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VIRTUAL TOURISM: IDENTIFYING THE FACTORS THAT AFFECT A TOURIST'S EXPERIENCE AND BEHAVIORAL INTENTIONS IN A 3D VIRTUAL WORLD

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VIRTUAL TOURISM:
IDENTIFYING THE FACTORS THAT AFFECT A TOURIST'S EXPERIENCE AND
BEHAVIORAL INTENTIONS IN A 3D VIRTUAL WORLD

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ABSTRACT

Given the increase in the use of technologies within the tourism industry, particularly the rising interest in virtual worlds such as Second Life, the purpose of this study is to identify the factors related to the 3D virtual tourism experience and behavioral intentions after visiting a virtual tourism destination. Two theories, the Technology Acceptance Model and Self-Determination Theory, were used to guide this study, both of which were found to be useful frameworks. Basecamp Maasai Mara in Second Life was selected as the research site, designed and developed through a collaborative effort at Clemson University. The results revealed that technological acceptance factors of tele-presence, perceived usefulness and perceived ease-of-use as described by the Technology Acceptance Model are significant factors related to both virtual tourist experiences and the behavioral intentions. In addition, the results obtained here indicate that psychological needs of autonomy, competence, and relatedness, as specified by the Self-Determination Theory, are significantly associated with virtual tourist experiences and behavioral intentions. The results of this study suggest that in designing virtual destinations, tourism practitioners need to consider consumers' psychological needs of competence, autonomy and relatedness; for instance, the activities provided in Second Life Maasai Mara such as riding animated animals and listening to Maasai music were found to increase the virtual tourist's autonomy. In addition, tourism marketers should consider the types of information provided as well as the media used to present the information, by including videos and music, for example, in order to enhance the perception of ease-of use and usefulness. As technology continues to evolve, more research is needed to understand the

significance of the use of virtual worlds in the tourism industry as well as to generate a

new paradigm shift in tourism literature.

DEDICATION

I dedicate this work to my family: my parents, who have provided inspiration about the importance of hard work as well as financial aid during my graduate studies; my wife, Lan-Lan Chang, who has been endlessly supportive throughout the process; and my son, Ryan Huang, who has grown into a wonderful 3 year old in spite of his father spending so much time working on this PhD. I appreciate all of your support and encouragement in this process.

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CHAPTER ONE

INTRODUCTION

Pine and Gilmore (1998) proposed the concept of an Experience Economy, suggesting that this evolution has influenced how business is conducted by focusing on customer experience. As Pine and Gilmore's (1998) article in the *Harvard Business Review* pointed out, "because consumers unquestionably desire experience, more and more businesses are responding by explicitly designing and promoting experience" (p.97). The tourism industry has been a leading provider of experiences for customers. For example, the Walt Disney Corporation has created and staged epic events successfully at its operations. Similarly, the festival and event industry has staged experiences for their visitors for many years. Restaurants such as The Hard Rock Café and Chucky Cheese provide experiences for their customers as well as food and beverages.

Responding to the shift toward an experience economy, and integrating technologies and new media, the tourism industry has developed a variety of new business tools and services that have facilitated global interaction between tourists and businesses (Buhalis and Law, 2008). For example, the launch of the Central Reservation Systems (CRSs) and the Global Distribution Systems (GDSs) have dramatically changed and influenced how industry sectors such as transportation, accommodation, and marketing interact with their customers (Gretzel and Fesenmaier, 2009; Law, Qi and Buhalis, 2010). The travel industry has also used technological innovations and internet technology to expand strategic relationships within the tourism value chain (Xiang, Wober and Fesenmaier, 2008; Gretzel and Fesenmaier, 2009). As a result of the

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technological changes that have impacted how sectors of the tourism industry operate and are managed and in order to enhance their competitive advantage in the global marketplace, tourism businesses need to develop innovative and effective ways in which tourists can experience the destination.

Given the experiential nature of tourism products and services, Gretzel and Fesenmaier (2003) assert that destination marketers should use immersive virtual reality technology to integrate sensory experience into their communication strategies, utilizing experience-based internet marketing to support the tourist's information search and decision-making process. As Cho, Wang and Fesenmaier (2003) indicate, "when tourists are seeking information about a travel destination what they want to know is not only about physical characteristics of the destination but also the experience of the destination" (p.4).

Not only has the tourism supplier's function been influenced by technology on the demand side but tourists themselves have also been impacted by advances in technology (Mills and Law, 2004). Tourism consumers now search for travel information and book accommodations and transportation online (Morrison, Jing, O'Leary, Lipping, 2001). Gretzel and Fesenmaier (2009) argue that "as individuals become more mobile and more reliant on network technology, they will increasingly demand systems that can support their lifestyle during trips and tourism systems have to become truly portable/wearable, wireless, global, integrated and smart indeed" (p.573).

Information technology provides customized information for travelers in various stages in the trip planning process. In the pre-trip planning stage of decision making,

tourists use the web to search for travel information that will assist them with decisions related to the possible destinations, transportation options and accommodations that they are considering as potential tourism suppliers for their trip. While tourists are on site experiencing the destination, they use social media and other non-print sources to keep informed. During the last phase of the travel experience, recollection, tourists use the web to post their travel stories and photographs, remember special moments and engage in word-of-mouth communication (Gretzel and Fesenmaier, 2009).

The use of internet technology, such as online travel communities, offers an opportunity for tourists to search for travel information, make connections with others, and make travel decisions more conveniently and cost-effectively (Arsal, Woosnam, Baldwin, and Backman, 2010). Arsal et al. (2010) have suggested that online travel communities have influenced tourists' travel decision making processes including such general travel related issues of accommodations and transportation. Although tourism scholars have examined travel decisions in the context of web environments to determine whether the use of web communities is related to tourist intentions, this question has not yet been fully investigated by researchers who are primarily interested in virtual worlds.

Virtual reality technology offers a variety of potential benefits for tourism marketers including creating informative and entertaining virtual settings, immersive and engaging virtual experiences, multi-media communication, and social interaction with others globally. Berger et al. (2007) point out that social interaction in the virtual world provides opportunities for exchanging information about tourist destinations, sharing

personal experiences derived from visiting a destination, and providing up-to-date travel information that is more valuable than a guidebook.

Despite the fact that virtual worlds provide an immersive and satisfying visitor experience, tourism marketers typically use similar visual semiotic systems as in the physical world of tourism to promote destinations in virtual environments, providing for example visitor information booths, reproductions of famous landmarks, or guided tours, rather than providing opportunities for truly immersive experiences. It is important, however, for tourism marketers to develop new models of tourism promotion by applying virtual world technology to offer an immersive and engaging experience of the destination that can enhance brand awareness while communicating with their customers and potential visitors.

According to Hay (2008), the greatest potential use for virtual worlds in communication is a chance to "break the barriers of traditional communication offering multiple channels-chats, instant messages, group notices, multiple languages for real life international communication" (p. 2). With multi-media communication channels, virtual worlds allow marketers to promote in-world commodities and off-world services to reach customers regardless of geographic boundaries, and they provide a medium for innovative use of technology to engage customers with particular brands.

As the potential for entertainment, marketing, business, branding, and tourism has been recognized by tourism marketers, their businesses have invested substantially to utilize the virtual world of Second Life as a marketing tool to promote destinations. Wang, Yu and Fesenmaier (2002) suggest that in the travel industry, virtual communities

provide the function of fulfilling travelers' needs to seek travel information and tips, make travel reservations, communicate with family and friends far away, find travel companions, or share travel experiences for fun. Virtual tours allow tourism businesses to present their products and travel information in a dynamic way so that tourists can gain a richer understanding of the destination. For example, the Mexico Tourism Board built Chichen-Itza in the virtual world to encourage visitors to take a virtual tour of the site as an immersive experience. Likewise, the St. Louis Convention and Visitors Commission also invested in Second Life, constructing city buildings, bridges, a steamboat ride on the Mississippi river, and the iconic St. Louis Arch as a way to persuade tourists to visit St. Louis. Several cities with iconic landmarks, such as London's Big Ben Clock Tower and Paris' Eiffel Tower, have also invested in the virtual world, constructing their cities, street views, and buildings in order attract the attention of potential tourists. Similarly, Basecamp Maasai Mara in Kenya was built in Second Life by Clemson University students and faculty as a way to promote tourism in Kenya. The site provides tourism information for visitors to enhance their awareness of the destination, and to encourage interaction with other visitors as well as to provide a sense of the virtual and potentially real experiences.

The technological innovations of the 3D virtual environment provide a new venue for the travel and tourism industry. In particular, Second Life offers an opportunity for tourism businesses to develop interactive experiences to communicate with and market messages to potential tourists. The virtual world of Second Life can be used as an optimal marketing platform for promoting tourism destinations, but tourism marketers may not be

familiar with how to incorporate the virtual worlds to communicate marketing messages with tourists. It is important for tourism marketers to understand the influential factors that affect virtual tourist experiences and behavioral intentions within a 3D virtual tourism destination. However, very little is known about the factors that may influence tourists' use of virtual worlds.

This study addresses this need by identifying the factors that may affect tourists' use of a Second Life destination. Further, the experiential nature of the virtual tourist experience must be understood by tourism marketers if virtual worlds are to build a site that captures the essence of the destination. To explore how tourists experience virtual destinations and the psychological and experiential factors that lead to their future behavioral intentions, two theories were selected to guide this study; the Technology Acceptance Model and the Self-Determination Theory.

Theoretical Foundation for the Study

Technology Acceptance Model

Past studies have suggested the Technology Acceptance Model (TAM) is a useful framework for understanding user acceptance of new technology in various domains such as e-learning (Liu, Liao, and Pratt, 2009), consumer behavior (Koufaris, 2002), health care (Hu, Chau, Sheng and Tam, 1999) and tourism (Kim, Park and Morrison, 2008). Travel and tourism scholars have also applied TAM to understand the use and acceptance of information technology in the trip decision-making process and the intention to travel to destinations (Kaplanidou and Vogt, 2006; Kim, Park and Morrison, 2008). Even

though there has been some past research on user acceptance models for information technology in travel and tourism, there is still a need for more substantive and theory-based research leading to a deeper understanding of consumer behavior with regard to the use and acceptance of virtual reality technology within the context of travel and tourism.

Davis (1989) initially proposed the Technology Acceptance Model for understanding user acceptance of information technology, asserting that perceived ease-of-use and perceived usefulness are two fundamental determinants of user acceptance of new information technology. Recently, scholars have begun to apply TAM to understand user acceptance in virtual worlds and online gaming (Saeed, Yang and Sinnappan, 2009; Fetscherin and Lattemann, 2008; Hsu and Lu, 2004), finding that TAM can be used to explain the human factors of the acceptance and adoption of virtual worlds. For instance, the study conducted by Saeed, Yang and Sinnappan (2009) investigating the use of entertainment information technology of virtual worlds found that the motivational constructs of perceived ease-of-use and perceived usefulness can predict the usage of virtual worlds. Similarly, Goh and Yoon (2011) applied TAM to determine the factors influencing the intention to use a virtual world, finding that TAM was a practical theoretical framework for predicting virtual world acceptance.

More recently, researchers have incorporated the construct of hedonic consumption behavior to enhance the predictive power of TAM in explaining entertainment-oriented information technology. Specifically, the hedonic constructs of enjoyment, emotional involvement, positive emotions and flow have received much attention from scholars investigating human and computer interaction (Nah,

Eschenbrenner and DeWester, 2010; Roca and Gagne, 2008; Holsapple, and Wu, 2007; Baños et al., 2008, Novak et al., 2000; Skadberg and Kimmel, 2004).

Researchers have found that in computer-mediated environments, the constructs of perceived ease-of-use and usefulness are related to perceived enjoyment, emotional involvement, and behavioral intentions (Saeed, Yang and Sinnappan, 2009; Fetscherin and Lattemann, 2008, Yi and Hwang, 2003, Heijden, 2004). Moreover, a review of the literature in the field found a link between perceived usefulness, ease-of-use, and flow experience in understanding user acceptance of new technology (Lu, Zhou, Wang, 2009; Liu Liao, and Peng, 2005).

This study applies the Technology Acceptance Model as a theoretical framework for understanding the factors that influence the use of a virtual tourism world as well as the virtual experience within in a 3D tourism destination. To provide an even deeper understanding of the relationship between psychological needs and the virtual tourist experience, it is coupled with a second theoretical model, the Self-Determination Theory.

Self-Determination Theory

Self-Determination Theory (SDT; Deci and Ryan, 1985; Ryan and Deci, 2000), which is the most commonly applied theory for examining human motivational behavior, has been effective in explaining motivational dynamics and psychological well-being (Deci et al., 1994; Ryan and Deci, 2000). Recently, several studies have validated the application of this framework in the context of video gaming, establishing that the satisfaction of psychological needs leads to sustained engagement with games, including

how their fulfillment can facilitate enjoyment (Ryan, Rigby, and Przybylski, 2006; Przybylski, Ryan and Rigby; 2009; Tamborin et al., 2010; Neys, Jansz, and Tan, 2010).

Recent research conducted by Ryan et al. (2006) applied Self Determination Theory to understand psychological impacts and human motivations in the context of video games, finding that the needs for autonomy, competence, and relatedness are associated with in-game enjoyment, emotion, and behavioral intentions. Similarly, Przybylski, et al. (2009a), in their investigation the role of violent content in influencing people's motivation and enjoyment of video game play, found that SDT is useful for understanding motivation in a virtual environment, the satisfaction of psychological needs associated with enjoyment, and behavioral intentions.

In addition, in a study defining media enjoyment, Tamborin et al. (2010) applied SDT to validate the conceptualization of enjoyment, their results indicating that enjoyment in entertainment media can be defined by a set of psychological needs including competence, autonomy, and relatedness. Furthermore, the study of motivational determinants of flow by Kowal and Fortier (1999) determined a link among the satisfaction of autonomy, competence, relatedness and flow experience. These preliminary applications of the SDT theoretical framework suggest that the quality of psychological need satisfaction in a virtual context has implications for entertainment-oriented virtual worlds such as Second Life.

To explore these implications, this study will apply Self-Determination Theory (SDT; Deci and Ryan, 1985; Ryan and Deci, 2000) to understand psychological needs in a 3D virtual tourism environment context. In particular, this study will examine the

relationship among the psychological needs of autonomy, competence, relatedness and virtual tourist experience as well behavioral intentions within the 3D virtual tourism environment of Second Life.

The Purpose of the Study

The purpose of the study is to identify the factors related to virtual tourists' experiences and behavioral intentions in a 3D tourism destination. The following research questions will be explored: (1) How are technological acceptance factors as described in the Technology Acceptance Model related to the virtual tourist experience and virtual tourists' behavioral intentions in Second Life Maasai Mara? (2) How are the psychological needs as specified by Self-Determination Theory related to virtual tourist experience and behavioral intentions in Second Life Maasai Mara?

Organization of the Dissertation

The first chapter of this dissertation serves as an overview of the study, including the definition of the terms, an explanation of the theoretical foundations, and the purpose of the study. Chapter Two provides a review of the related literature, specifically focusing on the following: the virtual world of Second Life; the relationships between tourism and virtual worlds such as Second Life within the fields of tourism management, tourism marketing, tourism education, and tourist consumption behavior; and a discussion of the current research related to the Technology Acceptance Model and Self-Determination Theory. Chapter Three describes the methodology, specifically the sample used, the data collection process, pilot testing, and the measurements. Chapter Four

describes the research study site of Second Life Maasai Mara. Information about the development and design of Second Life Maasai Mara are included in this chapter as well as background information about the Maasai Tourism Island in Second Life, the team compositions and their responsibilities, the design process, and then first and second phase development of the virtual representation of Basecamp Maasai Mara. Chapter Five presents the results about the study along with descriptive information about the samples. Also, the results of the relationships between technological acceptance factors and virtual tourism experience and behavioral intentions within a 3D virtual tourism destination are reported in Chapter Five, as well as the relationships between psychological needs and virtual tourist experience and behavioral intentions. The final chapter discusses the findings of the study, indicating further research directions, implications for practitioners and researchers, and study limitations.

Definitions of Terms

Autonomy, according to Deci and Ryan (2000), refers to a sense of volition or willingness when doing a task. When an activity provides opportunities for choice, acknowledgment of feelings and self-direction, perceived autonomy is high.

Behavioral intentions refers to the intentions to visit Maasai Mara, ranging from requesting more information about it to visiting the web site or the actual site in the future.

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Competence refers to the efficacious feelings with respect interacting with the social environment and experiencing opportunities to exercise ability and capacity (Deci and Ryan, 2002; Ryan and Deci, 2000).

Emotional involvement refers to the subjective assessment of the imaginative and emotional responses to 3D virtual tourism environments.

Enjoyment refers to participants' self-reported level of interest and enjoyment within the context of a virtual tourism destination.

Experienced Second Life user refers to the participants who have at least 6 months prior experience with the virtual world of Second Life.

Flow experience refers to the experience of feeling in control, totally focused, aroused curiosity, and intrinsically interested within a virtual tourism site.

Novice Second Life user refers to the participants who have little or no previous experience with the virtual world of Second Life.

Perceived ease-of-use refers to "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989; p.320).

Perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989; p.320).

Positive emotions assesses positive affect, reflecting the extent to which a person feels enthusiastic and active characteristics such as amusement, contentment, interest, joy, pride, cheerfulness, and delight within a 3D virtual tourism site.

Relatedness refers to the need for feelings of belongingness and connectedness with others (Deci and Ryan, 2002; Ryan and Deci, 2000).

Second Life is a web-based 3D virtual world created by Linden Lab in 2003 for people to socialize and participate in a virtual community, offering a variety of different forms of applications in entertainment, marketing, business, education, non-profit and healthcare.

Tele-presence according to Schuber et al. (2001) refers the perception of a virtual environment that is developed from the interpretation of the mental model of the virtual space.

Technology acceptance factors refer to aspects that may affect the visitors' use of the virtual tourism site. In this study, technological acceptance factors include the constructs of perceived ease-of-use, usefulness, and tele-presence.

Psychological needs refer to those psychological aspects of a virtual tourist that may be related to visiting a virtual tourism site. In this study, psychological needs include the constructs of competence, autonomy, and relatedness.

Virtual tourist experience refers to the experiential, hedonic, and emotive aspects of tourist experiences within a 3D virtual tourism site. In this study, the virtual tourist experience includes enjoyment, positive emotions, emotional involvement, and flow.

Virtual worlds are "a synchronous, persistent network of people, represented as avatars, facilitated by networked computers" (Bell, 2008).

CHAPTER TWO

LITERATURE REVIEW

This chapter begins with a discussion of the extent to which virtual worlds have been used in the context of travel and tourism, specifically exploring how the virtual world of Second Life is used in the areas of tourism marketing, tourism management, tourism education and tourist consumption behavior. The next part of the chapter provides a discussion of the technological acceptance factors as well as psychological needs as specified by Self-Determination Theory. In addition, exploring the available literature in the context of tourist experience as well as virtual experience, the notion of virtual tourist experience is addressed. Finally, this chapter concludes with a discussion about behavioral intentions and presents the conceptual framework of the study.

Virtual Worlds and Second Life

Virtual worlds have been defined as "a computer-generated display that allows or compels the user (or users) to have a sense of being present in an environment other than the one they are actually in, and to interact with that environment" (Schroeder, 1996, p. 25). More specifically, Boulos, Hetherington, and Wheeler (2007) defined the virtual world as "a computer-based, simulated multi-media environment, usually running over the Web, and designed so that users can inhabit and interact via their own graphical self representations known as avatars" (p.233). Bell (2008) defined virtual worlds using three components including synchronous communication, persistent presence, and avatars, namely "a synchronous, persistent network of people, represented as avatars, facilitated

by networked computers" (p.1). Extending the characteristics of a virtual world, Novak (2009) asserted that a virtual world is a simulated environment accessed by multiple users through an online interface consisting of six features including shared space, immersive 3D environments with graphical user interfaces, immediate interaction, interactivity with users, persistence, and social community. Generally speaking, virtual worlds are computer-mediated 3D environments with synchronous communication channels for human-controlled avatars to socially network with others.

The study conducted by Barnes and Mattsson (2008) affirmed that these virtual worlds "have become highly interactive, collaborative and commercial; these world have the potential to be new channels for marketing content and products, integrating "v-commerce", or "virtual e-commerce" (p.195). A number of virtual world platforms are used by developers to build environments for business and education. These platforms include OpenSim, Active World, Wonderland, and Teleplace, for example, each with unique advantages and disadvantages and continually undergoing development.

Currently, one of the most popular virtual worlds in the business, tourism, and education sectors is Second Life. This web-based 3D virtual world created by Linden Lab in 2003 not only provides rich communication channels for people to socialize and to participate in virtual communities but also offers different forms of application for entertainment, marketing, business, education, non-profit and healthcare. By early 2011, the number of residents in Second Life had reached more than 16 million residents, and on average every month 800,000 people repeatedly logged in this virtual world (Linden Lab, 2011). In it, people exchange real money for virtual currency (Linden Dollars) to

purchase in-world products and services, with user-to-user transactions currently totaling approximately 30 million US dollars each month (Linden Lab, 2011).

This increase in population and consumer spending in Second Life has not gone unnoticed by businesses and companies interested in such marketing activities as product placement, brand building, and brand value enhancement (Park, et al., 2008; Barnes and Mattsson, 2008; Barnes, 2007). Recognizing the potential of Second Life, automobile companies including BMW and Toyota, media companies such as AOL and Sony BMG, software companies including Cisco systems and Microsoft, telecommunications companies including Vodafone, consumer goods producers such as Coca-Cola, Adidas and Best Buy, as well as major travel industry players including STA and Starwood Hotels have all established a presence in Second Life. Because of the attractiveness and potential for promoting real holiday destinations, tourism marketers have invested substantial financial and human resources into establishing their presence in the virtual world of Second Life in order to manage their services more efficiently, market their destinations and products, provide educational resources, and promote real-world destinations.

Virtual Worlds and Tourism

Past studies have found that virtual worlds are potentially applicable to the travel and tourism industry in the four major areas of tourism management and planning, tourism marketing, tourism education and tourist consumption behavior (Buhalis and Law, 2008; Gretzel and Fesenmaier, 2009; Guttentag, 2010). According to a study of e-Tourism conducted by the World Tourism Organization (WTO) and the European Travel

Commission (ETC) (2008), virtual worlds such as Second Life provide opportunities for tourism marketers to build virtual representations of tourism destinations, offer virtual tours of facilities, present travel information using multimedia, and encourage social interaction, all of which form a virtual community as well an exciting individual experience.

A review of the current literature suggests this conclusion and indicates that one of the most active and popular 3D virtual worlds in the travel and tourism context is Second Life, which has been increasingly used by the industry as a collaborative and commercial tool for communicating with travelers as well as tourism enterprises in the areas of tourism marketing (e.g. Chichen-Itza; Tourism Ireland Island; Philippines Department of Tourism; St Louis Arch), tourism management (e.g. Starwood Hotels; Crowne Plaza's The Place To Meet; Second House of Sweden), tourism education (e.g. GO Morocco; Hong Kong Polytechnic; University of Southern California), and tourist consumption behavior (e.g. STA travel agents, Virtual Ability, TECH Museum). According to Gretzel and Fesenmaier (2009), "several tourism destinations, attractions, and service providers already have virtual representation in Second Life, the most popular and widely used virtual world at the moment, and the number is expected to increase dramatically as it becomes easier and cheaper to create a virtual world presence" (p.564).

Virtual Worlds and Tourism Management

Buhalis and Law (2008) pointed out that information technology has dramatically changed the entire tourism industry in the several ways. Most importantly, the efficiency

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and effectiveness of tourism organizations has been impacted, and the structure of the tourism industry has been changed as well, by empowering customers to customize tourism services and products to their specific needs. In addition, according to O'Connor (2003) information technology allows small, independent tourism suppliers to be "virtual enterprises," meaning they can target their markets directly and offer tourist products globally. These activities were not possible for these companies before the information age. The evolution of Internet-based tourism, which is concerned with consumer-centric technologies, dynamically changes the ways in which tourism organizations connect and interact with their customers (Buhalis and Law, 2008). As Buhalis and O'Connor (2005) assert, "virtual organizations will allow tourism firms to develop extended products and services, produced independently and instantaneously, in response to customer demand" (p.13).

An example of how virtual possibilities and tourism intersect can be seen in virtual Second House of Sweden, which opened in Second Life in 2007. A simulation of the Swedish embassy in Washington, D.C., its purpose is not to issue passports or visas but to provide necessary information for assisting customers and potential visitors. This virtual institution incorporates a photography exhibition of Sweden, an exhibit focused on the life of local villagers, and an art exhibit from the National Museum to provide an informative and cultural experience of the country to virtual visitors (cited from sweden.se). The Swedish diplomatic staff presents a series of lectures and distance learning opportunities, and it hosts events in-world events contributing to its public diplomacy agenda. According to Swedish Foreign Ministers, "Sweden is a country of

innovation and curiosity about the future. Our presence in Second Life is just a faint beginning" (Simmons, 2007). Wastberg (2007), general director of the Swedish Institute, indicated that "social media such as Second Life offer new opportunities for dialogue, spreading information and creating conditions for use to reach the important early adopters in different parts of the word" (cited from Simmons, 2007). As this example shows, the use of virtual worlds increases the opportunity for communicating with consumers, important for gaining competitive advantages in today's increasingly globalized world.

Virtual tourism environments not only offer a competitive advantage but also provide a useful tool for tourism development, an important aspect of tourism management. For example, as Cheng (1995) pointed out, virtual reality technology can be used by tourism planners in the process of developing a tourism destination by providing information on the geographical layout of the site, infrastructure, tourist activities, and characteristics of a destination's ecosystem. He also suggested that with the assistance of virtual reality, tourism planners can evaluate the layout of a proposed infrastructure along with the virtual streets to determine the impact of a destination on the environment and ecosystems as well as its carrying capacity before the actual physical development of the site begins. According to Guttentag (2010) this opportunity to communicate a tourism plan to business partners or stakeholders in the community through a virtual world can be very useful in enhancing involvement of local communities in the planning process. As he pointed out, by creating a virtual environment for illustrating tourism plans, tourism managers can not only present tourism development plans in a community meeting

setting for relevant authorities, answer questions and receive input from the local community, but also make these plans available to the public via the Internet.

More specifically, Lee and Wicks (2010) maintain that "tourism-related industries, especially hotels and resorts (e.g., Hyatt), use Second Life for consulting architects and their guests on how to improve their hotel design and functionality" (p.44). For example, Starwood Hotels and Resorts Worldwide, Inc, a hospitality ownership and management organization, used Second Life for tourism management and planning by building a prototype of a hotel, Aloft, to test-market its design in 2007 (starwoodhotels.com). This digital model of the hotel based on a physical prototype under construction in New York City was utilized by hotel staff to observe how consumers moved through the space and what types of furniture they preferred (Jana, 2006). Brian McGuinness, Vice President of Aloft hotels worldwide, stated that "Second Life has been a tremendous learning experience for the Aloft brand. Our time spent on the island helped us to create what will surely be the ultimate destination sensation" (starwoodhotels.com).

The Aloft hotel project in Second Life not only was used to obtain customer feedback on real-world hotel design but also to attract youthful and tech-savvy customers to the Aloft brand. Jana (2006) claimed that "while Starwood's approach to developing the Aloft design is certainly innovative, the long-term test for the company will be to lure Second Lifers, and, more importantly, real life guests, toward the brand" (cited from businessweek.com). Later research conducted by Hay (2008) suggests that virtual worlds such as Second Life have this potential to test the concept of a hotel as well as to develop a dialogue with consumers which may help to develop brand loyalty.

In addition to increasing accessibility to global customers and developing tourism destinations, virtual reality technology provides opportunities for tourism businesses to provide teleconferencing and virtual conventions as new services and products. According to a study of the trends in business travel conducted by the World Travel and Tourism Council (WTTC) (2010), "virtual meeting technology offers a ready alternative to in-person meetings. And environmental concerns have begun to influence both corporate and government policies regarding travel" (p.1). Cheng (1995), in discussing the impact of virtual reality on business travel, indicated that today's businesspeople can participate in business functions or attend meetings via a virtual reality platform and through the incorporation of telecommunication media. In addition, virtual participants can build social networks by taking part in such conventions, just as they would at a real world convention.

Research conducted in the first decade of the 21st century supports this use of virtual worlds, and as Harry and Donath (2008) suggested these worlds can be used not only to recreate a familiar physical world but also to utilize and augment social interaction and personal experience through meetings spaces. Similarly, Zeltin (2008) asserted that through virtual conferencing, people can meet and chat with new friends, visit product exhibitions, and watch product demonstrations via virtual reality communication technology using 3D graphics and live video without being physically present. Boorstin (2009) found that international businesses such as Cisco, Dell, Xerox, and Intel are using Second Life to host meetings with employees, recruit new personnel, and hold job training sessions. He also pointed out that seminars and high tech

demonstrations are often delivered through virtual conferencing as a means of saving the cost of international travel as well as to enhance the productivity of those attending meetings. For example, IBM hosted a Second Life conference with 250 employers, thus saving the company US$ 230,000.

More recently, tourism businesses, for example InterContinental Hotels Group, extended its meeting concept to the Second Life virtual world by launching Crowne Plaza's The Place To Meet Island. This Island, which was designed as a virtual place for businesses and Second Life residents to meet in a secure environment, consists of three types of meeting facilities for various sizes of groups, all with the capacity for streaming audio, video, and slideshow presentations, as well as with chairs simulating the chain's real-world Herman Miller chairs (Frary, 2007). Crowne Plaza believing that it is important for its future to have a presence in SL, states that "as companies are becoming increasingly interested in utilizing virtual spaces for their business needs, IHG determined there is a need for private, independent, purpose-built meeting spaces in the virtual world" (cited from Maven, 2007). Additionally, from communication and brand perspectives, a presence in Second Life and the potential of offering similar services in virtual worlds provide an opportunity for IHG to enhance its brand value (nevillehobson.com). In sum, virtual worlds such as Second Life offer advantages for tourism management, decision-making related to site and building design, and services that can assist with the management of tourism as well as other industries, organizations and products.

Virtual Worlds and Tourism Marketing

In addition to these advantages for tourism management, virtual environments can be applied to marketing tools such as advertising, internet, and sale promotion to communicate with consumers to influence tourist decision making (Middleton and Clarke, 2005). Tourism destination markets are utilizing virtual reality technology to provide travel information, believing the virtual environment is an effective emerging tool for destination marketing. A study of travel and tourism in virtual worlds conducted by KZero (2009) found that the benefits of using virtual worlds in tourism marketing included global reach, interaction, engagement and integration for creating a new type of synergy, supporting Werthner and Klein's (1999) early conclusion that multimedia and virtual reality applications enable tourism marketers to improve the internal and external cooperation process and directly access consumers globally.

According to Gretzel and Jamal (2009), virtual worlds such as Second Life offer a new way for visitors to experience tourism destinations. For instance, a three-dimensional Chichen-Itza was created in Second Life by the Mexico Tourism Board for visitors to experience Mexico's history and culture virtually (Fox, 2008). This virtual representation offers tourists the opportunity to experience a variety of interactive and realistic attractions within virtual site, including climbing over the great pyramid El Castillo or visiting a traditional Mayan home (Laseca, 2007). This virtual Mayan world in Second Life provides an audio tour with steaming videos, giving visitors relevant information about such features as how the Mayan ruins are based on the traditional limestone construction of the ancient Mayans, surrounded by lush green vegetation and

underground rivers (Laseca, 2007). Francisco Lopez Mena, CEO of the Mexico Tourism Board, stated that "we are proud to share with the world this Mexican landmark and heritage and we are very excited to be promoting Chichen-Itza in this new medium, and encourage everyone to visit the site and cast their vote for Chichen-Itza as a new seventh wonder" (cited from Laseca, 2007). The virtual site also offers a space for visitors to socially interact with others by discussing Mayan culture and history within the virtual community.

A study of the use of e-marketing by tourism destinations conducted by WTO and ETC (2008) found that tourism marketers participating in virtual worlds need an integrated marketing strategy taking into account the experiential nature of tourism. Because tourism is a hedonic consumptive service, aspects of the marketing strategy must incorporate emotional, multi-sensatory and fantasy elements to create brand images of destinations. According to Cheng (1995) this ability to provide vicarious experience is an advantage that virtual worlds have over the traditional marketing tools such as brochures and the multimedia software packages, placing potential visitors in a better position to experience the destination and to make the decision to take a trip as well to make the necessary travel arrangements.

Launching the first marketing campaign in 2007 to promote a tourism destination, Tourism Ireland produced a range of events as well as activities such as broadcasting a live concert performance in Second Life and a photographic exhibition of the Irish landscape as a method to promote the real-world city of Dublin. As part of this marketing campaign, Tourism Ireland hosted the first St. Patrick's Day Parade in this virtual world.

Visitors participated in one of the world's biggest celebrations virtually, by enjoying treasure hunts, live bands and DJs, an Irish music expo called Snakes, and a digital exhibition of Irish artwork. Mark Henry (2008), Tourism Ireland's Director of Central Marketing, stated that "Tourism Ireland is committed to using eMarketing to the best possible effect in promoting the island of Ireland as a holiday destination and our involvement in Second Life is about finding new ways to connect to today's web-savvy consumer" (cited from tourismireland.com). Because of the potential to promote destinations in a three-dimensional virtual world, Tourism Ireland has invested substantially in web-based tourism marketing, spending approximately 1.6 million Euro dollars in 2008. The target markets for Second Life Ireland are the four major tourist segments of Great Britain, US, Germany and France (tourismireland.com).

