Conducting Immersive Research in Virtual Worlds: A Hotel Co-branding Case Study

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Acknowledgements
This research was funded by grant no 1-ZV79 from the School of Hotel & Tourism Management of The Hong Kong Polytechnic University, without which the study would not have been able to take place.

Submitted exclusively to
International Journal of Hospitality Management

March 2010

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Abstract

This study explains the first known hospitality research conducted exclusively in a virtual world for the purpose of researching hotel co-branding. This paper explains how Immersive Research techniques were used to capture data in real time through avatar activity in Second Life. This paper considers the research methodology, the data collection process and gives a brief summary of the initial research findings. The virtual environment offers an opportunity for researchers to reach a global audience, conduct the research in a relatively short time frame, and do the research inexpensively. The study will be of interest to researchers who may wish to use a virtual 3D environment for their own research.

Keywords: Second Life; virtual worlds; hotel co-branding; immersive research.

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1.1 Introduction

The purpose of this paper is to explain how immerse research techniques can be used to capture data in real time through avatar activity in Second Life using a hotel room co-branding study. Virtual worlds are a phenomenon that have captured the imagination of educators, marketers and the general public, particularly over the past three to four years as the technology has matured and bandwidth has enabled real time, multi-user applications to be developed. Well-publicised Virtual worlds such as World of Warcraft and Second Life (hereafter known as SL) have established dynamic communities of active users numbering in their tens of millions. According to a Linden Lab press release in September 2009 (Linden Lab, 2009), since its founding in 2003, over one billion hours have been spent by its 'residents' in Second Life, "That's roughly 115,000 years spent doing everything from meeting and socializing with friends; to attending live concerts; to creating, selling, and shopping for virtual goods; to learning a foreign language; to attending business meetings; and much more." (Linden Lab, 2009).

Along with a brief review of virtual worlds and co-branding case study, this paper focuses on the research methodology, the data collection process with a summary of the initial research findings. It concludes with a review of the possibilities and drawbacks of using virtual environments for qualitative, quantitative and immersive research. The study is of interest to academic and market researchers who may wish to take the opportunity to use a virtual 3D environment for their own research.

1.1 Virtual Worlds

Research data from Kzero (Mitham, 2010) show that by the end of 2009, total registered accounts in the virtual worlds sector had reached 803 million. The number of registered accounts almost doubled, from 419 million to 803 million over a 12 month period. The majority of these new users of virtual worlds are aged between five and 15 years of age, and these young people will soon become adults and take their virtual experiences into their future working lives.

Please insert Table 1 about here

SL is a virtual world developed by Linden Lab, Inc. which is a media company in San Francisco, USA. Users download and install a program that connects to the SL servers to have access to the SL virtual world. The users in the virtual worlds are humans represented by their avatars. In addition to SL, other significant virtual worlds exist in Asia such as Qzone in China with an estimated 228 million users (Reuters, 2009), Gree in Japan, and Cyworld in Korea with more than 23 million unique visitors per month in the first quarter of 2009. From virtual clothing to e-pets, Asians spend an estimated US$5 billion a year on virtual goods (Reuters, 2009), a staggering figure. These statistics demonstrate the increasing scale and range of activities that are taking place in virtual worlds in almost every corner of the globe. Increasingly market researchers are realizing the importance of virtual worlds, and academics too have begun to explore this medium for their research. SL in particular has been widely adopted by educational institutions and individuals for teaching, learning and various types of research activity. Over 500 higher educational institutions now have a presence in SL, and with the SL educators' list numbering over 5,000 individuals, there is growing interest in virtual worlds from teachers and researchers (Linden Lab, 2009). Data from Linden Lab (2009) indicates that around 60% of active SL residents are based outside of the US,

representing 195 countries and surprisingly – the average age is around 35. Residents come from every walk of life and the population of SL is a mixed sample of populations from all around the world.

