence consumers' emotions (e.g., pleasure and arousal) and thereby affect their intentions to make purchases from a given store (Menon & Kahn, 2002). Taking into account the rapid technical innovations in the e-commerce arena and the use of the Internet for retailing, many researchers have focused on online store atmospherics (Manganari et al., 2009; Wu et al., 2008). Looking at the importance of store atmospherics in online store, it is important to examine the characteristics of an SL store's shopping environment. Therefore, this study included examining the effect of merchandise display colors (i.e., signboards) and the colors used to highlight the merchandise and to define important merchandise information in an

SL store on consumers' purchase intention. Therefore, the second research hypothesis was stated as the following:

H_2: Atmospherics of an SL store positively affect consumer purchase intention.

Influence of Shopping Enjoyment on Purchase Intention

Similar to shopping at a retail website, a consumer could find an SL store experience entertaining while shopping. The enjoyment could occur during product examination, during communication with an avatar sales representative, or due to the interactive environment of the SL store. Daugherty et al. (2008) stated that online stores have the ability to provide realistic experiences because the Internet creates a sense of interactivity and enjoyment. The realistic experiences results in increased product knowledge (since SL residents can observe the product in a 3-D environment) and behavioral change toward the product and the store. The realistic experiences provide users with a sense of control over the type of experience they can get and with their activities in SL. Daugherty et al. found that these types of virtual experiences with a product lead to increased purchase intentions. Therefore, the third predictor for this study was shopping enjoyment.

Shopping enjoyment is an important aspect of online shopping to retain consumers (Shergill & Chen, 2005). Shergill and Chen (2005) pointed that shopping enjoyment experienced in an online store is positively and significantly related to the intent to purchase from that website. According to Guiry et al. (2006), many consumers perceive shopping enjoyment as a recreational activity and enjoy the experience of being in the marketplace to make purchases. By taking into account SL stores' unique 3-D environment, the third research hypothesis was stated as the following:

H_3: Shopping enjoyment experienced in an SL store positively affects consumer purchase intention.

Summary of Literature Review

Currently, consumers are inundated with numerous shopping channel choices which include brick-and-mortar stores, catalogues, online stores, direct marketing, and television shopping. However, all of these channels have both advantages and disadvantages. For example, shopping in brick-and-mortar stores can be time consuming but allows consumers to enjoy the tangible aspects of shopping like touching and trying products prior to purchase. Additionally, brick-and-mortar shopping allows face-to-face interactions with sales associates and the ability to ask for assistance while shopping as well as experiences with store atmosphere and general social interaction opportunities. While online stores provide the advantage of product comparison, save time, and operate 24 hours a day, but they lack interactivity, atmosphere and enjoyment. It is very difficult in an online store to create the desired store atmospherics that engage consumers in the shopping experience. That means there is not much scope to differentiate one online store from another. However, many researchers have argued that enjoyment is not only an inseparable part of online shopping but also that enjoyment prompts consumers to make impulse purchases (Kim et al., 2007; Kim & Kim, 2008; Lee et al., 2006). On the contrary, some researchers found that enjoyment does not affect consumers' purchase decisions in the online atmosphere (Kim & Stoel, 2004; Koufaris, 2002). SL stores eliminate most of the drawbacks to catalog, brick-and-mortar, and online store shopping. Therefore, taking into account the three SL store features of interactivity, store atmosphere, and shopping enjoyment, this study was aimed at predicting consumers' purchase intentions to buy real products from SL stores. However, virtual environments such as SL are very complex to study.

This literature review was developed from studies based on brick-and-mortar and online stores. The three features of SL were reviewed in the context of SL, and a framework for SL stores was determined regarding the influence of SL stores' features on consumers' purchase intentions if a real-life retailer sells real products through these SL stores. Finally, in this literature review SL was analyzed from a different perspective in order to enable retailers to utilize SL as a new retail channel in the future.

CHAPTER 3

METHODOLOGY

The invention of three-dimensional (3-D) virtual technology in computer gaming industry in early 2000 gave birth to Second Life (SL). SL is a virtual world parallel to the real world and enables users (also called as avatars and residents) to perform all the activities similar to those they perform in the real world. Because SL has not been systematically researched, the lack of documentation about SL makes it even more difficult to utilize SL for retailing. Therefore, the current research addressed this gap in the literature. This study was aimed at determining some of the key features of SL that influence consumers' purchase intentions from the SL stores. Additionally, this study provided retailers a systematic approach to target consumers, or SL residents, by collecting their real life demographics and their brand preferences.

A framework along with three hypotheses was developed to achieve the above mentioned aims. This framework included the three independent variables of interactivity, store atmospherics, and shopping enjoyment and a dependent variable of purchase intention. Based on previous literature addressing online stores, a questionnaire was developed to measure all the three variables on a scale. Questionnaire development is discussed in detail in the Instrument section of this chapter. The sections of this chapter are comprised of the study's methodology and explain instrument development, target population and sample, SL demographics, followed by pre-test information and its results.

Instrument Development

A survey instrument was developed by adapting existing scales selected from the literature review. Based on the reviewed literature, the predictor variables were identified as interactivity, store atmospherics, and shopping enjoyment. The outcome variable in the study

was purchase intention (Table 4). The instrument included the demographic variables of gender, age, ethnicity, education level, and annual household income. The participants were encouraged to provide their personal views and shopping experiences in SL.

Table 4

Scales

Source	Variables	Scale
Liu (2003)	Interactivity	(originally 15-items)
Koo and Ju (2010)	Store Atmosphere (color)	3-items
Jiang and Benbasat (2007); Koufaris (2002)	Shopping Enjoyment	4-items
Burner et al. (2001)	Purchase intention	4-itmes
Gender, age, ethnicity, education level, annual household income	Demographics	11-items

Interactivity

The variable, interactivity was composed of the two underlying constructs of active control and two-way communication. The scale used to measure this variable was adapted from previous research (Liu, 2003). Originally, a 15-item scale was developed to measure the underlying constructs of interactivity in an online store. Further, three constructs of active control, two-way communication, and synchronicity were identified as the variables of interactivity. Each of these constructs was discussed in detail in the literature review section of this study. However, for the purpose of the study only 10 scale items were used.

Active control was a 4-item scale and measured consumers' ability to control the flow of information as well as their activities in an SL store. According to Liu (2003), in an interactive medium, consumers should be able to control their activities (i.e., shopping/browsing) in an online medium, and they should be able to choose freely what they are willing to do. For example, the scale had items such as "while I was shopping/browsing in this SL store, I felt that I had a lot control over my shopping experiences," "I could choose freely what I wanted to see," and "my actions decided the kind of experiences I got." The scale for two-way communication was a 6-item scale and measured SL stores' ability to facilitate two-way communication with consumers. Examples of the scale items were "this SL store is effective in gathering customer's feedback" and "this SL store facilitates two-way communication between the customers and avatar sales representative."

Store Atmospherics

Store atmospherics was measured on a 3-item scale. The atmospherics questions were adapted from Koo and Ju's (2010) scale and modified to better suit the purpose of this study. The actual scale was developed to measure the effects of several other components (e.g., graphics, links, menu, and color) of the SL store website on online purchase intention. For the purpose of this study, the "color" component was adapted from this scale. The statements for this scale were modified to address SL stores' visual displays, colors, and attractiveness. The scale items included items like "this store emphasizes newly displayed merchandise with distinctive colors," "the colors in this SL store are visually appealing," and "color coding" used in the SL store "highlights important content."

Shopping Enjoyment

Shopping enjoyment was measured using a 4-item scale (Jiang & Benbasat, 2007; Koufaris, 2002). The scale items were the following four statements: (1) "shopping experience is entertaining," (2) "shopping experience is enjoyable," (3) "shopping experience is exciting," and (4) "shopping experience is fun."

Purchase Intention

The intention to purchase from an SL store was measured using a 4-point scale adopted from a marketing scales handbook (Burner, James, & Hensel, 2001). Additionally, the participants were required to visit the pre-decided SL stores that were, Armidi and Gadore (in order to maintain the consistency in their responses). It was an important consideration in this study to ensure that all of the respondents had similar experiences in the stores they visited and since both of these stores were comparable and had similar price points, product categories (i.e., women's and men's apparel, shoes, and accessories), and store environments. It was deemed appropriate to select these two retailers.

All the responses were recorded on a 6-point Likert scale ranging from strongly disagree (1) to strongly agree (6). A 6-point Likert scale was adopted so that the participants could opt for either the positive or negative end of the scale. This scale also eliminated the chances of consumers being neutral, or not being on either side of the scale (Gwinner, 2009). The final survey is found in Appendix B.

SL Consumer Demographic Characteristics

Demographic information of SL consumers was collected for a descriptive purpose. The demographic section of the questionnaire consisted of the variables of gender, age, ethnic origin, level of education completed, and annual household income. Age was measured as a quantitative

variable and divided into groups. The seven age groups were the following: (1) 18-20 years old, (2) 21-23 years old, (3) 24-26 years old, (4) 27-29 years old, (5) 30-32 years old, (6) 33-35 years old, and (7) more than 35 years old. Ethnicity was measured in the following seven categories: (1) African-American, (2) Asian American, (3) Caucasian American, (4) Hispanic American, (5) Native American, (6) Bi/Multi-racial American, and (7) Other. Respondents were asked to report their education level according to the following: (1) High school, (2) Associate degree, (3) Bachelor's degree, (4) Master's degree, (5) Doctoral degree, (6) Professional degree, (7) Other. Income was measured as gross annual household income and were represented in the following 10 income intervals: (1) Less than $40,000; (2) $40,000-$59,999; (3) $60,000-$79,999; (4) $80,000-$99,999; (5) $100,000-$119,999; (6) $120,000-$139,999; (7) $140,000-$159,999; (8) $160,000-$179,999; (9) $180,000-$199,999; and (10) More than $200,000. At the end of the questionnaire, participants were asked to provide their comments or to describe their experiences in SL stores.