In addition to providing a virtual representation of a real-life destination, the use of virtual worlds in travel and tourism is considered to be an innovative marketing approach. Hjalager et al. (2008) suggested that destination marketing organizations need to explore the use of virtual worlds such as Second Life to launch new paradigms for marketing so as to provide advantages in a multi-beneficial way to tourism industry users. Supporting this marketing concept, Hay (2008) suggested that virtual worlds provide an opportunity to bring new products to the attention of a younger generation of consumers as well as to tap into new markets. Further, he pointed out that tourism marketers can utilize virtual sites to promote destination branding as well as to enhance or change the image of their destinations.

Similar to Tourism Ireland, The Philippines Department of Tourism created a virtual site in SL as part of a marketing campaign to promote tourism but to a specific target market of young adults and music lovers. Visitors can use the virtual island to explore a multitude of tourism attractions in the Philippines and to participate in activities such as diving at the mouth of Donsol River, windsurfing at the white sands beach of Boracay, or flying over the volcano of Mount Mayon. Joseph Durano (2009), Secretary of Philippines Department of Tourism, asserted that "as much as it is about showcasing some of the amazing destinations the Philippines has to offer, it is also about youth participation. As a tourism board, we recognized the value of engaging young people online and we embrace co-creation alliances with our guests" (Cited from traveldailynews.com). Through its partnership with the MTV Asia network, the Philippines Department of Tourism incorporates traditional marketing channels to synergize communications and marketing to enhance its brand awareness. Indra Suharjono, Executive Vice President of MTV Networks, indicated that by combining the digital platform of Second Life and the TV medium, the marketing campaign for Philippines destinations allows young consumers to engage, interact and virtually experience the Philippines in new ways (news.prnewswire.com).

Similarly, the simulation of the St Louis Arch in Second Life, which includes virtual versions of the city's recognizable monuments, streets and buildings, was built as a way to tap into virtual tourism (Volkmann, 2008). According to Kathleen Ratcliff, President of the St. Louis Convention and Visitors Commission, the purpose of this virtual destination in Second Life is to create interest and to motivate virtual visitors to

leave their computer chairs to visit St. Louis in person. She believes that virtual worlds will become the next evolution of the Internet, where people can experience three-dimensional places to gather travel information and to gain a sense of the tourism destination instead of clicking a mouse in flat words. Although the Arch is a three-dimensional tourism destination in virtual space, the money invested by tourism promoters in online real estate, and the design and building of the St. Louis Arch in this virtual world was real (Volkmann, 2008). According to Brian Hall, a spokesman for the commission, "We've taken our marquee attraction, the Gateway Arch, that is known around the world and we've replicated it within the context of Second Life" (cited from Rubin, 2008). Heightening the profile the virtual St. Louis Arch allows tourism marketers to access and communicate with more consumers around the globe.

Virtual Reality and Tourism Education

In addition to offering new possibilities in destination marketing, virtual worlds are affording opportunities for creating interactive immersive environments in a tourism educational context as well (Eschenbrenner, Nah & Siau, 2008). According to Buhalis and Law (2008), e-learning is widely used in the tourism business for delivery training opportunities developed to enhance the skills and knowledge of personnel. Their findings indicate "the prospect of flexible location, cost effective and time independent learning environments may encourage tourism managers to participate more in training sessions" (p. 619).

Travel and tourism educators have also begun to explore the potential using the technology and media in virtual environments to improve the outcomes of the learning

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process. Penfold (2008) asserted that virtual worlds utilizing gaming concepts and virtual reality offer real-world simulations for developing creative learning spaces, while Jennings and Collins (2007) found that educational institutions across the globe have begun to use virtual environments for experiential learning and collaboration among different disciplines, regardless of geographical boundaries.

Tourism educators are also beginning to adopt these innovative tools and techniques in teaching and learning; as Buhalis and Law (2008) pointed out, virtual learning environments can be used to support classroom teaching, stimulate discussion, and facilitate course administration. This cost effective, flexible training method is especially attractive in today's economic climate in which limited resources constrain employers (especially the small tourism business) from sending employees to expensive training courses (Collions, Buhalis and Peters, 2003). Penfold (2008) explored the application of virtual environments in hospitality and tourism education, concluding that they provide the opportunity to engage students effectively. Singh and Lee (2008), exploring perceptions of tourism and hospitality education in a virtual environment, pointed out that tourism educational institutions need to adopt and use the next-generation technology tools for effectively preparing future tourism and hospitality students. They also indicated that in order to increase the effectiveness and efficiency in tourism training and education, virtual worlds can provide the necessary tools to engage users by supplementing traditional classroom lecture with immersive opportunities that encourage interaction between faculty and students.

The most well-known and active 3D virtual environment platform in education is Second Life. According to the founder of Second Life, Rosedale, currently more than 500 educational institutions are utilizing it to provide classes and online learning, and more than 4,000 educators have joined the Second Life educator's mailing list (cited from Penfold, 2008). Mason and Moutahir (2006) assert that Second Life offers the unique features of immersion, ease-of-use, wide availability and low barriers of entry for its use in education. As Baker, Wentz, and Woods (2009) pointed out, Second Life includes not only numerous virtual campuses but also museums and galleries. For example, Harvard University's law school conducts class in virtual worlds, and faculty members at Vassar College meet with students and display digital artwork in Second Life. The University of North Carolina hosts virtual health clinics and the University of Kentucky hosts Second Life library help centers, admissions offices, and visitor centers. Music performances are hosted by Princeton University in Second Life.

Similarly, according to Bruce Rafert (Chairman of the Carolina Virtual World Consortium [CVWC's] Board of Directors and the Dean of the Graduate School at Clemson University), Clemson University co-founded the CVWC to facilitate collaboration among different disciplines across campuses and universities not only for incorporating virtual worlds such as Second Life into teaching and education but also for pursuing federal funding that spearheads virtual worlds research. Clemson University faculty from the English, Education and Computer Science departments, in partnership with Appalachian State University, worked collaboratively on a recent immersive

learning grant for an award of $1.49 million from the National Science Foundation (clemson.edu).

Investigating the 3D virtual environment of Second Life to integrate the idea of project-based learning, community-service learning, and study abroad experiences, Mason and Moutahir (2006) found that virtual worlds are a new type of collaborative workspace for students to identify a social issue and develop a technological solution in the real world. For example, the Virtual Morocco project involved a student team that identified a social issue identical to a real world problem and then developed a technological solution for it. The core components of the project are experiential education, service learning and online collaboration. The use of the virtual environment for education provides an opportunity for students to apply their academic skills and abilities. Specifically this program offered an opportunity to study tourism development in Morocco and for multidisciplinary collaboration among students from varying backgrounds including technology, business, and hospitality (Zorica, Špiranec and Pavlina, 2007). The students' learning experiences with G.O. Morocco project allowed them to enhance their cultural awareness of a moderate Muslim country and contrast them with assumptions about Muslims that are sometimes seen in the United States (Mason & Moutahir, 2006). In addition, Johnson & Wales University used this as collaborative workspace to provide its students with an understanding of innovative technology and its business application in the tourism and hospitality industry that enhanced their skills and careers.

A similar virtual campus in Second Life was created by the School of Hotel and Tourism Management (SHTM) at The Hong Kong Polytechnic University. The virtual campus was designed to incorporate various aspects of hotel operation and has been used as a teaching tool for hotel and tourism students (Herold, 2009). The primary purposes of this virtual campus were to provide a cost-effective platform to explore teaching and learning within a 3D virtual environment, to encourage innovation and research in educational technology, and to offer real-world scenarios for teaching and learning for the hospitality and tourism field (Penfold, 2008). On this island, four hotels and a conference center were built to teach tourism and hospitality students about hotel design as well as customer service. Based on this experience, Penfold (2008) advocates and imagines how "Second Life could become part of every university's teaching toolkit—enabling them to provide a shared, interactive learning space where students and teachers can meet together in real time for creative learning activities. Business organizations will also find ways to collaborate, communicate, and provide training for their employees, and in so doing begin to interface with education" (p.156).

A more recent application illustrating how Second Life can be utilized in teaching tourism is a sustainable tourism course entitled "The Use of Second Life as a Planning Tool" at the University of Southern California. A virtual representation of Jaco Beach, Costa Rica was created to teach coastal development, the effects of climate change, and sustainable tourism in Costa Rica. The project provided students with the opportunity to meet Costa Rican policymakers and developers in Second Life for developing a tourism scenario to understand the impacts of climate change on sustainable tourism development

in coastal regions and the adaptation to global climate change (cited from sustainabletourismsl.info). While working in the virtual space, students learned how to develop a real-world scenario in Second Life to achieve the visualizations they wanted and how to use virtual reality technology as a tourism planning tool.

Virtual Reality and Tourist Consumer Behavior

Although there are numerous examples of how virtual worlds are being used in innovative ways for the marketing of destinations and for educational purposes, understanding the extent to which virtual tourist experience leads to real-world travel raises a complicated set of questions. Montinho (1987) indicated that in the travel decision-making process, a favorable attitude and positive feelings toward a tourism product or destination is influenced by advertising and mass communication. Virtual environments provide travelers with opportunities to search for travel information, to book accommodations, and to make purchases via the Internet, thus reducing some of the risks associated with trip planning (Buhalis, and Law, 2008). In addition, surfing tourism destinations in the virtual worlds provides potential tourists with vicarious experiences as well as information resources that can be used to make travel arrangements (Crott, 1999). Because virtual reality technology can provide customized information for travelers in various stages of their trip planning process, as explained by Gretzel and Fesenmaier (2009), customers can benefit from the use of internet and virtual reality technology in their travel decision making. In fact, Bai et al. (2005) found that individuals who used virtual tourism environments to assess travel information reported higher levels of satisfaction with their travel experiences than those who did not use such sites. As Cheng

(1995) suggested, these virtual reality systems can serve as useful tools for travel agencies by providing tourist opportunities so that potential travelers can experience the destination. He also pointed out that the virtual environment provides tourists with an opportunity to visit a tourism destination so that they become immersed as they experience destination's atmosphere before taking an actual trip or making a travel decision.

The STA Travel Island is an example of the use of Second Life in providing tourists travel information that can used to aid in their tourism decision making. Virtual STA Island was established to raise brand awareness by a real world student travel organization, STA Travel. The island includes the following: a mall for selling virtual services/products, an information center for providing information related to STA travel, a lounge area for social networking among residents, and a pavilion for hosting in-world events. The STA information center in the virtual island serves as a travel agent, providing travel guidance related to exciting places in Second Life, as well as hosting a number of events which highlight real-life travel opportunities. According to Ives and Piccoli (2007), the primary goal for building STA was not to produce a revenue stream but to attract tourism marketers who are interested in investing in virtual worlds because of the pressure to integrate the firm's product into virtual environments.

In addition to the use of virtual world and Internet technology by tourists searching for travel information and for making travel arrangements, virtual reality can be used to enhance their awareness of a particular culture in a tourist destination. Sturken and Cartwright (2009) discussed the social meaning of image, suggesting that image

icons are historically and contextually produced to represent universal concepts, emotions and meanings to evoke similar responses in all cultures and in all viewers. For example, Second Life Route 66 includes the images that one would expect see on a Route 66 holiday road trip thorough the American West. This trend can also be seen at Muse's Turner Gallery, its cultural displays of cultural having a significant historical and symbolic meaning to the British upper class. Respectively, these sites present a virtual environment functioning as educational and cultural symbols of America and Britain (Book, 2003).

Social factors also play an important role in influencing vacation decision processes, as suggested by Middleton and Clarke (2005), who indicate that social factors are informal channels influencing the travel decision process and are directly linked to motivation. Crompton (1977) affirmed that social stimuli, as external inputs, influence cognitive constructs in the vacation destination decision process, while Xiang, and Gretzel (2010) asserted that virtual communities have gained substantial popularity in assisting with information search and personal experience sharing, a situation which has implications for destination branding. They also confirmed the increasing importance of travel-related virtual communities for tourism marketing, emphasizing the importance for tourism marketers to understand the characteristics and motivations that drive online travelers to visit virtual worlds. Wang, Yu and Fesenmaier (2001) pointed out that these virtual travel communities can help tourists fulfill various travel-related tasks, ranging from seeking travel information and tips to fostering relationships with people living far away to finding travel companions. They also indicated that the virtual communities can

meet members' functional needs through the exchange of information and experiences related to travel decision making.

Addressing the notion of social interaction in the context of virtual worlds, Berger et al. (2007) asserted that virtual reality technology goes beyond the possibility of traditional text-based chat rooms by offering a platform where people can engage in conversations in a more genuinely interpersonal social context. For example, people may exchange travel information about tourism destinations, share personal experiences, and form a community so that they can enjoy interaction with other people. Researchers have also claimed that the immersive nature of 3D virtual worlds supports the ways in which people act and communicate in real life, thus fulfilling the consumer's social needs by providing a realistic experience. For instance, STA Island was also designed as a virtual community to motivate tourist return visits to the island by providing a sandbox for visitors, a public place for residents to share their travel experience and photos, and special events for visitors to meet new friends (Ives and Piccoli, 2007).

Another example of virtual worlds fulfilling social needs is the TECH museum in Second Life. Annually, this museum hosts a virtual International Museum Day in Second Life, the goals being to facilitate community connection and to build a collaboration between Museum professionals around the world. The TECH Museum in Second Life comprises three areas: (1) a welcome area for staff to greet customers, (2) a lounge area used to discuss museum ethics, and (3) an outdoor sound garden. As stated by Alissandra Cummins, President of the International Council of Museums, International Museum Day shows that it was possible for visitors to gather in a new way to interpret the past,

showing "how museums can help bridge the divide between the virtual and real world through new creative interaction between museum professionals" (cited from thetech.org).

Not only can virtual reality allow travelers to gain information to be used in trip planning, but it also offers a travel experience for those who cannot travel because of physical disabilities or a debilitating illness (Cheng, 1995). Williams and Hobson (1995) found that one of the specific benefits in using the virtual world in the context of tourism is that the physically disabled can use virtual bodies to overcome their handicap and experience virtual tourism sites. Similarly, Boulos et al. (2007) asserted that "Second Life could be used to entertain older people and people with physical disabilities to help them combat social isolation and loneliness" (p.241).

Virtual Ability is one example of a virtual tourist experience in Second Life for disabled or elderly people unable to travel. Its goals are to help military people with disabilities or chronic illness and their families integrate into the virtual society and to establish best practices for providing on-line peer-to-peer support services for their community members (virtualability.org). The Virtual Ability community offers its members a variety of services including information searching, training, encouragement, and referrals to other online resources as well as virtual field trips. Although learning to use the innovative technology may be a challenge for people with disabilities, Virtual Ability provides assistance for its members to access and to become successful in virtual worlds such as Second Life. The exploration and navigation of virtual worlds (e.g. walking in virtual woods, climbing mountains, skydiving, and dancing) are a profound and amazing experience for someone with disabilities (virtualability.org). With guidance

from Virtual Ability, the members can enjoy virtual field trips to gain confidence in their rehabilitation and to receive social support from the community.

Although there are a number of exciting projects being undertaken, the integration of virtual worlds into tourism sectors is in its infancy and only a limited amount of research has been conducted to investigate the use and application of virtual worlds in travel and tourism. According to Guttentage (2010), "virtual reality technology is evolving rapidly……and virtual tourism research needs to be constantly re-validated through continuous investigation" (p.647). It can be argued that much of the research found on the use of virtual worlds such as Second Life in travel and tourism can be characterized as being in the infant stages of development.

Technological Acceptance Factors

Technological acceptance factors refer to those aspects of a virtual destination that may influence customers to use the virtual site. The Technology Acceptance Model (TAM) was used in this study as a guide for understanding the factors associated with experiencing a virtual tourist destination.

Technology Acceptance Model

The Technology Acceptance Model has been applied in previous research as a theoretical model to explain the acceptance of new information technologies (Koufaris, 2002; Liu, Lian and Pratt, 2009) and related applications such as mobile technology (Kim, Park and Morrison, 2008), online games (Hsu and Lu, 2004), virtual communities (Noor, Hashim and Haron, 2005), and virtual worlds (Saeed, Yang and Sinnappan, 2009;

Fetscherin and Lattemann, 2008). Initially, TAM was proposed by Davis (1989) to predict an individual's acceptance of information technology, postulating two fundamental determinants of user acceptance and behavioral intentions, perceived usefulness and perceived ease-of-use. Perceived usefulness refers to the extent that people believe information technology will help them perform their jobs better. Perceived ease-of-use refers to whether an application is easy to use, meaning the performance benefits are not outweighed by the effort of using the application.

In the past decade, TAM also has received considerable attention from tourism researchers in the information technology field. Building upon TAM as a conceptual framework to explain the factors affecting tourist acceptance of mobile technology within a tourism context, Kim, Park and Morrison (2008) found that TAM provided a better understanding of traveler's acceptance of this technology, suggesting that perceived usefulness and perceived ease-of-use were key elements influencing traveler's attitudes and intentions to use mobile devices in the trip decision making process. In addition, using its framework, Kaplanidou and Vogt (2006), in their examination of the influence of tourism web site characteristics and perceived web site usefulness on intentions to travel to a destination, indicated that intentions to travel were predicted by destination web site usefulness. Applying TAM to capture the adoption behavior in hospitality organizations, Wang and Qualls (2007) pointed out that TAM can be useful in better understanding a hospitality organization's technology adoption, indicating a positive relationship between perceived of ease-of-use and perceived usefulness of adoption. Noor, Hashim and Haron (2005), based on theoretical framework of TAM, investigated

community acceptance of knowledge sharing in tourism web sites, concluding that consumer intentions to share travel experience were related to perceived ease-of-use and usefulness of the travel and tourism websites.

Applying the Technology Acceptance Model (TAM) to predict user acceptance of online gaming, Hsu and Lu (2004) used Davis's (1989) perceived ease-of-use and usefulness scales to explore online game play behavior, their results indicating that these two constructs are useful for understanding online gaming. In addition, Fetscherin and Lattemann (2008), using the Technology Acceptance Model to investigate user acceptance of virtual worlds, determined that the constructs of perceived ease-of-use and usefulness had validity and reliability in understanding the use of the virtual worlds. Examining multi-user virtual environments in an educational context, Saeed, Yang and Sinnappan (2009) employed these constructs to explain the usage and acceptance of virtual worlds, validating that these two constructs are practical and useful in understanding the virtual experience in the context of virtual worlds.

Recent research has demonstrated that perceived ease-of-use and usefulness are important aspects of the factors that can be used to understand the traveler's experiences of tourism websites or related tourism information technology. Further, this review suggests a link has been found between the perceived ease-of-use and usefulness and virtual experiences in virtual worlds. Thus these two constructs of perceived ease-of-use and usefulness are included in this study to explore the how users experience a 3D virtual tourism site.

Tele-Presence

Tele-presence is another construct related to the use of a virtual reality destination. The construct of tele-presence is an important aspect in understanding experience within the context of a virtual environment because of its visual, audio, and kinetic impacts on avatars. Sturken and Cartwright (2009) pointed out, "virtual reality systems create simulations that attempt to provide an experience in which players feel as if they are physically incorporated into the world on all sensory levels" (p.177).

Garau (2003) indicated that the virtual platform provides a visually surrounding environment, offering a multisensory experience through other media such as audiovisual interaction to enhance the sense of immersion. Williams and Hobson (1995) asserted that the combination of visual, audio and kinetic effects provides the users with the ability to see, hear and touch real-life images, creating the feeling of presence. Goel and Mousavidin (2007) found that "virtual worlds allow individuals to share the same virtual space with an enhanced level of social presence in the forms of avatars, making the experience interactive, immersive, dynamic, and hence closer to real life".

Based on the principles of user experience design, interface design, technical communication and motivation theory, Williams and Switzer (in press) proposed an assessment for 3D virtual world environment evaluation and indicated that the concept of tele-presence is an important component for engaging in the experience and the tele-presence of avatars in virtual environments, making people feel like others are "there". Witmer and Singer (1998) pointed out that people "perceive that they are interacting directly with a virtual environment" (p.227). Schuber et al. (2001) characterized the

perception of tele-presence by spatial presence, involvement, and realism, indicating that when people travel through virtual environments and interact with virtual objects, a sense of tele-presence is developed from the interpretation of the mental model of the virtual space, and Lucia et al. (2009) concluded that "the more sensation of feeling being there is strong, the more the experience is meaningful" (p.222).

Research has shown that tele-presence can be used to evaluate virtual experience in Second Life. Thus, integrating the sense of tele-presence in virtual tourism destination design is important in creating an engaging and immersive visitor experience, so that the visitor perceives the sensation of being there as defined by virtual environments.

This review of the current literature suggests that the components of perceived ease-of-use and usefulness as well as tele-presence are important aspects of a web-based tourism environment as well as the virtual world experience. It is important for tourism researchers to incorporate the constructs of perceived ease-of-use and usefulness as specified by TAM for understanding 3D virtual tourist experiences. Further, the virtual reality literature has demonstrated that the concept of tele-presence is an important factor for understanding the virtual experience within immersive 3D virtual environment. Based on TAM and the concept of tele-presence, this study uses perceived ease-of-use, perceived usefulness, and tele-presence as technological acceptance factors for understanding virtual tourist experience in a 3D virtual tourism environment.

Psychological Needs

Self-Determination Theory (SDT) is a well-validated framework applied in different contexts such as personality integration, social development, internalization of

extrinsic motivation, intrinsic motivation and enjoyment (Deci and Ryan, 1985; Ryan and Deci, 2000; Sheldon and Kasser 1998). SDT is an approach to human motivations and personality in understanding the importance of humans' evolved internal resources for personality development and behavioral self-regulation (Ryan, Kuhl and Deci, 1997). According to Ryan and Deci (2000), SDT investigates people's innate growth tendencies and psychological needs that are the basis for self-motivation and personality integration. It identifies three psychological needs for facilitating optimal functioning of the natural propensities for growth, integration, social development and personal well-being. These needs are competence, autonomy and relatedness. Understanding whether and how these psychological needs are fulfilled in the context of the 3D virtual world of Second Life lends further insight into the virtual tourism experience.

Research has shown that people who satisfy the psychological needs of competence, autonomy, and relatedness are more likely to persist and achieve performance and satisfaction in various activities in a variety of domains such as education, behavioral health, and leisure (Frederick and Ryan, 1995; Ryan and Deci, 2000; Deci, Vallerand, Pelletier and Ryan, 1991). Early research (Deci and Ryan, 1985) led to the development of the cognitive evaluation theory (CET), a sub-theory of SDT, focusing on the contextual factors that either support or undermine intrinsic motivations. CET proposes that events or conditions that enhance a person's sense of autonomy and competence facilitate intrinsic motivations, whereas factors that diminish perceived autonomy or competence thwart intrinsic motivations (Ryan and Deci, 2000 and Deci and Ryan, 1985).

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In SDT, autonomy implies individuals' feelings of volition and opportunities for self-directed action. When an activity engages individuals' interests and allows them to experience freedom, their sense of autonomy is enhanced (Przybylski et al., 2009). Choice, freedom, and the use of rewards as feedback have been demonstrated to elevate individuals' sense of autonomy that subsequently leads to enhanced intrinsic motivation (Deci, Koestner and Ryan, 1999). The need for competence suggests that when individuals perform an activity, they need to feel effective in their interactions with environments. CET holds that activities that provide opportunities for experiencing competence will be more intrinsically motivating (Deci and Ryan, 1985), thereby indicating that opportunities to exercise skill or abilities should be optimally challenging or receive positive feedback to enhance the experience of competence, and in turn intrinsic motivation (Przybylski et al., 2009). The need for relatedness is the need for the relational support of significant others such as parents, teachers, and managers. SDT suggests that in an interpersonal setting, an enhanced sense of security and relatedness tends to increase intrinsic motivation (Ryan and Deci, 2000).

Recent research by Ryan et al., (2006) empirically tested the Self-Determination Theory in relation to gaming motivation based on the idea that players seek to satisfy their psychological needs in the context of play. In their study, they pointed out that game features of virtual environments provide opportunities for players to experience autonomy, competence and relatedness, suggesting the SDT framework is useful and practical in understanding psychological components of gaming experience. Furthermore, Przybylski et al., (2009) investigating gaming motivation, confirmed that virtual contexts

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of video games can engender the experiences of autonomy, competence and relatedness, indicating that SDT enhances the understanding of game play in the virtual environments. Tamborin et al.'s (2010) study defining media enjoyment based on SDT demonstrated that the conceptualization of enjoyment in entertainment research can be defined as the satisfaction of the psychological needs of autonomy, competence, and relatedness.

The psychological needs of autonomy, competence, and relatedness as specified by Self-Determination Theory were selected for this study, because as past research suggests, these three psychological needs are important aspects of the virtual experience in 3D virtual worlds.

Virtual Tourist Experience

Traditionally, the tourist experience has been defined as the temporary movement of people away from their usual world and home, examining the activities they participate in during their stay. Conceptualizing the concept of the tourist experience has challenged researchers since the early 1960's (Uriely, 2005). Despite the fact that the tourist experience has been the focus of the tourism research for past 50 years by leading researchers (e.g. Cohen, 1972; 1979; Krippendorf, 1984; MacCannell, 1973; Pearce, 1982; Ryan 2002; Smith, 1978; and Urry, 1990), there is no agreement on the definition of the tourist experience.

Ritchie and Hudson (2009) pointed to one of the most difficult challenges facing tourist researchers, understanding the tourist experience and then assessing the degree to which this tourist experience is related to information-seeking behavior and decision-making. In spite of challenges facing tourism researchers, they do generally agree that

the individual's tourist experience is influenced by surroundings. Barlow and Maul (2000) argued that modern consumers desire experiences that symbolize something meaningful.

According to Aho (2001), emotional experiences are an important aspect of the tourist experience. Recently, researchers have focused on understanding the experiential, symbolic, hedonic and emotive aspects of tourist experience (Mannell and Iso-Ahola, 1987). Arnold and Pirce (1993) were among the first to examine the tourist experience rather than focusing on products and services, in their study of river rafting in which they explore on the importance of the hedonic and symbolic aspects of the experience, while Bruwer and Alant (2009) investigated the hedonic consumptive experience in the context of wine tourism. The results of their study point to the importance placed on the enjoyment and pleasure sought by the visitors.

Rooted in marketing literature, Hirschman and Holbrook (1982) defined hedonic consumption as "those facets of consumer behavior that related to multisensory, fantasy and emotive aspects of product usage experience" (p.92), asserting that the hedonic consumption perspective is not intended to replace traditional theories of consumption but to supplement and extend our understanding of consumer behavior in marketing. They concluded that hedonic consumption behavior is concerned with emotional and imaginative responses to products.

Several hedonic constructs have begun to receive consideration and attention in the literature on human and computer interaction, including perceived enjoyment (Nah, Eschenbrenner and DeWester, 2010; Roca and Gagne, 2008), emotional involvement (Holsapple, and Wu, 2007), positive emotions (Baños et al., 2008) and flow experience

(Novak et al., 2000; Skadberg and Kimmel, 2004), and recent research in computer-mediated environments has applied the theory of hedonic consumption behavior to explain the usage and acceptance of entertainment-oriented information technology. Hoosapple and Wu (2007) proposed a hedonic framework for investigating user acceptance of virtual worlds, emphasizing the potential of the impact of imaginary and emotional responses to consumer behavior in the virtual worlds, such as emotional involvement, perceived enjoyment, and fantasy. Their research framework not only reflects the nature of entertainment in virtual reality technology but also captures the concept of the dual identity of consumers and technology users.

A study conducted by Goh and Yoon (2011), examining facilitators and inhibitors of hedonic virtual world acceptance, found that research on understanding the usage and acceptance of virtual world should incorporate hedonic factors. Their results indicated that perceived enjoyment contributes to understanding user's experience in a hedonic virtual world. Saeed, Yang and Sinnappan (2009) explored user experience of a 3D multi-user virtual environment within an educational context, finding that the hedonic elements of emotional involvement and perceived enjoyment should be taken into consideration when predicting user experience of entertainment-oriented technologies.

Based on the tourist experience and hedonic consumption experience literature, this study includes enjoyment, positive emotions, emotional involvement and flow.

Enjoyment

Mannell and Iso-Ahola (1987) suggested that tourism researchers address questions that seek to understand psychological and outcome relationships such as how

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enjoyment factors fit into the context of the tourism experience. Anderson (2007), studying tourist experience, suggested that considering tourism planning as a rational efficient activity is limited and researchers need to recognize the importance of enjoyment that will lead to imagination of a tourism destination. Ryan (2002) argued that the component of enjoyment is an important aspect of the tourist experience because tourists are motivated to enjoy a tourism destination. Carmichael (2005) investigated the tourist experience in wine tourism, suggesting that the dimension of enjoyment is important in understanding service quality and tourist purchase behavior.

In addition, past studies have indicated that the construct of enjoyment is one of the key hedonic factors for understanding virtual experience in human and computer interaction. Based on Davis et al.(1992), Venkatesh (2000) defined enjoyment in the computer-mediated environment as "the extent to which the activity of using a specific system is perceived to be enjoyment in its own right aside from any performance consequence resulting from system use" (p.351). The study conducted by Gulikers, Bastiaen and Martens (2005) investigated the relationship between engagement and persistence in electronic learning environments, suggesting that virtual worlds provide a game-like realistic simulation for participants to play, and they found that the concept of enjoyment, which captures the entertainment nature of the technology of interest, is an important motivation for participation in virtual worlds.

Recent research has demonstrated a binary relationship between enjoyment and tourist experience. In addition, the virtual reality literature suggests that enjoyment is an important aspect of the experience in virtual worlds. Thus, the construct of enjoyment

was included in this study to understand virtual tourist experience in a 3D virtual tourism environment.

Positive Emotions

Previous studies have focused a identifying the dimension of positive emotions and clarifying the nature of positive affect (e.g. Clark and Watson, 1986; Watson, 1988, Watson, Clark, and Tellegen, 1988). Tourism scholars have begun to recognize the important role of the positive emotions in the tourist experience because of the experiential nature of tourism products and services. Bigne and Andreu (2004), using positive emotions as a segmentation tool, categorized tourists' subjective experience and determined that the concept of positive emotions is a useful tool for segmenting tourists. They also suggested that service providers need to be aware of the importance of positive emotions in understanding the tourist experience, especially in relation to consumer loyalty and satisfaction. Further, Bigne and Andreu (2004) indicated that it is important to understand what factors influence positive emotions in explaining tourist experience. In their study of the emotional content of the tourist experience, Hosany and Gilbert (2010) pointed out that if destination marketers recognize the importance of positive emotions such as joy, love, and positive surprise in offering experiential qualities of tourism products, then they are more likely to be successful. Investigating the emotional nature of consumer decision making for experiential products and services such as vacations, Kwortnik and Ross (2007) suggested that "consumers experience a variety of positive emotions as they plan vacations, from facilitative feelings that guide the plan to fantasy feelings consumed for pleasure" (p.324).

In understanding experience in computer-mediated environments, research has examined the relationship between positive emotions and the virtual experience. O'Regan (2003), investigating the relationships between emotion and cognition in the context of online education, determined that positive emotions play a crucial role in influencing the virtual experience in computer mediated environments. In addition, Perlusz's (2004) study developing and validating a technology affect scale indicated that the construct of positive emotion is an important theoretical dimension in understanding interaction between human behavior and technology. Saadé and Kira (2006) investigated the role of the emotional state in understanding the usage behavior of web-based learning, suggesting that taking the construct of positive emotions into consideration should be able to explain more variance in user experience and behavior in the context of e-learning.

As current tourism literature suggests, the construct of positive emotion is an important aspect in understanding tourist experience. Further, because the relationship between positive emotions and virtual experience has been reported quite widely in the context of virtual environments, the construct of positive emotions is used in this study to help understand the virtual tourist experience within a 3D virtual tourism site.

Emotional Involvement

Tourism scholars have investigated the construct of emotional involvement in understanding the tourist experience. For instance, Poria, Butler, and Airey (2003), studying the tourist experience in the context of heritage tourism, suggested that a tourist's emotional involvement is related to the perception of a place as part of personal heritage influencing the visitor experience. Similarly, Poria, Reichel, and Biran (2006)

indicated that emotional involvement plays an important role in the relationship between the overall motivation to visit and the tourist experience. In addition, Poria, Biran, and Reichel (2007), examining the role of emotional involvement in influencing heritage tourist experience, concluded that for tourists who are emotionally involved, a virtual tour of the site can be used to "communicate the atmosphere of the city and pre-dispose the tourists for the anticipated experience"(p.135).

The concept of emotional involvement has received considerable attention in recent studies attempting to understand user experience of virtual worlds. Based on the components of imaginative and emotional responses to virtual worlds, Hoosapple and Wu (2007) developed a theoretical framework explaining user experience of virtual worlds. They pointed out that the construct of emotional involvement, which is defined as "the degree to which an individual is emotionally engaged in a behavior" (p.87), can help researchers understand why an individual wants to interact with a virtual world. Similarly, the study investigating hedonic consumption behaviors in a 3D multi-user virtual environment conducted by Saeed, Yang and Sinnappan (2009) suggested that emotional involvement rooted in hedonic consumption theory is one of the key factors in understanding user experience within the entertainment nature of virtual worlds.