Research in virtual worlds has taken two forms. The first has been to study who is using virtual worlds, what goes on, and why they are used (Williams, Yee & Caplan, 2008). The second form is research of 'real world' issues using the experiences of players or residents who inhabit these virtual worlds (Bainbridge, 2007). This real world-virtual world research still needs to prove that the medium is valid in producing acceptable scientific data that can be used in the real world. One of the challenges of this particular study, was to establish whether the participants and their views are truly representative of their own real life personas. Secondly, whether the survey respondents are representative as a group of an equivalent real world sample and whether the inhabitants of virtual worlds are providing valid responses or are just fantasizing in the answers they provide and hiding their true views and opinions behind their virtual avatar. The study hopes to shed some light on these important questions.

One of the main concerns that researchers have is related to the differences between the real world and the virtual world. Although virtual worlds might come across as fluid, fantastic and game-like, the human interactions and their passion within the virtual worlds are real (Castronova & Falk, 2008). As Bell, Castronova and Wagner (2009, p. 3) explained, "...When someone sends the message of "I hate you," as opposed to "I love you," the human feelings being delivered are genuine even though the symbols used to send the message may vary and are in a sense epiphenomenal. Sometimes the symbols will be letters on paper; sometimes bytes rendered on a screen (as now), and sometimes the gestures of a computer avatar".

Despite the wide use of virtual worlds, the academic community, particular in the field of tourism and hospitality research has been slow to venture into this virtual research environment. There have been isolated experiments and some studies are being undertaken, but no significant research using the visually rich 3D environment which lends itself so well to immersive research. In 2008, a research team in a university in Hong Kong recognized the potential of SL to help with hotel branding research when reviewing a previous study by Starwood Hotels. The Starwood Group used SL as a test bed for the design of their Aloft brand by inviting visitors to a virtual Aloft in SL as well as holding focus groups meeting in the virtual hotel to discuss aspects of the design (Jana, 2006).

2. Co-branding case study

This is the first known hospitality and tourism study conducted exclusively in a virtual world for the purpose of researching hotel co-branding. The objective of this co-branding study was to identify the most advantageous combination of the co-branding options of in the context of a hotel room setting as perceived by the customers. Considering the wide range products involved in a hotel product, there is a plethora of co-branding opportunities for the hotel industry. However a successful co-branding with such industries and products can provide a hotel with a competitive edge and differentiation that strategically fit with their branding objectives.

To understand the brands preferred in a hotel room setting by hotel patrons, a unique study was planned, designed and conducted using SL. Ideally a study of this nature would ask participants to stay in a hotel and sample a range of brands in a variety of hotel settings and a mix of hotel types and grades. This would be a very expensive exercise and would probably

not allow the researches to find a truly international and representative audience of hotel patrons. Therefore access to a visually lifelike hotel environment in which participants could visit the hotel, go to the rooms, review the brands on offer and choose the brands they preferred was made possible in SL.

The study employed Immersive Research techniques to capture data in real time through avatar activity in SL. It was decided to draw on the experience of some of the research team members who had been working in SL for more than a year, and had built a 29-storey, 264-room virtual teaching hotel modelled on the architectural drawings for an actual hotel planned to open in 2010 in Hong Kong. This 3D replica – one of the tallest buildings in SL – complete with guest rooms, restaurants, leisure club, meeting rooms and teaching facilities was an ideal venue in which to conduct hotel co-branding research. The study has been conducted in two stages. In the first phase, participants visited the hotel rooms, reviewed the amenities and selected their preferred brands over a four-week period. The second phase of the study involves conjoint analysis which is instrumental in determining the trade-offs that hotel customers are willing to make in their purchase decisions as well as in developing pricing strategies for hotels.

2.1 First phase

In order to gather the views of a truly international audience of typical business and leisure hotel users, it was decided to conduct the research completely in SL. This virtual environment gave the researchers access to a very large group of 'residents' (currently 750,000 unique users logging in each month) from around the globe. In addition, the study is unique in using a virtual environment which offers an opportunity for researchers to conduct the research in a relatively short time frame, do it inexpensively by eliminating travel and other expenses, and by coming up with a good quality data set. The study asked respondents to visit one of the three identical guest room in the PolyU Virtual Teaching Hotel and to identify their most valued and preferred brands for 11 features in the hotel room.