Population and Sample

All active SL residents who had purchased apparel, shoes, or accessories from the SL stores were the population of this study. However, to better meet the goals of the study there were pre-determined criteria for the sample of this study. The first criterion was to collect data from the participants in the age group of 18-35 years, that is, Gen Y consumers. A report on the SL demographic revealed that most of the SL residents or consumers belong to the age group of 25-34 years (Borst, 2009). The category Gen Y comprises of the people born between 1980 and 1994 (Unknown, 2009), who are completely immersed in a technology-rich culture and are considered "digital natives" or the "Net generation" (Benette, Maton, & Kervin, 2008; Prenksy, 2001; Tapscott, 1999). Gen Y consumers possess sophisticated knowledge and skills in suing

information technology. As a result of their upbringing coinciding with the latest interactive technologies and their experiences with technology, Gen Y consumers display different views, opinions, behaviors in terms of shopping preferences and styles from earlier generations of consumers. It could be concluded that this generation is immersed in technology and equipped with latest gadgets, latest technology and other support systems, such as money. Therefore, Gen Yers have turned toward the Internet, rather than spending time in malls, for their shopping which has motivated retailers to target Gen Y consumers on SL (Hrastnik, 2007). The population for this study consisted of Gen Y consumers who make purchases in the SL stores for their avatar's apparel and have sufficient knowledge to answer the questions. The second criterion for the study required that the respondents should be residents of the United States of America (USA), as the report by Borst (2009) showed that the majority of consumers in SL are from the USA. The purpose of targeting USA residents in SL was to maintain consistency within the sample. The third criterion required that the participants must be experienced shoppers in SL so that they could answer the survey questions. Therefore, the participants must have been SL residents for at least the past 6 months prior to the study and must have visited or made purchases from SL stores mainly for apparel, shoes, and accessories from SL retail stores. This criterion was set to ensure that the participants possessed sufficient knowledge about SL stores and were familiar with SL shopping in order to ensure they provided realistic data for this study.

Data Collection

Due to lack of responses it was not practical to approach SL consumers for administering the survey. Additionally, due to time differences between different time zones in different countries very few avatars can be seen on SL during day time (i.e., USA central time zone). Also SL users demanded very high compensation to participate in the study. Therefore, to collect data,

several organizations including Social Research Foundation (SRF), Market Truths Limited, and Qualtrics were contacted in October of 2009. Market Truths and Qualtrics quoted data collection expenses as high as $4,000. However, SRF offered a student discount and agreed do this project for $500 and provided $2 compensation to each panel member. SRF is a New York based non-profit organization that has been active in SL since 2003. This organization has conducted several studies, for example the 2008 Second Life Survey, to provide in-depth understanding of SL demographics and SL residents' shopping behavior (SRF, 2010). The 2008 Second Life Survey involved a detailed study of SL consumers and their perspectives on real-life brands in SL. From SRF's (2010) website the following information was gathered: In 2006, SRF launched the largest consumer research panel in SL, the First Opinion Panel, with about 13,000 members. The members of the First Opinion Panel were SL residents, who owned virtual land, spent and earned money in SL, were doing business via SL, and spent at least 2 hours a day in SL.

The requirements of the study and the survey as well as the demographics of SL residents were discussed with SRF's CEO Mr. Andrew Mallon over a period of 10 months while the survey design was in progress. When the survey was ready to launch in September 2010, Mr. Mallon reviewed his panel list to satisfy all the criteria of this study. On October 12, 2010, Mr. Mallon said they did not have sufficient panel members that satisfy the criteria of this study of collecting data only from Gen Y consumers and American residents. SRF declined to conduct data collection. Even though all of these demographic requirements were discussed and given to Mr. Mallon in written consent SRF form (see Appendix C), in a telephonic conversation he said that many of the panel members had left SL due to inactivity of the retailers in this virtual world. The issue was discussed with the committee members (Dr. Bharath Josiam and Dr. Sanjukta Pookulangara) overseeing this study and a collective decision was made to include all age groups

and to use participants from different countries. As for the sample being representative of the population, it must be selected from the population (Rumsey, 2003). Also, because the population of SL itself is very diverse, the restriction in age was removed which expanded the demographic profile of the participants. This decision was based on the fact that the population of this study was SL residents who could be anybody from anywhere, and as long as they were active in SL and residing in SL for at least past 6 months, they were eligible to participate. Finally, SRF's CEO Mr. Mallon agreed to undertake the project and was hired to collect data for this study. The final copy of the survey was sent to Mr. Mallon on October 14, 2010. Later, Mr. Mallon suggested changing few technical terms used in the survey considering the fact that the panel members/participants might not understand those terms. The survey was launched on October 26, 2010. The survey launch period was longer than anticipated due to the delay in survey testing. The data from 250 respondents was collected over the period of 12 days (10/26/2010 to 11/8/2010). Each participant was awarded a compensation of L$500 ($1 USD = L$250) to complete the questionnaire. SRF was responsible for compensating the participants upon completion of the questionnaire. They collected the participants' SL avatar names and email addresses to distribute the compensation. The L$500 awards were directly deposited to participants' SL accounts after they completed the survey.

The simple random sampling technique was used for data collection, and 250 participants were randomly selected from SRF's list of panel members. This technique was helpful to collect data representative of the population. In this technique, every member of the population had an equal opportunity of being selected to be part of the sample (Rumsey, 2003). The focus of this study was all the SL residents who spend money and time in SL; therefore, the random sample technique was useful for this study.

Pre-Test

To test the scale reliability and content validity of the questionnaire a pre-test was conducted. The instrument was developed by adapting scales from previous studies as well as by modifying the scales completely so that they were suitable for SL. Thus, it was important to conduct the pre-test to confirm the content validity and reliability of the modified scales prior to final data collection.

Validity is a pivotal factor in the selection and application of a scale in an instrument. Validity is the extent to which an instrument measures what it is intended to measure (Lynn, 1986). Lynn (1986) stated that "content validity is the determination of the content representativeness or content relevance of the elements/items of an instrument" (p. 382). The content validity of the instrument was verified by having the committee members, who were familiar with the subject and helped design the instrument, confirm the items measured the scales as intended. By taking their recommendations into account, changes were made to the instrument.

Reliability is the ability of a scale (measure or questionnaire) to produce consistent results when the same variables are measured under the same conditions. Cronbach's alpha (α) is a measure of reliability and indicates the overall reliability of a questionnaire. Values of α that attain about .8 are considered good and indicate that given the same conditions the questionnaire would reproduce the same results.

The pre-test data were collected using a convenience sampling technique. All of the undergraduate students (n = 100) majoring in the merchandising field were the population of this pre-test. The purpose for selecting merchandising students was that they were studying fashion and retailing and possessed sufficient knowledge to answer the research questions. Due to time

and money constraint, it was not possible to seek SL residents to participate in this pre-test. As some sort of incentives are always helpful to raise motivation to participate in surveys (Church, 1993), in order to motivate students and increase participation in the pre-test study, the pre-test participants were awarded extra credit points upon completing the survey.

The questionnaire was developed using the Qualtrics Survey Pro tool. Surveys can be easily and quickly created using this tool. This instrument was carefully designed to make it user-friendly, including the incorporation of a progress-indicator. The progress-indicator made it easy for participants to estimate the length of the survey and motivated participants to complete the survey (Couper, Traugott, & Lamias, 2001). This survey tool allowed the researcher to create a survey link which could be further distributed to the participants. The link to the questionnaire, along with the cover letter (see Appendix A), was uploaded on the online section of the classes. The cover letter explained that participation was voluntary and that confidential information about the participants will never be disclosed. Prior to uploading the survey link on the online section of the classes, the professors were requested to ask students if they have ever used SL before in their classes. It was noticed that many of the participants showed ignorance about SL, so the cover letter included a brief introduction of SL, steps to download SL, and the web addresses of the SL stores (via links to the Armidi and Gadore stores). Since the participants of this pre-test were Gen Y consumers, it was assumed that participants would be conversant with online/virtual shopping and was expected that they would be comfortable completing the online survey. To experience the ambience of the SL stores, participants were asked to visit the two pre-selected stores in SL. Accordingly there were two different questionnaires for the two different stores. Although all the content was same for both stores' surveys, only the store names were changed so as to remind the participants the name of the store they had just visited. As

explained in previous section, two different yet comparable SL stores were selected, Armidi and Gadore. The participants were randomly assigned to the two different surveys so that 50% of them visited the Armidi store and 50% visited the Gadore store and filled out the questionnaire in reference to the respective SL store they visited.

The pre-test started at the end of July of 2010. But the time frame of the pre-test was extended due to the low response rate and low enrollment in the 2010 summer semester. Thus, upon the commencement of fall semester, the pre-test was launched again. Total of 108 responses (with 100 being usable) were collected from August 15, 2010 through September 30, 2010. Although the number of responses was low, but the amount was acceptable to conduct factor analysis. According to Guadagnoli and Velicer (1988), a sample size of 100 to 200 responses is sufficient for factor analysis.

The data collected for this pre-test were analyzed using SPSS version 18.0 for factor analysis and reliability. Pre-test is basically a final stage in questionnaire design which ascertains how well the questionnaire works (Hunt, Sparkman, & Wilcox, 1982). The three independent variables pre-tested were interactivity, store atmosphere, and shopping enjoyment. The one dependent variable pre-tested was purchase intention. Upon exploratory factor analysis, the variable of interactivity was split into two different constructs. The two components became two-way communication and control.

According to Nunnaly (1978), the higher the value for the Cronbach's α coefficient, the more reliable the scale is. Nunnaly indicated that the value of 0.7 is an acceptable reliability coefficient but that lower values of the Cronbach's α can sometimes be seen in literature. Scale reliabilities for the two components of two-way communication and control ranged from .71 to .67. This scale was found to be consistent with the literature (Ballantine, 2005; Dholakia & Zhao,

2009; Liu & Shrum, 2002; Liu, 2003; McMillan & Hwang, 2002). The store atmosphere scale was unidimensional, and the reliability was .89. The shopping enjoyment scale was found to be unidimensional, and reliability was .98.

The reliability results showed that the scales are consistent and able to differentiate between different components. The pre-test results showed no inconsistencies in the reliability of the scales, and no modifications were needed. The reliability of all of the scales was high except for the control factor of the interactivity scale, which could be due to the lower number of items in the scale. The reliability and factor analysis results showed that the survey instrument was reliable. Therefore, the survey was utilized for final data collection without any changes. The finalized questionnaire was sent to the SRF research agency for data collection.