The tourism literature suggests that the construct of emotional involvement is an important aspect in the tourist experience. Additionally, in virtual world literature, emotional involvement has been reported as an important aspect for understanding virtual experience within entertainment-oriented information technology. As a result, the

construct of emotional involvement was included in this study to explore virtual tourist experience within a 3D virtual tourism environment.

Flow

The current literature on the link between the concept of flow and virtual tourism is limited. However, scholars have pointed out that the concept of flow is important for understanding tourist experience in general (Filep, 2007; Jones, Hollenhorst, Perna, and Selin, 2000; Ritchie and Hudson 2009), as travelers seek to match their need for optimal experience with appropriate tourist activities. Csikszentmihalyi (2000) argued that tourists engage in tourism for experiential rewards. The escape component of the tourist experience suggests that people seek to get away from under- or over-stimulating environments so that they can experience flow. As suggested by Filep (2007), the concept of flow provides an opportunity to examine peak visual tourist experiences. Ritchie and Hudson (2009) explored the importance of flow as it related to the tourist experience, finding that flow is an important concept for tourism researchers; as Csikszentmihalyi (1975) argued, flow is not an all-or-nothing phenomenon as individuals may vary regarding the degree to which they experience flow. However, while flow has been examined in the context of tourism, it has not been examined in the context of virtual tourism destinations.

In examining the interaction between consumer behavior and computer-mediated environments, researchers used flow as a theoretical framework for understanding online consumer experience, finding it to be a useful construct (Novak et al., 2000; Skadberg and Kimmel, 2004; Richard & Chandra, 2005; Trevino & Webster, 1992). Recent studies

of virtual worlds suggest that flow can provide new insights to understand the virtual experience. Faiola and Smyslova (2009), investigating flow in immersive online virtual worlds, suggested that flow is a significant indicator in understanding virtual experiences. The study linking flow to consumer behavior in the virtual worlds conducted by Hooker, Wasko and Paradice (2009) indicated that the construct of flow can help to improve the understanding of an individual's virtual experience within virtual worlds. In addition, Nah, Eschenbrenner, DeWester and Park (2010) used flow as a theoretical foundation to understand its impacts on consumer behavior within 3D virtual worlds, emphasizing its importance in explaining the 3D virtual world's experience.

As tourism literature indicates, flow can be used to understand tourism experience; personal experience and research into human and computer interaction likewise suggests that flow applies to understanding virtual experience within virtual environments. For this reason, the construct of flow was used in this study to explore virtual tourist experience in the context of 3D virtual tourism environment.

Reviewing the current tourism literature, this study has found hedonic constructs of enjoyment, positive emotions, emotional involvement and flow are important aspects for understanding the tourist experience. In addition, a review of current virtual reality literature has showed that hedonic constructs have been used as a framework to explore the virtual experience in computer-mediated environments. Recognizing the importance of hedonic consumptive experiences, the variables were selected for this study-- enjoyment, emotions, emotional involvement and flow--because they are important factors for understanding the virtual tourist experience within an immersive virtual world.

Behavioral Intentions

This study is also concerned with the premise that individuals will respond to the virtual site by taking actions such as requesting additional information or expressing an interest in visiting the virtual or real-world destination in the future. In addition, individuals may seek information related to functional aspects such as acquiring more information about a destination to use in their decision making.

Past studies have indicated that the ultimate goal of the use of internet technology or web-based destination marketing is to provide desired travel information and to have a vicarious experience of the destination to persuade potential tourists to take action to visit a destination (Cho, Wang, Fesenmaier, 2003; Kah, Lee and Chung, 2010). Kaplanidou (2006) pointed out that information communication technology can present substantial travel information about the destinations to potential travelers for "satisfying the goal of acquiring functional and aesthetic trip information as a preparatory step to the trip intention phase" (p.205). Recent research suggests that the use of 3D and virtual reality technology in promoting tourism destinations provides tourists a virtual experience that influences consumers' travel intentions (Tjostheim and Tronvoll 2009; Huang, Backman Backman, 2010). For example, Haung, Backman, and Backman (2010), studying virtual tourists' behavioral intentions in a 3D virtual world, demonstrated that consumers who engage and interact with 3D virtual tourism destinations can develop consideration and awareness in their potential destination choice.

Current literature suggests that the construct of behavioral intentions is an important aspect for tourism marketers and researchers. A review of virtual reality

literature suggests that there is a link between virtual worlds and people's behavioral intentions to visit a destination. Thus, the construct of behavioral intention was included in this study investigating the virtual tourist's behavior in a 3D tourism destination.

This study uses the Technology Acceptance Model and Self-Determination Theory as the research framework to explore the influential factors affecting the virtual tourist experience and users' behavioral intentions, emphasizing how the technological acceptance factors of perceived ease-of-use and perceived usefulness, as well as the psychological needs of autonomy, competence and relatedness are related to the virtual tourist's experience and behavioral intentions. In addition, the study incorporates the construct of tele-presence as one of the technological acceptance factors affecting virtual tourism experience.

Further, a review of the literature finds that the hedonic constructs of enjoyment, positive emotions, emotional involvement and flow are important in understanding the interaction between the virtual experience and a 3D tourism destination as well as tourist experience. These four constructs were also selected for this study of the virtual tourist experience in the context of a 3D virtual world. Moreover, the behavioral intentions of virtual tourists as preparatory steps for the trip intention phase are important to tourism marketers. The construct of behavioral intentions, specifically requesting more information, the willingness to recommend, revisiting the virtual site and visiting the physical place, were included in the study. This study is also concerned with the relationship between technological acceptance factors as well as psychological needs and behavioral intentions. Figure 2-1 presents the conceptual framework of this study:

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┌─────────────────┐           ┌─────────────────┐
│ Technological   │────┐   ┌──▶│ Virtual Tourist │
│ Acceptance      │    │   │  │ Experience      │
│ Factors         │    └─┐ │  │                 │
└─────────────────┘      ╲│ │  └─────────────────┘
                          ╳                      
┌─────────────────┐     ┌╱ │  ┌─────────────────┐
│ Psychological   │────┘│  └─▶│ Behavioral      │
│ Needs           │─────┴────▶│ Intentions      │
└─────────────────┘           └─────────────────┘
```
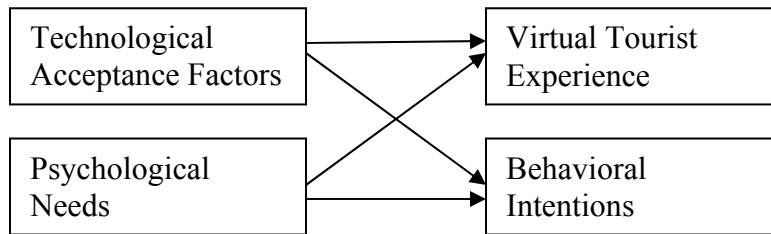
Figure 2-1 Conceptual Framework

Summary

This chapter began with a discussion of how virtual worlds have been applied in the context of travel and tourism, particularly the use of Second Life in tourism management, tourism marketing, tourism education and tourist consumer behavior. It then reviewed the literature related to the Technological Acceptance Model as well as Self-Determination Theory. In addition, this chapter provides a discussion of the virtual tourist experience. Finally, the notion of behavioral intentions was discussed and the conceptual framework for the study was presented.

CHAPTER THREE

RESEARCH METHODOLOGY

The purpose of the study was to identify the factors that affect the experience of virtual tourists and their behavioral intentions within a 3D tourism destination. The following research questions were explored: (1) How are technological acceptance factors related to the virtual tourist experience and behavioral intentions of virtual tourists in the Second Life Maasai Mara? (2) How are psychological needs related to the virtual tourist experience and behavioral intentions of virtual tourists in Second Life Maasai Mara? This chapter provides information detailing the research process. It is organized in the following sections: (1) Sample (2) Data Collection, (3) Measurements and (4) Pilot Test.

Sample

Past studies by Reinhard (2010) and Barr, Noble and Biddle (2007) indicated the need for a combined data collection approach to understand the experience of virtual worlds. Similarly, Choi et al. (2007) suggested that researchers should collect data from a diversified sample so that bias is reduced and the generalizability of the results enhanced. Thus, this exploratory study employed a convenience sampling method to collect data from the two populations of interest to this study. The samples in this study were comprised of both novice and experienced Second Life users: Novice Second Life users with little or no experience with the virtual world of Second Life were recruited from college students in the Department of Park, Recreation and Tourism Management at

Clemson University, and the experienced Second Life users who have maintained a valid Second Life account for at least six months were recruited via Second Life. The following discussion presents more details related to the sample recruitment procedures.

Recruitment of Novice Second Life Users

Novice Second Life users were recruited from an introductory PRTM class and a tourism marketing class in the Department of Park, Recreation and Tourism Management at Clemson University. The one hundred and twenty-two (122) students enrolled in the introductory PRTM class and the eighty-nine (89) students enrolled in a tourism marketing course were all eligible to participate in the study. The researcher received permission from the class instructors to recruit these students.

Students were recruited using the following procedure. First, the researcher introduced the study to students in each of the classes during a five-minute presentation. As an incentive to encourage their participation, introductory PRTM students were given the opportunity to drop their lowest quiz grade in the class, and students enrolled in the tourism marketing course were given the opportunity to drop their lowest exam score. All students in both courses were given an alternative opportunity requiring the same effort and time investment to earn extra credit if they did not want to participate in this study. At the completion of the class presentation students were asked to indicate their interest in the study by sending the researcher an email or using the online course management system, Blackboard.

Students then signed up for three one-hour class sessions to take part in this study of virtual tourism in Second Life. The first two sessions focused on orientation and

training and the third one involved taking part in the treasure hunt activity at SL Maasai Mara (see Appendix A). Students enrolled in the introductory PRTM course signed up to participate on one of three weekdays for one hour (Tuesday, Wednesday and Thursday), for three consecutive weeks; students enrolled in tourism marketing chose one of two weekdays (Tuesday or Thursday) for one hour, for three consecutive weeks, to participate in the study. Emails were sent to each of the students confirming the dates, times and location of their participation the study (see Appendix B). In addition, reminder emails were sent to each participant prior to each of the sessions.

Recruitment of Experienced Second Life Users

Experienced Second Life users were recruited to participate in this study using the following methods. First, the researcher joined a number of Second Life mailing lists. After applying to join each, the researcher's account was approved by the list administrator, allowing the researcher to become an active member of Second Life mailing lists and to have the privilege of sending out message to all members. A request (See Appendix C) for participation was emailed to each subscriber on the following SL mailing lists: SL educators, SL non-profit, SL business, SL international and SL healthcare. These recruitment emails requesting voluntary participation were sent during April and May, 2011. One day before the participation period began for this study, the researcher sent a reminder email to each subscriber on a SL mailing list.

In addition, the researcher contacted colleagues who are active in one of the following Second Life communities: Clemson University, Africa Live, Thothica SL, and the Institute of Electrical and Electronics Engineers (IEEE). An in-world message was

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sent to the members of each community to request participation in the study. Third, 18 two-hour events were announced on the SL event calendar inviting participation. Finally, Second Life discussion forums (SL Universe Forums, Second Life discussion forum) were also used to announce the information recruiting participants for this research study (Appendix C). To qualify, the participants (1) had to be 18 years of age or older, and (2) had to have owned and maintained a valid Second Life character (Avatar) and account for at least 6 months.

Similar to the novice Second Life users, an incentive was used to encourage participation in the study. Raffle prizes of 5,000 Linden Dollars were offered as the incentive to encourage experienced Second Life users to participate in this study. Experienced Second Life users who completed the treasure hunt activity and two web surveys were eligible to participate in raffle. A random number generator was used to select a list of five random numbers. The winners of the prizes were randomly drawn from the list of eligible participants on May 10, 2011 and were notified by in-world messages. The 5,000 Linden Dollars were awarded to each of five winners on May 12, 2011.

Orientation

Novice Second Life users were introduced to the virtual environment of Second Life during the first hour-long orientation period. To assist the students with the orientation activities, the researcher and another graduate student were present for each of the orientation sessions. During the initial training period, an orientation handbook written by the researcher (see Appendix D) was provided so that these novice users could

practice the basics of navigation and communication skills in Second Life. In addition, the researcher gave a PowerPoint presentation covering each of the activities in the handbook that was created by the researcher at the beginning of the orientation session to offer the students additional instruction on orientation activities.

The purpose of the orientation session was to introduce the novice Second Life users to basic navigation and communication skills in Second Life. During this session, the following activities were used to build their basic skills: registering for a Second Life account, completing the orientation activities in Second Life Welcome Island, teleporting to the Maasai Island, and moving around the site to develop movement skills as well as communications skills related to text chatting. During their first visit to Second Life Maasai Mara, these novices watched an introductory video about the Second Life Maasai Mara project. Table 3-1 presents the orientation procedure for novice Second Life users.

Table 3-1 Novice Second Life Users' Orientation and Training Procedure

	Purposes	Activities
Orientation	• Initial preparations for participation	• Create a Second Life account • Second Life Welcome Island orientation • Search Second Life Maasai Mara • Teleport to Second Life Maasai Mara • Practice avatar movement of walking, flying and running • Communicate • Text chat with other avatars in class
Training	• Familiarity with the control interface of Second Life	• Change the outfit of avatar created • Change the environment to midday • Explore an auto safe driving environment at Clemson Island/ the city of Dublin in Second Life

At the end of the orientation session, the novice Second Life users completed the first web questionnaire that included the following sections: demographic variables, past experience with video games, and past experience with virtual worlds. A second section of this first web questionnaire assessed the level of skills that the participants developed during the orientation session to ensure appropriate mastery of these basic skills.

Training

After developing the basic skills necessary to move and communicate in the virtual world, the participants attended a one-hour training session that was developed by the researcher focusing on developing control interface skills. This second training session, which was conducted by the researcher and another graduate student, began with an introductory PowerPoint presentation, providing the participants with the background to understand the purpose of this session as well as the researcher's expectations. A training handbook (Appendix E) was provided for the novice users to use as a guide in developing control interface Second Life skills. This handbook contained three sections, each focusing on one of the activities or skills listed in Table 3-1. A screen shot of Second Life was created and used as a visual aid to assist novice users in the completion of each of the following activities: changing the outfit of the avatars created, taking photos in the virtual world, and taking an excursion trip to visit the city of Dublin or a safe driving environment on Clemson Island. At the end of this training session, the interface and control skills of the novice Second Life users were assessed to ensure proper mastery of these skills.

The Treasure Hunt Activity

The treasure hunt, which focused on the virtual tourism experience, involved exploring different areas on Second Life Maasai Mara, interacting with multi-media information within the virtual tourism attraction, interacting with others on the site, and learning about the cultural aspects of the tourism destination. The purpose of this treasure hunt activity was to engage participants by accomplishing the following tasks: visiting the jewelry shop to look at the Maasai jewelry displayed, riding an animal to the river, listening to Maasai Music in the guest tents, and watching a video of two Maasai warriors telling a lion killing story in front of a bonfire. The information in Table 3-2 presents the purpose and activities of the treasure hunt.

The researcher developed these treasure hunt activities to build on activities that the novice Second Life users had been exposed to in the orientation and training sessions. A map of Second Life Maasai Mara was provided for novice users to navigate the site and to give the directions for completing the treasure hunt. After taking part in the virtual tourist experience on Second Life Maasai Mara, novice Second Life users completed the second web-based survey. Novice Second Life users clicked on a mailbox in Second Life Maasai Mara to access the link to the web survey, which evaluated technological acceptance factors, psychological needs, virtual tourist experiences and behavioral intentions.

Table 3-2 Treasure Hunt Activities

	Purposes	Activities
Treasure Hunt	Exploring and navigating Second Life Maasai Mara	Change the environment to midday
		Click on instructions for the treasure hunt
		Find an elephant, get on the elephant and take a snapshot of your avatar on the elephant
		Go to the family tent to listen the Maasai music
		Go to the bonfire to watch the video on lion killing
		Click on the web survey

For the experienced users, the researcher and a faculty member were present in the reception area to greet experienced Second Life users as they arrived at Second Life Maasai Mara. The two facilitators used the local chat and instant message function to communicate with these participants. An instructional note card developed by the researcher provided information about the study and the treasure hunt for these experienced Second Life users. The note card was accessed by clicking on an informational mailbox which was located in the reception area.

In addition, an instructional slideshow developed by the researcher containing information and instructions related to the treasure hunt was posted next to the front desk in reception area. Like the novice users, these experienced users watched the same informational video to gain an additional understanding of this project. After watching this video, the experienced users participated in the first web-based questionnaire, accessing it by clicking on a mailbox. After completing the first web questionnaire, experienced Second Life users participated in the treasure hunt activity, just as novice Second Life users did. At its completion of the treasure hunt, experienced Second Life

users received a link to a second web questionnaire as part of an in-world activity to evaluate their experiences while visiting Second Life Maasai Mara.

Data Collection

Quantitative research methods examining the relationship between technological acceptance factors, psychological needs and the virtual tourist experience, and behavioral intentions were used to investigate the virtual experience in a 3D tourism destination. Primary data were obtained for this study through self-administered web questionnaires (Snap software) to collect information from participants.

Novice Second Life Users

The data collection for novice Second Life users was conducted at end of March and April, 2011 in a Clemson Computer and Information Technology computer lab at Clemson University under the supervision of two graduate students and a faculty member. Participants were scheduled in one-hour staggered time periods to reduce the risk of burdening the Second Life servers. Fourteen one-hour sessions were conducted by the researcher to collect the data from the novice Second Life users.

Experienced Second Life Users

Data collection for the experienced Second Life users was collected in April and May 2011. The eighteen two-hour sessions were conducted including weekdays (Monday to Friday) and weekend days (Saturday and Sunday). This data collection for experienced Second Life users was conducted in different time slots (morning, afternoon, evening) to accommodate participants in different time zones. A graduate student and a faculty

member were present at the virtual tourism site to monitor and facilitate this virtual experience for the experienced Second Life users. Two-web based questionnaires were used to collect information from these Second Life users.

Web Questionnaire

Two self-administered web questionnaires were used to collect the data used to test the research questions, both involving closed-ended questions about participant's virtual tourist experience in a 3D virtual tourism environment. The first questionnaire collected demographic information related to gender, age, ethnicity, marital status, highest academic achievement, residence and current work status. Additionally, the participants were asked to report their prior experiences with video gaming and virtual worlds. A copy of the first web questionnaire can be found in Appendix F. The second web questionnaire collected information related to the following areas: the technological acceptance factors of tele-presence, perceived usefulness and perceived ease-of-use; psychological needs of autonomy, competence and relatedness; the virtual tourist experience of positive emotions, flow, enjoyment, and emotional involvement; and behavioral intentions. A copy of the second web questionnaire is also included in Appendix F.

Measurement

Demographic Variables and Past Experience

Demographic information related to gender, age, ethnicity, marital status, highest academic achievement, residence and current work status was collected for each subject.

Each variable was measured at the categorical level, with categories used being consistent with those used by the US Census Bureau.

Past experience with video games and virtual worlds was obtained by asking the respondents to respond yes or no to the question asking if they had prior experience with either of these two variables. If respondents indicated yes, they were then asked to specify the average amount of time per week spent in virtual worlds on on-line gaming. Prior experience was also measured at the categorical level.

Technology Acceptance Factors

The technological acceptance factors used in the study included tele-presence, perceived ease-of-use, and perceived usefulness.

Tele-Presence

Past research (Schuemie et al. 2001) has used subjective measures to assess tele-presence. Witmer and Singer (1998) defined tele-presence as "the subjective experience of being in one place or environment, even when one is physically situated in another" (p.225). Based on the theory of involvement and immersion, these two researchers developed a Presence Questionnaire (PQ) consisting of sensory factors, realism factors, distraction factors and control factors to measure the degree to which individuals experience tele-presence in a virtual environment. Slater et al. (1995) subjectively assessed tele-presence using three items: (1) the sense of "being there" in the virtual world, (2) the extent to which the virtual environment becomes more real than the physical world, and (3) the sense of visiting somewhere as a place rather than just a set of images. Drawing on the prior studies of Witmer and Singer (1998) and Slater and

colleagues, Schubert et al. (2001) developed an Igroup Presence Questionnaire (IPQ) including the three components of spatial presence, involvement and realism to measure the perception of tele-presence in virtual environments.

The conceptualization of IPQ is based on the assertion that the tele-presence experience is the cognitive process outcome resulting from the interpretation of the mental model of the virtual environment, a view similar to the one of this study. Thus, this study modified the tele-presence scale of Schubert et al. (2001) by measuring the sense of tele-presence on spatial presence, involvement, and realism.

The ten items used to assess tele-presence are shown in Table 3-3. Respondents were asked to indicate their opinions using a five-point Likert scale, ranging from 1= not at all true to 5 = completely true. A total score for each respondent was computed by summing their responses to each response of the 10 items. Next a mean score was computed for each response to be used in further analysis.

Table 3-3 Measurement of Tele-Presence

1.	I had a sense of acting from within Second Life's virtual world rather than operating something from outside.
2.	I felt present in Second Life's virtual world.
3.	In Second Life's virtual world, I had a sense of "being there".
4.	Somehow I felt that Second Life's virtual world surrounded me.
5.	I was completely captivated by Second Life's virtual world
6.	I was not aware of my real environment.
7.	I concentrated only on the virtual space.
8.	The virtual world seemed very real to me.
9.	My experience in the virtual environment seemed consistent with my real world experience.
10.	Second Life's virtual world seemed more realistic than the real world.

Perceived Ease-of-use and Perceived Usefulness

Based on self-efficacy theory, adoption of innovation and a cost-benefit paradigm, Davis (1989) developed two measurement scales for assessing user perceived ease-of-use and perceived usefulness. Perceived ease-of-use refers to "the degree to which a person believes that using a particular system would be free of effort" whereas perceived usefulness defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989; p.320). Davis's study (1989) validating measurements of perceived usefulness and ease-of-use revealed that the scale had high convergent, factorial and discriminant validity, with a reliability of $\alpha =$ 0.94 for ease-of-use and 0.98 for usefulness.

Hsu and Lu (2004) applied the Technology Acceptance Model (TAM) to predict user acceptance of web-based games using the scales of perceived ease-of-use and usefulness developed by Davis (1989) to explain gaming play behavior. The results of their study demonstrated that the assessment of these two constructs had satisfactory discriminant validity and convergence reliability with an α value of 0.86 for ease-of-use and 0.83 for usefulness. Drawing from TAM, Fetscherin and Lattemann's (2008) investigation of user acceptance of virtual worlds utilized the construct of perceived ease-of-use and usefulness to examine technology adaption in the context of virtual worlds. Their results indicated that the underlying measurement items had considerable construct validity and reliability with a Cronbach Alpha value of 0.82 for perceived ease-of-use and 0.84 for usefulness. A recent study examining multi-user virtual environments in an educational context conducted by Saeed, Yang and Sinnappan (2009) employed the concepts of usefulness and ease-of-use to explain the use and acceptance of virtual worlds, finding that their scale was valid and reliable. Further, they provided evidence for convergent validity and reliability (α=0.77 for ease-of-use, α=0.9 for usefulness) in their study.

Based on the results from past research, this study modified the perceived ease-of-use scale for use in this study. This scale consisted of the four items seen in Table 3-4, Perceived usefulness was used to assess the subjective estimation of task performance enhancement through the use of virtual worlds while perceived ease-of-use measures how easy the respondents thought Second Life was to learn and use. Both constructs were rated on a seven-point Likert scale, ranging from strongly disagree to strongly agree

(strongly disagree =1 to strongly agree =7). A summative score was computed for each respondent by summing the responses for each item of perceived ease-of-use. Next, a mean score was calculated for each response in further analysis. The same process was used to calculate the summative score and mean score for perceived usefulness.

Table 3-4 Items Used To Measure Perceived Ease-of-use and Usefulness

Perceived Ease-of-use
1. Learning to use Second Life was easy for me.
2. I did not find it difficult to get Second Life to do what I wanted it to do.
3. I find Second Life flexible to interact with.
4. It is easy for me to become skillful at using Second Life.
Perceived Usefulness
5. I believe that using Second Life enhances the effectiveness of trip planning.
6. I believe that using Second Life increases my productivity in trip planning.
7. I believe that Second Life is useful for trip planning.
8. I believe that using Second Life enables me to search travel information more conveniently.

Psychological Needs

Autonomy, Competence and Relatedness

Applying Self-Determination Theory, Ryan et al. (2006) developed the Player Experience Need Satisfaction (PENS) to assess the degree to which video game players experience the satisfaction of the three psychological needs of in-game competence, in-game autonomy, and in-game relatedness. Game competence measures participants' perceptions that video gaming provides a challenge but is not an overwhelmingly difficult

experience. Game autonomy assesses whether participants feel free to do activities that interest them. Game relatedness measures the relationships between the participants and others during video game play. Further, the study of the relationship between violent content and people's motivation by Przybylski et al. (2009a) employed PENS to assess psychological needs of autonomy, competence and relatedness among participants. Their results demonstrate that the scale has adequate reliability based on four experimental studies and two surveys.

Also applying Self-Determination Theory (SDT), Przybylski et al. (2009b), investigated different styles of engagement in video game play using PENS to assess the psychological needs of autonomy, competence and relatedness among participants, finding that the PENS has a good reliability of $\alpha = 0.85$. Based on Self-Determination Theory (SDT), Roca and Gagne (2008) investigated e-learning continuance intentions in the workplace by measuring workers' perceived autonomy support using a Work Climate Survey developed by Deci et al. (1989). The autonomy support scale used in their study consisted of three components—as supervisor, management and environment autonomy support—and included 10 items, each using a seven-point Likert scale. Roca and Gagne (2008) collated the measurement of competence from prior studies including Compeau and Higgins's (1995) computer self-efficacy, and Hsu and Chiu's (2004) General Internet Self-efficacy to assess workers' feelings of competence using a computer/ the internet, based on thirteen items using a 7-point scale. Roca and Gagne (2008) also adapted a Basic Need Satisfaction at Work Scale (Ilardi, Leone, Kasser, and Ryan, 1993) to measure perceived relatedness, using eight items measured by a 7-point Likert scale.

To measure the psychological needs of competence, autonomy, and relatedness, this study modified Ryan et al.'s (2006) scale of PENS. The PENS scale for perception of competence is comprised of three items focused on the experiences of competence and mastery, asking whether Second Life provides a challenging but not an overwhelmingly difficult experience that enhances efficacy (e.g., "I felt competent experiencing MaasaiMara Second Life."). A PENS subscale was modified to measure the perception of autonomy which was assessed with a four-item subscale measuring the degree to which participants experienced choice, freedom and perceived opportunities to participate in the activities that interested them (e.g., "Experiencing MaasaiMara Second Life provides me with interesting options and choices."). The PENS subscale for assessing relatedness, which was also modified for use in this study, consisted of three items assessing how connected participants felt to others in Second Life (e.g., "It is likely that the people I met within Second Life can become friends, if we interacted a lot.") as shown in Table 3-5.

Table 3-5 Items Used To Measure Psychological Needs

	Competence
1.	I felt very capable and effective while experiencing Maasai Mara Second Life.
2.	The experiences in Maasai Mara Second Life kept me on my toes but did not overwhelm me.
3.	*
4.	*
	Autonomy
5.	I did things in the Maasai Mara Second Life because they interested me
6.	I did not feel controlled and pressured to be a certain way in Maasai Mara Second Life.
7.	*
8.	*
	Relatedness
9.	I find the relationships I form in Second Life fulfilling.
10.	It is likely that the people I met within Second Life can become friends, if we interacted a lot
11.	*
12.	*

*: These questions are omitted due to the limited use agreement between the author and

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The measurements of competence, autonomy, and relatedness were assessed on a 7-point Likert scale for each item (1= strongly disagree, 7= strongly disagree). A summative score was computed for each of the respondents for competence by summing their responses to the 4 items used to measure competence. Next a mean score was calculated for each of the respondents for each measure of competence and used in further analysis. Similarly, summated scores and mean scores were calculated for each

response for autonomy and relatedness. The mean scores for autonomy and relatedness were used in further analysis.

Virtual Tourist Experience

The following variables were used to measure the virtual tourist experience. These variables were included because they reflect important aspects of the tourist experience as well as experiences in computer-mediated environment.

Enjoyment

The Intrinsic Motivation Inventory (IMI), which is a multidimensional measurement for assessing participants' subjective experiences of the intrinsic motivation related to a given activity, has been used in laboratory experiments and studies (Ryan, 1982; Ryan, Mims and Koestner, 1983; Plant and Ryan, 1985). Martens, Gulikers and Bastiaens (2004) employed the Intrinsic Motivation Inventory to assess student enjoyment of e-learning, with IMI used in their study consisting of 6 items using a 5-point Likert scale. Reliability analysis of the scale in their results revealed that the scale has a high reliability of Cronbach's $\alpha = 0.81$. Employing Reeve's (1989) assessment of intrinsic motivation, Reeve, Nix and Hamm's (2003) study of the impacts of perceived self-determination on students' intrinsic motivation measured intrinsic motivation as participants' self-reported level of interest and enjoyment, based on three items of interest and three items of enjoyment. All were assessed using a 7-point Likert scale, ranging from not at all true to very much true. The enjoyment scale used in their study revealed a good internal consistency as Cronbach's $\alpha = 0.93$. In their study, Tanborini et al. (2010)

examined media enjoyment in a video game context, using a subset of IMI (Ryan, 1982) to assess participant enjoyment. They used a seven-point Likert scale style to assess the degree to which respondents agreed or disagreed to each of five statements.

Drawing from Ryan, Mims and Koestner's (1983) Intrinsic Motivation Inventory, Ryan et al. (2006) assessed participants' video game enjoyment using a four-item scale. The results of their study revealed a high reliability of $\alpha = 0.95$, for the scale. Przybylski, et al.'s (2009a) study of the relationships between violent content and player's motivation and enjoyment of video game play utilized an Intrinsic Motivation Inventory adapted from Mcauley, Duncan, and Tammer (1989) and Ryan (1982) to assess game enjoyment, based on four items. The scale use in their study was found to have an adequate reliability of $\alpha = 0.82$.

This study modified the Intrinsic Motivation Inventory (IMI) for its assessment of enjoyment using a four-item scale (e.g. "I enjoyed experiencing the virtual world in Second Life very much"). Each of the four statements were rated on a seven-point Likert scale ranging from strongly disagree to strongly agree (strongly disagree =1 to strongly agree =7). Table 3-6 shows the items used to measure enjoyment. A summative score for enjoyment was computed for each respondent by summing respondents' responses to each of the four items. A mean score was then calculated for each respondent for use in further analysis.

Table 3-6 Items Used To Measure Enjoyment

1. I enjoyed experiencing the virtual world in Second Life very much.
2. I thought experiencing in 3D virtual world was quite enjoyable.
3. I would describe the experience of Second Life as very interesting.
4. The experience in Second Life was fun.

Positive Emotions

Prior studies have been concerned with identifying the dimension of positive emotions and clarifying the nature of positive affect (e.g. Clark and Watson, 1986; Watson, 1988, Watson, Clark, and Tellegen, 1988). Based on the results from past studies of positive and negative affect, Watson et al. (1988) developed two 10-item mood scales and validated a brief version of the Positive and Negative Affect Schedule (PANAS) scale to improve its reliability and convergent/discriminant validity. The PANAS scale measures the extent to which participants experience certain moods over a specified time frame, using a five-point scale; its internal consistency reliability, factorial validity and external validity were demonstrated by Watson et al. (1988).

Wang et al. (2008) applied PANAS to assess participants' emotions when engaging game play by asking the extent to which respondents experienced excitement, pride, and strength. These three emotions were measured using a 7-point Likert scale anchored by almost never and almost always. Reschly et al. (2008), examining the role of positive emotions during school, coping, and student engagement, employed the PANAS scale to assess children's experiences of interest, exciting, cheerfulness, pride, energy, and delight using a five point Likert scale. Reschly et al.'s (2008) study demonstrated that

this scale has good internal consistency with α = 0.92 and 0.91. The study of tele-presence and emotions in virtual environments by Baños et al. (2008) employed the PANAS scale to measure participants' different emotions using a five-point scale concluding that the scale was a good measure for studying the effects of positive emotions in virtual reality.

The Positive and Negative Affect Schedule (PANAS) developed by Watson, Clark, and Tellegen (1988), was modified to assess positive emotions in this study. The seven-item scale includes amusement, interest, contentment, joy, pride, cheerfulness and delight as seen in Table 3-7. Participants were asked to indicate the extent to which they felt each of these seven positive emotions in the moment of experiencing the virtual tourism environment using a five-point scale (1= very little or not at all to 5 = extremely or all the time). A total score was computed by summing each respondent's response for each of the items. Following this step, a mean score for positive emotions was calculated for each respondent to be used in future analysis.

Table 3-7 Items Used To Measure Positive Emotions

1.	Amusement
2.	Interest
3.	Contentment
4.	Joy
5.	Pride
6.	Cheerfulness
7.	Delight

Emotional Involvement

Researchers have investigated the impact of hedonic human factors on consumption behavior (Hirschman, 1983; Hirschman and Holbrook, 1982). Drawing on the hedonic theory, Holsapple and Wu (2007) examined entertainment-oriented information technology using scales to measure imaginative and emotional responses. In their study measuring emotional involvement to understand hedonic factors and user acceptance in the context of online games, Holsapple and Wu (2007) suggested that an emotional involvement scale not only reflects that online game players are served as consumers and technology users but also captures the entertainment nature of virtual reality. Using the Technology Acceptance Model as their beginning point, Saeed, Yang and Sinnappan (2009) employed the construct of emotional involvement to predict the acceptance of virtual worlds. Their findings revealed that this measurement of emotional involvement revealed construct validity and scale reliability with a Cronbach Alpha value of 0.89.

This study adapted the emotional involvement construct of Saeed, Yang and Sinnappan (2009), consisting of the three items as seen in Table 3-8. The assessment of emotional involvement was used to evaluate imaginary and emotional response to engaging in a behavior within the context of virtual worlds. Respondents were asked to indicate the extent to which they agree or disagree with each statement on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). A summative score was computed for each respondent and a mean score for emotional involvement was calculated for use in further analysis.