Please insert Figure 1 about here

As a first step, a questionnaire was designed to question respondents on brands they preferred and valued in a hotel room setting. In order to give participants real feeling about the four star hotel room they would stay, three 3D replica four star hotel guest rooms were created by using real world four star hotel guest room reference photos. The real world hotel room is located in Hong Kong Polytechnic Teaching Hotel which will due to open in Kowloon Hong Kong in 2010. The hotel room details in the Virtual Hotel were prepared according to the Mobile Travel Guide's four diamond and American Automobile Association's four star standards.

Computer aid design (CAD) reference files were supplied by architecture design company. The layout of guest room and furniture created in SL are exactly size with real world ones according to the CAD files. Textures and materials of the guest room in SL are used from photos which are taken from real world mock up room Hong Kong Polytechnic University September 2008. The set of features that can be branded in a hotel room was listed as tea, coffee, coffee maker on the top of mini bar, LCD TV on the wall, mp3 player, DVD player on the TV table, iron, towels-bath robe, toothpaste, soap, shampoo-shower gel and hair dryer. SL participants were invited to review amenities and nominate the brands they would like.

Second, eleven features without any brands written on them were created from real world product images and placed in the SL hotel room. Those products were strategically placed on

the certain routine which is from customer entering the room to walk in to the bathroom area. Clickable eleven related questions were installed into each individual product in SL guest room along with one set of demographics and travel related questionnaire. In addition, a welcome note-card and in-room instructions were prepared for participants to help with the entire survey process.

2.2 Data collection

Various data collection methods have been used in virtual worlds including six main methods: Projector Survey, Survey Sofa, Survey ATM, HUD (Head User Display) Survey, Survey Avatar Bots and Survey Question Kiosk. We tested each of these methods and evaluated the advantages and disadvantages of each before deciding to use an enhanced immersive experience based on the Survey Question Kiosk. Table 2 presents a review of virtual world survey methods. Majority of the surveys done in virtual worlds previously required the participant to leave the virtual world and complete a web based survey (Griffiths, Davis, & Chappell, 2003; Yee, 2006; Williams, 2006). These methods do not allow participants to have a sense of immersion to the virtual world environment (Bystrom , Barfield, & Hendrix, 1999).

Please insert Table 2 about here

Bell et al (2009) stressed the importance of allowing survey participants to stay within the virtual world when answering a survey to avoid a break in immersion and with the possibility of hindering accurate recall of the virtual environment in completion of the survey. Most of the survey instruments are outside SL, and users are normally linked to an external website or online survey to enter their survey responses. These methods disengage users from the virtual world and are not really making use of the visual 3D environment in a meaningful way. Our survey wanted participants to experience a hotel guest room and feel and view the room amenities and environment. Some recent work by Bell et al (2009) used what they called a "Virtual Data Collection Interface (VDCI) – which is a virtual survey kiosk which enables surveys to be conducted without leaving the virtual world. It also allows for multiple and essay answers, but it lacks the personal interaction that would take place if an avatar conducted the survey. We adapted the VDCI method by attaching a clickable object to our research avatar (in this case a hat) which enabled participants in the survey to click and be teleported to the virtual hotel guest room to complete the survey.

Our survey, as with the survey tool designed by Bell et al (2009), tries to avoid this exit from the virtual world, for complete immersion in the survey. They produced one of the largest surveys ever done in a virtual world, using the immersion approach by using a kiosk for data collection led by a research avatar. Our data collection process used some of the concepts developed by Bell et al (2009), but we modified and improved it so that the users were much more engaged in the survey by interacting directly with the survey objects (hotel room artefacts) and being able to communicate or interact directly with a real person behind the avatar, not with a robot avatar.