CHAPTER 4

RESULTS

A total of 255 responses were collected from Second Life (SL) residents. The demographic information of SL residents is described in the first section. The data analysis section of this study is comprised of demographic details of the sample, factor analysis, and the reliability of the dependent and independent variables followed by multiple regressions.

Sample Demographic Characteristics

Among 275 panel members, 255 completed the survey with a response rate of 92.7%. There were 249 usable surveys. Almost half of the respondents were above 35 years old (40.1%), and the majority of the participants were female (54.6%) and Caucasian (61.0%). Twenty-seven percent of this sample was comprised of foreign nationals from Britain, Australia, Europe, and South America. The foreign national category had the second highest number of respondents. Also, most of the respondents have completed high school (31.3%) and about 28% had completed a bachelor's degree. About 35% of the respondents earned below $40,000 annually, and about 27% earned incomes in the range of $40,000 to $59,999 (Table 5).

Table 5

*Demographic Characteristics of the Respondents (*N*=249)*

Variables	Total sample	
	Frequency	%
Gender		
Male	113	45.4

(table continues)

Table 5 *(continued)*.

Variables	Total Sample	
	Frequency	%
Female	136	54.6
Age		
18-20	18	7.2
21-23	29	11.6
24-26	30	12.0
27-29	27	10.8
30-32	18	7.2
33-35	27	10.8
More than 35 years old	100	40.1
Ethnicity		
African-American	3	1.2
Asian-American	8	3.2
Caucasian-American	152	61.0
Hispanic-American	7	2.8
Native-American	6	2.4
Bi/Multi-Racial-American	5	2.0
Other	68	27.3
Education		
High School	78	31.3

(table continues)

Table 5 *(continued)*.

Variables	Total Sample	
	Frequency	%
Associate Degree	39	15.7
Bachelor's Degree	69	27.7
Master's Degree	24	9.6
Doctoral Degree	8	3.2
Professional Degree	12	4.8
Other	19	7.6
Income		
Less than $40,000	88	35.3
$40,000-$59,999	65	26.1
$60,000-$79,999	26	10.4
$80,000-$99,999	27	10.8
$100,000-$119,999	25	10.0
$120,000-$139,999	7	2.8
$140,000-$159,999	3	1.2
$160,000-$179,999	2	.8
$180,000-$199,999	1	.4
More than $200,000	5	2.0

Other External Variables

Table 6 summarizes the descriptive statistics of SL usage per week; time spent on shopping in SL stores; number of years shopping in SL; amount of money spent on shopping via SL, catalog, online stores, and brick and mortar stores in the past 6 months; and up to five real life brands seen or purchased in SL. Approximately 46% of the respondents logged into SL one to two times per week to shop, 45% spent 3 to 5 hours on shopping or browsing in SL stores, and half of the respondents (55.8%) had been shopping via SL stores for the past 3 to 4 years. About 24% of the respondents mentioned that they had purchased brands like Nike from SL stores, and 16.9% purchased Adidas brand from SL stores.

Table 6

*Descriptive Statistics of the Respondents (*N*=249)*

Variables	Total sample	
	Frequency	%
Number of times logged into SL/week		
1-3	115	46.2
4-6	49	19.7
7-9	35	14.1
10-12	12	4.8
More than 12 times	27	10.8
Other	11	4.4
Time spent on shopping in SL/visit		

(table continues)

Table 6 *(continued)*.

Variables	Total sample	
	Frequency	%
1-2 hours	93	37.3
3-5 hours	112	45.0
6-10 hours	33	13.3
11-15 hours	5	2.0
16+ hours	3	1.2
Other	3	1.2
Number of years since shopping in SL		
Less than 1 year	24	9.6
1-2 years	65	26.1
3-4 years	139	55.8
5-6 years	17	6.8
More than 6 years	4	1.6
Other	0	0

Statistical Analysis

Several statistical methods were employed, such as frequency distribution, descriptive statistics, factor analyses, multiple regression analyses using SPSS, Inc., version 18. Principal component analyses with varimax rotations were used for the multi-item scales in order to identify the underlying dimensions of the scales: interactivity of SL stores, SL store atmospherics, shopping enjoyment in SL stores, and purchase intentions from an SL store. The factors loading below .40 were eliminated from the scales. Stevens (1992) suggested that the

cut-off point of .40 was appropriate for interpretative purposes in that loadings greater than .40 represent substantive values.

It is very useful to check the reliability of a scale post factor analysis. Reliability means a scale should consistently reflect the construct it is measuring (Field, 2005). Cronbach's alpha (α) is the measure of scale reliability. Each scale was tested for reliability and content validity. Overall, the scales were internally consistent.

After conducting factor analyses and reliability, mean scores of each scale (i.e., interactivity, store, atmospherics, shopping enjoyment, and purchase intention) were computed to form new variables. The function "compute" under the "transform" tab in SPSS was used to create new variables. This function allows carrying out any number of calculations on the variables. New variables were created by adding all the items which loaded on the same factor and then dividing by the number of items, resulting in mean score to represent the variable. The newly formed variables then appeared in a new column in the data editor window. These new variables were utilized as the independent and dependent variables in the regression model.

Hypotheses H_1, H_2, and H_3 were tested by using stepwise multiple regression analysis. The purpose of multiple regression analysis is to find the linear combination of the independent variables that correlate maximally with the dependent variable. A stepwise regression identifies the independent variable that best predicts the dependent variable. In stepwise regression the independent variable having highest correlation with the dependent variable is selected first. This way the independent variables, which are strongly correlated with the dependent variable are selected in order of strength and statistically insignificant variables are excluded from the regression model.

Identification of Underlying Dimensions: Principal Component Analysis

Principal component analysis using varimax rotation was initially performed to identify the dimensions of the scales used in the study. The analyses revealed two underlying dimensions of interactivity of SL stores as control and two-way communication. Whereas, SL store atmospherics, shopping enjoyment, and purchase intention from SL stores were unidimensional scales. The results of the factor analysis with the calculated Cronbach's α scores are provided in Table 7.

Table 7

Factor Analysis

Factor	Scale items	Factor loading	Eigen value	Explained variance (%)	*α*
Two-way communication			3.04	34.8	.79
	Facilitates two-communication between the customers and avatar sales representatives	.819			
	Effective in gathering customer's feedback	.795			
	Processed my requests very quickly	.755			
	Provides information very quickly	.705			
Control			1.35	16.6	.68

(table continues)

Table 7 *(continued).*

Factor	Scale items	Factor loading	Eigen value	Explained variance (%)	α
	Choose freely what I wanted to see	.867			
	Had a lot of control over my shopping experiences	.849			
	My actions decided the kind of experiences I got	.574			
Atmospherics			.192	64.1	.72
	Displayed merchandise with distinctive colors	.862			
	Colors are visually appealing	.774			
	Highlight important content	.763			
Shopping			3.32	82.99	.93
enjoyment	Shopping experience is entertaining	.906			
	Shopping experience is enjoyable	.920			
	Shopping experience is exciting	.888			
	Shopping experience is fun	.929			

(table continues)

Table 7 *(continued)*.

Factor	Scale items	Factor loading	Eigen value	Explained variance (%)	α
Purchase intention			2.15	52.38	.68
	I intend to buy from SL store within next 3 months	.862			
	I intend to buy from this SL store	.774			
	I will continue to use SL stores for shopping in the future	.763			
	I will use the SL store rather than website for shopping	.477			

Likert scale range: 1 = strongly disagree; 6 = strongly agree

Interactivity

The results of principal component analysis revealed two dimensions of interactivity scale (see Table 7). The two dimensions were labeled as two-way communication and control. The results of factor analysis and the calculated Cronbach's αs are shown in Table 7. The scale was a modification of a previously developed scale by Liu (2003) for online stores. The researcher developed a 15-item scale and identified three underlying dimensions of interactivity which were two-way communication, active control, and synchronicity. However, only the two dimensions of two-way communication and control were taken into account as per the features available in SL stores and thus items pertaining to synchronicity were removed, and the scale

was reduced to 10 items. Both the dimensions found through factor analysis, i.e., two-way communication and control were consistent with the literature (Ballantine, 2005; Liu, 2003).

The first factor of two-way communication (α = .79, explained 34.7% of variance) was comprised of four items related to two-way communication between consumers and avatar sales representatives, feedback gathering from consumers, and information processing time in an SL store. This dimension included items such as "facilitates two-way communication between the customers and avatar sales representatives," "effective in gathering customer's feedback," and "Provides information very quickly."

The second factor of active control (α = .68, explained 62.8% of variance) included items related to control over the activities performed in an SL store. This dimension included items like "choose freely what I wanted to see," "had a lot of control over my shopping experiences," and "my actions decided the kind of experiences I got." The interactivity scale showed two components; therefore, hypotheses H_{1a} and H_{1b} were factored from H_1. The new hypotheses formed were:

H_{1a} *Two-way communication in an SL store positively affects consumer purchase intention.*

H_{1b} *Active control in an SL store positively affects consumer purchase intention.*

Store Atmospherics

The scale store atmospherics (α = .72, explained 64.1% of variance) was found to be unidimensional. This scale was related to store interior colors, colors used to display or highlight merchandise so that it can grab consumers' attention (Table 7). This factor was measured by the following three items: "displayed merchandise with distinctive colors," "colors are visually appealing," and "highlight important content."

Shopping Enjoyment

This scale was unidimensional (α = .93, explained 83% of variance). The scale was related to enjoyment experienced during shopping in an SL store. It was a four-item scale. The four items were: "shopping experience is entertaining," "shopping experience is enjoyable," "shopping experience is exciting," and "shopping experience is fun."

Purchase Intention

The purchase intention scale was unidimensional (α = .68, explained 52.4% of variance). The scale was comprised of four items such as "I intend to buy from SL store within next 3 months," "I will continue to use SL stores for shopping in the future," and "I will use the SL store rather than website for shopping."