Table 3-8 Items Used To Measure Emotional Involvement

1.	When I am using Second Life, I feel "carried off" by the 3D virtual environment.
2.	When I am using Second Life, I feel as if I am part of the 3D virtual environment.
3.	When I am using Second Life, I feel deeply about the 3D virtual environment.

Flow

Flow, which has been studied as a theoretical framework for examining the interaction between consumer behavior and computer-mediated environments, has shown to be a useful construct for describing online consumer experience (Novak et al., 2000; Skadberg and Kimmel, 2004; Richard and Chandra, 2005; Trevino and Webster, 1992). Applying flow theory to measure customer experience in online environments, Novak et al. (2000) assessed flow experience by surveying participants about their experiences when shopping online using a three-item scale. Skadberg and Kimmel (2004) examined visitors' flow experience while browsing a Web site using the two items of time distortion and enjoyment. Using structural equation modeling in their study, the results demonstrated that the construct of flow had composite reliability to assess the state of optimal experience in the context of human computer interaction. Based on the past research of Csikszentmihalyi (1975), Malone (1981), Sandelands, Ashford, and Dutton (1983), and Webster (1989), Trevino and Webster (1992) investigated the effects of multiple variables in computer-mediated communication using four items to assess the flow experience: feeling in control, totally focused, aroused curiosity, and intrinsically interesting. The results of their study revealed that the construct of flow revealed considerable validity and reliability during computer interactions.

This study adapted the construct of flow from the work of Trevino and Webster (1992) operationalizing it as a four item scale: 1) the online user finds the interaction intrinsically interesting; 2) the online user feels in control of the computer interaction; 3) the online user's attention is focused on the interaction; and 4) the online user's curiosity is aroused during the interaction as seen in Table 3-9. Respondents were asked to use a seven-point Likert scale ranging from strongly disagree to strongly agree (strongly disagree =1 to strongly agree =7). A summative score was computed for each respondent by summing the individual response of the four items. Next, a mean score for flow was calculated for each respondent for use in further analysis.

Table 3-9 Items Used To Measure Flow

When experiencing Maasai Mara Second Life, my attention is totally focused.
Experiencing Maasai Mara Second Life excites my curiosity.
Experiencing Maasai Mara Second Life is intrinsically interesting.
When experiencing Maasai Mara Second Life, I feel in control.

Behavioral Intentions

Investigating the usage of on-line gaming as entertainment technology, Hsu and Lu (2004) used the construct of behavioral intentions to measure gamers' intentions to play and the results of their study indicated that the measurement had high internal consistency ($\alpha = 0.81$). The measurement of behavioral intentions in Hsu and Lu's (2004) study consisted of 2 items, each based on a 7-point scale.

Moreover, empirically testing the Technology Acceptance Model in the context of virtual worlds, Fetscherin and Lattemann (2008) employed a 3-item scale to evaluate

behavioral intentions to use for the adopting and accepting new technologies based on a 7-point Likert scale. The results of the measurement scale validation revealed that the construct variable of behavioral intentions was reliable, with a Cronbach Alpha value of 0.74. Building upon TAM to explain the factors influencing tourist acceptance of mobile devices, Kim, Park and Morrison (2008) utilized the construct of behavioral intentions in the context of hospitality and tourism marketing. The scale for behavioral intentions in their study included 4 items based on a 7-point Likert scale, the results indicating that the scale had discriminant validity and construct reliability.

The assessment of behavioral intentions in this study was primarily based on the Kim, Park and Morrison (2008) measurement scales. Table 3-10 presents the four items used to measure behavioral intentions: requesting more information, willingness to recommend, likelihood of visiting the virtual site in the future, and likelihood of visiting the real-world tourism destination. These four intention items are consistent with actions commonly regulated by tourism promoters. The four items were measured using a 7-point Likert scale to elicit intentions to visit Maasai Mara, ranging from strongly disagree = 1 to strongly agree = 7. A summative score was calculated by summing the respondents' responses to each of these four items and a mean score for behavioral intentions was computed for each respondent to be used in further analysis.

Table 3-10 Items Used To Measure Behavioral Intentions

1.	After the virtual tour, I wanted to find out more information about Maasai Mara.
2.	After the virtual tour, I gained an interest in visiting the Maasai Mara in person.
3.	After the virtual tour, I wanted try to visit Maasai Mara in the future.
4.	I am willing to recommend Second Life Maasai Mara.

Pilot Test

A pilot test was then conducted, the first step being to examine the validity of the instrument. According to Babbie (2010), "face validity is the quality of an indicator that makes it seem a reasonable measure of some variable" (p.160). To enhance face validity, prior to conducting the survey both web based questionnaires were reviewed by a group of Clemson University tourism faculty and graduate students to assess their logical consistency, ease-of-understanding, and task relevance. Their suggestions were incorporated into the revision of the instrument.

Next, a pilot test was conducted at the end of March, 2011 to test the research procedures in this study. One purpose of this pilot test was to determine the length of time the participants needed to complete the survey. In addition, it was used to gather information to improve the quality and efficiency of the research procedures. Specifically, the length of the time needed for each of the three sessions was examined. In addition, the in-world treasure hunt activity was examined for ease-of-use and length of time. Finally, the reliability of the measurements was examined.

Undergraduate students in a senior tourism class were recruited to participate in this pilot test. These 23 students received extra credit as part of their course for their

participation. As part of the pilot test, the researcher provided an orientation and training session for pretest participants to prepare them for taking part in virtual tourism and to build Second Life skills. After the completion of an orientation and training session, the students participated in a virtual tourism experience by visiting Maasai Mara in Second Life. Suggestions about the questionnaire from pretest participants were subsequently incorporated into the survey.

To ensure that the measurements used were reliable, reliability analysis was conducted during the pilot test to assess the internal consistency of each instrument used in this study. Cronbach's alpha test was conducted to identify poor items, and the correlated measure items were examined. Table 3-11 presents the reliability of the scales determined by the pilot testing. Based on the results of this reliability test, changes were made to the following two scales: autonomy and competence. One item in both the competence and autonomy scale was removed to improve the reliability. After eliminating these two items, the internal consistency of instruments was re-examined, the result indicating that Cronbach's alpha was enhanced to 0.77 and 0.85 for the constructs of autonomy and competence.

Table 3-11 Reliability of the Scales (Pilot Test)

Scales	Items	Mean	S.D.	Cronbach's Alpha
Tele-Presence	10	4.06	1.09	0.893
Competence	4	4.09	0.74	0.705
Autonomy	4	3.95	0.68	0.678
Relatedness	4	3.42	1.37	0.882
Perceived Ease-of-use	4	5.28	1.23	0.911
Perceived Usefulness	4	5.55	0.80	0.971
Enjoyment	4	4.72	1.28	0.979
Positive Emotions	7	4.54	1.32	0.926
Emotional Involvement	3	4.97	0.90	0.869
Flow Experience	4	4.06	1.09	0.808
Behavioral Intentions	4	4.09	0.74	0.915

Data Analysis

The first step of data analysis in this study was reliability analysis, which was conducted to test internal consistency of each construct of this study for ensuring reliability of the measurements. The next step was to conduct descriptive analysis to profile both the novice and experienced user samples on the demographic information, prior video game, and prior Second Life experiences. Further, a General Linear Multivariate Regression was conducted to examine the relationship between technological acceptance factors and a combination of dependent measures for obtaining a unique effect (Sr^2) of each of three technological acceptance factors. Moreover, separate General Linear Multivariate Regression Models were conducted to obtain an effect size (R^2) of each of three technological acceptance factors. Similar steps were used to obtain a unique effect (Sr^2) and an effect size (R^2) of each of three psychological needs on a combination of dependent measures. In addition, linear regression models were used

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to explore the relationships between the technological acceptance factors and the virtual tourist experience and behavioral intentions. Finally, linear regression models were used to examine the association between the psychological needs and both the virtual tourist experience and behavioral intentions.

Summary

This chapter provided details related to the methodology used in the study, beginning with the process of recruiting sample participants, including both the novice and experienced Second Life users. Next, the process with respect to the how orientation, training and the in-world treasure hunt activity were conducted was described and the data collection process for both sample populations detailed. The third section of this chapter focused on the measurement of the variables used in this research including how each scale was developed. Table 3-12 provides a summary of the measurements used in this study. Finally, this chapter concluded with a discussion of the pilot test.

Table 3-12 Study Measurements

Demographic Variables and Past Experience
Gender, Age, Ethnicity, Highest Academic Qualification, Current Work Status, Marital Status, Residence and Past Experience

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Tele-Presence: summative scale
Igroup Presence Questionnaire developed by Schuber et al. (2001); used by Regenbrecht and Schubert (2002)
10 items on a 5-point Likert scale

Perceived Usefulness: summative scale
Developed by Davis (1989)
4 items on a 7-point Likert scale

Perceived Ease-of-use: summative scale
Developed by Davis (1989)
4 items on a 7-point Likert scale

The Need Satisfaction of Autonomy, Competence and Relatedness: 3 summative scales
Player Experience Need Satisfaction (PENS) developed by Ryan et al. (2006) and used by Przybylski et al. (2009a) and Tamborini et al. (2010)
Three 4-items scales on a 7-point Likert scale

Enjoyment: summative scale
Intrinsic Motivation Inventory (IMI) developed by Ryan, Mims and Koestner, 1983; used by Ryan et al., (2006) and Przybylski et al. (2009a)
4 items on a 7-point Likert scale

Emotional Involvement: summative scale
Adapted from Nauman, Yun, and Suku (2009)
4 items on a 7-point Likert scale

Positive Emotions: summative scale
Positive and Negative Affect Schedule (PANAS) developed by Watson, Clark, and Tellegen (1988)
7-items on 5-point Likert scale

Flow Experience: summative scale
Developed by Trevino and Webster (1992)
4 items on a 7-point Likert scale

Behavioral Intentions: summative scale
Modified from Kim, Park and Morrison (2008)
4 items on a 7-point Likert scale

CHAPTER FOUR

THE DEVELOPMENT OF SECOND LIFE MAASAI MARA

The primary purpose of this study was to examine the virtual experience and behavioral intentions of virtual tourists, using the Basecamp Maasai Mara in Second Life as the research site. This site was chosen based on its potential to be engaging and informative, important criteria for such a study. The selection, design, and development of Second Life Maasai Mara for this study involved a collaborative effort, conducted in two phases.

In the first phase, faculty and undergraduate students in the Department of English collaborated with faculty and graduate students in Park, Recreation and Tourism Management at Clemson University in the design and development of the site. The objective in this first phase was to construct a virtual site having a visual resemblance and overall feel of the physical Basecamp Maasai Mara. As a result, the construction of this virtual site involved terraforming and landscaping the terrain to match the environment of Basecamp Maasai Mara, constructing major buildings in the Basecamp, and incorporating naturalistic elements and images of authentic Maasai clothing and jewelry.

The second phase of development, which involved enhancing the quality and interactivity of the tourism site, was accomplished by faculty and graduate and undergraduate students from various backgrounds including English, Sociology, and Park, Recreation and Tourism Management at Clemson University. The tasks completed during this stage of development used the multi-media capabilities in Second Life to engage virtual tourists and enhance their experience while visiting the virtual tourism site.

Background

A virtual representation of the Basecamp Maasai Mara was created on a private island in the virtual world of Second Life, designed to promote tourism to Kenya, to provide visitors with an awareness of the Maasai Mara tribe, and to preserve the culture of Maasai Mara community. This construction consisted of the reception area in the Basecamp building, the guest accommodations area, the local jewelry shop, the bonfire area and wild animals. Multi-media communication such as videos, slideshows, and music were also included in the virtual site. Figure 4-1 presents the map of Second Life Maasai Mara.

Figure 4-1 The Map of Second Life Maasai Mara

Second Life Massai Mara consists of 65,536 square meters (approximately 16 acres) that reflect the visual, natural, and cultural elements of the actual Maasai Mara national reserve in Kenya. A private virtual site, Maasai Tourism Island, was purchased from Linden Lab by the Department of Park, Recreation and Tourism Management at Clemson University. The estimated cost for constructing the virtual representation of Basecamp Maasai Mara was approximately $3,500. However, the majority of the expense, 95%, was for the purchase and maintenance a private island in the virtual world of Second Life, including a monthly island fee of $195 as well as a set-up fee of $700. This private island is equipped with a capacity of 15,000 objects and a limit of 100 avatars. The slur link to Basecamp Maasai Mara in Second Life is http://maps.secondlife.com/secondlife/Massai%20Tourism/101/78/22. The Second Life Maasai Mara project has been broadcasted by South Carolina ETV Radio's Your Day program on November 29th, 2010 (http://yourday.clemson.edu/?q=node/872) and May 2nd and 5th, 2011 (http://yourday.clemson.edu/?q=node/917).

Phase I development

The purpose of the first phase development of Second Life Maasai Mara was to construct the virtual site that simulated the physical space of Basecamp Maasai Mara. To achieve this goal, the following tasks were undertaken: (1) a number of key buildings were constructed; (2) naturalistic components were incorporated; and (3) the images of genuine Maasai clothing and jewelry were included. At the initial meeting held to discuss the development of Maasai Mara project, Dr. Jan Rune Holmevik discussed with Dr. Sheila Backman and Yu-Chih Huang the use of the virtual world of Second Life in

teaching ENGL 332, a course on visual communication. As a result, the development of a virtual representation of the Basecamp Maasai Mara using Second Life became a class project for ENGL 332. In the first class project meeting, James Nampushi, a graduate student and a Maasai warrior in PRTM, dressed up in traditional Maasai clothing complete with Maasai Jewelry to show students what such a warrior looks like. He also introduced the class to the importance of culture to the Maasai people. In addition, Mr. Nampushi brought samples of Maasai jewelry and clothing to the class. Members of the class took photographs of these samples to use as guides in the development of Second Life Maasai Mara.

Design and development team

The first phase of the development of Maasai Mara project was a collaborative effort including the following teams: Project supervisors Dr. Holmevik and Dr. Backman, cultural consultant Mr. Nampushi, technical consultant Yu-Chih Huang, and the undergraduate students in ENGL332 who participated in the building and design of the site. The teams, each responsible for a specific component of the project, worked together to build the virtual site of Basecamp Maasai Mara.

Dr. Holmevik and Dr. Backman served as supervisors overseeing all aspects of the development and construction of the project. Their responsibilities included supervising the project development, the quality of the constructions, and the time and budget management. Dr. Holmevik, the instructor of ENGL 332, also guided the teams to ensure effective collaboration. Mr. Nampushi served as a cultural consultant, providing information about the meaning and significance of jewelry and clothing in Maasai culture.

His role was to educate students on aspects of authenticity during the construction process. Yu-Chih Huang served as a technical consultant, providing assistance and resources for the construction of the site in Second Life. He helped the undergraduate students find resources in Second Life for constructing the virtual Basecamp.

The undergraduate students in ENGL 332 were divided into the following teams: building, landscaping, and texture creation. The primary role of the builders was to construct a number of the key buildings within the virtual sites to create a genuine feel of the physical Basecamp Maasai Mara, including the reception building, jewelry shop and guest tents. The landscaping team was responsible for terraforming the island to simulate the geography of the physical environment and to incorporate vegetation and animals related to the actual place to create a sense of wildness and natural authenticity in the virtual site. The texture team created accurate texture for the buildings, jewelry, and clothing in the virtual environment to enhance the virtual tourist experience. Its tasks included taking pictures of the samples of jewelry and clothing brought by Mr. Nampushi as well as pictures of the outdoor environments to be used in virtual building construction.

Terrforming and Landscaping

When the private island was purchased from Linden Lab, its landscape was a mountainous terrain. However, according to satellite images from Google Maps, the geography of Basecamp Maasai Mara is located on a flatter plain, meaning Maasai Tourism Island was terrformed from a mountainous terrain to primarily a flat plain. Drawing on satellite images from Google Maps, the demarcation line of the Talek River, a tributary of the Maasai River, was drawn to situate the virtual Basecamp Maasai Mara

on the island as shown in Figure 4-2. The land of the Maasai Mara in Second Life was

then terraformed within this demarcation line as shown in Figure 4-3.

Figure 4-2 The Talek River Demarcation Line Drawn On A Google Map Image

(Source: Design Document, ENGL 332, Fall, 2010)

Figure 4-3 Terraformed Island In Second Life

(Source: Design Document, ENGL 332, Fall, 2010)

According to Mr. Nampushi's presentation and various searches for information on the web, the design team found that both tall and short grasses surrounded Basecamp Maasai Mara. The grass is short in the Basecamp area to allow for good viewing of the plains and wild animals. In addition, maintaining short grass around the Basecamp area keeps predatory animals away from the Basecamp. For most of the rest of the Maasai plain, however, the grass is very tall, providing a safe place for wild animals. The grass for the virtual Maasai Mara purchased from Second Life included both types of grasses, the taller grass placed on the outer areas of the Basecamp buildings and the shorter on the inner sections.

In addition, trees were placed to surround the virtual Basecamp. As one of the trees common to Basecamp Maasai Mara in Kenya is the Acacia, these trees and shrubs were purchased from Second Life by the undergraduate students to enhance the authenticity of the virtual Basecamp. The trees were intermittently placed by the undergraduate students around the inner part of the Basecamp and the shrubs around the banks of the Talek River.

Building

In the first phase development of the Second Life Maasai Mara, a number of key buildings and naturalistic components were constructed: (1) the reception area of the Basecamp building, (2) the guest accommodation area, (3) the local jewelry shop, and (4) the wild animals.

Reception area

The reception area, which is the large Basecamp building, has two stories and contains objects such as tables and chairs. Undergraduate students incorporated building materials such as thatch, wood and stone that the texture team created to ensure authenticity with the real world reception building. This reception building serves as an area for staff to welcome and greet customers. Additionally, the reception area was created to provide a place for the guests to socialize and to interact with others. Figure 4-4 presents a snapshot of the reception area. A bonfire was also created adjacent to the reception area for visitors to interact with Maasai tribe members, simulating an important aspect of Basecamp Maasai Mara.

Figure 4-4 The Reception Area

Jewelry shop

The jewelry shop functions as a gift shop in the virtual Basecamp Maasai Mara, displaying products that the Maasai Mara tribe women produce. Its circular shape simulates the Maasai Mara tribal women's workshops. Inside the building, jewelry display desks were created to exhibit sample Maasai artwork made by local women.

In addition, the undergraduates created the texture for creating clothing in Second Life. They took snapshots of avatars wearing Maasai clothing and displayed these images of Maasai Mara dress in the virtual site on the wall of jewelry shop. The colors and shape patterns shown in jewelry and clothing reflect the cultural heritage of the Maasai Mara area.

The purpose of the construction of gift shop in the virtual Basecamp was to communicate the colors and patterns used in jewelry making and clothing to enhance awareness of Maasai culture. Figure 4-5 is a snapshot of the jewelry shop in Second Life Maasai Mara.

Figure 4-5 The Jewelry Shop

Accommodation area

In the first phase of development of Second Life Maasai Mara, six personal guest tents in the accommodations area were created. These tents, which provide a sense of being close to nature, incorporate the texture of natural environment such as thatched roofs and wooden furniture, to simulate the building materials found in Maasai villages. Situated on the banks of the Mara River, these guest tents are furnished with simple wooden furniture and stone slab tables the amenities of eco-lodging. Both the tents and furniture were created in the Second Life Maasai Mara to represent the place offered for tourists to stay on the Maasai Mara reserves. Figure 4-6 presents a snapshot of a personal guest tent in the virtual site.

Figure 4-6 Personal Guest Tent

Bonfire

The bonfire area has stone flooring and wooden/canvas chairs and logs as well as a small fire pit encircled by rocks. It was constructed to reflect a special aspect of Basecamp Maasai Mara, a place where guests can interact with tribe members through dancing, storytelling or enjoying a drink. In addition, it serves as a place where guests can socialize and interact with other tourists.

Wild animals

Wild animals including giraffes, elephants, zebras, bat-eared foxes, hippopotamus and hyenas are included in Second Life Maasai Mara. Selected because they are typically

found this environment, these wild animals not only simulate the extensive wildlife living in the physical space but also represent a vital part of the ecosystem in Kenya.

To enhance the interactivity of the virtual tourism site, animated animals with the ability to move around in the virtual site were chosen for virtual Maasai Mara. Due the limited knowledge of Linden scripting language, the wild animals were purchased from Second Life. In addition, these animated animals allowing visitors to ride on them in the virtual site potentially enhance the sense of autonomy while navigating the Second Life Maasai Mara. Figure 4-7 shows the elephants in Second Life Maasai Mara.

Figure 4-7 Elephants In Second Life Maasai Mara

The construction of the key buildings in the Second Life Maasai Mara was undertaken to simulate the physical environment of Basecamp Maasai Mara and to replicate its feeling, including its wildlife, its eco-friendly amenities, its social interaction and its culture.

Texture

The texture team played an important role in creating the virtual representation of Basecamp Maasai Mara. The significance of such cultural aspects as clothing and jewelry was also considered because they were to communicate the symbolism of the Maasai culture through the different colors, beading and designs. The traditional fabric and materials of the Maasai were used in both the clothing and buildings, as were the traditional designs of Maasai jewelry.

Jewelry textures

Undergraduate students photographed examples of authentic Maasai jewelry provided by Mr. Nampushi. These pictures were then uploaded into Second Life to use in creating virtual jewelry such as bracelets and bangles, which were placed in display cases in the jewelry shop. Figure 4-8 presents the samples of jewelry textures.

Figure 4-8 Jewelry Textures
Source: Design Document, ENGL 332, Fall, 2010

Clothing textures

To create accurate pictures of the clothing, photographs were taken of the genuine Maasai clothing Mr. Nampushi provided and then uploaded to Second Life. These

textures were then applied to the fabric of the avatar's clothing to simulate the feel of life in Maasai. The colors blue, purple and red, and the striped or checked patterns created for Second Life Maasai clothing symbolize the culture and traditions of the Maasai people, enhancing the sense connection with Massai Mara for tourists experiencing the virtual site. Figures 4-9 presents the snapshots of clothing textures.

Figure 4-9 Clothing Textures

Source: Design Document, ENGL 332, Fall, 2010

Building textures

The texture team took pictures of such natural environments as the Botanical Gardens at Clemson University for use in building the Second Life site. These images of pine straw, thatch, and stone were uploaded into Second Life to replicate the textures found in Basecamp Maasai Mara. Figure 4-10 presents the samples of building textures.
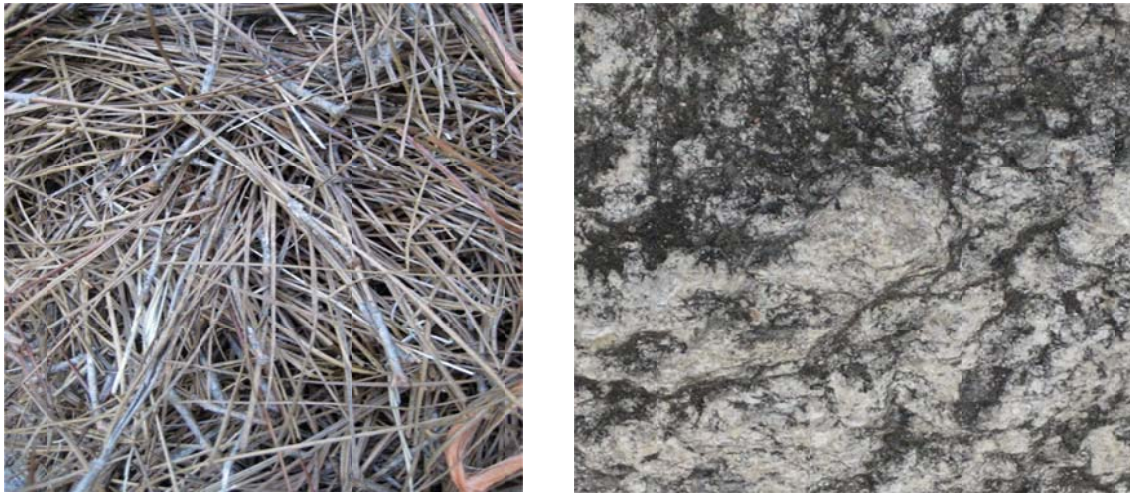
Figure 4-10 Building Textures

Source: Design Document, ENGL 332, Fall, 2010

This first phase in the development of Second Life Maasai Mara established the foundation of the site. Tasks in this phase included terraforming the virtual island to match the geography of physical Maasai Mara, building the landscape of the virtual site, and constructing the reception building, jewelry shop, guest tent accommodations, and wild animals. Important cultural aspects of the Maasai, their jewelry and clothing, were also part of this initial stage, which formed the basis for future development.

Phase II development

The goals of second stage of the project were to enhance value of the Second Life Maasai Mara, to improve the quality of the current construction, and to create aspects in the environment to determine the virtual tourist experience of the site. Dr. Holmevik, Chris Ball and Yu-Chih Huang met to discuss the second phase of the Basecamp Maasai Mara project. The detailed objectives of this phase and the tentative timeline proposed Yu-Chih Huang are shown in Table 4-1. Following this initial meeting on the second

stage of the Basecamp Maasai Mara project, a presentation was made by Yu-Chih Huang,

Chris Ball, and Dr. Holmevik to Dr. Sheila Backman.

Table 4-1 The Objectives of Second Phase Development of Second Life Maasai Mara

1. Creating video in Second Life Maasai Mara
• Scheduling a time with Mr. Nampushi and Mr. Reson (two Maasai warrior storytellers) in first week of February   • Recording the film in third week of February (Mr. Nampushi and Mr. Reson in Maasai dress)   • Finding information and images for Maasai Mamas' jewelry making   • Producing films on lion killing and about safari stories using Window Movie Maker software   • Post-producing the films (insert music and text in the films) in the beginning of March   • Uploading the films to YouTube   • Embedding the films into Second Life   • Implementing automatic video play in Second Life when someone approaches
2. Implementing Sound Track of wildlife/local music
• Searching appropriate sound track for Maasai Camp   • Transferring the file sound track to Second Life format   • Programming the sound track as background music for the Basecamp Maasai Mara
3. Integrating with the Maasai Mara Camp Web Site within the virtual site
• Obtaining permission to link with the Maasai Camp website   • Finding the scripting for this link between the web and Second Life   • Linking the web's reservation and customer service to Second Life
4. Showcasing the images of the Maasai Camp facility
• Finding appropriate image of Basecamp Maasai Mara facility   • Making the slide show of the Basecamp Maasai Mara   • Showcasing the Basecamp Maasai Mara in Second Life
5. Improving current construction of virtual Mara Camp
• Improving the quality of the architecture in Second Life Maasai Mara   • Remodeling the reception area   • Remodeling the tent   • Remodeling the jewelry shop

In the second phase, the builders and designers were to improve the quality of the environmental construction and enhance the interactivity within the virtual site based on the foundational works accomplished during the first stage. Their specific goals were not only to simulate the physical environment and the feeling of Basecamp Maasai Mara but also to create an atmosphere that generated a positive virtual tourist experience. The specific tasks for achieving these objectives included improving the constructions already on the virtual site, creating videos for the site, implementing Maasai Mara music, showcasing the images of Basecamp Maasai Mara, and integrating the Basecamp website within the virtual site.

Design and development team

The second phase of Second Life Maasai Mara was also a joint effort including the following teams: project supervisors Dr. Holmevik and Dr. Backman, cultural consultants James Nampushi and Eric Reson, builders and developers Chris Ball and Yu-Chih Huang, and video content developers including undergraduate students enrolled in PRTM 344. This collaboration involved undergraduate and graduate students as well as faculty from various disciplines including Sociology, English, and PRTM. Similar to the first stage, each team had specific responsibilities and tasks. The project supervisors were responsible for providing guidance to the team and ensuring progress toward the project goals. The cultural consultants assisted in communication with relevant local partners and provided information on aspects of Maasai culture. The main tasks of the builders and developers were to improve the quality of Second Life Maasai Mara as well as to enhance interactivity within the site. The responsibilities of the video content developers

included interviewing, filmmaking and video production. The team worked together to complete the objectives of the second phase development of the Basecamp project.

Creating video within the site

The development and implementation of streaming video in Second Life Maasai Mara was an important task to enhance the interactivity of the virtual site. Its goal was to take advantage of the function of multi-media and interactive communication to engage tourists to generate a positive attitude toward the Basecamp Maasai Mara. Various topics for video content were outlined and created by Yu-Chih Huang and the undergraduate students in PRTM 344, including introductions to the Basecamp project, Basecamp Maasai Mara and to the Maasai culture on the aspects of jewelry and clothing. All of the videos provide an opportunity to engage tourists while navigating the virtual site of Basecamp Maasai Mara.

The implementing of video in Second Life included both connecting the streaming video as well as the construction of a video screen, purchased by the build and design team to implement YouTube streaming video. The selection of video frames, for example such as a wooden frame with a straw thatched awning, was considered appropriate for the environment of Second Life Maasai Mara. The video stations were placed at key locations in the virtual site to provide information and appropriate content for tourists.

The introduction of the Basecamp project was created by the film making team by interviewing both project supervisors on the reason for constructing Second Life Maasai Mara and its subsequent use. This video was placed in the reception area as visitors first

encounter the site. Figure 4-11 shows an image of the video on the introduction of the Basecamp project.

Figure 4-11 Introduction of Basecamp Project in the Reception Area

The video introducing Basecamp Maasai Mara was developed based on interviews with the cultural consultants Mr. Nampushi and Mr. Reson, two Maasai warriors. These interviews with two residents of a Maasai village not only enhances the authenticity of the virtual tourism site but also promotes tourism in Kenya by presenting their life stories to potential visitors. This video was also placed in the reception area.

Two important aspects of Maasai culture, jewelry and clothing, were also addressed in videos by interviewing Mr. Nampushi and Mr. Reson. This video station explaining the significance and meaning of colors in Maasai jewelry and clothing was

placed in the jewelry shop. Figure 4-12 is a snapshot of the video station in front of the jewelry shop.

Figure 4-12 The Video on Maasai Jewelry

Testimonials and travel experiences from past visitors were included in the video placed in the guest tent area, its goal to inspire potential tourists to visit Basecamp Maasai Mara in Kenya. This film uses interviews of three Clemson University faculty members, Dean Larry Allen, Dr. Brett Wright and Dr. Ken Backman in PRTM, all of whom visited the Basecamp in 2010. Figure 4-13 presents a sample image of the video.

Figure 4-13 The Video on the Kenya Tourism Experience

The video of a lion killing story as told by two Maasai warriors represents the interactions between visitors and locals. This video was created by interviewing the two Massai warriors, Mr. Nampushi and Mr. Reson, who shared their life stories, explaining why it is necessary to kill a lion in their village to become a Massai warrior. The video station about lion killing story was placed in the bonfire area in the guest accommodations area. Figure 4-14 shows an image of this video station in Second Life Maasai Mara.

Figure 4-14 Video Stations Showing the Lion Killing Story in Front of the

Bonfire Area

Implementing Slideshow

Similar to the video stations, a slideshow board was implemented in Second Life

Maasai Mara to communicate travel information as well as to explain the project to

tourists. Using Second Life's ability to incorporate multi-media functions to interact with

visitors on a virtual site, the slideshows convey information about Basecamp Maasai

Mara through a combination of texts and pictures to generate positive feelings for the

tourism destination. In addition, the picture slideshow can be used to showcase the life in

Maasai Mara and to attract tourists to the destination. Also similar to the video board

system, the slideshow frame was purchased by the builder and developer team from

Second Life due to limited knowledge of Linden scripting language.