2.3 Sampling

Meeting and enlisting participants was a challenge as it is in the real world. The population we were interested in was the hotel customers who use SL. Two sampling methods were utilized to collect the data. First method involved contacting mailing lists including SL blogs, SL forums, user groups in SL such as SL Educators List, SL Researchers List and Association of Internet Researchers List via email to inform the members about the topic and location of the survey. These three lists have a combination of more than 8000 members. This

method can be biased as researchers and educators do not truly represent the average user community. The second method involved travel scanning which refers to transporting the research avatar around the thousands of islands/destinations in SL where avatars gathered. Even though SL does not provide a list of users which can be used to generate a random sample, SL allows users to see the most densely populated areas which are shown by the number of avatars as green dots on the world map (similar to Google Maps). SL world map is presented in Figure 2. We found groups of avatars would congregate at events such as exhibitions, music shows, discos as well as other social gatherings. Our avatar would teleport to these destinations and offer survey information note-cards to residents. Information about the survey was displayed on his hat. In most cases residents were interested in the survey, but others were too busy or indifferent to the approach.

Both sampling methods were also subject to snowballing. Respondents that were aware of the survey or participated to the survey might have passed the survey information to their friends. Examining the data from two sampling methods, we found that there are no statistically significant differences among socio-demographic profiles between mailing list sample and travel scanning sample. Similar to Bell et al's (2009) findings, we found that both samples are representative of the SL population.

Please insert Figure 2 about here

Similar to the real world, human subject protocols in the form of consent and transparency were followed. Survey participant engagement starts from SL user (researcher) meeting other SL users by sending them survey invitation note-card. Users can read through all survey information from the note-card. They will teleport to the hotel survey room by clicking the landmark link on the invitation note-card. Again, note-cards were used to ask questions and users clicked various objects in the hotel room to provide their answers to the questionnaire. Users were also able to leave comments and questions in the 'chat channel' within SL and this could be recorded and stored by the researchers. Survey process is completed by clicking each item in the hotel room and answering by typing brands of their choice for 11 items in the room. Those answers linked with items in the room were sent to survey server in SL. Then, static format answer sheet which has the survey answers, SL user (participant) name, survey time and date, survey product location and survey product name were sent to outside SL e-mail box by email and inside SL research user by instant message (IM).

Please insert Figure 3 about here

When the answers were entered by the participants, they were stored and sent to an assigned external email address where they were later analysed. On completion of the survey, participants were able to receive a payment in SL currency for their help – approximately US$1 per participant which they could then use to purchase virtual objects such as clothing or artefacts within SL. We also gave them the survey hat (an attractive cowboy hat) to add to their personal inventory of stored items such as tea bag, coffee bag, coffee maker, TV set, mp3 player, DVD player, iron, towels & bath robe, toothpaste, soap, shampoo & shower gel and hair dryer. The data collection process and system is presented in Figure 3.

Please insert Table 3 about here

The sample of the feedback received from the respondents for first phase of the study is presented in Table 4. The response to the survey has been extremely positive, and very good quantitative feedback was received.

2.4 Socio-demographic profile of the respondents

Over a four-week period more than 700 participants visited the hotel rooms and more than 400 of them completed the survey in full. Table 2 presents respondents' socio-demographics and trip characteristics for both stages of the study. Participants came 39 countries, with 52 percent from the USA and Canada, 11 percent from the UK, with Germany, Holland, Australia and Hong Kong all between 2.5 – 4 percent. Fifty-nine percent of respondents were female, with 26.4 percent of respondents aged between 26-35 years of age, 24.9 percent aged 36-45 years of age, and 22 percent aged between 18-25 years of age.

Please insert Table 4 about here

Results from this stage of the study indicated that coffee, TV, toothpaste and shampoo & shower gel were the most preferred features to be branded in a 4-star hotel room setting, and these were used for stage two of the research. The most preferred brands for each item were also identified. While Starbucks, Nescafe and Folgers were the top three coffee brands favoured by respondents, Sony, Panasonic and Samsung were the most preferred TV brands respondents would like to see in the rooms. Respondents also indicated that Dove, Pantene and Herbal Essences topped their list as the most preferred shampoo brands, whereas Colgate and Crest surfaced as their top two brands for toothpaste. Additional information collected from the respondents (apart from age range and country of residence) included their education and income level, frequency and length of stay, type of overnight accommodations used for business and leisure stays.