The next step was to compute the mean scores of each factor found. Since there were two underlying factors of the scale interactivity, the mean scores of each factor were computed separately and were named as two-way communication and active control. Similarly, mean scores for the rest of the scales were computed.

Preliminary Data Screening

Skewness and kurtosis were the measures utilized to identify outliers. Skewness refers to asymmetry of the distribution. A distribution with an asymmetric tail extending out to the right is referred to as "positively skewed" or "skewed to the right," while a distribution with an asymmetric tail extending out to the left is referred to as "negatively skewed" or "skewed to the left." A symmetric distribution of the data will have skewness value that is close to zero or is zero. Skewness can range from minus infinity to positive infinity. Kurtosis is a measure of the "peakedness" of the distribution. If the data are within the range of $\pm$3 then the kurtosis is

acceptable. Frequencies with kurtosis and skewness values and histograms with normal curve overlay were used to identify the outliers.

The data were examined for outliers prior to analyses of the hypotheses. The values for skewness and kurtosis were in the acceptable range. Thus, it was assumed that the continuous variables were normally distributed.

Data Analysis: Testing the Assumptions of Multiple Regression

The data were further analyzed to check the assumptions of multiple regression analysis. To test the first assumption of normality, visual examination of the histogram with normal curve overlay as well as skew and kurtosis values for each variable (Table 8) were completed. Non-normally distributed variables (highly skewed or kurtotic variables or variables with substantial outliers) can distort relationships and significance tests (Osbborne & Waters, 2002). All of the variables were normally distributed, and the assumption of normality was met.

Table 8

Skewness and Kurtosis for the Data

Variables	Skewness	Kurtosis
Two-way-com	.023	.130
Control	.884	1.401
Atmos	-.500	.289
Enjy	-.478	.397
Purch_Inten	-.172	.198

For the second assumption, the linear relationship among the predictors and the ultimate performance was examined. Standard simple and/or multiple regressions can accurately estimate

the relationship between dependent and independent variables only if the relationships are linear in nature. If the relationships between independent variables (IVs) and the dependent variable (DV) are not linear, the results of the regression analysis will under-estimate the true relationship (Osborne & Waters, 2002). All of the variables were plotted linearly against the dependent variable (Figure 2).

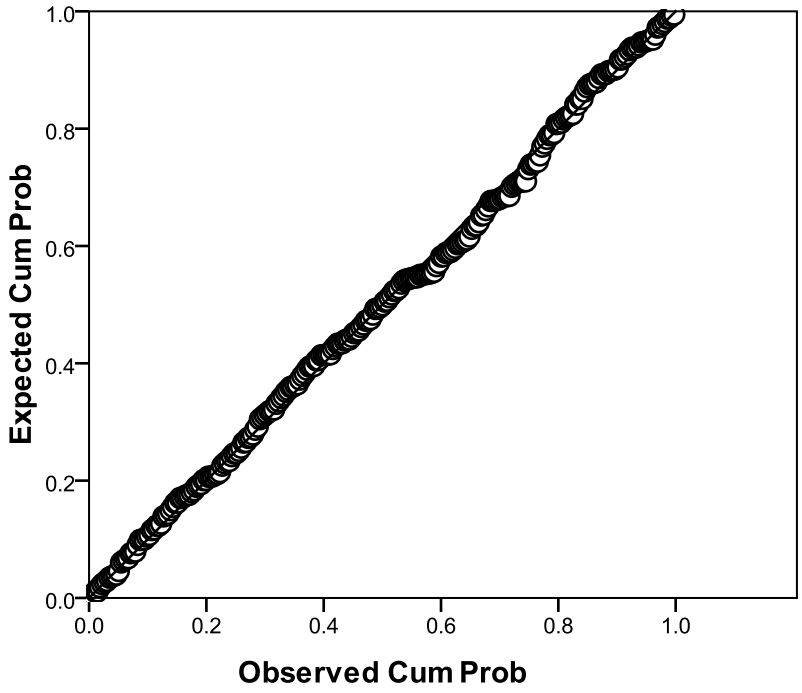

Figure 2. Normal P-P plot of purchase intention.

The third assumption was to analyze the variables for homoscedasticity, which means that the independent variables should have the same variance. The scatter plot of standardized residuals and standardized predicted values was examined for evenly distributed errors across the predicted values. Homoscedasticity means that the variance of errors is the same across all levels of the independent variable. This assumption can be checked by visual examination of a

plot of the standardized residuals (the errors) by the regression standardized predicted value, but when the variance of errors differs at values of the independent variables, heteroscedsasticity is indicated because the residuals are not evenly scattered around the line (Osborne & Waters, 2002). Figure 3 confirms that the assumption of homoscedasticity was met.

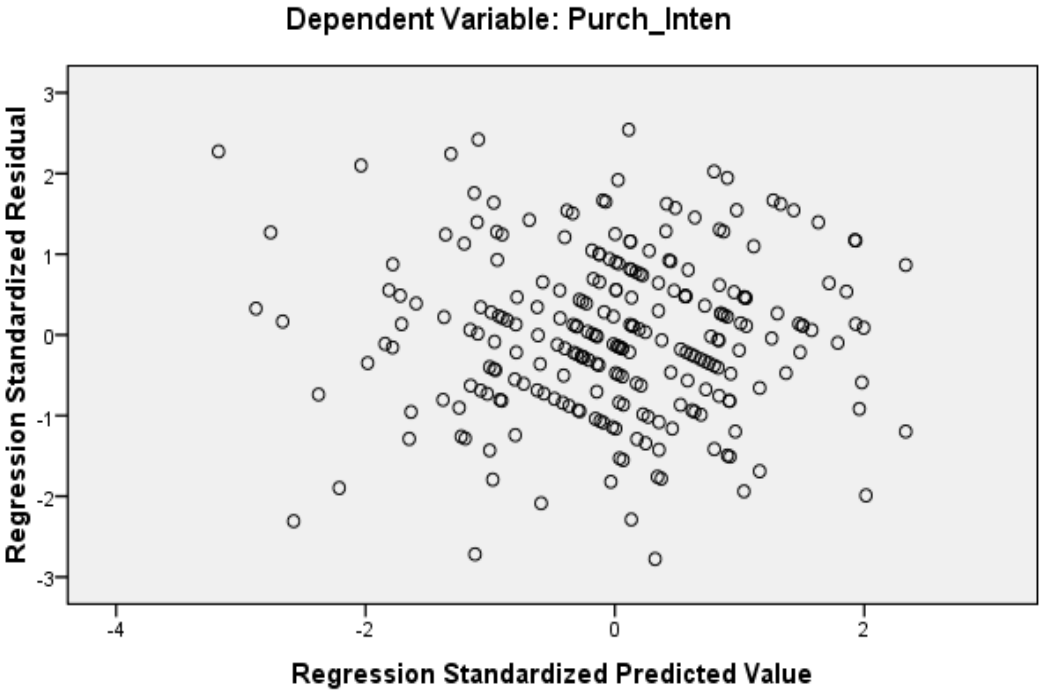

Figure 3. Scatter plot of the standardized residuals (the errors) by the regression standardized predicted value.

The last assumption of no multicollinearity states that there should be no perfect linear relationship between two more of the independent variables. This assumption was checked by conducting bivariate correlations among the independent variables (Table 9). In social sciences, if the value of Pearson's correlation coefficient (*r*) is more than .90, the coefficient indicates the presence of multicollinearity (Tabachnick & Fidell, 1996). There was no multicollinearity found among the variables.

Table 9

Correlations Among the Independent Variables

Scale	Two-way Communication	Control	Atmosphere	Enjoyment
Two-way Communication	-			
Control	.357**	-		
Atmosphere	.437**	.270**	-	
Enjoyment	.547**	.345**	.616**	-
Purchase Intention	.406**	.186**	.350**	.600**

Note. * $p < .05$, ** $p < .01$, ***$p < .001$.

Hypothesis Testing: Multiple Regression

Multiple regression analyses were conducted to examine the hypotheses H_{1a}, H_{1b}, H_2, and H_3. To generate a parsimonious result, the regression analysis was analyzed using the stepwise method. Stepwise multiple regression is one of the several methods available to compute ordinary least square regression in stages. In stage 1, the independent variable best correlated with the dependent is included in the equation. This is followed by entering the second variable of the remaining independent variables with the highest partial correlation with the dependent, controlling for the first independent, and so on. This process is repeated at each stage, partialling for previously-entered independents, until the addition of the remaining independent variables do not increase R^2 by a significant amount (Garson, 2008). Among the three hypotheses, only H_{1a} and H_3 demonstrated significant models (Figure 4).

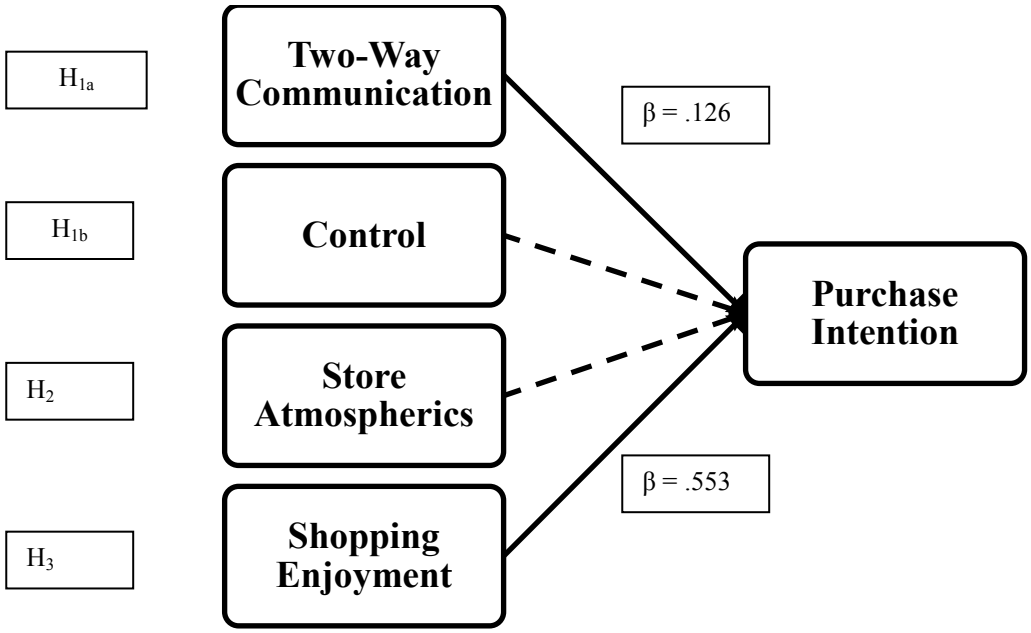

Figure 4. SL store features and purchase intention: * $p < .05$, ** $p < .01$, ***$p < .001$; ⟶ hypothesis accepted; - - -▶ hypothesis rejected.