The content of slideshow board includes an introduction to the Basecamp project

and a showcase of the tourist destination, Maasai Mara. These presentations were created

using PowerPoint and converted into a proper format for uploading into Second Life. The slideshow automatically loops but also can be controlled by tourists to move forward or backward. Figure 4-15 presents a snapshot of the slideshow presentation in Second Life Maasai Mara.

Figure 4-15 Slideshow Board in Second Life Maasai Mara

Implementing sound system

Music played an important role in the construction of the virtual representation of Basecamp Maasai Mara. Authentic Maasai Music was used as a way to engage tourists and to enhance their virtual experience in the Second Life site. The incorporation of these authentic sounds provides an opportunity to entertain tourists as well as to communicate Maasai culture to them.

The implementation of Maasai music in the virtual site of Basecamp Maasai Mara was accomplished through the following steps: (1) purchasing a sound system from Second Life for integrating streaming audio from an internet radio station, (2) converting

the Maasai music into an appropriate format for uploading to the web, (3) creating a music sphere object in Second Life, (4) linking to a server website to play the music, and (5) placing the music objects in the family tent. The audio content of the Maasai music was created in collaboration with a friend of Mr. Nampushi, a musician in a local community. The incorporation of Maasai music provided an opportunity not only to offer an immersive experience for virtual tourists but also to draw their attention to the Maasai culture. Figure 4-16 presents an image of the Maasai music sphere in Second Life Maasai Mara.

Figure 4-16 Maasai Music Sphere in the Family Tent

Website board

One additional goal of the second phase development was to integrate the Maasai Mara Website into the virtual site. Although the use of the virtual world in promoting tourism destination is relatively new, one of their advantages is that tourism marketers can incorporate traditional marketing media such as websites for communicating travel information to tourists. Integrating the Maasai Mara website allows virtual tourists to acquire more travel information about the tourism facilities and attractions in Basecamp Maasai Mara, thereby enhancing their desire to visit the physical destination.

The website interface board created to integrate the two sites was placed in the reception area in Second Life Maasai Mara. Similar to the development of the video and slideshow boards, a member of the design team created a wooden board for the media texture to link the two. With this website board, virtual tourists can navigate the Maasai Mara website within the virtual environment to search for travel information related to travel to Basecamp Maasai Mara. Figure 4-17 presents the image of website board.

Figure 4-17 Website Board in the Second Life Maasai Mara

Building and Remodeling

The second stage of development also included improving the buildings in the virtual site constructed during the first phase, focusing on improving authenticity and accuracy. Specifically, two buildings, the reception area and jewelry shop, were remodeled and one, the family tent, was a new construction. In addition, sitting and lying pose-balls were created to animate avatars to express these positions so as to enhance the interactive experience of virtual tourists.

Jewelry shop remodeling: The jewelry shop is a circular building in Basecamp Maasai Mara. However the size limitation of the objects in Second Life poses a challenge in constructing a building of this shape. Because the large size, the circular roof was difficult tasks to accomplish, and during the first phase the jewelry shop was built in the shape of octagon rather than a cylinder. To create a more accurate jewelry shop, remodeling was undertaken in second phase.

This remodeling was accomplished through the following tasks: (1) searching and finding original source materials for construction: (2) creating curved objects to serve as foundational walls for the entire building, (3) outlining and building the circular-shaped objects needed for the large size of the roof, (4) finding for textures for the roof, window, and walls as well as the floor, (5) linking the roof, wall, window and floor, and (6) applying appropriate textures to each object in the entire building. Figure 4-18 shows a snapshot of the remodeled jewelry shop in Second Life Maasai Mara as well as the jewelry shop in real-life Basecamp Maasai Mara.

Figure 4-18 Jewelry Shop in Second Life and in Basecamp Maasai Mara

Source: Design Document, ENGL 332, Fall, 2010

Reception building remodeling

Similar to the goal for remodeling the jewelry shop, the reception building was remodeled to create a more accurate and realistic construction in the virtual site. However, this remodeling did not involve starting over with a new construction but rather improving the quality of the existing building. Because the stairway of the reception building in first phase was not symmetrical and did not include a handrail, one of the remodeling projects was to rebuild one. A new stairway with a handrail was built to provide visitors with a smooth experience when using it. In addition, because the front desk in the reception building was initially small, a larger one was built during the second stage of development. This new front desk allows staff to stand behind it and welcome guests as well as give out information about Second Life Maasai Mara. Figure 4-19 presents a picture of the remodeled front desk and stairway in the reception building.

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Figure 4-19 The Modified Front Desk and Stairway in Reception Building

Family tent creation

In the second stage of development, a new, larger family tent was created to accommodate more guests. The family tent was also added in order to exhibit some variety of guest tents in accommodations area within the virtual site. In addition, because the personal guest tent constructed in first phase was not equipped with a restroom, the new one included an attached bathroom to increase the realism of the accommodations. Its interior consisted of two wooden nightstands, a wooden queen-sized bed, Maasai style bedding and a walkway.

The family tent was created through the following tasks: (1) finding pictures of original source material for the construction, (2) finding a triangle-shaped roof and canvass from Second Life Marketplace, (3) building the pillar, walkway and floor of the tent, (4) applying proper texture to the floor and pillar, (4) constructing the interior furniture, the night tables, bed and carpet; (5) creating the bathroom which consists of a

toilet, hamper-style table, water dish and a woven pail hung on the wall, (6) applying appropriate textures to each object, (7) incorporating snapshots of Maasai clothing to create the bedding, and (8) linking the objects. Figure 4-20 presents a snapshot of new family tent.

Figure 4-20 The New Family Tent in the Accommodations Area

Sitting and lying pose ball

To enhance the immersive aspect of the virtual experience, sitting and lying poseballs to allow avatars to express these real-world positions were created. The sitting pose was implemented in the chair in the reception area and around the bonfire area, while the lying poseball was placed on the bed in the personal and family tents. This poseball allows avatars to lie on the bed to relax during their visit to Basecamp Maaasi Mara.

The tasks of creating these poseballs were accomplished through the following: (1) finding Linden scripting language for the sitting and lying poses, (2) creating objects

for poseballs, (3) incorporating hovering script on top of the poseballs, (4) incorporating sitting and lying script with each object, (5) placing the sitting poseballs in the appropriate places in the reception building and around the bonfire, (6) implementing the lying poseball on top of the bed, (7) adjusting the sitting and lying to the appropriate positions. A snapshot of the sitting poseball can be seen in Figure 4-21.
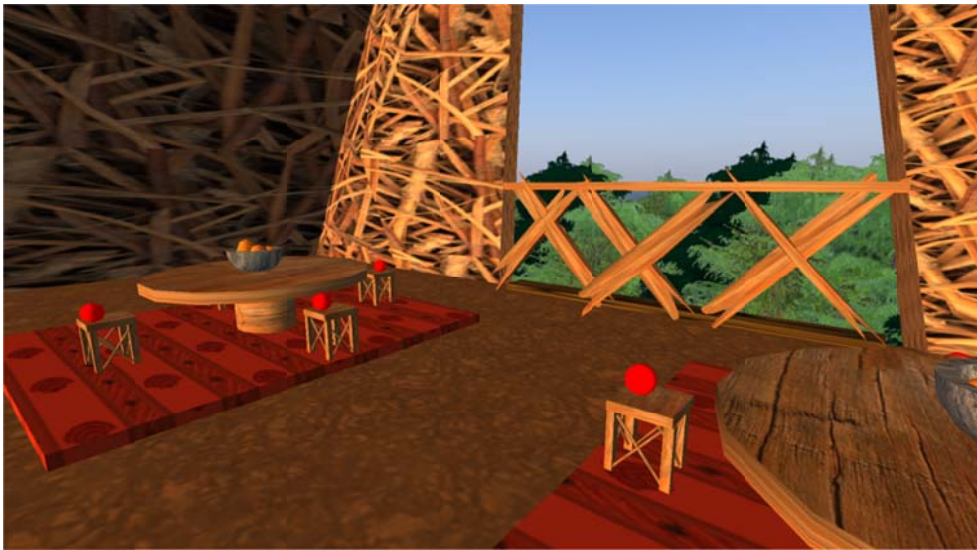
Figure 4-21 The Sitting Pose Ball in the Reception Building

Instructional board

One of the important elements in the virtual site used for data collection in this study is the instructional board for the treasure hunt activity, developed to help visitors to explore and navigate the site of Second Life Maasai Mara. This instructional board provides the steps for completing the treasure hunt activity. One advantage of using an instructional board is that when virtual tourists visit Second Life Maasai Mara, they can participate in a treasure hunt and explore the site without the presence of a researcher. Figure 4-22 presents a snapshot of the instructional board in the virtual site.

Figure 4-22 Instructional Board in the Reception Area

The presentation of the treasure hunt activity on the instructional board was created in PowerPoint. Similar to the material on the slideshow boards, the presentation for the treasure hunt was then converted into the proper format for uploading in Second Life. Its content, which was created by the researcher, includes a map of Second Life Maasai Mara, instructions for the treasure hunt, and the areas to discover. An instructional frame was purchased from Second Life to display this presentation and then implemented in the reception area to help greet and welcome visitors.

Instructional notecard dispenser

Another important component that is used for data collection in this study is the instructional notecard dispenser. The instructional notecard was used to facilitate visitor participation in the treasure hunt. When visitors click on the instructional notecard dispenser, it will distribute a notecard. The notecard provides information about the instruction of treasure hunt activity and the purpose of the research. The instructional

notecard can be stored in a visitor's inventory so that visitors can refer to the detailed instructions in the notecard for each step to take part in the treasure hunt activity.

Because of limited knowledge of the designer and builder on Linden scripting language, a mailbox with appropriate scripting was purchased from Second Life and modified to be used for the instructional notecard dispenser. The scripted mailbox allows visitors to click on it, which prompts it to dispense a notecard with text information about the treasure hunt. A notecard with detailed instructions for the treasure hunt activity was created and implemented in the dispenser. The instructional notecard dispenser was placed in the reception area of the virtual site, near the instructional board, for facilitating activity. A snapshot of the instructional notecard dispenser is presented in Figure 4-23.

Figure 4-23 Instructional Notecard Dispenser in the Reception Area

Survey station

One of the most important components for data collection in this study is the survey station, which is used to link to the web-based questionnaire assessing the visitors'

tourism experiences. Implementing the survey station in the virtual world involved integrating the web questionnaire into the environment of Second Life Maasai Mara. When virtual tourists click on it, the survey station provides the link to the web-based questionnaire that visitors can follow to participate in the survey.

The creation of survey station was accomplished by finding one with Linden scripting language in Second Life, inserting script for a floating text reading "click for web survey," creating the content of the web survey in Snap software, publishing the survey to the web, incorporating the link to web survey in the script of the mailbox, and applying appropriate texture to the survey station. As two web questionnaires were used in this study, two survey stations were created, one placed in the reception area and the second in the guest tent area. Figure 4-24 shows a snapshot of the survey station in the guest tent area.

Figure 4-24 The Survey Station in the Accommodation Area

Summary

The virtual representation of Basecamp Maasai Mara was created to provide visitors the experience of this Basecamp in the virtual world of Second Life and to enhance the brand awareness of this tourism destination. Creating a realistic and genuine environment simulating the physical environment of Basecamp Maasai Mara involved constructing the virtual site by terraforming the island based on the Maasai River, landscaping the plain to match the physical environment, constructing buildings in the basecamp, and creating natural elements such as wild animals and local vegetation. This creation of a realistic environment simulating the physical Basecamp Maasai Mara should provide tourists with a sense of being in the Kenyan basecamp in the virtual world.

When building Second Life Maasai Mara, important aspects of the Maasai culture were also taken into consideration. The construction of the virtual site and its objects incorporated images of genuine clothing and jewelry from local villagers. The virtual Maasai jewelry represents the artwork produced by local women to enhance awareness of Massai culture, and the meaning of the colors, shapes and patterns in Maasai clothing are used to educate virtual tourists on the traditions of the Maasai people.

In addition, multi-media was incorporated in the virtual world to enhance the immersive and interactive nature of the virtual tourist experience through video stations, a slideshow board, a sound system and a website board. The content displayed on these sites also includes images from the local community to enhance authenticity and cultural realism. The use of interactive communication media in the virtual destination provides

an opportunity to engage virtual tourists during their visit to Second Life Maasai Mara, enhancing their sense of connection with Basecamp Maasai Mara.

The second phase of development involved remodeling or redesigning various constructions built during the first phase to enhance the realism of the virtual tourism site. These remodeled efforts included the jewelry shop, the stairway of the reception building, and the front desk in the reception area as well as redesigning the family tent and incorporating sitting and lying pose animations.

Finally, to collect data on the participants and their interactions with virtual tourism destination, such amenities to assess the virtual tourist experience as survey stations, instructional boards and an instructional notecard dispenser were created. The data gathered from the virtual tourists can be used to improve the design and development of tourism destinations in a 3D virtual world, potentially important consumer for tourism marketers.

CHAPTER FIVE

RESULTS OF DATA ANALYSIS

Both descriptive and inferential analyses were used to examine the personal characteristics of virtual tourists, the technology acceptance factors, the psychological needs, the virtual tourist experience, and the behavioral intentions of virtual tourists in Second Life Masai Mara. To ensure that the measurements were reliable, reliability analyses were conducted to evaluate the internal consistency of each construct used in this study.

The participants, both novice and experience users of Second Life, were profiled based on demographic information, prior video game experience, and prior Second Life experience. General Linear Multivariate Models were conducted to examine whether the dependent measures of virtual tourist experience and behavioral intentions were associated with technology acceptance factors as well as psychological needs. Linear regression models were used to test the research questions.

Reliability

Reliability tests were performed to examine the internal consistency of the measurements used in this study, the results showing that each scale, tele-presence, perceived ease-of-use, perceived usefulness, competence, autonomy, relatedness, enjoyment, positive emotions, emotional involvement, flow, and behavioral intentions was reliable (Nunnally, 1978). Cronbach's alpha coefficients ranged from 0.85 to 0.96 as seen in Table 5-1.

Table 5-1 Results of the Scale Reliability

Scale	Items	Mean	S.D.	Cronbach's Alpha
Tele-presence	10	4.08	1.20	0.93
Perceived ease-of-use	4	5.36	1.08	0.90
Perceived usefulness	4	4.67	1.45	0.95
Competence	3	5.24	1.11	0.85
Autonomy	3	5.13	1.22	0.87
Relatedness	4	4.33	1.71	0.94
Enjoyment	4	5.29	1.31	0.96
Positive emotions	7	3.24	0.85	0.92
Emotional involvement	3	4.43	1.52	0.91
Flow	4	4.98	1.11	0.87
Behavioral Intentions	4	4.68	1.28	0.89

Demographic Characteristics of the Sample

The sample demographic profile for the combined novice and experienced users (N=198) is shown in Table 5-2. Approximately 53% and 47% were, respectively, novice and experienced Second Life users. While the composition of each sample based on gender was approximately the same, the ethnic composition was different in the two groups. Although both groups were predominately white, the experienced user group had a higher percentage of African American, Hispanic or Latin and Asian subjects than did the novice user group. The age of respondents was older (ages 45-54) for the experienced users than novice group (18-24). Both samples reported their highest academic achievement as some college/ technical school. Novice users indicated that their current work status was student whereas experienced users reported more variation in this characteristic with most being in a management position. With respect to marital status, the novice group indicated that they were primarily single, but the experienced user group

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was most likely married or living with a partner. Both groups also were comprised

primarily of residents of the United States or Canada.

Table 5-2 Demographic Characteristics of Samples

Demographic Characteristics	Frequency (%) (Combined =198)	Frequency (%) (Novice =105)	Frequency (%) (Experienced =93)
Gender			
Male	37.6	38.5	36.6
Female	62.4	61.5	63.4
Ethnic Group			
White	85.3	91.3	78.5
Black or African American	5.7	4.8	6.5
Hispanic or Latino	3	1.9	4.3
Asian	3	1	5.4
Other	3	1	5.4
Age			
18-24	57.1	197.1	12.9
25-34	11.7	2.9	21.5
35-44	10.7	0	22.6
45-54	11.7	0	24.7
55+	8.6	0	17.3
Highest academic achievement			
Less than a high school diploma	1.0	0	2.1
High school graduate	18.7	29.8	6.4
Some college/technical school	55.0	66.3	42.6
Bachelor's degree	13.1	3.8	23.4
Master's degree	7.1	0	14.9
Doctorate degree	5.1	0	10.6
Current work status			
Management	9.7	3.0	16.3
Computer and mathematical science	6.2	0	13.0
Education (teacher/professor) /scientist	8.7	0	18.5
Artist	7.2	1.0	14.1
Web designer	2.1	0	4.3
Health care professional/ physician	3.6	1.0	6.5
Sales	5.6	3.0	8.7
Students	55.4	91.9	15.2
Other	1.5	0	3.3
Marital status			
Single	70.7	96.2	28.0
Married and living with husband/wife	14.1	0	29.8
Married and separated from husband/wife	0.5	0	1.1
Living with partner	8.1	2.9	13.8
Divorced	5.1	1	9.6
Widowed	1.5	0	3.2
Residence			
France/Germany/UK	4.0	0	8.6
USA/Canada	87.3	100	73.1
Asia Pacific	1.5	0	3.2
Middle East/Africa/Latin America	1.5	0	3.3
Other	5.6	0	11.8

Prior Experience with Video Games

The data in Figures 5-1 and 5-2 show that there are differences between the novice and the experienced groups; 69.5 % of all respondents had prior experience with video games. The finding that the majority of both user groups had previous experience with video games is not surprising because they reflect younger modern consumers, many of whom grew up playing video games.
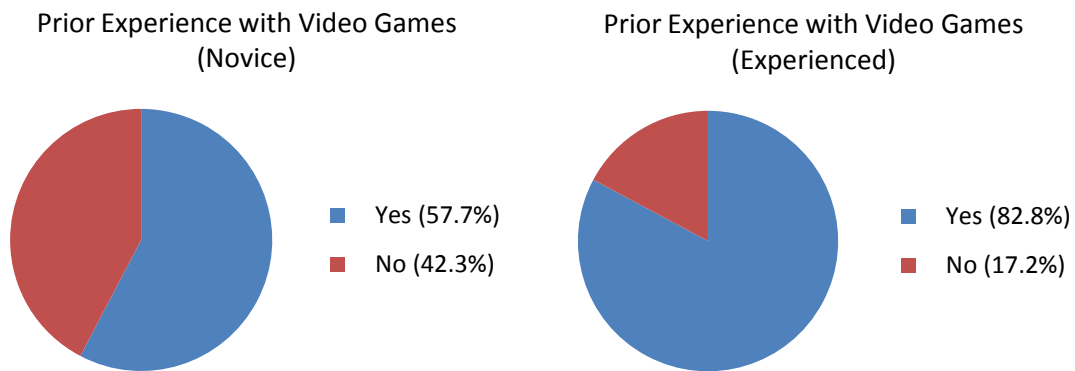
Figure 5-1 Prior Experience With Video Games

Figure 5-2 indicates that 33 percent of experienced users spend more than three hours a week playing video games. In contrast, almost half (47.6 percent) of novice users do not play video games. This difference is probably because the novice group was comprised of university students who do not have the time to engage in game playing.
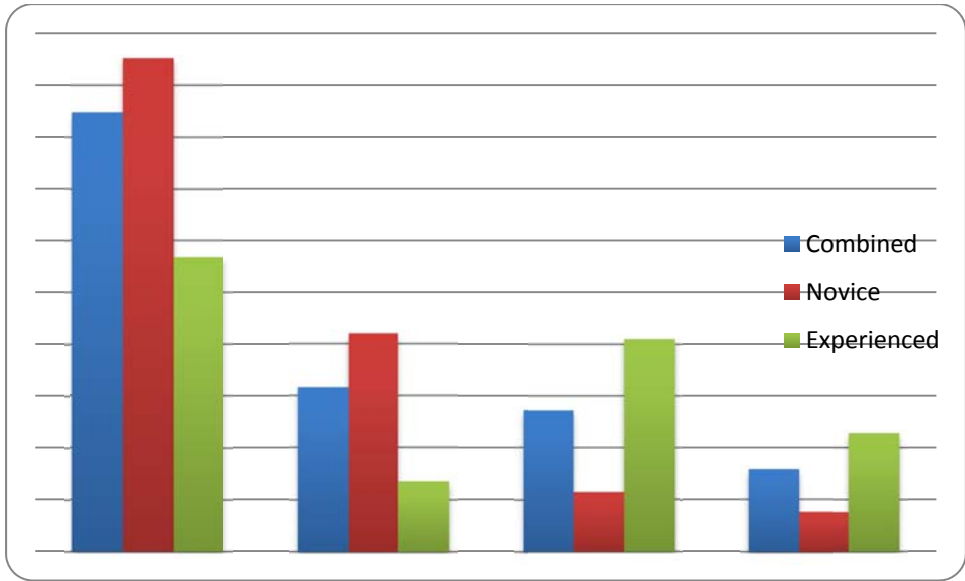
Figure 5-2 Time Spent Playing Video Games

Prior Experience with Virtual Worlds

As shown in Figures 5-3 and 5-4, 11.5 % of the novice group had experience with virtual worlds while 90.4% of experienced users had experience with virtual worlds. In comparing the time spent in the virtual world per week, 77.3 % of experienced users spend more than 3 hours per week while none of novice group spends more than two hours per week (Figure 5-4).
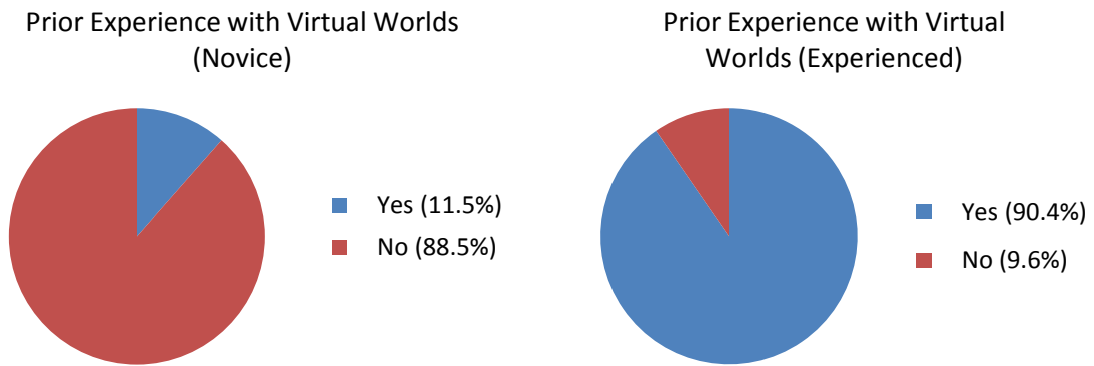
Figure 5-3 Past Experience With Virtual Worlds
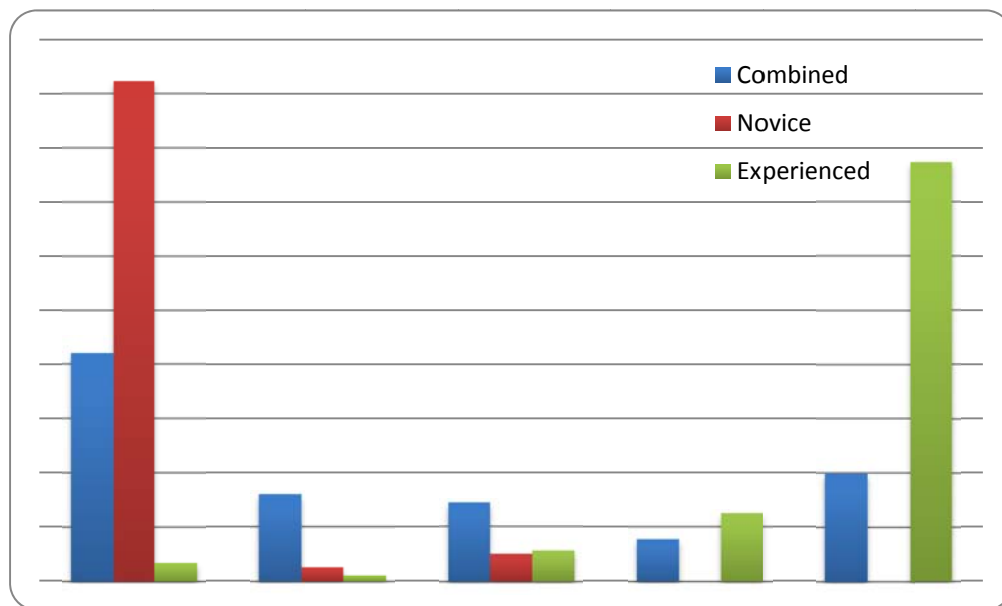
Figure 5-4 Time Spent in Virtual Worlds

General Linear Multivariate Model

The General Linear Multivariate Model was performed to examine whether the

dependent measures of virtual tourist experience and behavioral intentions were

associated with technology acceptance factors. Box's test of quality of covariance matrices was used to examine the homogeneity of the covariance matrices assumption (Green and Salkind, 2005). According to Mertler and Vannatta (2005), if the Box's test is significant at the P<0.001 level, observed covariance matrices of the dependent variables are equal across groups, indicating a violation of the General Linear Multivariate Model assumption. The results of General Linear Multivariate Model completed here revealed that the assumption was not violated.

The results from the General Linear Multivariate Model indicated that technology acceptance factors were significantly related to a combination of dependent variables as seen in Table 5-3. Significant differences on a combination of dependent measures were found across the three technological acceptance factors of tele-presence, perceived ease-of-use, and perceived usefulness.

Table 5-3 General Linear Multivariate Model for Technological Acceptance Factors

Independent Variables	Wilks's Lamda	F value	P values	η^2
Tele-presence	0.509	29.51**	<0.01	0.491
Perceived ease-of-use	0.904	3.25**	<0.01	0.096
Perceived usefulness	0.809	7.23**	<0.01	0.191

*** P< 0.01, ** P< 0.05

As shown in Table 5-3, tele-presence was significant at α <0.01, Wilks'Lamda =0.509, F (1, 171) =29.51. The multivariate η^2 = 0.491 indicates that 49.1% of multivariate variance of the dependent variables was associated with tele-presence. The perceived ease-of-use was also significant at α <0.01, Wilks'Lamda =0.904, F (1, 171)

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=3.25, P<0.01. The multivariate η^2 = 0.096 revealed that 9.6% of the multivariate variance of the dependent variables was related to perceived ease-of-use. Perceived usefulness was significant at α <0.01, Wilks'Lamda =0.809, F (1, 171) =7.23. The multivariate η^2 = 0.191 indicated that 19.1% of the multivariate variance of the dependent variables was associated with perceived usefulness.

Further, the General Linear Multivariate Models were conducted to examine the relationship between each of three technological acceptance factors and a combination of dependent measures, the results indicating that each technological acceptance factor had a significant relationship with a combination of dependent variables. As shown in Table 5-4, tele-presence was significant at a 0.01 level, Wilks'Lamda =0.295, F (1, 164) =76.61, η^2 =0.705. Perceived ease-of-use was also significant, Wilks'Lamda =0.797, F (1, 173) =8.60, η^2 =0.203, p<0.01. Perceived usefulness was significant at a 0.01 level, Wilks'Lamda =0.455, F (1, 176) =41.26, η^2 =0.545.

Table 5-4 General Linear Multivariate Models for Each of the Technology Acceptance Factors

Independent Variable	Wilks's Lamda	F value	P values	η^2
Tele-presence	0.295	76.61	<0.01	0.705
Perceived ease-of-use	0.797	8.60	<0.01	0.203
Perceived usefulness	0.455	41.26	<0.01	0.545

*** P< 0.01, ** P< 0.05

In addition, to examine whether the dependent measures of the virtual tourist experience and behavioral intentions were related to the psychological needs of

competence, autonomy and relatedness, the General Linear Multivariate Model was conducted. As shown in Table 5-5, the results of General Linear Multivariate Model indicated that these psychological needs of competence, autonomy and relatedness are significantly related to the five dependent variables. Significant differences were found across three psychological needs of competence, autonomy and relatedness on the five dependent measures.

Table 5-5 General Linear Multivariate Model for Psychological Needs

Independent Variables	Wilks's Lamda	F value	P values	η^2
Competence	0.930	2.49**	0.033	0.07
Autonomy	0.591	23.00***	<0.01	0.41
Relatedness	0.562	25.91***	<0.01	0.44

*** P< 0.01, ** P< 0.05, *P<0.1

The association between competence and the five dependent variables was significant at α <0.05, Wilks' Lamda =0.930, F (1, 170) =2.49. The multivariate $\eta^2 = 0.07$ indicated that 7% of the multivariate variance of the dependent variables was associated with the construct of competence. The relationship between autonomy and five dimensions is also significant at α <0.01, Wilks'Lamda =0.591, F (1, 170) =23.00. The multivariate $\eta^2 = 0.41$ revealed that 41% of the multivariate variance of the dependent variables was associated with autonomy. The association between relatedness and the five dependent measures was significant at α <0.01, Wilks'Lamda =0.562, F (1, 170) =25.91. The multivariate $\eta^2 = 0.44$ indicating that 44% of the multivariate variance of the dependent variables was associated with relatedness.

Further, the General Linear Multivariate Models for each of three psychological needs were performed to examine the relationship between partial effect of psychological needs and the combination of the five dependent measures of the virtual experience and behavioral intentions, the results indicating that each of three psychological needs had a significant impact on these measures. As shown in Table 5-6, competence was significant at a 0.01 level, Wilks'Lamda =0.616, F (1, 175) =21.33, η^2 =0.384. Autonomy was also significant, Wilks'Lamda =0.333, F (1, 175) =68.45, η^2 =0.667, p<0.01 as was relatedness at a 0.01 level, Wilks'Lamda =0.417, F (1, 176) =48.16, η2 =0.583.

Table 5-6 The General Linear Multivariate Models for Each of Psychological Needs

Independent Variable	Wilks's Lamda	F value	P values	η^2
Competence	0.616	21.33	<0.01	0.384
Autonomy	0.333	68.45	<0.01	0.667
Relatedness	0.417	48.16	<0.01	0.583

*** P< 0.01, ** P< 0.05

Linear Regression

Examining the relationship between the technological acceptance factors (perceived usefulness, ease-of-use and tele-presence) and the virtual tourist experience

Linear regression was used to examine the relationship between technological acceptance factors (perceived ease-of-use, perceived usefulness, tele-presence) and enjoyment. In addition, tolerance and variance inflation factors (VIF) were used to determine the impact of multicollinearity. Examining the effect of inflation, the VIF for

three independent variables of technological acceptance factors were close to 1.00 and the tolerance score showed that little variance among three independent variables was correlated. There was no evidence to suggest that the effect of inflation on each of the regression models.

The linear regression model was significant, $P<0.01$, F= 66.60 (3, 157), indicating that tele-presence, perceived ease-of-use and perceived usefulness were related to enjoyment. The $R^2=0.560$ and the adjusted $R^2=0.552$ indicated the model explained 55.2% of the variance in enjoyment. The regression coefficients for the three independent variables (perceived ease-of-use, perceived of usefulness, tele-presence) to enjoyment is shown in Table 5-7.

Table 5-7 Regression Analysis: Technological Acceptance Factors and Enjoyment

Independent Variables	B	Beta	Sr^2	F	R^2	Adjusted R^2
Tele-presence	0.46	0.42***	0.10	66.60	0.560	0.552
Perceived ease-of-use	0.20	0.16***	0.023			
Perceived usefulness	0.27	0.31***	0.054			

*** P< 0.01, ** P< 0.05

The standardized coefficient (β= 0.42) for tele-presence was significant and positive (P<0.01), indicating a positive relationship between tele-presence and enjoyment. It has a unique effect size of 0.1 (Sr^2), revealing that tele-presence explained 10% of the variance related to enjoyment. The standardized coefficient (β= 0.19) for perceived ease-of-use was also significant and positive (P<0.01), revealing a positive association between perceived ease-of-use and enjoyment. It had a unique effect size of 0.023

($Sr^2=0.023$), indicating that ease-of-use explained 2.3% of the variance related to enjoyment. The standardized coefficient ($\beta= 0.27$) for perceived usefulness was significant and positive ($P<0.01$), indicating perceived usefulness was positively related to enjoyment. It has a unique effect size of 0.054 ($Sr^2=0.054$), indicating that perceived usefulness explained 5.4% of the variance.

The regression model examining the relationship between perceived ease-of-use, perceived usefulness, tele-presence and positive emotions was significant ($F= 48.52$, $P<0.001$), indicating a relationship between the three independent variables of tele-presence, perceived ease-of-use and perceived usefulness and positive emotions. It explained 47.6% of the variance, with a $R^2=0.486$, adjusted $R^2 = 0.476$ as shown in Table 5-8. The standardized coefficients for tele-presence, ease-of-use, and usefulness were 0.51, 0.12, and 0.19 respectively, indicating a positive relationship between tele-presence, usefulness and positive emotions; however, perceived ease-of-use had a weak influence on positive emotions.

Table 5-8 Regression Analysis: Technological Acceptance Factors and Positive Emotions

Independent Variables	B	Beta	Sr^2	F	R^2	Adjusted R^2
Tele-presence	0.35	0.51***	0.144	48.52	0.486	0.476
Perceived ease-of-use	0.08	0.12*	0.012			
Perceived usefulness	0.11	0.19**	0.018			

*** $P< 0.01$, ** $P< 0.05$, * $P< 0.1$

The regression equation for the association between the technological acceptance factors of perceived ease-of-use, perceived usefulness, tele-presence and emotional

involvement was significant (F==69.88, P<0.01), indicating a relationship between three technological factors and emotional involvement. The results of the regression analysis revealed an R^2 of 0.572, and an adjusted R^2 =0.564, as shown in Table 5-9, indicating the model explained 56.4% of the variance for the dependent variable (emotional involvement). The regression equation demonstrated that the perception of tele-presence, perceived ease-of-use and perceived usefulness had a positive and significant association with emotional involvement (standardized coefficients β= 0.60, 0.12, 0.14).

Table 5-9 Regression Analysis: Technological Acceptance Factors and Emotional Involvement

Independent Variables	B	Beta	Sr^2	F	R^2	Adjusted R^2
Tele-presence	0.78	0.60***	0.203	69.88	0.572	0.564
Perceived ease-of-use	0.16	0.12**	0.013			
Perceived usefulness	0.16	0.14**	0.010			

*** P< 0.01, ** P< 0.05, * P< 0.1

In investigating the relationship between perceived ease-of-use, perceived usefulness, tele-presence and flow, the results of regression analysis were significant at P <0.01, F= 85.45 (3, 157), indicating that three technological needs of tele-presence, perceived ease-of-use, and perceived usefulness were related to flow. The results of regression analysis revealed that flow was positively related to perceived ease-of-use, perceived usefulness, and tele-presence (standardized coefficients β=0.48, 0.18 and 0.31, p<0.001), as seen in Table 5-10. The regression model had an R^2 of 0.620 and an adjusted R^2 of 0.613, indicating that it explained approximately 61.3 % of the variance for the

dependent variable of flow. It had a unique effect size of 0.126, 0.029 and 0.051 for perceived ease-of-use, perceived usefulness, and tele-presence, respectively.

Table 5-10 Regression Analysis: Technological Acceptance Factors and Flow

Independent Variables	B	Beta	Sr^2	F	R^2	Adjusted R^2
Tele-presence	0.44	0.48***	0.126	85.45	0.620	0.613
Perceived ease-of-use	0.18	0.18***	0.029			
Perceived usefulness	0.24	0.31***	0.051			

*** P< 0.01, ** P< 0.05, * P< 0.1

Examining the relationship between technological acceptance factors (perceived usefulness, ease-of-use and tele-presence) and behavioral intentions

The results from the linear regression model were significant and had an F value of 69.83, (P<0.01), indicating that tele-presence, perceived ease-of-use, and perceived usefulness were related to behavioral intentions. It had an adjusted R^2 of 0.563 and R^2 of 0.572, indicating that the model explained 56.3% of the variance for the dependent variable of behavioral intentions. The results of the regression analysis revealed that the perception of tele-presence and perceived usefulness of 3D virtual environments had positive relationships with the behavioral intention of taking a trip (standardized coefficients β= 0.43 and 0.36, respectively, p<0.01) as shown in Table 5-11. However, the coefficients for perceived ease-of-use were not significant (β= 0.07, P=0.225).

Table 5-11 Regression Analysis: Technological Acceptance Factors and Behavioral

Intentions

Independent Variables	B	Beta	Sr^2	F	R^2	Adjusted R^2
Tele-presence	0.49	0.43***	0.105	69.83	0.572	0.563
Perceived ease-of-use	0.08	0.07				
Perceived usefulness	0.32	0.36***	0.070			

*** P< 0.01, ** P< 0.05, * P< 0.1

Examining the relationship between psychological needs of competence, autonomy,

relatedness and the virtual tourist experience

The Linear regression model was used to examine the relationship between psychological needs of competence, autonomy, relatedness and the virtual tourist experience. To determine the impact of multicollinearity on linear regression analyses, Tolerance and variance inflation factors (VIF) were used to examine the linear regression models. Examining the effect of inflation, the VIF for three independent variables of psychological needs were close to 1.00 and the score for tolerance showed that the variance among the three independent variables of psychological needs was slightly correlated. There was no evidence to suggest that inflation impacted the regression models.

The linear regression model was used to examine the relationship among the psychological needs of competence, autonomy and relatedness and enjoyment. The model was significant, F=113.92, P<0.001 indicating that the psychological needs of the competence, autonomy, and relatedness were related to enjoyment. The results of the

regression showed that the adjusted R^2 for enjoyment was 0.662 and the R^2 was 0.668, suggesting that the model explained 66.2% of the variance in the dependent variable of enjoyment as shown in Table 5-12.

Table 5-12 Regression Analysis: Psychological Needs and Enjoyment

Independent Variables	B	Beta	Sr^2	F	R^2	Adjusted R^2
Competence	0.18	0.15***	0.013	113.92***	0.668	0.662
Autonomy	0.61	0.59***	0.177			
Relatedness	0.16	0.22***	0.037			

*** P< 0.01, ** P< 0.05, *P<0.1

The standardized regression coefficient for competence was 0.15 (β= 0.15, p<0.01), revealing a positive relationship between competence and enjoyment. The Sr^2 was 0.013, indicating that 1.3% of the variance for enjoyment was explained by competence. The standardized coefficient (β= 0.59) for autonomy was significant and positive (P<0.01), revealing a positive association between autonomy and enjoyment. In addition, the unique effect size of 0.177 (Sr^2) revealed that autonomy explained 17.7 % of the variance for enjoyment. The standardized coefficients (β= 0.22) for the effect of relatedness and enjoyment was significant and positive (P<0.01), indicating that relatedness was positively related to enjoyment. The unique effect size of 0.037 (Sr^2=0.037) indicated that relatedness explained 3.7 % of the variance in the dependent variable.

The regression model used to examine the effect of psychological needs on positive emotions was significant (F= 38.68, P<0.001), indicating that the psychological

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needs of competence, autonomy, and relatedness were related to positive emotions. The regression model had an adjusted R^2 of 0.403 and a $R^2=0.392$, indicating the model explained approximately 40.3% of the variance as seen in Table 5-13. The results of regression analysis revealed that perceived autonomy was the most important contributor in predicting positive emotions (standardized coefficients $\beta=0.361$, $p<0.001$) and that there was a significant positive association between autonomy and positive emotions.