To test hypotheses H_{1a} and H_{1b}, the dimensions of interactivity were employed as independent variables and the dependent variable continued to be purchase intention from an SL store. These two hypotheses were used to examine whether the two interactivity dimensions predicted consumer purchase intentions. The regression model (as seen in Table 10) significantly explained consumers' purchase intentions via SL stores ($F_{(4, 245)} = 38.02$, $p < .001$, adjusted $R^2 = 35.6\%$). The first independent variable, two-way communication, was a significant predictor of consumers' purchase intentions from an SL store ($\beta = .126$, $p < .05$). However, the second dimension of interactivity, control, was an insignificant predictor of the dependent variable ($\beta = .021$, $p > .05$). Therefore, research hypothesis H_{1a} was supported but research hypothesis H_{1b} was rejected.

Table 10

Regression Model for Hypothesis H_{1a}

Variables	Parameter Estimates	SE_b
Predictors of Purchase Intentions from an SL store		
Two-way communication (H_{1a})	.126*	.055
Control (H_{1b})	.021	.049
Atmospherics (H_2)	-.029	.065
Shopping Enjoyment (H3)	.553***	.063

Note. Adjusted R^2 = 35.6%; F = 38.02***; * $p < .05$, ***$p < .001$.

The third research hypothesis was used to examine whether the store atmospherics of SL stores predict consumer purchase intention. This variable was not a significant predictor of purchase intention ($\beta = -.029$, $p > .05$). Hence, research hypothesis H_2 was rejected.

The independent variable, shopping enjoyment, was a significant predictor of purchase intention from SL stores ($\beta = .553$, $p < .001$). This variable was most significant predictor of purchase intention from an SL store with the highest beta coefficient value. Thus, research hypothesis H_3 was supported. Therefore, according to the standard regression equation,

$$Y_i = (b_0 + b_{1a}X_{1a} + b_{1b}X_{1b} + b_2X_2 + \ldots + b_nX_n) + \varepsilon_i$$

where, Y_i is the predicted variable, b_0 is constant, b1 is the coefficient of the first predictor (X_1), b_2 is the coefficient of the second predictor (X_2), b_n is the coefficient of the nth predictor (X_n), and ε_i is the error or the difference between the predicted and the observed value of Y for the i^{th} participant,

$$(\text{Purchase Intention})_{249} = 2.183 + .126(\text{two-way communication})_{249} + .021(\text{control})_{249} + (-.029)(\text{store atmospherics})_{249} + .553(\text{shopping enjoyment})_{249} + .272$$

CHAPTER 5

SUMMARY AND DISCUSSION

The three main features of Second Life (SL) stores, interactivity, store atmospherics and shopping enjoyment, were examined in this study. Further, the effect of these three features of SL stores on consumers' purchase intentions was analyzed. Previous literature related to online stores indicated that all the three identified features have a significant impact on consumer purchase intentions (Algharabat & Dennis, 2009; Guiry et al., 2006; Li et al., 2003). Therefore, to examine the effect of these three features on consumers' purchase intentions from SL stores, a regression model was built. The independent variables were interactivity, store atmospherics, and shopping enjoyment, while purchase intention was the dependent variable. Upon statistical analysis two out of the four hypotheses corroborated the significant impact of two-way communication and shopping enjoyment on consumer purchase intention in an SL store. These findings indicated that two-way communication and shopping enjoyment both are the primary drivers that prompt consumers to purchase from SL stores. Therefore, new marketing strategies must be developed around these two SL store features to utilize this medium for retailing and marketing real life products.

Interactivity

Two-way Communication

Two dimensions of interactivity were revealed in the factor analysis: two-way communication and control. Therefore, H_1 was segregated into two parts i.e., H_{1a} and H_{1b}. On the basis of the results obtained from multiple regression analysis, H_{1a} (two-way communication in an SL store positively affects consumer purchase intention) was supported ($\beta = .126$). Two-way communication is a significant predictor of consumer purchase intentions from an SL store.

Two-way communication facilitates reciprocal interaction between a store sales representative and the consumer. In case of SL, two-way communication is similar to real interaction between the individuals, because a consumer's avatar can experience face-to-face communication aided with voice chat. This interaction in SL is very different than the interaction in online stores, where important features of SL, such face-to-face and voice chat, are absent. For an online medium to be able to provide realistic experiences to consumer, two-way communication is an extremely important feature. For example, Chen and Yen (2004) indicated that interactivity is effective when it provides real-time communication and in an MMORPG interface such an SL store; interactivity is possible due to voice chat and presence of avatar sales representatives.

The results of this study revealed that the presence of an avatar in SL increased product involvement and positive involvement toward a product. Online stores and online banking services provide customer assistance by text chat and thus consumers experience lack of interactivity because they cannot see the sale assistant face-to-face, on the other hand sales representative's avatar in SL is visible during instant messaging or voice chat. The presence of an avatar in a three dimensional (3-D) environment, such as SL, is a very promising communication channel for brand marketing and advertising (Jin & Bolebruch, 2009). Jin and Bolebruch's (2009) study supported the above findings that two-way communication increases purchase intentions from an SL store.

The results of this study provide empirical evidence that the presence of avatars as sales representatives in SL stores support two-way communication (i.e., real-time interaction) and thus increases interactivity. Other than the absence of sales representatives in online stores, another reason for lack of interactivity in online stores is time lag (Che & Yen, 2004). This drawback is eliminated by SL's voice chat option, up to a certain extent, because customers do not have to

wait for the text response from the sales representatives. Overall, the exchange of information in SL is instant. Therefore, two-way communication is a significant predictor of consumer purchase intention in SL.

Control

One of the reasons for the rejection of H_{1b} research hypothesis of "active control in an SL store positively affects consumer purchase intention" could be that the users were already familiar with navigating the website or online environments similar to SL. Hence, control over navigation might not lead to a significant predictor of purchase intention from an SL store. The results indicated that SL residents may have already achieved good control over the SL virtual environment.

According to Coyle and Thorson (2001) the variable control depends upon an individual's experience with computerized media. Greater levels of user experience with computer or online environments result in positive attitudes toward online environments. In this study, participants were asked few questions about their familiarity with SL. The participants were asked how many hours per week they spent in SL. Another question asked them the number of years since shopping in SL. Among all of the participants, 45% spent 3 to 5 hours shopping in SL in a single visit and about 56% had been using SL for shopping for the past 3 to 4 years. The participants in the 3 to 4 years category were considered to be a highly experienced SL group of users. The answers indicated that the participants were well familiarized with the SL environment and able to control their subsequent actions in SL.

Liu (2003) defined control as the user's ability to participate in a communication. The users' high experience with SL supports the fact that the users could comfortably participate in communication within the SL environment and did not place importance on control factors in

SL. Similarly, Novak, Hoffman, and Yung (2000) demonstrated that the extent of use (i.e., experience) leads to greater skills at using the Internet or computers and directly affects users' control. Skills refer to the consumer's ability for action during the online navigation process. Therefore, for users able to navigate (i.e., perform actions or play games) in a complex 3-D virtual environment like SL, control is not be significant predictor of purchase intention.

Store Atmospherics

The statistical analyses of this study showed that store atmospherics have no effect on consumer purchase intentions from an SL store and the hypothesis H_2 of "store atmospherics have positive effect on consumer purchase intentions from an SL store" was not substantiated. Store atmospherics in this study referred to the "color" used in SL stores and did not affect consumers' purchase intentions from an SL store. The findings contradict earlier research in which color was an important variable that could impact consumers' decisions during shopping (Hausman & Siekpe, 2009; Kotler, 1973-1974; Manganari, et al., 2009; Menon & Kahn, 2002).

In this study particularly, there could be many reasons for store atmospherics (i.e., color) not being a significant predictor of purchase intention. One of the reasons could be gender, as there is a difference between male and female shopping behaviors. For example, some researchers mentioned that men are goal oriented and focus only on merchandise during shopping while women focus on store atmospherics (Grewal et al., 2003; Otnes & McGrath, 2001). In earlier mentioned studies, store atmospherics played a significant role in the purchase decisions of women. In the present study, the sample consisted of 45% of males. This high number of men might have impacted the results because male participants might have ignored SL atmospherics of SL stores. Another reason could be the participants of this study might not have owned upgraded computer devices with high speed processors, graphic cards, and large

amounts of memory or software. All of this decreases the visual appeal and quality of graphics (i.e., colors), and thus, the respondents might have ignored store atmospherics. As Shergill and Chen (2005) noticed, not all online stores completely simulate the atmospherics of a physical store because of the limitations of the computer devices. Therefore, it is very important to have an upgraded system for SL to operate and to perform activities (i.e., for an avatar to function properly) with faster downloading of SL graphics and to visualize true colors of the animated products in SL. The variable, store atmospherics was an insignificant predictor of purchase intention because of the presence of stronger predictors like two-way communication and enjoyment. The participants may have experienced enjoyment and interactivity in SL stores more than atmospherics and may have ignored atmospherics of the SL store.

Shopping Enjoyment

Shopping enjoyment was found to be the strongest predictor ($\beta = .553$) of consumers' purchase intentions from an SL store. Therefore, hypothesis H_3, "shopping enjoyment has positive effect on consumer purchase intentions from an SL store," was accepted. As stated earlier, most of the people view SL as a leisure activity to socialize, shop, and enjoy. That means the primary purpose of SL residents is to enjoy and thus SL consumers could be categorized as hedonic consumers (Guiry et al., 2006). Guiry et al. explained that hedonic consumers are more likely to spend money on shopping irrespective of the shopping channel. Plus, hedonic consumers shop for fun experiences. SL residents are more than likely to purchase from SL stores because they experience enjoyment during shopping. Also, virtual environments heighten the enjoyment experienced by the consumers and prompt them to make purchases (Algharabat & Dennis, 2009). This signifies that SL's virtual (3-D) environment itself increases the enjoyment experience in consumers. Another reason for enjoyment being the strongest predictor could be

consumers' ability to control the content display (360^{o} rotation and zoom) or change colors of the products. According to Algharabat and Dennis (2009) enabling consumers to control website improves the enjoyment element. With all these options inbuilt in SL, plus fast and easy transactions with instant delivery of virtual merchandise, respondents' enjoyment experiences in SL stores increases.

Overall, the three variables of interactivity, store atmospherics and shopping enjoyment were identified as the main features of SL stores. It was assumed that the three features would affect consumer purchase intentions from SL stores. Statistical analysis revealed that two-way communication and shopping enjoyment were the two main predictors of purchase intention. The main reasons are presence of virtual avatar sales representatives at the SL stores. The 3-D virtual interactive environment of SL facilitates direct communication with avatar sales representatives (i.e., face-to-face interaction), and the virtual environment provides enjoyment options. Several previous studies showed evidence that control and store atmospherics were very important components of online stores affecting consumers' purchase intentions. But due to the small sample size, variations in demographics, male to female ratio of respondents, and technology-related (e.g., inadequate computer capacity) issues, these variables were insignificant predictors of purchase intentions in this study. Implications, future research, and limitations of SL as a retail channel are provided in the next two chapters.

CHAPTER 6

IMPLICATIONS

In summary, this study was used successfully to determine three key features of Second Life (SL) stores and examine the relationship between purchase intention and the SL store features. This study is unique in the sense that SL store features have never been explored before. There are several studies in the education and medical fields involving exploration of the use of SL (Boulos, Hetherington, & Wheeler, 2007; Levingstone & Kemp, 2006; Lucia, Francese, Passero, & Tortora, 2009). But the use of SL in retailing is relatively unexplored. The findings of this study lead to implications for both the academic and retail fields. The results of the current study provide deeper insight into the relationship between SL store features and consumers' purchase intentions. In other words, utilization of SL as an additional sales channel requires knowledge of SL features that could bring consumers to the store.

Academic Implications

This study is the starting point of research in SL retailing area. Several published research articles were introductory articles on SL, and some of them analyzed why SL should be utilized as a retailing channel. But none of the authors explored consumer purchase intention via SL store or actually focused on SL store. Possibly, the most noteworthy finding of this study was the three SL store features that directly impact consumers' purchase intentions. The three important SL store features (or variables) were extracted in this study, thereby reducing the number of variables required to predict purchase intention from an SL store. This reduction in the number of features curtailed the number of questions in the survey, and as a result the administration time of the questionnaire was reduced (Mitra & Bosnjak, 2009). However due to lack of time and money, this study could not be focused on other variables that may influence

purchase intentions, for example, technology acceptance factors or the perceived ease of use and perceived usefulness. Both of these factors indicate a user's ability to utilize the technology and their perceptions of the usefulness of the technology to perform the online task. Online shopping is considered the process of technology acceptance (Klopping & McKinney, 2004). Technology acceptance factors could affect consumer shopping behavior in SL and need to be explored in future studies.

Furthermore, the 10-item scale developed for SL interactivity needs to be studied in more detail. The original scale by Liu (2003) comprised of 15 items with three underlying factors: two-way communication, active control, and synchronicity. The factor synchronicity corresponds to the speed of the interaction. This variable is very important as the speed of interaction in SL would be expected to affect a consumer's interest in shopping at SL stores. In the current study, the factor of synchronicity was not measured due to time and money constraints. Additionally, it was difficult to adapt the scale items to examine synchronicity with SL due to the wording of the items. Therefore, further development of the "interactivity" scale with detailed analysis of all the constructs of interactivity is suggested in order to explore this important variable on SL.

The variable of store atmospherics was not a significant predictor of purchase intention from SL stores. This variable needs to be examined in detail, not only because it is an important feature of a store but it also affects consumers' buying behavior. Past researchers had found that atmospherics affect purchase intention (Chang, 2000; Kotler 1973-1974). However, in the current study, no relationship between atmospherics and purchase intention could be established. Only one atmospherics component, color, was studied among various store atmospherics components like 3-D atmosphere, merchandise images, font size, and the décor of the store.

Inclusion of above mentioned atmospherics could have increased the predictive power of the variable. Also, time (and length of survey) and money constraints were major problems for this study and led to the other atmospheric components not being studied.

Overall, an SL's store atmosphere would require study in more detail. This study has opened new doors for SL research and provided opportunities to academicians to extend environmental psychology theories into the SL shopping context, similar to online retailing research. Future researchers can examine the applicability of store atmospherics in the SL context through theoretical and empirical research.

Finally, shopping enjoyment requires detailed research. Researchers can specifically look into the areas where consumers experience the most enjoyment. For example, which of the following activities are most enjoyed by consumers: product presentation in SL store, browsing, presence of sales avatars, interaction with other avatars during shopping, or product trial? This research could help researchers to focus on particular areas in SL that enhance enjoyment during shopping activities. Therefore, there is a need to develop the enjoyment scale in the context of SL, since SL has more features than an online store and thus an enjoyment scale for an online store would likely be somewhat unsuitable for SL.

The results of correlations (Table 9) implicated significant relationships between active control and store atmospherics with the dependent variable of purchase intention. However, the regression model (Table 10) did not explain any variance due to these variables individually. The results were indicative of the presence of suppressor effects in this regression model. It was noteworthy that the independent variables of two-way communication, store atmosphere, and shopping enjoyment showed a significant positive relationship with each other. Hence, it could be implied that a subsuming effect happened for these variables in predicting purchase intention.

In other words, active control and store atmospherics had very low correlations with the dependent variable but showed larger correlations with the other two independent variables. This implies that in order to enjoy shopping in an SL store certain amount of control was necessary on the actions performed. Similarly, SL store's atmospherics enhanced shopping enjoyment. The results indicated active control and store atmospherics to be the necessary features that enhance two-way communication and shopping enjoyment and play indirectly into predicting purchase intentions.

Future studies on SL can explore the effect of interactivity, i.e., two-way communication and active control on shopping enjoyment. Shopping enjoyment should be considered an attitude feature, while interactivity should be treated as a mediator in predicting consumer purchase intention. As the results of the correlations revealed a significant relationship between the two factors of interactivity with purchase intentions, there is potential for another research framework to be examined; in this framework, interactivity could be hypothesized to act as a mediator in the relationship of shopping enjoyment and consumer purchase intentions. This type of model would help in understanding the impact of interactivity on shopping enjoyment.

Implications for Retailers

The findings from this study can provide guidelines to retailers to strengthen their offerings in an SL environment. To utilize SL for retailing, it is of paramount importance to understand the nature of retail environment in SL. Although SL is very similar to the real world, it is a virtual world and requires several technological aids, such as computer and Internet, for users to perform different activities. Therefore, to make it look and feel more realistic, retailers need to invest more in technology so that the animated versions of their virtual products appear realistic to users.

For retailers, it is very tedious to reproduce some of the real-life products in SL. For example, according to Toyota Motors, building a virtual car in SL for promotional purposes is a very time consuming process and requires a very skilled computer graphic designer (Robbins & Bell, 2008). For apparel retailers, the quality of the apparel's texture is very crucial to making it look more realistic. However, these efforts would help retailers sell real products via SL stores because consumers can have 3-D views of products.

SL is a promising communication tool for interactive marketing. This is the first study to explore the SL store features and their impact on purchase intention. The findings of this study provide retailers an insight on consumers' perception and behavior in SL. The interactive nature of SL induces a favorable attitude toward a product and increases a consumer's intent to purchase. Lee, Lee, and Schumann (2002) found that information received through audio-visual sources was more effective than from text-visual sources. According to Lee et al., when consumers receive information about innovative products through a 3-D virtual medium (which has the facility of voice chat), the 3-D medium is more effective than other online communication types. In a similar study by Jin (2009), virtual environments such as SL were found to be more effective for communicating product information to consumers. Also, the use of 3-D avatars in SL stores makes the medium more interactive and increases consumers' purchase intentions through that medium. Retailers can take advantage of the interactive SL medium, the availability of 3-D avatars to communicate with consumers, and the unlimited opportunities to manipulate store atmospherics as per their target market which would definitely increase consumers' shopping enjoyment in the virtual world.

This study provides several marketing implications for retailers with regard to how they should focus on store features to peak their target consumers' interest. For example, if the

retailer sells funky/casual apparel, it would be very important to focus on the enjoyment aspect of the clothing in the SL store. Consumers purchasing funky apparel are more casual and would prefer to have fun in SL while shopping. Also, consumers' involvement in the product or brand can be increased by utilizing instant messaging, the voice chat function, or interactive spokes-avatars. Jin (2009) explained that product involvement in SL can be increased by having the avatar greet the consumer, introduce products, suggest alternate options, resolve consumers' queries, or obtain consumers' feedback about products.

Lastly, SL can be a powerful marketing tool for several different retailers. Since the retailer in SL can gain the advantage of PR (public relations) for the company. This type of effective web presence for retailers' products can be created by establishing a small community of people with similar interests where they can provide their views on the product. In addition, the amount of investment could be exceptionally low depending on the product type. Although SL is not a massive revenue generating stream (Robbins & Bell, 2008) for major companies, SL has worked well as a promotional tool. Robbin and Bell (2008) suggested the following business strategies may be most effective within SL:

1. Marketing. SL provides an excellent platform to market real world products. Toyota used SL for marketing its real life cars. For instance, to promote its Scion line of cars Toyota first introduced a virtual model of Scion in SL, had a huge event to announce its launch, and gave away a bunch of virtual cars anticipating that the SL residents would like it and take the test-drive in real world and end up buying a real life car.