Table 5-13 Regression Analysis: Psychological Needs and Positive Emotions

Independent Variables	B	Beta	Sr^2	F	R^2	Adjusted R^2
Competence	0.08	0.112		38.68***	0.392	0.403
Autonomy	0.36	0.524***	0.141			
Relatedness	0.04	0.058				

*** P< 0.01, ** P< 0.05, *P<0.1

The model examining the relationship between psychological needs and emotional involvement was significant (F= 94.50, P<0.001), indicating that competence, autonomy, and relatedness were also related to emotional involvement. The results of the analysis suggested that competence, autonomy, and relatedness had significant and positive effects on emotional involvement. The regression equation for the effects of competence, autonomy, and relatedness on emotional involvement revealed an adjusted R^2 of 0.619 and a R^2 of 0.625 as shown in following Table 5-14, indicating that the model explained 61.9% of the variance in the dependent variable of emotional involvement. The relationship between the experience of competence, autonomy, relatedness and emotional involvement was significant at a 0.5 level for each. The standardized coefficient for

competence was 0.146 (β=0.146), for autonomy was 0.262 (β=0.262) and for relatedness was 0.530 (β=0.530). The unique effect sizes for competence was 0.012 (Sr^2= 0.012), for autonomy was 0.035 (Sr^2=0.035) and for relatedness was 0.218 (Sr^2= 0.218), indicating that competence explained 1.2 % of the variance for emotional involvement while autonomy explained 3.5% of the variance of dependent variable, and relatedness explained 21.8% of the variance for emotional involvement.

Table 5-14 Regression Analysis: Psychological Needs and Emotional Involvement

Independent Variables	B	Beta	Sr^2	F	R^2	Adjusted R^2
Competence	0.17	0.146**	0.012	94.50	0.625	0.619
Autonomy	0.34	0.262***	0.035			
Relatedness	0.48	0.530***	0.218			

*** P< 0.01, ** P< 0.05

The regression model used to examine the relationship between the psychological needs of competence, autonomy, and relatedness and flow was significant (F= 99.29, P<0.01) indicating that competence, autonomy, and relatedness were related to flow. It had an adjusted R^2 of 0.630 and a R^2 of 0.637 as seen in Table 5-15, indicating that the model explained 63.7% of the variance in the dependent variable of flow. The standardized regression coefficients for competence, autonomy and relatedness were significant (P<0.05) and positive (β=0.154, β=0.434 and β=0.374, respectively), suggesting a positive relationship between the psychological needs of competence, autonomy, and relatedness and flow. The model indicated a unique effect size of 0.013

(Sr^2=0.013) for competence, 0.097 (Sr^2= 0.097) for autonomy and 0.108 (Sr^2= 0.108) for

relatedness.

Table 5-15 Regression Analysis: Psychological Needs and Flow

Independent Variables	B	Beta	Sr^2	F	R^2	Adjusted R^2
Competence	0.15	0.154**	0.013	99.29**	0.637	0.630
Autonomy	0.39	0.434***	0.097			
Relatedness	0.25	0.374***	0.108			

*** P< 0.01, ** P< 0.05

Examining the relationship between the psychological needs of competence, autonomy,

and relatedness and behavioral intentions

The linear regression was used to investigate the association between the

psychological needs of competence, autonomy, and relatedness and behavioral intentions.

The results suggest that this model was significant, P<0.01, F= 70.66, indicating that

competence, autonomy, relatedness were related to behavioral intentions. The model

explained 54.7% of the variance associated with the dependent variable of enjoyment,

R^2=0.555, adjusted R^2=0.547. The standardized regression coefficients of competence,

autonomy, and relatedness in relation to behavioral intentions are shown in Table 5-16,

while the standardized coefficient (β= 0.03) for competence was non-significant (p>0.05).

The standardized coefficient (β= 0.47) for autonomy was significant and positive

(P<0.01), revealing a positive relationship between autonomy and behavioral intentions.

It has a unique effect size of 0.114 (Sr^2=0.114), indicating that autonomy explained

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11.4% variance of behavioral intentions. The standardized coefficient ($\beta= 0.37$) for relatedness was significant and positive ($P<0.01$), indicating that relatedness positively associated with behavioral intentions. It has a unique effect size of 0.106 ($Sr^2=0.106$), indicating that relatedness explained 10.6 % of the variance associated with the dependent variable of behavioral intentions.

Table 5-16 Regression Analysis for Behavioral Intentions

Independent Variables	B	Beta	Sr^2	F	R^2	Adjusted R^2
Competence	0.04	0.034		70.66***	0.552	0.547
Autonomy	0.51	0.470***	0.114			
Relatedness	0.28	0.369***	0.106			

*** P< 0.01, ** P< 0.05

Summary

The results of the regression analyses used to examine the relationships suggested in each of research questions were presented in this chapter. Examining the relationships between the technological acceptance factors of tele-presence, competence, and relatedness and the virtual tourist experience, a significant relationship was found for each variable. Thus, it appears that tele-presence, perceived ease-of-use and perceived usefulness are important variables to consider in the site design process to encourage the virtual tourist experience. Investigating the relationship between technological acceptance factors and behavioral intentions, the results indicated that technological acceptance factors of tele-presence and perceived usefulness are significantly related to

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behavioral intentions. However, the variable of perceived ease-of-use was the only technological acceptance factor not to have a significant relationship with behavioral intentions. In general, it appears that the Technology Acceptance Model was useful as a guiding framework for these research questions.

The results of the regression analysis between the psychological needs competence, autonomy, and relatedness and the virtual tourist experience showed significant except for the relationship between competence and the positive emotions dimension of the virtual tourist experience. This finding suggests that the perception of competence is not related to positive emotions while navigating Second Life Masai Mara. The significant relationships found between competence and the virtual tourist experience and between relatedness and the virtual tourist experience are consistent with the findings of past research on the Self-Determination Theory. Finally the findings from the regression, which examined psychological needs and behavioral intentions, revealed that competence was not significantly associated with Behavioral Intentions. Table 5-17 presents a summary of the results in this study.

Table 5-17 A Summary of the Results in This Study

	Enjoyment	Positive Emotions	Emotional Involvement	Flow	Behavioral Intentions
Tele-presence	***	***	***	***	***
Perceived ease-of-use	***	*	**	***	
Perceived usefulness	***	**	**	***	***
Competence	***		**	**	
Autonomy	***	***	***	***	***
Relatedness	***		***	***	***

*** P< 0.01, ** P< 0.05, *P<0.1

CHAPTER SIX

CONCLUSION AND DISCUSSION

The purpose of this study was to identify the factors related to the 3D virtual tourism experience and the behavioral intentions after visiting a virtual tourism destination. First, the results of the study are reviewed in this chapter. Second, the theoretical implications drawn from the findings of this study are discussed. This section is followed by a discussion of the professional implications for the tourism industry. The chapter concludes with a discussion of future areas of research that should be undertaken to provide a better understanding of the relationships reported in this study, as well as a discussion of the study's limitations.

Discussion

Research Question 1: Examining the relationship between technological acceptance

factors, virtual tourist experience, and behavioral intentions

One aspect of the study investigated the relationships between technological acceptance factors, virtual tourist experience and behavioral intentions by applying the Technology Acceptance Model (TAM) to enhance the understanding of user acceptance and use of virtual worlds in the context of travel and tourism. This research framework provides a new avenue for researchers for identifying human factors motivating individuals to engage in a virtual tourism destination and underlying user acceptance of virtual worlds, thereby enriching emerging research agendas in future studies. The results

revealed that tele-presence, perceived usefulness and perceived ease-of-use were significant factors related to both virtual tourist experiences and behavioral intentions.

Drawing from a hedonic consumption behavior perspective, this study contributes to increasing the understanding of technology acceptance by incorporating the constructs of enjoyment, positive emotions, emotional involvement, and flow. The results of this study determined that relevant factors enhancing a positive tourist experience in the 3D virtual tourism environment include enjoyment, positive emotions, emotional involvement and flow, thus capturing the entertainment nature of the virtual world of Second Life.

In addition, the linear regression analysis revealed that tele-presence, perceived ease-of-use, and perceived usefulness had positive and significant relationships with enjoyment during the virtual tourist experience, indicating a heightened sense of feelings of "being there"; perceptions of effectiveness of using technology and beliefs about its usefulness for trip planning contributed to an enjoyable experience during the virtual tourism site visit. This direct link between tele-presence and enjoyment in a computer-mediated environment is consistent with the results found by Nah, Eschenbrenner and DeWester (2010).

The regression analysis demonstrated that perceived usefulness and tele-presence contribute to people's positive feelings while experiencing a virtual tourism site, indicating overall that the sense of being in the virtual tourism environment, combined with a perception of usefulness in using technology, led to increased positive emotion. However, perceived ease-of-use had a marginally significant correlation with positive

emotions. The finding of the relationship between tele-presence and positive emotions supports the findings of Bronack et al. (2008).

With respect to emotional involvement, the findings indicated that if virtual tourism sites provide opportunities for visitors to enhance their perceptions of tele-presence, ease-of-use, and the virtual world as a useful source of information that is significant for trip planning, then virtual tourists will become emotionally engaged during their visit. Further, in terms of the relationship between technological acceptance factors and flow, the results of this study showed that tele-presence, perceived ease-of-use, and usefulness were positively related to flow. Visitors' perceived ease-of-use of virtual worlds, its usefulness as a source of travel information as well as the sense of feeling presence within the virtual site are all linked to flow while navigating the virtual tourism site.

This study also investigated how the technological acceptance factors of tele-presence, perceived ease-of-use, and perceived usefulness were related to virtual tourists' behavioral intentions when experiencing Second Life Maasai Mara. The results of the linear regression showed that tele-presence and perceived usefulness were the key factors contributing to behavioral intentions. The findings from this study related to tele-presence and behavioral intentions support the results reported by Jung (2008), Suh and Chang (2006), and Nah, Eschenbrenner and DeWester (2010).

In addition, the results revealed that perceived usefulness had a direct and positive relationship with behavioral intentions, indicating that the functional aspect of using virtual worlds in the travel decision-making process contributes to an increase in people's

interests in visiting the Maasai Mara in the future. This result is consistent with prior findings reported by Yi and Hwang (2003); Saeed, Yang, and Sinnappan (2009); and Kim, Park and Morrison (2008). However, the results of this study did not support prior research findings concerning the association between perceived ease-of-use and people's travel intentions in virtual worlds.

The findings of this study demonstrated that the sense of tele-presence is important in marketing tourism destinations in Second Life. A heightened perception of of "being in a place" in a 3D virtual tourism environment led to visitors enjoying and engaging during a visit to a destination site to the extent that they developed awareness and consideration sets that they can access for use in future trip decision making. Further, the findings indicated that tourism site designers should provide visitors with an effective and reliable platform for communicating travel information by adding rich entertainment functions to their virtual destination; doing so will generate enjoyment, positive emotions, emotional involvement, and flow, as well as enhance the acceptance and use of virtual tourism sites.

Research Question 2: Examining the relationship between psychological needs and

virtual tourist experience as well as behavioral intentions

Another goal of this study was to investigate the relationship between psychological needs and the virtual tourist experience and behavioral intentions. Self-Determination Theory (SDT) was used both as a theoretical and practical framework to assist in examining how the psychological needs of competence, autonomy, and relatedness were related to a virtual tourist experience. The results obtained here

indicated that psychological needs, as specified by Self-Determination Theory, were significantly associated with enjoyment, positive emotions, emotional involvement and flow, suggesting that this study provides empirical evidence that these psychological needs are associated with a positive virtual experience in a travel and tourism context.

The results of this study also revealed consistent relationships between psychological needs and enjoyment in a virtual tourism environment, supporting the general principles of Self-Determination Theory (Deci and Ryan, 1985). The findings of this study demonstrated that competence, autonomy, and relatedness were significantly related to an enjoyable experience in the virtual tourism environment. Specifically, this finding is consistent with findings of works by Neys, Jansz, and Tan (2010), Tamborin et al., (2010), and Przybylski et al. (2009), indicating that individuals who freely choose to engage in a virtual tourism site, experience optimal challenges, and feel connected with others reported greater enjoyment in experiencing a virtual tourism destination.

Further, the results showed that positive emotions were significantly predicted by competence, autonomy, and relatedness, which is consistent with the previous work of Ryan et al. (2006). Autonomy, competence, and relatedness are significantly related to how people become emotionally involved with a virtual tourism destination. In terms of the relationship between the psychological needs of autonomy, competence, relatedness and flow, the findings suggested that these psychological needs are the key variables contributing to flow. This finding is consistent with the results of past research conducted by Kowal and Fortier (1999) and Fullagar and Mills (2008).

In addition, this study assessed the relationship between psychological needs and behavioral intentions. The results indicated that autonomy and relatedness are significantly associated with the behavioral intentions of requesting more information, willingness to recommend and visit the virtual site in the future, and likelihood of visiting the real-world tourism destination, indicating that while experiencing virtual tourism destinations, higher levels autonomy and relatedness were positively related to behavioral intentions.

The results also indicated that the Second Life Massa Mara offers opportunities for potential tourists to participate in activities related to their interests and increases their sense of feeling connected with others in the virtual tourism environment; these activities then enhance their sense of autonomy and relatedness, potentially leading to an increased desire to seek further information, return to the virtual destination or actually visit the physical destination. These results are consistent with the findings from the work of Ryan et al. (2006). Thus, the results of this study suggest the potential for new marketing platforms in the virtual world of Second Life.

Theoretical Implications

Second Life provides opportunities for destination marketing organizations to communicate with targeted markets as well as to create awareness of places such as Maasai Mara to potential visitors in a rich environment. However, before communication can be effective, it is critical for tourism businesses to understand the experience of Second Life visitors in this virtual environment. Two theories, the Technology

Acceptance Model and Self-Determination Theory, were used to guide this study, both of which were found to be useful frameworks.

Technology Acceptance Model

The first theory used to guide this study, the Technology Acceptance Model (TAM) provided direction with respect to developing an understanding of the relationship between the participants and their interactions with the virtual tourism site. The results of this study found that the technological acceptance factors of perceived ease-of-use, perceived usefulness and tele-presence were related to the virtual tourist experience. The virtual tourists who reported higher perceptions of these functional aspects of using the virtual world in terms of perceived ease-of-use and usefulness, as well as higher sense of feelings of presence within virtual tourism site, indicating they are more likely to visit the tourism destination in the future and more aware of this destination in their travel decision-making process.

This study contributed to the empirical literature in this area. First, its results indicated that the Technology Acceptance Model is a useful research framework for understanding virtual experiences within a tourism setting. In addition, this study expanded the research framework of the Technology Acceptance Model by incorporating the concept of tele-presence. By incorporating tele-presence in this study, the researcher was able to incorporate an important aspect of the tourist experience, namely the feeling of being away from one's normal place.

Further, the measure used to assess tele-presence provides an understanding of how immersed the participant was in the virtual tourist experience. This determination is

critical because the findings from previous empirical studies of tourists and their environments report that the more immersed or involved tourists are with a destination, the more likely they are to engage in information seeking behavior. Similarly, the more immersed tourists are within the destination, tourism research has shown evidence that the more likely they are to become loyal to the destination.

This study used a virtual tourist destination built by the researcher in collaboration with other students and faculty members from various academic disciplines rather than using an existing virtual world as the study site. Thus, the researcher was able to incorporate design principles that facilitated a sense of feeling of "being there," ease-of-use, and the perception of the usefulness of the travel information for trip planning in the virtual site. This study also contributes to the empirical TAM literature by applying the model to a virtual world, thus expanding the previous research in the field that had primarily focused on information technology or game playing.

Self-Determination Theory

The second theory used to guide this study was the Self-Determination Theory. Although the importance of Self-Determination Theory has been addressed in various fields, empirical studies in the context of virtual worlds and tourism literature remain limited. From a theoretical point of view, this study extends the existing literature in the field by showing that psychological needs are an important component of virtual tourists that should be considered in attempts to understand the experience and their behavioral intentions.

A review of the current literature found that several tourism researchers have applied Self-Determination Theory as an empirical framework to understand tourist experiences. The study reported here extends this previous research by showing that while navigating a 3D virtual tourism environment, the psychological needs of autonomy, competence and relatedness are relevant to the virtual tourist experience. The results of this study can be applied to future studies to increase the understanding of how psychological needs are satisfied in a virtual tourism activity and how they are related to on-site virtual tourist experiences as well as behavioral intentions.

Based upon SDT, this study employed a measure developed by Ryan et al. (2006) for assessing psychological needs in a virtual tourism environment to understand the virtual tourist experience (enjoyment, positive emotion, emotional involvement, flow) as well as behavioral intentions, confirming that psychological needs are associated with both virtual tourist experience and behavioral intentions. Using the concept of psychological needs to investigate the virtual tourist experience within a virtual tourist site, this study found that the psychological needs of competence, autonomy, and relatedness were key factors that affected a virtual tourist's behavioral intentions, suggesting when the sense of feeling related to others is enhanced within the virtual tourism sites, the virtual tourists are more likely to take actions toward visiting the real world destination.

Virtual Tourist Experience

Perhaps one of the most important aspects of this study was its contribution in developing an understanding of the virtual tourism experience. This study provided a

research framework for capturing the entertainment nature of virtual worlds and integrating the concepts that people in these worlds are technology users as well as potential consumers by incorporating the hedonic elements of enjoyment, emotional involvement, positive emotions, and flow. As it is grounded in the hedonic marketing literature, this framework recognized the importance of emotional and imaginative responses as critical human factors in explaining usage and acceptance of the virtual tourism destinations.

This study conducted an empirical examination of the technological acceptance factors of tele-presence, perceived usefulness and perceived ease-of-use that were found to be significant in explaining how each attribute predicts hedonic constructs for understanding the experience of virtual tourists in a 3D tourism destination. The results of this study indicated that these technological acceptance factors of perceived ease-of-use, perceived usefulness and tele-presence were significantly related to the hedonic notions of enjoyment, positive emotion, emotional involvement, and flow as well as people's travel intentions. The findings from this study provide a research framework incorporating the hedonic constructs with technological acceptance factors that is useful for understanding how the virtual tourist experience captures the entertainment nature of virtual worlds and reflects the dual roles of the user of the virtual worlds as well as potential consumers.

Additionally, using the concept of hedonic consumption behavior to guide this investigation, the research findings showed that dimensions of the real world tourist experience are also found in the virtual tourist experience. For example, empirical

evidence suggests the concept of flow in this context. Although flow has been reported in leisure, tourism and computer environments, the findings from this study indicated that virtual tourists' psychological needs are related to flow, suggesting that the psychological needs of competence, autonomy and relatedness play an important role in understanding flow within a 3D tourism destination.

Further, positive emotion was also found in the context of the virtual tourism experience. Supporting the importance of positive emotions that has been addressed in tourism and leisure experience, the results of this study found that the psychological need of autonomy is related to positive emotions while visiting a 3D tourism destination. This empirical evidence indicates that virtual tourists who were generally more autonomous in their visit to Second Life Maasai Mara experienced higher positive emotions, suggesting that if tourism destination marketers provide interesting activities for virtual visitors to participate in, then the visitors experience positive emotions.

Implications for Tourism Professionals

By identifying the influential factors that affect the virtual tourist experience and behavioral intentions, this study suggests several implications for tourism professionals. First, the results of this study can be applied to build tourist destinations in the virtual world. The connection between tourists and virtual worlds is an important facet to be considered when contemplating how best to construct engaging and interactive virtual experiences that encourage consumers to visit and revisit a tourism virtual world.

To design environments that contribute to successful virtual tourist experiences in Second Life, tourism practitioners need to design 3D virtual tourism sites that consider

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consumers' psychological needs of competence, autonomy and relatedness. For instance, Second Life Maasai Mara provides opportunities to participate in activities wherein interested virtual tourists could increase their sense of autonomy such as riding animated animals and listening to Maasai music. Moreover, the videos within the virtual site communicating Maasai culture and traditions of local tribes offer virtual tourists the opportunity to feel connected with the Maasai village, thus leading to enhancement of the perception of relatedness.

Tourism product marketers and service developers should dedicate their efforts to engaging people in a 3D virtual tourism environment because such environments will provide opportunities for entertainment as well as education. Tourism marketers must consider the types of information provided as well as the mediums used to present it. For example, the virtual Maasai Mara created for this study provided opportunities for visitors to watch videos as well as to listen to music and to take part in activities. In order to enhance the virtual tourism experience, it is important for tourism marketers to understand how design impacts consumers' information search behavior, therefore suggesting that tourism marketers should determine the goals and objectives for virtual world communication just as they do for a real world advertising campaign.

In addition, destination marketing organizations should pay attention to the technological acceptance factors of perceived ease-of-use, perceived usefulness and tele-presence in developing positive virtual experiences within the context of virtual sites for promoting tourism destinations. Developers of virtual tourism destinations should endeavor to concern their work with developing sites that are useful and easy to use for

trip planning in the virtual world platform. The results of this study suggest that tourism marketers interested in designing an enjoyable, compelling virtual experience in Second Life need to take into consideration multi-media and interactive communication functions for communicating with virtual tourists, allowing them to immerse themselves completely within the virtual site.

Further, the results of this study suggest that tourism marketers should take the sense of tele-presence into consideration when designing the virtual tourism environment to engage tourists. For instance, a number of key buildings and naturalistic elements that mimic the physical environment in Maasai Mara are implemented in the virtual site to enhance the sense of tele-presence. Additionally, videos of authentic local residents telling stories within the virtual site communicate to tourists cultural aspects of the Maasai Mara that enhance the sense of tele-presence.

Finally, the findings of this study suggest that the use of the virtual world of Second Life in tourism management provides an opportunity not only to dialogue with consumers around the world to gain a competitive advantage but also to build informative and interactive tourist destinations to attract potential online and real-world tourists. Further, using virtual worlds in tourism marketing can improve communication with potential visitors by offering interactive and realistic tourism attractions and providing social interaction with consumers.

Future Research

The current study is only a first step in virtual tourism research. A number of research endeavors can be pursued based on the results of this study. Future research directions are discussed below:

(1) Future studies for the Technology Acceptance Model

The relationships between technological acceptance factors and virtual tourist experience as well as behavioral intentions were examined in this study. Based on its findings, future studies could expand this research by investigating the interrelationships between technological acceptance factors, virtual tourist experience and behavioral intentions while experiencing virtual tourism destinations.

The results of this study also demonstrated that tele-presence is an important factor related to a tourist's virtual experience within a 3D virtual tourism destination. Further studies could expand this research, investigating how this factor influences consumer behavior in the context of virtual tourism. For example, since past research has demonstrated that the importance of a sense of tele-presence in influencing product knowledge, brand attitude, and purchase intention of consumers (Li, Daugherty and Biocca, 2002; Suh and Lee, 2005; Lui, Piccoli and Lves, 2007), future studies could investigate how the sense of tele-presence within virtual sites is related to tourism destination brand attitude.

The results of this study suggest that the antecedents of technological acceptance factors are important and should be investigated. For instance, personality traits may moderate the relationship among the technological acceptance factors of perceived ease-

of-use, perceived usefulness, tele-presence and virtual tourist experiences and behavioral intentions. Future studies could investigate how personality traits influence the technological acceptance factors of perceived ease-of-use, perceived usefulness and tele-presence and how the personality traits influence the relationship between technological acceptance factors and virtual tourist experience.

(2) Future studies of the Self-Determination Theory

The current study examined the relationships between the virtual tourist experience, behavioral intentions and psychological needs. Based on these results, future research could investigate these relationships between psychological needs, virtual tourist experience and behavioral intentions by using structural equation modeling.

Past studies have applied the Self-Determination Theory to understand human motivations, finding that the satisfaction of psychological needs facilitates intrinsic motivation. Intrinsic motivation is the central component for taking a vacation or participating in leisure travel. Future studies could expand these studies and the current one by investigating how, while using a virtual tourism site, the psychological needs of autonomy, competence and relatedness are related to travel motivation.

The concept of stickiness has been identified as an important factor related to online consumer behavior (Chang et al., 2008; Halvorson, 2011). Past studies have shown that the longer consumers stay in the virtual site, the more likely they are return to it or have strong intentions to make a purchase. Future studies could investigate how the psychological needs of autonomy, competence and relatedness are related to stickiness

and how stickiness is then related to the virtual tourist experience as well as behavioral intentions.

(3) Future studies on the virtual tourism experience

The results of this study indicate that the relationship between the virtual tourist experience and behavioral intentions is important. An examination of the link between virtual tourist experience and behavioral intentions within the virtual tourism environment will advance this research area in the realm of virtual worlds. It is suggested that future research efforts could focus on understanding how the virtual tourist experience is related to behavioral intentions.

In addition, tourism literature points out that the concept of satisfaction plays an important role in the tourism experience. Future research could investigate how satisfaction with the tourist experience in the virtual tourism site is related to behavioral intentions and how it influences on-site tourist experience in tourism destinations.

This study was based on two types of samples, novice and experienced users. Future research could examine the differences of these two types of users in relation to their virtual tourist experience and behavioral intentions in a tourism destination site within Second Life, and in turn how those differences influence virtual tourist experience and their behavioral intentions.

The results of present study indicate that the relationship between individual difference and the virtual tourist experience and behavioral intentions is important. Future studies could investigate the impact of such individual differences as personal characteristics on virtual tourist experience and behavioral intentions while navigating

virtual tourism destinations. In addition, recent research has indicated that prior experience or knowledge with technology is related to the virtual experience in computer-mediated environments. Future studies could further investigate the impact of this prior experience with virtual worlds in influencing virtual tourist experiences.

A review of the tourism literature suggests that the concept of authenticity is an important factor for understanding tourist experience at a tourism destination (Cohen, 1988). Similarly, the concept of authenticity may also be crucial to understand the virtual tourist experience of a 3D tourism destination. Future studies could investigate how the perception of authenticity of a 3D tourism site influences virtual tourist experience and behavioral intentions.

In addition, tourism literature has indicated that free, independent travelers and group/ package travelers differ in their choices of distribution channels and information search behaviors in the travel decision-making process. Future studies could investigate how 3D virtual tourism influences these areas for these two groups of travelers.

(4) Future study using qualitative research methods

Although the tourism field is still dominated by the positivist paradigm, the research focus and methodological sophistication in tourism research is expanding to include more diverse interpretive paradigms for a deeper understanding of tourism phenomena. Thus, in order to reveal the meaning and value of the virtual experience in the travel and tourism context, future study could integrate qualitative research methods such as interviews, narratives, and participant observation to enhance the understanding of the virtual tourist experience and behavioral intentions.

Literature in the field of virtual worlds has indicated that the changing role of the designer in the development of the environment is an important aspect that needs to be investigated. This new role of designer-as-researcher may influence how tourists perceive the virtual tourism destination and their virtual experience. Future studies could employ both qualitative and quantitative approaches to investigate how the roles of designers who also serve as researchers influence the virtual tourist's experience and subsequent behavioral intentions in 3D tourism destinations.