2. Information. Some of the large companies use SL to introduce their new products in SL prior to releasing them in real life. This exact strategy was used by American Apparel

before launching a denim line in real life. The product was first introduced in SL and made available to the SL residents to purchase and note how they actually liked the clothing.

CHAPTER 7

LIMITATIONS AND FUTURE RESEARCH

Although this study provided valuable insights into Second Life (SL) store features and consumers' purchase intentions, there are several limitations of the study. First, the current study did not include the technological shortcomings, such as synchronicity, of using SL on a home computer. For example, consumers who use outdated, slow computers or who have bandwidth restrictions or network congestion may not obtain enjoyable and good shopping experiences in SL. Fast Internet is the primary need for SL to operate smoothly for users. At the same time, graphical downloading of store, merchandise, avatar, and communication with the avatar could be very slow which could possibly result in a significant decrease in shopping enjoyment and purchase intention (Jin, 2009).

Second, the data were collected from anybody who had been an SL resident past six months and had visited an SL store at least once. Due to lack of time and money, data collection was restricted to individuals who had visited an SL store but not necessarily purchased merchandise from the SL store. That is, some participants had not actually bought merchandise via SL and thus they might not have been familiarized with SL's shopping environment. Therefore, the current study measured future purchase behavior of the consumers but not the actual purchase behavior. Hence, replication of this study with a larger sample (including actual shoppers in SL) to examine actual purchase behavior will help to generalize the results.

According to Driver and Jackson (2008), principal analysts at Forester research firm, SL is still in its experimentation stage, especially for retailers and consumers. Therefore, there is a need for research in several different areas relating to SL to explore its marketing potential. This

would provide a concrete platform for the retailers to establish themselves in SL and could motivate consumers to switch from shopping in online retail stores to shopping in SL stores.

Agharabat and Dennis (2009) explained that in a highly competitive environment, online retailers need to find ways of attracting and retaining customers. Agharabat and Dennis emphasized that along with the interactive nature of the shopping channel, it is very important to have a proper design of an online store atmosphere (e.g., color or animation) that enhances online shopping enjoyment experiences and contributes to positive outcomes. For instance, pleasant store atmospherics can brings online shoppers to visit the online retailer (Manganari et al., 2009), build a positive attitude towards the online retailer (Childers et al., 2001; Coyle & Thorson 2001; Fiore et al., 2005a), and boost shoppers' behavioral intentions. In conclusion, an SL store with 3-D atmospherics offers important stimuli to help retailers to find success.

APPENDIX A

RECRUITMENT EMAIL

July 2010

Hello, Dr. Sanjukta Pookulangara (Assistant Professor) and I, Avantika Thombre (Student, Merchandising) in the School of Merchandising and Hospitality Management and are conducting a study to investigate the influence of interactivity and store atmospherics of 3-D retail stores in Second Life on consumer purchase intentions .This research will help researchers and retailers to better understand the influence of Second Life retail stores on your purchase behavior. Since your views are important, we are requesting that you participate in the study for which you will be provided with compensation of L$500 (equivalent to $2).

Please understand that your participation is voluntary, your refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled, and you may discontinue your participation at any time without penalty or loss of benefits. Also, you do not have to answer any questions that may be asked. **You can opt out of the survey at any time by clicking on the close (X) icon on the screen.** By participating in the survey you have granted your consent. If you decide to participate in this study, please answer all of the survey questions. This survey will take approximately 10 minutes of your time.

I would like to thank you for taking the time to fill out the survey. If you have any questions concerning this project, please do not hesitate to contact me at (940) 565-2439. This research project has been reviewed and approved by the UNT Institutional Review Board (940-565-3940). Contact the UNT IRB with any questions regarding your rights as a research subject. You may print this notice for your records.

Sanjukta Pookulangara
Assistant Professor – Merchandising
University of North Texas, Denton, TX

Avantika Thombre
Student-MS, Merchandising
University of North Texas, Denton, TX

APPENDIX B

SURVEY

Survey1- Armidi Store
UNIVERSITY OF NORTH TEXAS
SCHOOL OF MERCHANDISINING AND HOSPITALITY MANAGEMENT

The Influence of Interactivity and Online Store Atmospherics of 3-D Retail Stores in Second Life on Consumer Purchase Intentions.

INFORMED CONSENT STATEMENT

Dear Participant:

The School of Merchandising and Hospitality Management at the University of North Texas is conducting a survey on to **Investigate the relationship between the interactivity and online store atmospherics and consumer purchase intentions.** This research will help researchers and retailers to better understand the influence of 3-D retail stores in Second Life on your purchase behavior. Since your views are important, we are requesting you to participate in the study for which you will be provided with compensation of L$500 (equivalent to $2).

Please understand that your participation is voluntary and all the responses will be kept **confidential** and no foreseeable risks are associated with participation in this study. Your refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled, and you may discontinue your participation at any time without any penalty or loss of benefits. Also, you do not have to answer any questions that may be asked. By participating in the survey you have granted your consent. Please answer all of the survey questions. This survey will take approximately 10-15 minutes of your time.

We would like to thank you for taking the time to fill out the survey. If you have any questions concerning this project, please do not hesitate to contact either of us at (940) 565-2439. This research project has been reviewed and approved by the UNT Institutional Review Board (940-565-3940). Contact the UNT IRB with any questions regarding your rights as research subject. You may print this notice for your records.

Sincerely,

Sanjukta Pookulangara
Assistant Professor – Merchandising
University of North Texas, Denton, TX, USA

Avantika Thombre
Student-MS, Merchandising
University of North Texas, Denton, TX, USA

How many times do you log into Second Life in a week to shop?

1-3 times	4-6 times	7-9 times	10-12 times	more than 12 times	Other

How much time do you spend on shopping or browsing in Second Life stores each time you visit?

Less than 1 hour	1-2 hours	3-5 hours	6-10 hours	11-15 hours	16+ hours

How long have you been shopping at Second Life stores?

Less than 1 year	1-2 years	3-4 years	5-6 years	More than 6 years	Other

How much money did you spend on shopping in the past 6 months with reference to your expenditure in the category of clothing/shoe/accessories

Second Life $_____
Catalog $_____
Online/ store website $_____
Brick and Mortar/Physical Store $_____

Please name up-to five real life clothing/shoe/accessories brands which you have seen or purchased in Second Life

1. 2. 3. 4. 5.

Please visit Armidi store in Second Life and rate your level of agreement with the following statements

	Scale of Agreement					
	Strongly Disagree	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
While I was shopping/browsing in this Second Life store, I felt that I had a lot of control over my shopping experiences	1	2	3	4	5	6
While I was shopping/browsing in this Second Life store, I could choose freely what I wanted to see	1	2	3	4	5	6
While shopping/browsing in this Second Life store, I had absolutely no control over what I could do in the store	1	2	3	4	5	6
While shopping/browsing in this Second Life store, my actions decided the kind of experiences I got	1	2	3	4	5	6

Please rate your level of agreement with the following statements in reference to your visit to Armidi store in Second Life

	Scale of Agreement					
	Strongly Disagree	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
This Second Life store is effective in gathering customer's feedback	1	2	3	4	5	6
This Second Life store does not encourage customer's feedback	1	2	3	4	5	6
This Second Life store facilitates two-way communication between the customers and avatar sales representatives	1	2	3	4	5	6
This Second Life store processed my requests very quickly	1	2	3	4	5	6
This Second Life store provides information very quickly	1	2	3	4	5	6
This Second Life store was very slow in responding to my requests	1	2	3	4	5	6

Please rate your level of agreement with the following statements in reference to your visit to Armidi store in Second Life

	Scale of Agreement					
	Strongly Disagree	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
This Second Life store emphasizes newly displayed merchandise with distinctive colors	1	2	3	4	5	6
The colors in this Second Life store are visually appealing	1	2	3	4	5	6

Color coding is used effectively in this Second Life store to highlight important content, and to identify different sections of the store	1	2	3	4	5	6

Please rate your level of agreement with the following statements in reference to your visit to Armidi store

	Scale of Agreement					
	Strongly Disagree	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
I find my shopping experience with this Second Life store entertaining	1	2	3	4	5	6
I find my shopping experience with this Second Life store enjoyable	1	2	3	4	5	6
I find my experience with this Second Life store exciting	1	2	3	4	5	6
I find my shopping experience with this Second Life store fun	1	2	3	4	5	6

Please rate your level of agreement with the following statements in reference to your visit to Armidi in Second Life

	Scale of Agreement					
	Strongly Disagree	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
I intend to buy clothing/shoe/accessories from this Second Life store within the next 3 months	1	2	3	4	5	6
I will buy clothing/shoe/accessories the next time I need from this Second Life store	1	2	3	4	5	6
I will continue to use Second Life stores for shopping in the future	1	2	3	4	5	6
I will use the Second Life store rather than websites/online stores or stores for purchasing clothing/shoe/accessories	1	2	3	4	5	6

I am: Male Female

My age is

18-20 years old	21 to 23 years old	24 to 26 years old	27 to 29 years old	30 to 32 years old	33 to 35 years old	More than 35 years old

My ethnic origin is from:

African-American	Asian-American	Caucasian American	Hispanic American	Native American	Bi/Multi-racial American	Other

The level of education that I have completed is:

High School	Associate Degree	Bachelor's Degree	Master's Degree	Doctoral Degree	Professional Degree	Other

My gross annual household income range is

Less than $40,000	$40,000-$59,999	$60,000-$79,999	$80,000-$99,999	$100,000-$119,999
$120,000-$139,999	$140,000-$159,999	$160,000-$179,999	$180,000-$199,999	More than $200,000

Any additional comments about the retail stores in Second Life and your experiences related to it.

THANK YOU FOR YOUR TIME AND PATIENCE!

Survey 2-GAdore Store

UNIVERSITY OF NORTH TEXAS

SCHOOL OF MERCHANDISINING AND HOSPITALITY MANAGEMENT

The Influence of Interactivity and Online Store Atmospherics of 3-D Retail Stores in Second Life on Consumer Purchase Intentions.

INFORMED CONSENT STATEMENT

Dear Participant:

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Sincerely,

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Assistant Professor – Merchandising
University of North Texas, Denton, TX, USA

Avantika Thombre
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1-3 times	4-6 times	7-9 times	10-12 times	more than 12 times	Other

How much time do you spend on shopping or browsing in Second Life stores each time you visit?

Less than 1 hour	1-2 hours	3-5 hours	6-10 hours	11-15 hours	16+ hours

How long have you been shopping at Second Life stores?

Less than 1 year	1-2 years	3-4 years	5-6 years	More than 6 years	Other

How much money did you spend on shopping in the past 6 months with reference to your expenditure in the category of clothing/shoe/accessories

Second Life	$
Catalog	$
Online/ store website	$
Brick and Mortar/Physical Store	$

Please name up-to five real life clothing/shoe/accessories brands which you have seen or purchased in Second Life

1. 2. 3. 4. 5.

Please visit Gadore store in Second Life and rate your level of agreement with the following statements

	Scale of Agreement					
	Strongly Disagree	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
While I was shopping/browsing in this Second Life store, I felt that I had a lot of control over my shopping experiences	1	2	3	4	5	6
While I was shopping/browsing in this Second Life store, I could choose freely what I wanted to see	1	2	3	4	5	6
While shopping/browsing in this Second Life store, I had absolutely no control over what I could do in the store	1	2	3	4	5	6
While shopping/browsing in this Second Life store, my actions decided the kind of experiences I got	1	2	3	4	5	6

Please rate your level of agreement with the following statements in reference to your visit to Gadore store in Second Life

	Scale of Agreement					
	Strongly Disagree	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
This Second Life store is effective in gathering customer's feedback	1	2	3	4	5	6
This Second Life store does not encourage customer's feedback	1	2	3	4	5	6
This Second Life store facilitates two-way communication between the customers and avatar sales representatives	1	2	3	4	5	6
This Second Life store processed my requests very quickly	1	2	3	4	5	6
This Second Life store provides information very quickly	1	2	3	4	5	6
This Second Life store was very slow in responding to my requests	1	2	3	4	5	6

Please rate your level of agreement with the following statements in reference to your visit to Gadore store in Second Life

	Scale of Agreement					
	Strongly Disagree	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
This Second Life store emphasizes newly displayed merchandise with distinctive colors	1	2	3	4	5	6
The colors in this Second Life store are visually appealing	1	2	3	4	5	6

Color coding is used effectively in this Second Life store to highlight important content, and to identify different sections of the store	1	2	3	4	5	6

Please rate your level of agreement with the following statements in reference to your visit to Gadore store

	Scale of Agreement					
	Strongly Disagree	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
I find my shopping experience with this Second Life store entertaining	1	2	3	4	5	6
I find my shopping experience with this Second Life store enjoyable	1	2	3	4	5	6
I find my experience with this Second Life store exciting	1	2	3	4	5	6
I find my shopping experience with this Second Life store fun	1	2	3	4	5	6

Please rate your level of agreement with the following statements in reference to your visit to Gadore in Second Life

	Scale of Agreement					
	Strongly Disagree	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
I intend to buy clothing/shoe/accessories from this Second Life store within the next 3 months	1	2	3	4	5	6
I will buy clothing/shoe/accessories the next time I need from this Second Life store	1	2	3	4	5	6
I will continue to use Second Life stores for shopping in the future	1	2	3	4	5	6
I will use the Second Life store rather than websites/online stores or stores for purchasing clothing/shoe/accessories	1	2	3	4	5	6

I am: Male Female

My age is

18-20 years old	21 to 23 years old	24 to 26 years old	27 to 29 years old	30 to 32 years old	33 to 35 years old	More than 35 years old

My ethnic origin is from:

African-American	Asian-American	Caucasian America	Hispanic American	Native American	Bi/Multi-racial American	Other

The level of education that I have completed is:

High School	Associate Degree	Bachelor's Degree	Master's Degree	Doctoral Degree	Professional Degree	Other

My gross annual household income range is

Less than $40,000	$40,000-$59,999	$60,000-$79,999	$80,000-$99,999	$100,000-$119,999
$120,000-$139,999	$140,000-$159,999	$160,000-$179,999	$180,000-$199,999	More than $200,000

Any additional comments about the retail stores in Second Life and your experiences related to it.

THANK YOU FOR YOUR TIME AND PATIENCE!

APPENDIX C

SRF AGREEMENT FORM

SOCIAL RESEARCH FOUNDATION

110-64 Queens Blvd., Suite 106 Forest Hills, NY 11375
718-793-9400 • socialresearchfoundation.org andy@socialresearchfoundation.org

ACADEMIC RESEARCH REQUEST

This IS NOT a contract. This form will allow us to understand your project and how our services might best be employed. Put ALL your information here regardless if you have sent it via email or verbally over the phone.

Check One (required)

I am (•) a student ( ) faculty ( ) other (specify): _____

Name/Title Avantika Thombre

School University of North Texas

City, State Country Denton, TX, USA

Phone + ext _____ Email avantikathombre@my.unt.edu

PROJECT DESCRIPTION (check all that apply)

[✓] Survey (web) [ ] Focus Group in SL [ ] Phone Interviews

[ ] Other (describe): _____

_____

Who will conduct the survey, if any? ( ) We will (•) First Opinions Panel

 # Questions 31 **# Completes** 250

Attributes *(see our "Attributes Checklist"; check all that apply below)*

(•) USA only ( ) USA + International ( ) International Only

( ) Other/comments: _____

[✓] Males [✓] Females [ ] Random [✓] Ratio 50:50 male/female

AGES: [✓] 18 – 21 [✓] 22 – 25 [✓] 26 – 30 [✓] 31 – 35

[ ] 36 – 40 [ ] 41 – 50 [ ] 51 - 60 [ ] 60+

FOCUS GROUP (if none, leave this blank)

Number of participants _____

Time length: ( ) 30 minutes ( ) 1 hour (•) Other: _____

LIST TARGET ATTRIBUTES HERE

_____

_____

ADDITIONAL SERVICES
Which of the following will you need, if any:

- ☐ Consulting on questions or other elements of this project
- ☐ Host focus group
- ☐ Other: _____

REPORTING
If we are conducting the survey, what type of reporting do you need from us? If you are conducting it, check "None"

- ☐ None
- ☑ Excel
- ☐ PDF/Charts
- ☐ Cross-tab analysis
- ☐ Other: Can I get the data set/completed responses in SPSS?

START DATE 05/30/2010 **END DATE** 06/30/2010

BUDGET
What is your estimated total budget for this project: $500

COMPENSATION

- We recommend L$500 (about $2) per person for every 20 questions in a survey
- Calculate the compensation for your project
- Write it on the "To Panlists" line below
- For example, if you need 200 completed surveys with approximately 20 questions = 200 x $2 per person = $400.00

HOW WE CALCULATE OUR FEE
Our standard corporate rate is $5000 + panelist compensation.
For students we charge as little as $500 + panelist compensation if you are doing the survey of attributes we already have collected from our panelists. If we are required to perform the survey or provide additional services such as screening our panelists to prequalify them for your target audience, we charge extra and will state that below.

To Panelists $ 500

SRF Fee (Est) $_0_____ (leave blank; for office use only)

Total $500.00_____

TERMS & CONDITIONS

1. Our Terms & Conditions supersede those of any client contract for our services
2. All terms and instructions must be in writing using this form
3. *License*: it is understood that you are licensing the one-time use of our panelists for the project specified in this document. We do not disclose their names. Should they use a survey you create, you may not contact them again under any circumstances without written permission from Social Research Foundation. Should we receive evidence of such contact, you will be billed and agree to pay a further licensing fee.
4. *Non solicitation*: our members may not be solicited to join any groups, panels or to purchase or receive any items, even at no charge, as a result of participating in your survey. You may not share, rent, sell or otherwise disclose the names of any of our panel members.
5. No changes to **questions** once the final list of questions is submitted
6. No changes to the **attributes** once the survey is launched
7. If any changes are accepted, SRF is not responsible if this impacts or lessens effect of previous work. If it requires a re-do of previous work including survey questions, participant requirements, etc., this will be billed as a NEW SURVEY. The previous survey will be billed at 50% of the price
8. Prepayment is required in full. We accept a check from those in the USA; outside USA should wire funds into our account. Check should be payable to Social Research Foundation
9. If any of the project occurs within Second Life, we are not responsible for any technical problems such as lag, crashes or other such Second Life problems. We will make reasonable efforts to reschedule panelists and any staff from Social Research Foundation involved. No refunds will be made under any circumstances.

ADDITIONAL COMMENTS

By signing this document, you are agreeing to the terms and conditions stated herein.

DATE 09/23/2010

SUBMITTED BY Avantika Thombre

☑ Check this box for us to send our banking coordinates for you to wire payment

Email this request to andy@socialresearchfoundation.org
We will contact you shortly. Thank you!

APPENDIX D

IRB APPROVAL LETTER

UNT
UNIVERSITY OF
NORTH TEXAS
Discover the power of ideas.

OFFICE OF THE VICE PRESIDENT FOR RESEARCH AND ECONOMIC DEVELOPMENT
Research Services

July 29, 2010

Dr. Sanjukta Pookulangara
School of Merchandising and Hospitality Management
University of North Texas

RE: Human Subjects Application No. 10-322

Dear Dr. Pookulangara:

In accordance with 45 CFR Part 46 Section 46.101, your study titled "The Influence of Interactivity and Online Store Atmospherics of a 3-D Retail Store Second Life on Consumer Purchase Intentions" has been determined to qualify for an exemption from further review by the UNT Institutional Review Board (IRB).

No changes may be made to your study's procedures or forms without prior written approval from the UNT IRB. Please contact Jordan Smith, Research Compliance Analyst, ext. 3940, if you wish to make any such changes. Any changes to your procedures or forms after 3 years will require completion of a new IRB application.

We wish you success with your study.

Sincerely,

Brad Hender for PLK

Patricia L. Kaminski, Ph.D.
Associate Professor
Chair, Institutional Review Board

PK:js

1155 Union Circle #305250 | Denton, Texas 76203-5017 | TEL 940.565.3940 | FAX 940.565.4277
TTY 940.369.8652 | http://research.unt.edu

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