Further, tourism literature has pointed out that the effectiveness of destination advertising is related to an awareness of and the attitudes toward the destination. The effectiveness of tourism destination advertising in the context of virtual worlds could be investigated. Future studies could use qualitative research approaches to examine how effectiveness of virtual destination advertising is related to tourists' behavioral intentions to visit the destinations as well as consumer attitudes toward these sites.

Research in the area of the tourism and virtual worlds is limited. However, given the increased use of technology, this area is important to tourism researchers in both the realms of virtual worlds and tourism.

Limitations and Future Studies

This study has several limitations, many of which provide a foundation for future studies to continue the investigation of the influential factors that affect virtual experiences within a tourism context. The first limitation is the generalizability issue. This study investigated only the application of the virtual world of Second Life, and the Maasai Mara tourism destination specifically. Thus, the results may not be able to be

generalized to other virtual world platforms. It is suggested that future studies should not only include more diverse types of tourism destinations within Second Life as research sites but also be extended so that they examine the influential factors that affect virtual tourist experience in such virtual worlds as OpenSim, Active World, and Wonderland.

Additionally, due to the exploratory nature of this study, samples used here were relatively small, and future studies could be based on a more diversified sample composed of a more diverse cultural background to obtain a better understanding of the virtual experience within the context of travel and tourism. However, the inclusion of diverse populations and different cultures would require a significant investment of finances, time and other resources. Future studies could be based on larger samples to validate the scale used in this study. Finally, this study focuses only on a subset of the possible determinants of virtual world acceptance and hedonic consumption behavior. Future studies could investigate other predictors that potentially influence virtual tourist experience and behavioral intentions in the context of travel and tourism; for example, social, cultural or psychological factors could be investigated to determine the impact of the virtual experience on the tourist decision making process.

APPENDICES

Appendix A

Lesson Plan for Novice Second Life Users

Week 1 Session:
Read informational form and explanation of the purpose of the study
Introduce virtual learning environment of Second Life
Initial preparations for participation (creating a Second Life account and preparing an avatar)
Log onto Second Life
Second Life Welcome Island Orientation
Receive a training and orientation with a handbook
Searching
- Use searching function to find Massai Tourism Island
- http://maps.secondlife.com/secondlife/Massai%20Tourism/151/102/32

Teleporting
- Teleport to Massai Tourism Island

Go to reception area (rasese building with thatch roof) to review a video on the introduction to Massai

Basic movements practice (walk, run and fly)

Communication (text chat)
  Text chat with anyone that students meet by asking

Self evaluation
First Web survey

Assignment Objectives:
Register a Second Life account, preview Second Life Massai Mara Island, practice avatar movement, communicate with other avatars in class, and complete first web survey.

Participants are instructed to practice their navigation and communication on their own time.

Week 2 Session
Log into your Second Life account
- Enter your user name and password
- Click on Logon Tab

Change the environment to midday

Excursion Trip
Teleport to a safe auto driving site
Receive an instruction on exploring the site

Back to Second Life Masai Mara
Changing outfit and taking snapshots
- Change your avatar's clothing the outfits from the clothing in your inventory
- Once you have completed the clothing change,
- take a snap shot of your avatar and save your snapshot to your computer

Assignment Objectives:
Change outfit of created avatars, explore and navigate the Auto Driving environment/city
of Dublin, take photos in world.

Week 3 Session

Log into your Second Life account
- Enter your user name and password
- Click on Logon Tab

Go to jewelry shop (it is a round shaped building with blue door)
- Open the door, enter the jewelry shop
- Look at the jewelry that is displayed
- Watch a movie about the significance of colors in Masai culture

Find an elephant, get on an animal and take a snapshot of your avatar on the animal

- Ride the animal to the river
- Take a snapshot of your avatar on the animal and save the picture in your computer and send it to yhuang@clemson.edu
- Get off the animal

Go to family tent
- Sit/lay down on bed
- listen to the Masai Musi

Go to bonfire within tented area
- Sit in front the bonfire and take a snapshot of your avatar
- Save the picture in your computer and send it to yhuang@clemson.edu
- Click on video board and review the video on lion killing

Find web survey box on the tented accommodation area
- Click on this box
- Follow the link to the web survey

Complete the web survey
Send your snap shot to yhuang@clemson.edu

Assignment Objectives:
Explore a tourism facility in Kenya, interact with multi-media information within the tourism facility, and complete the treasure hunt activity and web survey.

Reminder Communication With Novice Second Life Users

Appendix C

First Recruiting Email for Experienced Second Life Users

Dear SL Educators,

 I am a doctoral student at Clemson University and am working with Dr. Sheila Backman on a research project for my dissertation. We are recruiting **participants** to take part in our research study. This research is open to any Second Life users, who (a) are 18 years of age or older, and (b) have owned and maintained a valid Second Life character ("Avatar") and account ("Participants") for at least **6 months.**

Participation length: 30-45 minutes

Raffle Prizes: 5,000 Linden Dollars (five winners)

 Dates and Times

Dates: April 26th/ 27th/ 28th, 2011

Times: 10:00AM (PST) to 12:00PM (PST).

Location

Masai Tourism Island
(http://maps.secondlife.com/secondlife/Massai%20Tourism/101/78/22)

I (Yu Chih Andel) and Dr. Backman (Sharper Shinn) will be at Masai Toursm Island at the above times to welcome you. We will be located at the front desk of the reception area.

 Description

Your participation in our study will involve visiting a destination in Kenya within Second Life. You will receive instructions to participate in a treasure hunt activity and explore the site during your visit. This activity will take you about **30-45 minutes** to complete. After the completion of activity, you will take part in a Web survey as part of the in-world activity to evaluate your experience while visiting this site. Participants will be asked to provide their Avatar's name at the end of web survey, which will enter them into a random drawing. Multiple entries from the same person will not be accepted.

Prize

The researcher will randomly select five winners from all eligible participants on May 10th, 2011. The prize of **5,000 Linden Dollars** will be given in-world to each of the five winners. The winners will be notified via in-world message so the prize can be awarded to your avatar accounts. The prize is non- transferable, and no cash substitutes for prizes are available.

 If you have any questions, please contact Yu-Chih Huang at yhuang@clemson.edu.

Best Regards,

Yu-Chih Huang (in-world Yu Chih Andel)

PhD Candidate in Park, Recreation and Tourism Management at Clemson University

 Dr. Shelia Backman (in-world Sharper Shinn)

Professor in Park, Recreation and Tourism Management at Clemson University

Second Recruiting Email for Experienced Second Life Users

Dear SL Educators,

I am a doctoral student at Clemson University and am working with Dr. Sheila Backman on a research project for my dissertation. We are recruiting participants to take part in our research study. This research is open to any Second Life users, who (a) are 18 years of age or older, and (b) have owned and maintained a valid Second Life character ("Avatar") and account for at least 6 months.
Participation length: 30-45 minutes
Raffle Prizes: 5,000 Linden Dollars (five winners)

Dates and Times:
Dates: April 30th/ May 1st/ or May 2nd, 2011
Times:
    Between 7:00AM (PST) to 9:00AM (PST)
    Between 10:00AM (PST) to 12:00PM (PST)
    Between 5:00PM (PST) to 7:00 PM (PST)

Location:
Masai Tourism Island
(http://maps.secondlife.com/secondlife/Massai%20Tourism/101/78/22)
I (Yu Chih Andel) and Dr. Backman (Sharper Shinn) will be at Masai Tourism Island at the above times to welcome you. We will be located at the front desk of the reception area.

Description:
Your participation in our study will involve visiting a destination in Kenya within Second Life. You will receive instructions to participate in a treasure hunt activity and explore the site during your visit. This activity will take you about 30-45 minutes to complete. After the completion of activity, you will take part in a Web survey as part of the in-world activity to evaluate your experience while visiting this site. Participants will be asked to provide their Avatar's name at the end of web survey, which will enter them into a random drawing. Multiple entries from the same person will not be accepted.

Prize:
The researcher will randomly select five winners from all eligible participants on May

10th, 2011. The prize of 5,000 Linden Dollars will be given in-world to each of the five winners. The winners will be notified via in-world message so the prize can be awarded to your avatar accounts. The prize is non- transferable, and no cash substitutes for prizes are available.

If you have any questions, please contact Yu-Chih Huang at yhuang@clemson.edu.

Best Regards,

Yu-Chih Huang (in-world Yu Chih Andel)
PhD Candidate in Park, Recreation and Tourism Management at Clemson University

Dr. Shelia Backman (in-world Sharper Shinn)
Professor in Park, Recreation and Tourism Management at Clemson University

Third Recruiting Email for Experienced Second Life Users

Dear SL Educators,

Thanks again for those who have participated in my research study. I apologize for sending multiple emails concerning my research study.

I have modified my schedule to offer a few more times that I will be available to host participants at the SL Maasai Mara Basecamp:
(http://maps.secondlife.com/secondlife/Massai%20Tourism/101/78/22)

Please take part in this research study on one of the following days/times:
Monday (May 2nd) 5:00pm-7:00pm (PST)
Tuesday (May 3rd) 7am-9am (PST), or 10am-12pm (PST)
Wednesday (May 4th) 7am-9am (PST), or 10AM-12pm (PST)

The Participation length is about 30-45 minutes.

I am a doctoral student at Clemson University and am working with Dr. Sheila Backman on a research project for my dissertation. We are recruiting participants to take part in our research study. This research is open to any Second Life users, who (a) are 18 years of age or older, and (b) have owned and maintained a valid Second Life character ("Avatar") and account for at least 6 months.

Participation length: 30-45 minutes
Raffle Prizes: 5,000 Linden Dollars (five winners)
Dates and Times:
1. May, 2nd between 5:00PM-7:00PM
2. May 3rd/or May 4th, 2011
   Between 7:00AM (PST) to 9:00AM (PST)
   Between 10:00AM (PST) to 12:00PM (PST)

Location: Masai Tourism Island
(http://maps.secondlife.com/secondlife/Massai%20Tourism/101/78/22)

I (Yu Chih Andel) and Dr. Backman (Sharper Shinn) will be at Masai Tourism Island at the above times to welcome you. We will be located at the front desk of the reception area.

Recruiting Message in Second Life Discussion Forum

Exploring Kenya in SL (Treasure Hunt Raffle Prizes... - Second Life   http://community.secondlife.com/t5/Upcoming-Events-and-Activities/

- What Is Second Life?
  - World Map
  - Shopping
  - Buy Land
  - Community
  - Help

Upcoming Events and Activities

COMMUNITY HELP

Forums   Races and Events Forum   Upcoming Events and Activities

Exploring Kenya in SL (Treasure Hunt Raffle Prizes...

(Reply) Topic Options   View Topics   Previous Topic   Next Topic

yuchin Andel
Honored Resident

Posts: 12

Exploring Kenya in SL (Treasure Hunt Raffle Prizes 5,000LD)   Options

05-03-2011 09:30 AM

Hi,

I am a doctoral student at Clemson University and am working with Dr. Sheila Backman on a research project for my dissertation. We are recruiting participants to take part in our research study. This research is open to any Second Life users, who (a) are 18 years of age or older, and (b) have owned and maintained a valid Second Life character ("Avatar") and account for at least 6 months.

Participation length: 30-45 minutes

Raffle Prizes: 5,000 Linden Dollars (five winners)

Dates and Times:
1. May, 2nd between 5:00PM-7:00PM
2. May 3rd/or May 4th, 2011
   Between 7:00AM (PST) to 9:00AM (PST)
   Between 10:00AM (PST) to 12:00PM (PST)

Location: Masai Tourism Island
(http://maps.secondlife.com/secondlife/Masai%20Tourism/191/78/22)

I (Yu-Chih Andel) and Dr. Backman (Sharper Shinn) will be at Masai Tourism Island at the above times to welcome you. We will be located at the front desk of the reception area.

Description:
Your participation in our study will involve visiting a destination in Kenya within Second Life. You will receive instructions to participate in a treasure hunt activity and explore the site during your visit. This activity will take you about 30-45 minutes to complete. After the completion of activity, you will take part in two Web surveys as part of the in-world activity to evaluate your experience while visiting this site. Participants will be asked to provide their Avatar's name at the end of web survey, which will enter them into a random drawing. Multiple entries from the same person will not be accepted.

Prize:
The researcher will randomly select five winners from all eligible participants on May 10th, 2011. The prize of 5,000 Linden Dollars will be given in-world to each of the five winners. The winners will be notified via in-world message so the prize can be awarded to your avatar accounts. The prize is non-transferable, and no cash substitutes for prizes are available.

If you have any questions, please contact Yu-Chih Huang at yhuang@clemson.edu.

Best Regards,

Yu-Chih Huang (in-world Yu Chih Andel)
PhD Candidate in Park, Recreation and Tourism Management at Clemson University

Dr. Sheila Backman (in-world Sharper Shinn)
Professor in Park, Recreation and Tourism Management at Clemson University

Report Inappropriate Content   (Reply)
Message 1 of 2 (61 Views)

Posts: 12

Hi,

Thanks for hose who came to participate in our research study. We very appreciate your help on this dissertation research. Five winners of raffle prizes were randomly drawn from all eligible participants.

The five winners are Esthooa Anxel, Oronwen Westlred, Pabxea Sahxea, Azxoen Monboe, Kaxose Joubiot. The winners will be notified via in-world message on May 11th and raffle prizes of 5,000 Linden Dollars will be awarded to each of the five winners on May 12th.

Again, thanks for your participation.

If you have any questions, please contact Yu-Chih Huang at yhuang@clemson.edu.

Best Regards,

Yu-Chih Huang (in-world Yu Chih Andel)
PhD Candidate in Park, Recreation and Tourism Management at Clemson University

Dr. Shelia Backman (in-world Sharper Shim)
Professor in Park, Recreation and Tourism Management at Clemson University

Message 2 of 2 (17 Views)   [Reply]

[Reply]   Message Listing   Previous Topic   Next Topic

Appendix D

<u>Orientation Handbook for Novice Second Life Users</u>
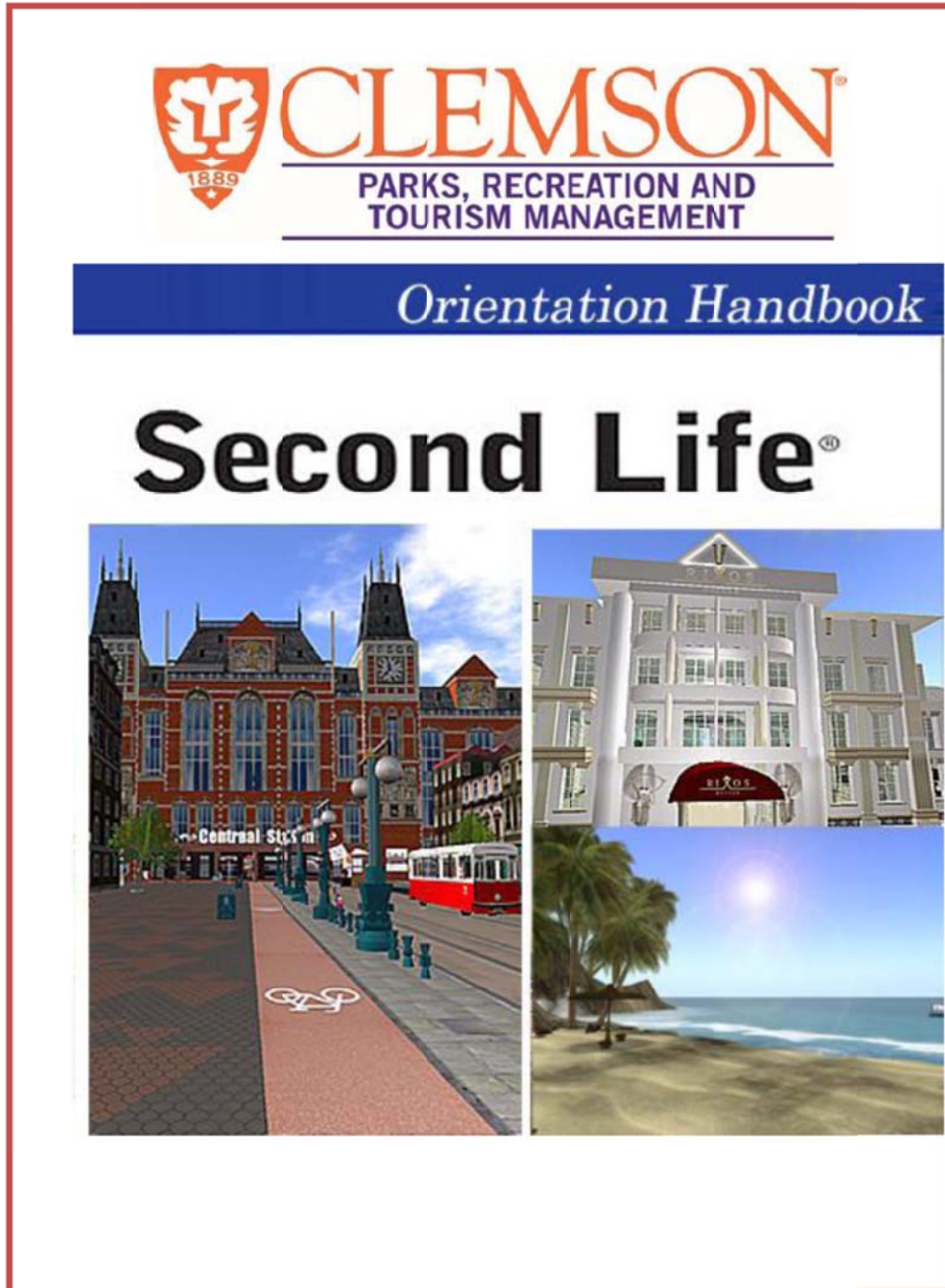
First Step: creating a Second Life account and preparing an avatar

    (1) Go to http://secondlife.com/
    (2) Click on Join Now

    (3) Select an avatar
    (4) Enter a username and password

(5) Fill in the form

(6) Check email and activate your account
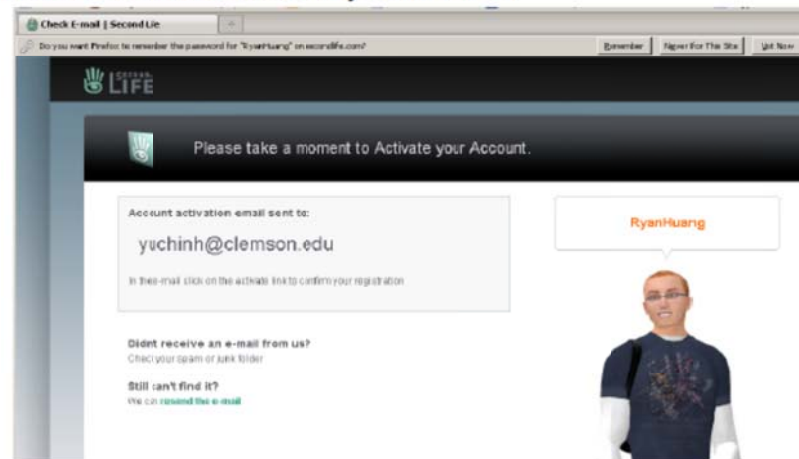
(7) Check your email and click the activation link

(8) Congratulation! Registration completed

(9) Click on "download and install Second Life" (if you use your own laptop)

(10)   Launch Second Life program and logon Second Life

Second Step: enter Second Life

(11) Enter your username **(first name and last name)** and password
Last name is resident
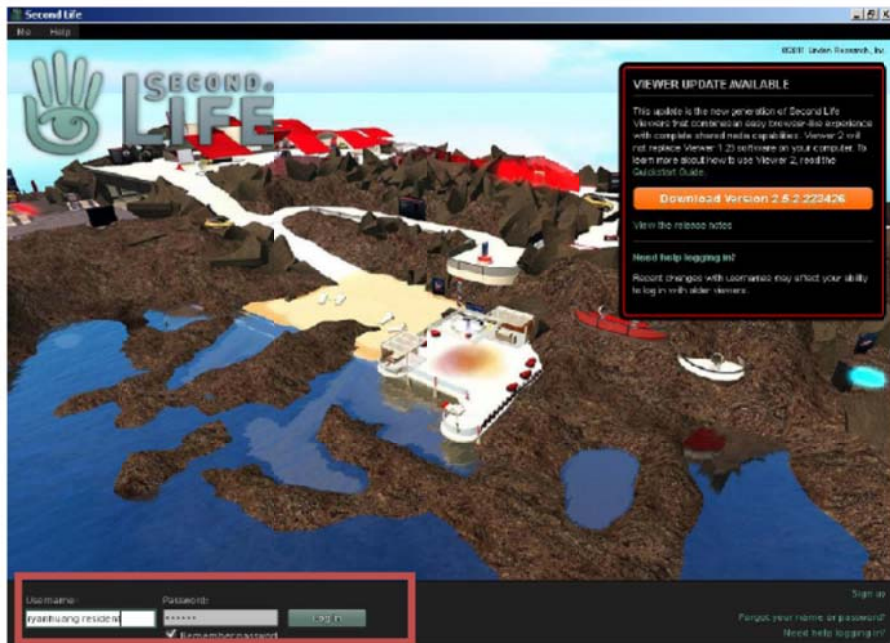
(12) Click "I agree the term …" and "continue"
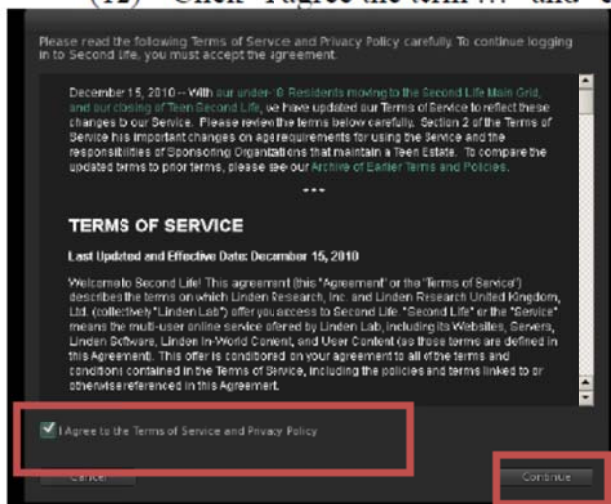
(13)   Second Life Welcome Island Orientation

(14)   Walk: use arrow keys to walk

Third step: Second Life welcome island orientation

(15)   Follow the arrow to complete the orientation

(16)   Zoom

(17) Chat: type in chat then press enter
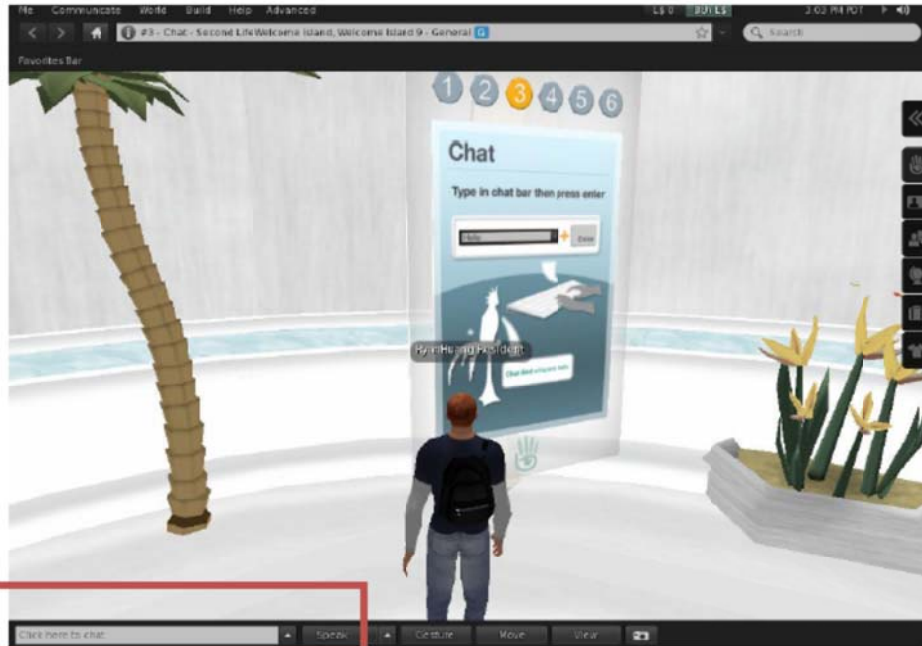
(18) Sit: right click a seat to sit and click sit here

(19) Click on "Stand" to stand up

(20) Fly: Click on "Page UP" to fly
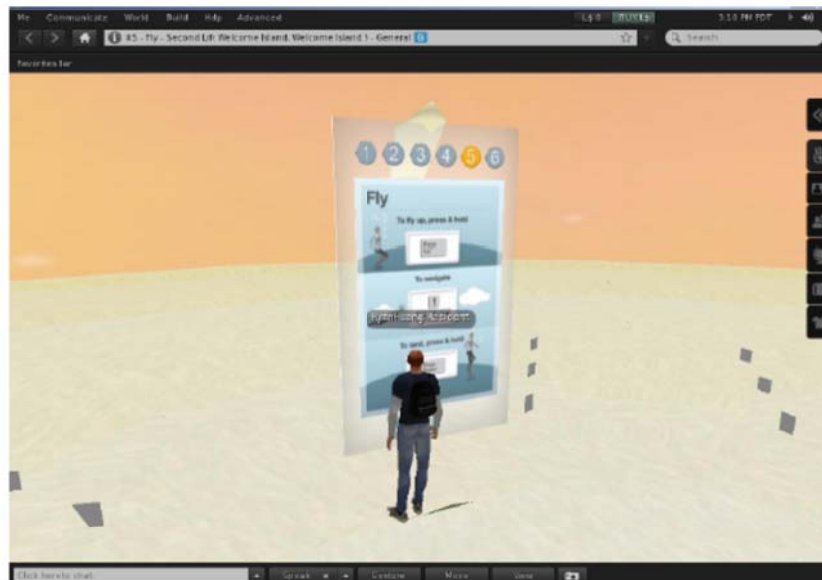
(21) Complete the orientation
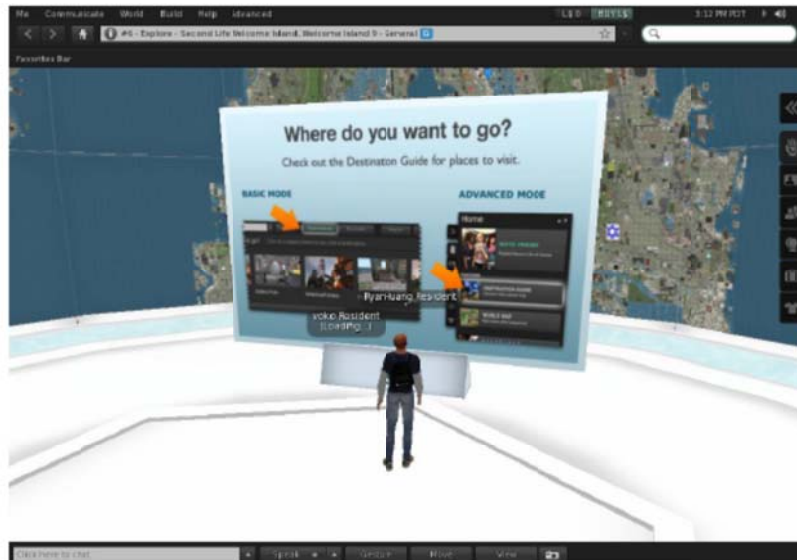
(22) Go to Massai Tourism Island
(http://maps.secondlife.com/secondlife/Massai%20Tourism/151/102/32)
Enter **Massai Tourism** in **searching function and press enter** to find Massai
Tourism Island
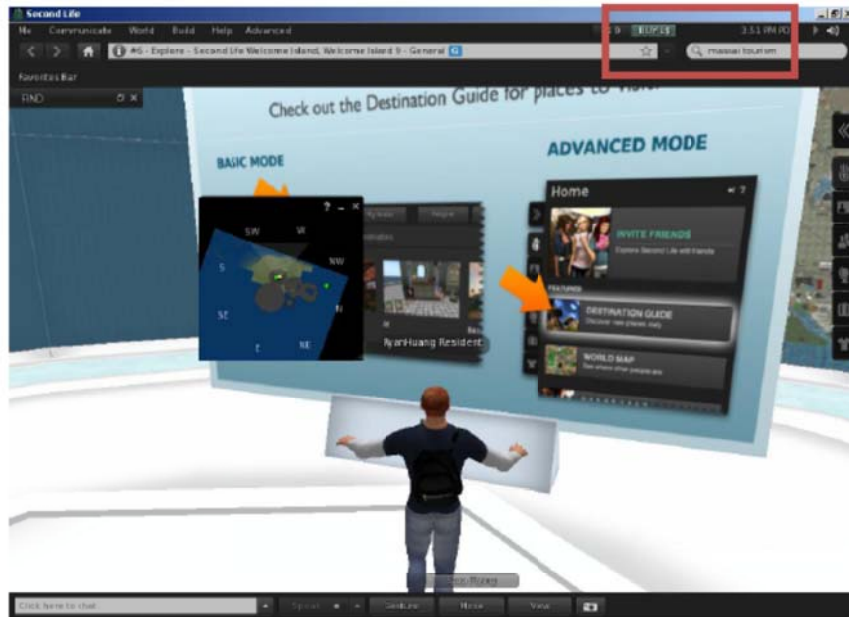
(23)   Click on Region Massai Tourism
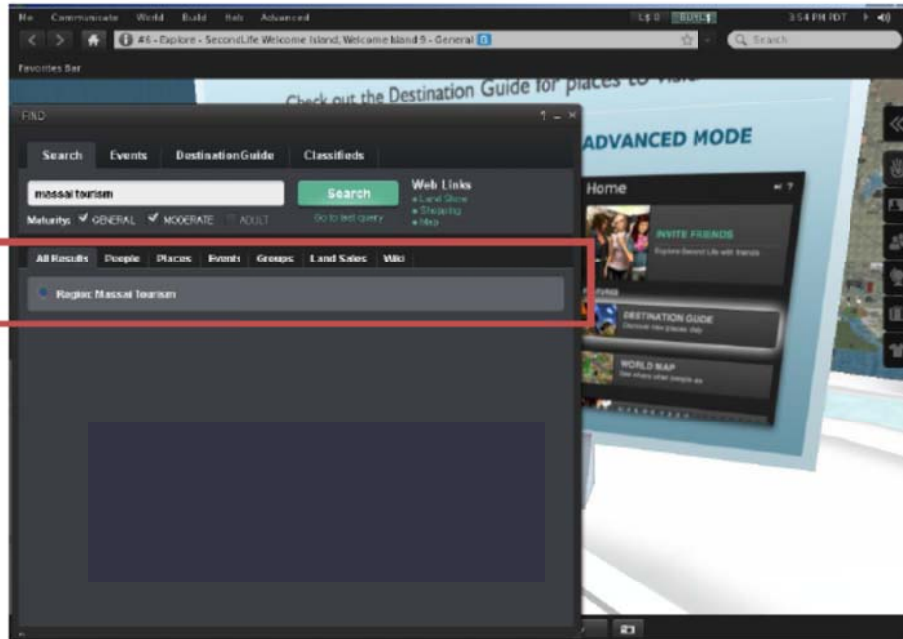
(24)   Click "Teleport" to visit Massai Tourism Island
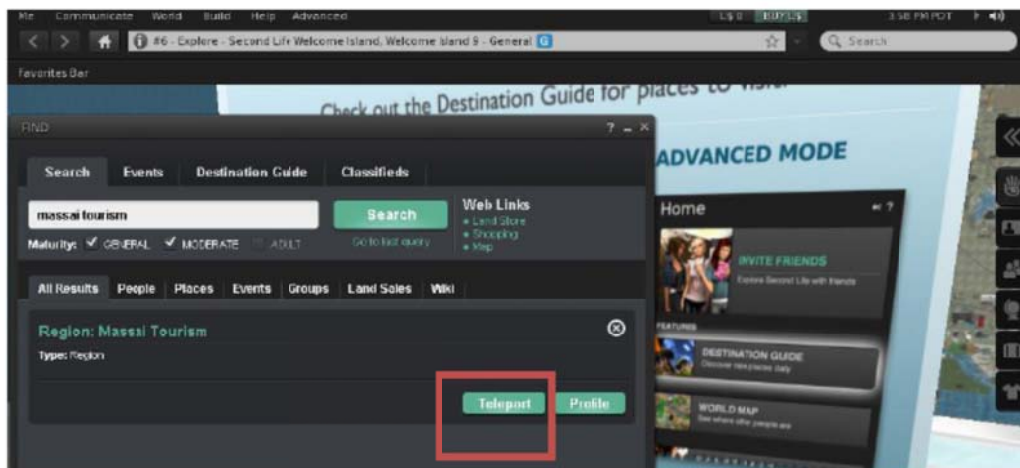
(25)   Change the environment to midday

Click on "World", "Sun" and select the "Midday"
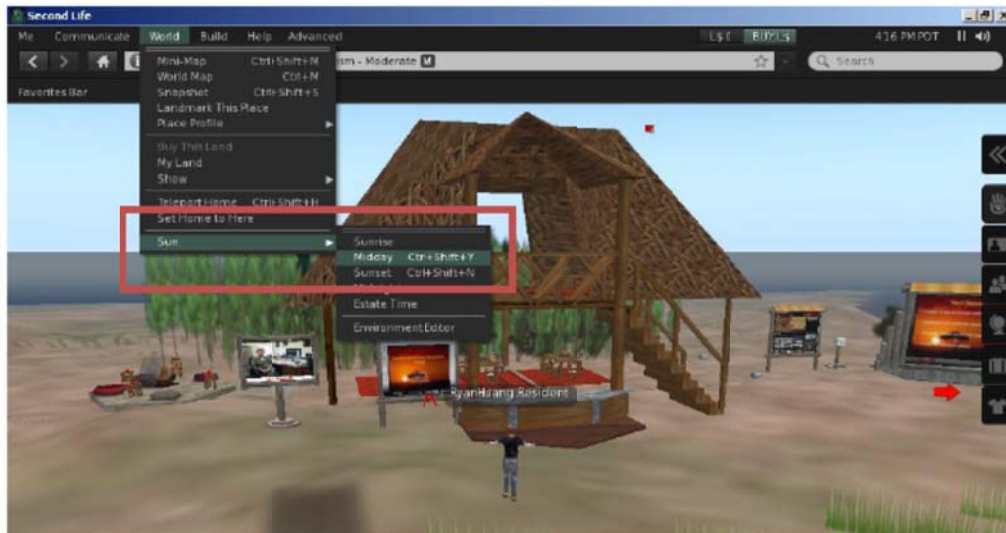
(26)   Set Home to Massai Tourism Island

Click on "World", and "set Home to here"
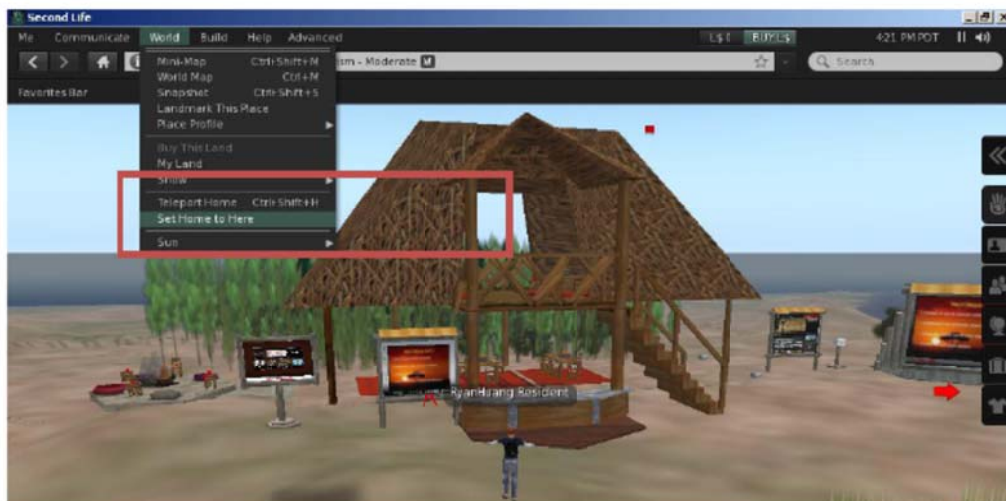
(27) Go to reception area (Main building)
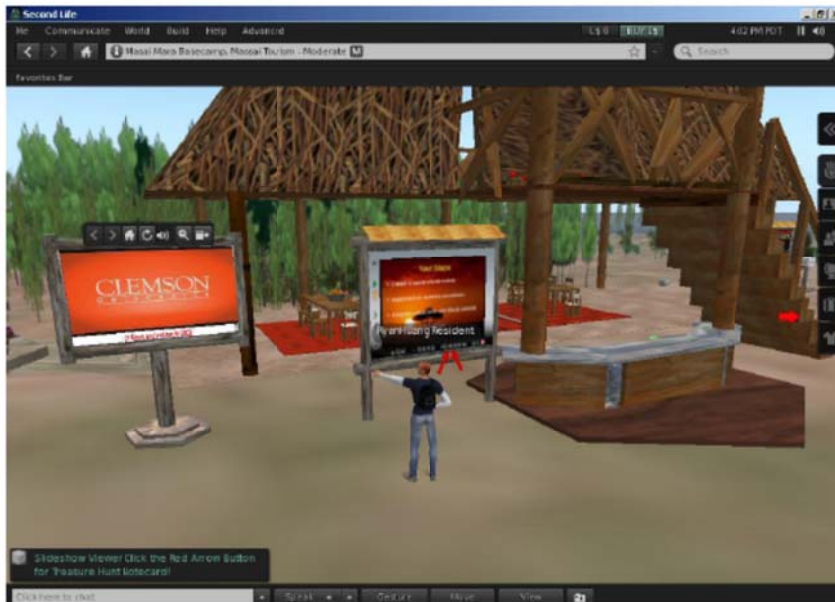
(28) Click the video board, and review the video on the introduction
of Masai Mara Project in Second Life in the reception area

(29) Go to another side of reception area to find a web link box, click the box to a web survey, click "go to page"

(30) Click "ok"
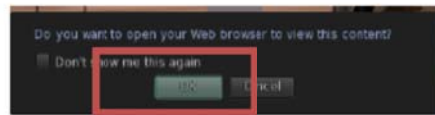
(31) Fill out the web survey

Second Life Masai Mara Experience Survey

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Your participation will involve answering questions about your background information and how you feel about the experience of the Second Life Massai Mara. The amount of time required for your participation will be approximately 3 hours (three 1-hour session for three consecutive weeks).

There are no known risks associated with this research. Additionally, there are no known benefits to you that would result from your participation in this research. However, this research may help us to understand how to construct engaging and interactive virtual experiences in a 3D virtual tourism destination.

We will do everything we can to protect your privacy. Your identity will not be revealed in any publication that might result from this study.

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Powered by snap   Reset   Next

Virtual Experience in Massai Mara Second Life Session II

PRTM Students
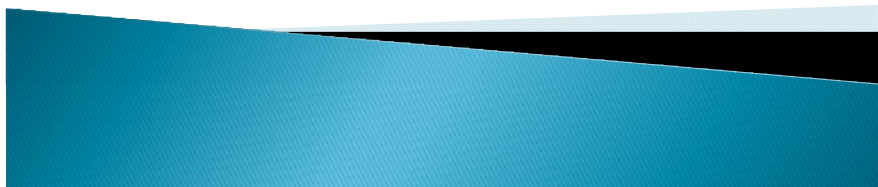
Create Landmark to Massai Mara

▸ Click "World" tab, select "landmark this place"
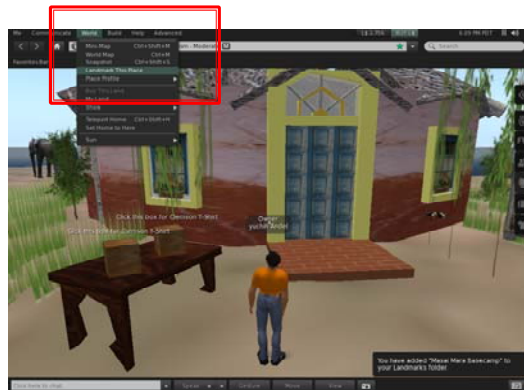
Check the landmark

▸ Click "close" and check the landmark in your inventory

Search for the city of Dublin

▸ Enter Dublin in searching
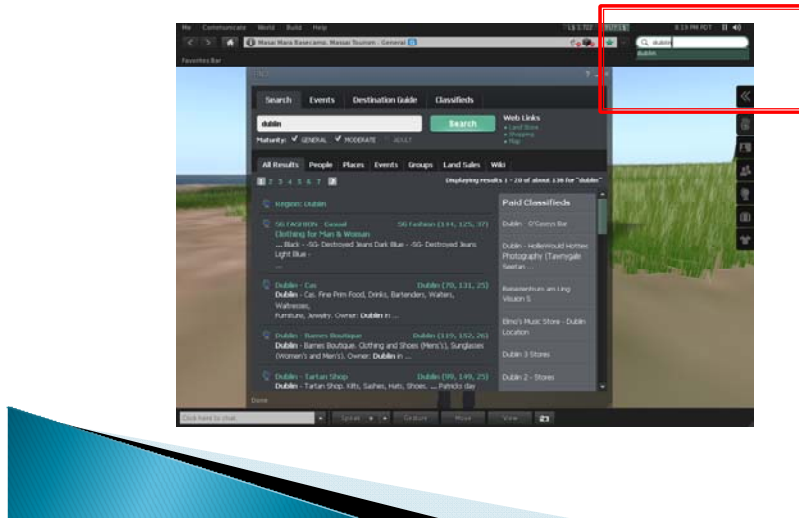
Search for the city of Dublin

▸ Enter Dublin in searching
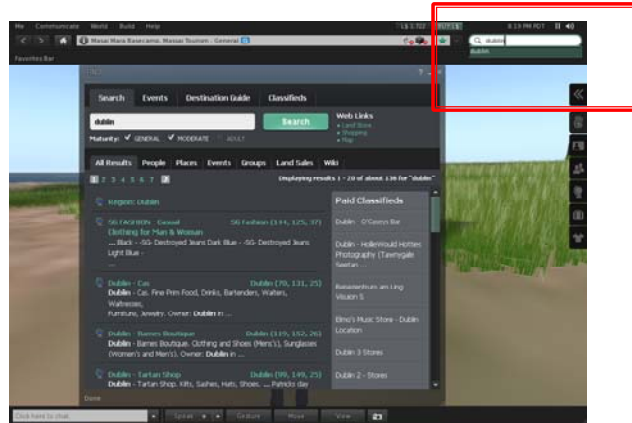
Points of interest in Dublin

▸ Trinity College, the oldest university in Ireland, founded in 1652

St. Stephen's Green

▸ City park located in the heart of Dublin centre (open public ground until 1663)
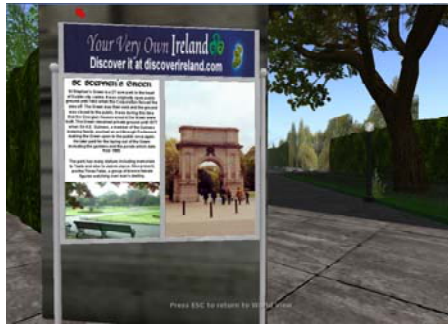
Blarney Stone

▸ Irish Bar, special events, live performance by real world's musician

Ha'penny Bridge

▸ One of the landmarks of Dublin (opened in 1816)
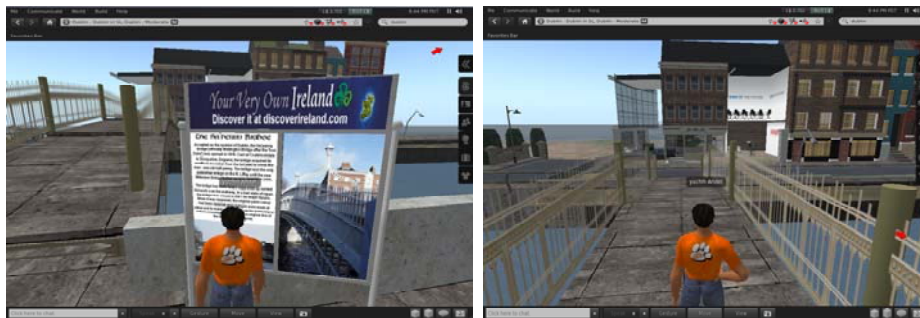
Back to Massai Mara Tourism Island

▸ Find the landmark to Massai Mara in your inventory
▸ Double click on the landmark
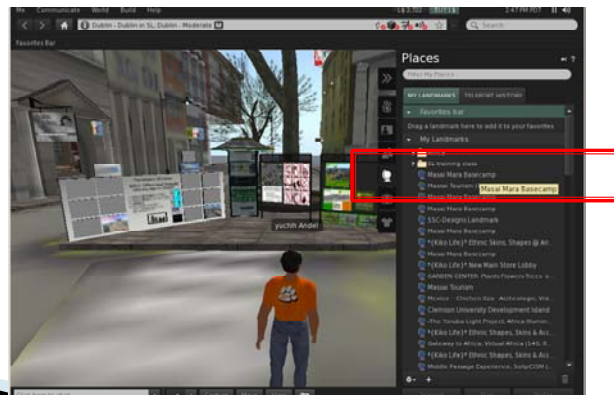
Taking snapshot in Second Life

- Click "View"
- Use "Orbit Zoom pan" to adjust and then minimize
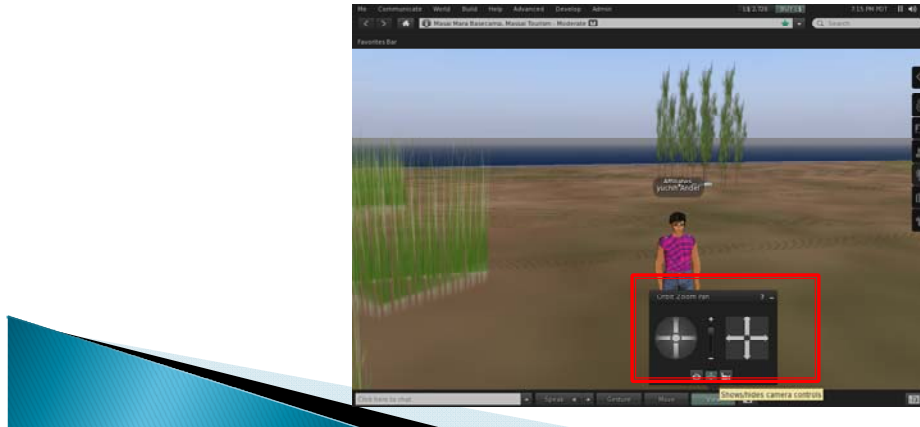
Click the "camera"

- Click the "camera"
- Click "save as"
- Save to your computer
- Enter the file name
- Check your computer
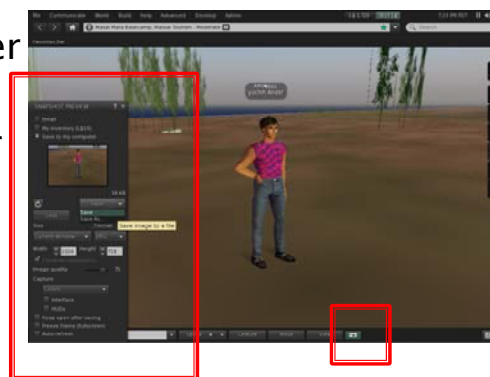
Changing clothing in Second Life

▸ Click sidebar "my appearance"
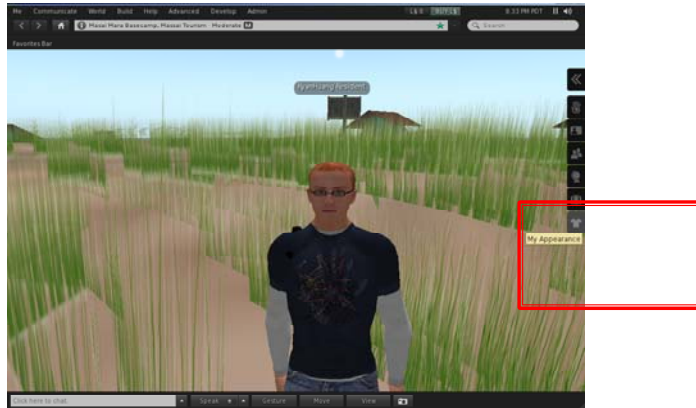
Changing clothing in Second Life

▸ Click sidebar "my appearance"
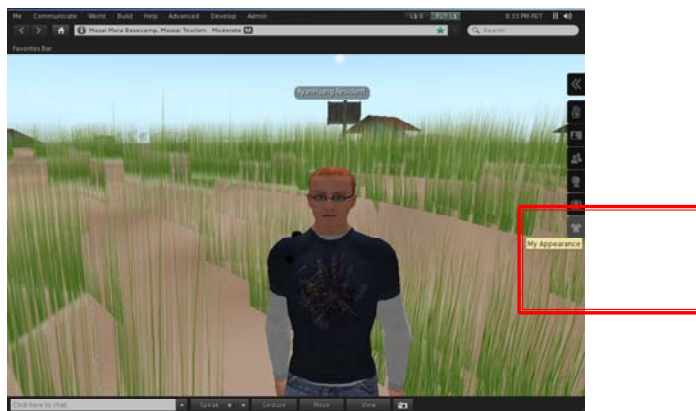
Select your outfit
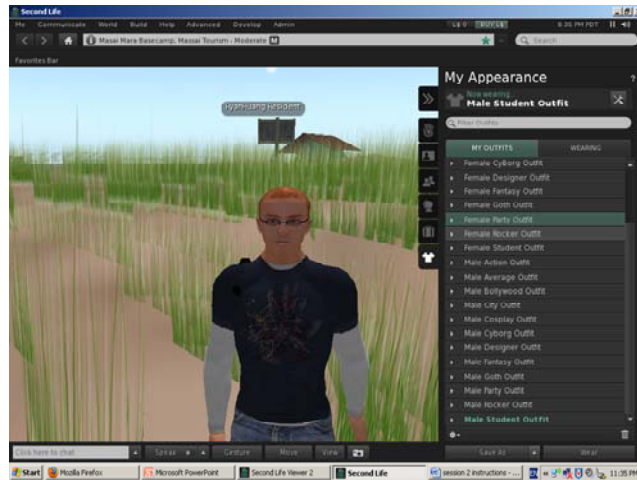
Wear the outfit
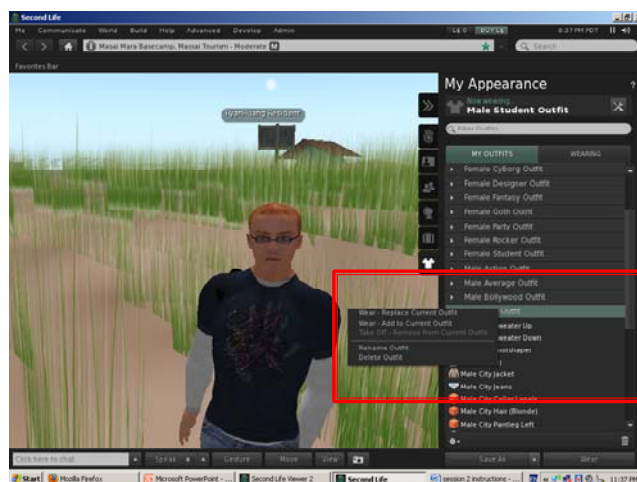
New outfit
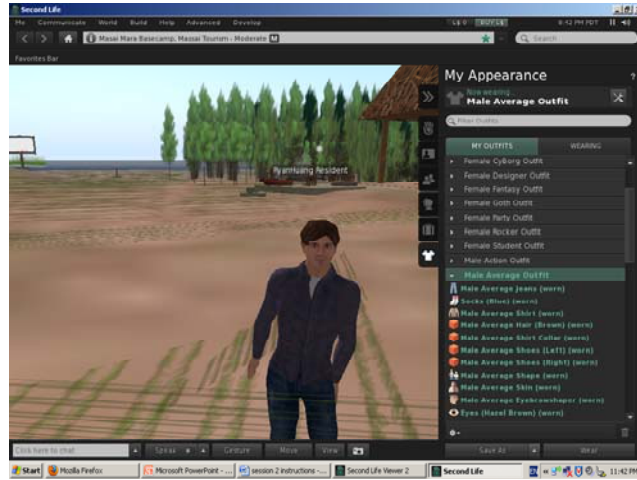
Appendix F

Institutional Review Board (IRB) Approval

Nalinee Patin <NPATIN@clemson.edu>   Tue, Mar 15, 2011 at 1:52 PM
To: Sheila Backman <BACK@clemson.edu>
Cc: "yhuang@clemson.edu" <yhuang@clemson.edu>

Dear Dr. Backman,

The chair of the Clemson University Institutional Review Board (IRB) validated the protocol identified above using exempt review procedures and a determination was made on **March 15, 2011**, that the proposed activities involving human participants qualify as **Exempt** from continuing review under Category **B2**, based on the Federal Regulations (45 CFR 46). You may begin this study.

Please remember that the IRB will have to review all changes to this research protocol before initiation. You are obligated to report any unanticipated problems involving risks to subjects, complications, and/or any adverse events to the ORC immediately. All team members are required to review the Responsibilities of Principal Investigators and the Responsibilities of Research Team Members available at http://www.clemson.edu/research/compliance/irb/regulations.html.

We also ask that you notify the ORC when your study is complete or if terminated. Please let us know if you have any questions and use the IRB number and title in all communications regarding this study. Good luck with your study.

All the best,

Nainee

Nalinee D. Patin

IRB Coordinator

Clemson University

Office of Research Compliance

Institutional Review Board (IRB)

Voice: (864) 656-0636

Fax: (864) 656-4475

E-mail: npatin@clemson.edu

Web site: http://www.clemson.edu/research/compliance/irb/

IRB E-mail: irb@clemson.edu

Second Life Masai Mara Experience Survey

You are invited to participate in a research study conducted by Dr. Shelia Backman and Yu Chih Huang. The purpose of this study is to investigate the virtual experience in a 3D tourism destination.

Your participation will involve answering questions about your background information and how you feel about the experience of the Second Life Massai Mara. The amount of time required for your participation will be approximately 30-45 minutes.

There are no known risks associated with this research. Additionally, there are no known benefits to you that would result from your participation in this research. However, this research may help us to understand how to construct engaging and interactive virtual experiences in a 3D virtual tourism destination.

We will do everything we can to protect your privacy. Your identity will not be revealed in any publication that might result from this study.

Your participation in this research study is voluntary. You may choose not to participate and you may withdraw your consent to participate at any time. You will not be penalized in any way should you decide not to participate or to withdraw from this study.

If you have any questions or concerns about this study or if any problems arise, please contact Dr. Shelia Backman at Clemson University at 864-656-5236. If you have any questions or concerns about your rights as a research participant, please contact the Clemson University Office of Research Compliance (ORC) at 864-656-6460 or irb@clemson.edu.

The following questions ask about your background, please answer to each of the following questions by clicking on the answer that best describes you. Your information will only be used for scientific research and will not be used for other purposes.

1. **Are you male or female?**

❑ *Male*
❑ *Female*

2. **What is your age?**

❑ *under 18 years old*
❑ *18 to 24*
❑ *25 to 34*
❑ *35-44*
❑ *45 to 54*
❑ *55-64*
❑ *65+*

3. **What is the highest academic qualification you have attained?**

❑ *Less than a high school diploma*
❑ *High school graduate*
❑ *Some college/ technical school*
❑ *Bachelor's degree*
❑ *Master's degree*
❑ *Doctor's degree*

4. **Which of the following best describes your current work occupation?**

❑ *Management*
❑ *Computer and Mathematical science*
❑ *Architecture and engineering*
❑ *Scientist*
❑ *Education (Teacher/professor)*
❑ *Artist*
❑ *Web designer*
❑ *Game designer*
❑ *Health care professional*
❑ *Physician*
❑ *Sales*
❑ *Construction*
❑ *Military service*
❑ *Student (if yes, please answer question 5)*

5. **If you are a student, please indicate your classification by your university.(e.g. Freshman, Sophomore, etc.)**

_____
_____
_____
_____

6. **Which of the following best describes your marital status?**

- ❑ *Single*
- ❑ *Married and living with husband/wife*
- ❑ *Married and separated from husband/wife*
- ❑ *Living with partner*
- ❑ *Divorced*
- ❑ *Widowed*

7. **Where are you located?**

- ❑ *France*
- ❑ *Germany*
- ❑ *UK*
- ❑ *USA*
- ❑ *Mexico*
- ❑ *Canada*
- ❑ *Asia Pacific*
- ❑ *Latin America*
- ❑ *Middle East and Africa*
- ❑ *Other*

8. **If other, please indicate your location.**

_____

_____

9. **Which of these ethnic goups do you consider that best describe you?**

- ❑ *White*
- ❑ *Black or African American*
- ❑ *American Indian or Alaska Native*
- ❑ *Native Hawaiian or Other Pacific Islander*
- ❑ *Hispanic or Latino*
- ❑ *Asian*
- ❑ *Other*

10. **Have you ever visited Africa?**

- ❑ *Yes (if yes, please answer question 11)*
- ❑ *No*

11. **If yes, please specify the country**

_____
_____
_____
_____

12. **Do you have any prior experience in video games (Halo, Tetris, Grand Theft Auto, The Sims, World of Warcraft, etc.) ?**

- ❑ *Yes*
- ❑ *No*

13. If yes, in the past month, on average, approximately how many hours per week have you spent on video games?
- ❏ *None*
- ❏ *Less than one hour/week*
- ❏ *One to two hours/week*
- ❏ *Two to Three hours/week*
- ❏ *More than three hours/week*

14. Do you have any prior experience in virtual worlds (Second Life, OpenSim, Active Worlds, There, etc.)?
- ❏ *Yes*
- ❏ *No (if no, please skip to question 23)*

15. If yes, in the past month, on average, approximately how many hours per week have you spent on virtual worlds?
- ❏ *None*
- ❏ *Less than one hour/week*
- ❏ *One to two hours/week*
- ❏ *Two to Three hours/week*
- ❏ *More than three hours/week*

16. Did you create your avatar in Second Life before January 2009?
- ❏ *Yes (if yes, please go to question 17)*
- ❏ *No (if no, please skip to question 18)*

17. In the past month, on average, approximately how many hours per week have you spent in the virtual world of Second Life?
- ❏ *None*
- ❏ *Less than one hour/week*
- ❏ *One to two hours/week*
- ❏ *Two to Three hours/week*
- ❏ *More than three hours/week*

18. Have you purchased anything in Second Life?
- ❏ *Yes (if yes, please go to question 19)*
- ❏ *No (if no, please skip to question 20)*

19. If yes, how much have you spent in Second Life (in Linden Dollar)?
- ❏ *Less than L$1000*
- ❏ *L$1,001 - L$3,000*
- ❏ *L$3,001 - L$7,500*
- ❏ *L$7,501 - L$10,000*
- ❏ *L$10,001 - L$20,000*
- ❏ *> L$20,001*

20. How many friends do you have in your friend list in Second Life?
- ❏ *Less than 10 friends*
- ❏ *11 to 30 friends*
- ❏ *31-60 friends*
- ❏ *61-100 friends*
- ❏ *More than 100 friends*

21. Have you changed the appearance of your created avatar?
- ❏ *Yes*
- ❏ *No (if not, please skip to question 24)*

22. **If yes, how many times have you changed the appearance of your created avatar ?**

- ❏ *1-3 times*
- ❏ *4-6 times*
- ❏ *7-10times*
- ❏ *More than 10 times*

23. **If you have changed the appearance of your created avatar, have you used a non-human avatar?**

- ❏ *Yes*
- ❏ *No*

24. **When is your birth day (MM-DD-YYYY)?**

_____

25. **Please enter your avatar's first name and last name. (Your information will be only used for scientific research and will not be used for other purposes)**

_____
_____
_____
_____

Please check that you have answered all the questions that you should have answered.

Please continue your treasure hunt activity and complete the second web survey for the raffle prize.

Second Life Masai Mara Experience Survey

You are invited to participate in a research study conducted by Dr. Shelia Backman and Yu Chih Huang. The purpose of this study is to investigate the virtual experience in a 3D tourism destination.

Your participation will involve answering questions about how you feel about the experience of the virtual world of Second Life. The amount of time required for your participation will be approximately 30-45 minutes.

There are no known risks associated with this research. Additionally, there are no known benefits to you that would result from your participation in this research. However, this research may help us to understand how to construct engaging and interactive virtual experiences in a 3D virtual tourism destination.

We will do everything we can to protect your privacy. Your identity will not be revealed in any publication that might result from this study.

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1. We would like to know how you felt about your experience in the Second Life Massai Mara. Read each word and mark an appropriate answer that best represents your feelings while experiencing Massai Mara in Second Life.

	Not at all	A little	Moderately	Quite a bit	Extremely
Amusement	❏	❏	❏	❏	❏
Interest	❏	❏	❏	❏	❏
Contentment	❏	❏	❏	❏	❏
Joy	❏	❏	❏	❏	❏
Pride	❏	❏	❏	❏	❏
Cheerfulness	❏	❏	❏	❏	❏
Delight	❏	❏	❏	❏	❏

2. We would like to know how you felt about your experience in the Second Life Massai Mara. Read each word and mark an appropriate answer that best represents your feelings while experiencing Massai Mara in Second Life.

	Not at all	A little	Moderately	Quite a bit	Extremely
Nervousness	❏	❏	❏	❏	❏
Loneliness	❏	❏	❏	❏	❏
Embarrassment	❏	❏	❏	❏	❏
Contempt	❏	❏	❏	❏	❏
Sadness	❏	❏	❏	❏	❏
Fear	❏	❏	❏	❏	❏
Anger	❏	❏	❏	❏	❏

3. | Please tell me how you felt in the Massai Mara site in Second Life by clicking the appropriate response.

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
I had a sense of acting from within Massai Mara Second Life, rather than operating something from outside.	❑	❑	❑	❑	❑	❑	❑
I felt present in Massai Mara Second Life.	❑	❑	❑	❑	❑	❑	❑
In Massai Mara Second Life I had a sense of "being there".	❑	❑	❑	❑	❑	❑	❑
Somehow I felt that Massai Mara Second Life's virtual world surrounded me.	❑	❑	❑	❑	❑	❑	❑
I was completely captivated by Massai Mara Second Life's virtual world.	❑	❑	❑	❑	❑	❑	❑
I was not aware of my real environment.	❑	❑	❑	❑	❑	❑	❑
I concentrated only on the Massai Mara Second Life.	❑	❑	❑	❑	❑	❑	❑
The Massai Mara Second Life seemed very real to me.	❑	❑	❑	❑	❑	❑	❑
My experience in the virtual environment seemed consistent with my real world experience.	❑	❑	❑	❑	❑	❑	❑
Massai Mara Second Life seemed more realistic than the real world.	❑	❑	❑	❑	❑	❑	❑

	4.	These next few questions ask about your Massai Mara Second Life experience. Please tell me how much you disagree/agree with each of the following statements by clicking the appropriate response.							

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
I felt very capable and effective while experiencing Massai Mara Second Life.	❏	❏	❏	❏	❏	❏	❏
*	❏	❏	❏	❏	❏	❏	❏
The experiences in Massai Mara Second Life kept me on my toes but did not overwhelm me.	❏	❏	❏	❏	❏	❏	❏
*	❏	❏	❏	❏	❏	❏	❏

	5.	These next few questions ask about your Massai Mara Second Life experience. Please tell me how much you disagree/agree with each of the following statements by clicking the appropriate response.

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
*	❏	❏	❏	❏	❏	❏	❏
*	❏	❏	❏	❏	❏	❏	❏
I did things in the Massai Mara Second Life because they interested me	❏	❏	❏	❏	❏	❏	❏
I did not feel controlled and pressured to be a certain way in Massai Mara Second Life.	❏	❏	❏	❏	❏	❏	❏

	6.	These next few questions ask about your Massai Mara Second Life experience. Please tell me how much you disagree/agree with each of the following statements by clicking the appropriate response.

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
It is likely that the people I met within Second Life can become friends, if we interacted a lot.	❏	❏	❏	❏	❏	❏	❏
I find the relationships I form in Second Life fulfilling.	❏	❏	❏	❏	❏	❏	❏
*	❏	❏	❏	❏	❏	❏	❏
*	❏	❏	❏	❏	❏	❏	❏

*: These questions are omitted due to the limited use agreement between the author and IMMERSYVE, INC. For further information, please contact Scott Rigby.

7. The following questions are related to the Massai Mara Second Life experience. Please respond to the questions by clicking the appropriate response.

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
I enjoyed experiencing the Massai Mara Second Life very much.	❑	❑	❑	❑	❑	❑	❑
I thought experiencing the 3D virtual world of Massai Mara Second Life was quite enjoyable.	❑	❑	❑	❑	❑	❑	❑
I would describe the experience of Massai Mara Second Life as very interesting.	❑	❑	❑	❑	❑	❑	❑
The experience in Massai Mara Second Life was fun.	❑	❑	❑	❑	❑	❑	❑

8. These next few questions ask about your Massai Mara Second Life experience. Please tell me how much you disagree/agree with each of the following statements by clicking the appropriate response.

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
Learning to use Second Life was easy for me.	❑	❑	❑	❑	❑	❑	❑
I did not find it difficult to get Second Life to do what I want it to do.	❑	❑	❑	❑	❑	❑	❑
I find Second Life to be flexible to interact with.	❑	❑	❑	❑	❑	❑	❑
It is easy for me to become skillful at using Second Life.	❑	❑	❑	❑	❑	❑	❑

9. These next few questions ask about your Massai Mara Second Life experience. Please tell me how much you disagree/agree with each of the following statements by clicking the appropriate response.

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
I believe that using Second Life enhances the effectiveness of trip planning.	❑	❑	❑	❑	❑	❑	❑
I believe that using Second Life increases my productivity in trip planning.	❑	❑	❑	❑	❑	❑	❑
I believe that Second Life is useful for trip planning.	❑	❑	❑	❑	❑	❑	❑
I believe that using Second Life enables me to search travel information more conveniently.	❑	❑	❑	❑	❑	❑	❑

10.	These next few questions ask about your Massai Mara Second Life experience. Please tell me how much you disagree/agree with each of the following statements by clicking the appropriate response.						
	Strongly Disagree	*Disagree*	*Slightly Disagree*	*Neutral*	*Slightly Agree*	*Agree*	*Strongly Agree*
After the virtual tour, I want to find out more information about the Massai Mara.	❏	❏	❏	❏	❏	❏	❏
After the virtual tour, I gained an interest in visiting the Massai Mara in person.	❏	❏	❏	❏	❏	❏	❏
After the virtual tour, I will try to visit the Massai Mara in the future.	❏	❏	❏	❏	❏	❏	❏
I am willing to recommend Second Life Massai Mara.	❏	❏	❏	❏	❏	❏	❏

11.	Please respond to each of the following questions by clicking the number that best describes your opinion.						
	Strongly Disagree	*Disagree*	*Slightly Disagree*	*Neutral*	*Slightly Agree*	*Agree*	*Strongly Agree*
When I am using Second Life, I feel "carried off" by the 3D virtual environment.	❏	❏	❏	❏	❏	❏	❏
When I am using Second Life, I feel as if I am part of the 3D virtual environment.	❏	❏	❏	❏	❏	❏	❏
When I am using Second Life, I feel deeply about the 3D virtual environment.	❏	❏	❏	❏	❏	❏	❏

12.	These next few questions ask about your Massai Mara Second Life experience. Please tell me how much you disagree/agree with each of the following by clicking the appropriate response.						
	Strongly Disagree	*Disagree*	*Slightly Disagree*	*Neutral*	*Slightly Agree*	*Agree*	*Strongly Agree*
When experiencing Massai Mara Second Life, my attention is totally focused.	❏	❏	❏	❏	❏	❏	❏
Experiencing Massai Mara Second Life excites my curiosity.	❏	❏	❏	❏	❏	❏	❏
Experiencing Massai Mara Second Life is intrinsically interesting.	❏	❏	❏	❏	❏	❏	❏
When experiencing Massai Mara Second Life, I feel in control.	❏	❏	❏	❏	❏	❏	❏

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