2.5 Second phase

The second stage involved conjoint analysis. Conjoint analysis is used as a research technique to identify how respondents' value offered components of a multi-branded hotel room. In an earlier study, Wind et al (1989) in an extensive study for Marriott Group demonstrated how, as a marketing research tool, the predictive power of consumer choice among multi-attribute product alternatives should not be overlooked. Conjoint analysis was central to the researchers work for Marriott Corporation in the design of Courtyard by Marriott and later in the design of Fairfield Inns. Ding, Geschke, & Lewis (1991) also used conjoint analysis to demonstrate how Sheraton Hotel and Towers, Stamford, USA could vary their room rates depending on a number of options including food and beverages, room type, and other factors to provide optimal weekend packages for their guests and in doing so, pricing strategies were recommended which helped predict the buying behaviour of their customers. Our study therefore builds on these earlier research projects and uses conjoint analysis.

Please insert Figure 4 about here

The stage one survey identified the optimal items and brands guests would prefer in their rooms and we added hotel room pricing as an additional component. Three hotel room prices were generated using average room rates for High Tariff B hotels in Hong Kong as a baseline. A total of 118 hotel room concepts were then generated from stage one: coffee with three brand options, TV with three brand options, toothpaste with two brand options, shampoo & shower gel with two brand options and room price with three options. Conjoint analysis through SPSS helped us generate 22 hotel room concepts for respondents to rank the most preferred to least preferred.

Please insert Figure 5 and 6 about here

Another scenario that involved 2 steps was designed at the virtual hotel to carry out this stage. First step involved clicking 22 room concepts which we presented to the participants as room keys. When the participants clicked to the room concepts, the room key note cards were automatically saved in participants' virtual inventory. We allowed this so that

participants can refer to 22 concepts easily when they make their decisions. In the second step, participants were asked to rank 22 room concepts from most preferred to least preferred by dropping each room key note card from their inventory to the key drop boxed we designed. Participants were also asked to confirm their choices by clicking in linked confirmation kiosk. As they drop each key, the number of room concept in their inventory decreased. Step 1 and 2 are presented in Figures 4 and 5, respectively. Similar to phase 1, we provided instruction note cards and paid a small amount of honorarium to the participants. The sample of the feedback received from the respondents for first phase of the study is presented in Table 4.

Please insert Table 4 about here

Conjoint analysis was instrumental in determining the trade-offs that hotel customers are willing to make in their purchase decisions as well as in developing pricing strategies for hotels. This study serves as a guideline for multi-branding in a hotel room setting for the purpose of positioning the hotel brand. Data collected was used by researchers in determining the most preferred amenities to be branded as well as their brands as favoured by respondents with different socio-demographic backgrounds and travelling patterns.

2.6 Ensuring data integrity

Ensuring data integrity can be challenging when collecting data in virtual worlds. We took several precautions to ensure data integrity. When the SL user sees our survey information, he or she knows that it is an academic survey. The note card includes information with our school logo and contact information. If the user decides to participate to the survey, he or she receives a note card to request consent. During data collection period, we opened each email which contained a unique survey data. Then we extracted each participant's avatar name and email address. To ensure we only received one questionnaire from each participant, we only invited SL users who had their SL account opened before we began the survey, and we checked their name against the existing user names to avoid duplication. We also checked the data manually, and excluded results that were invalid for various reasons. The participants from phase 1 were invited to phase 2 of the study.

3. Conclusions

Conducting research in the virtual world is a new research method and technology allows us to complete the study in the virtual world instead of taking virtual world respondents outside the virtual world. Immerse research techniques similar to the one used in this study makes automated data collection and participant payment possible. Automated data collection also makes 24 hour data collection possible with little researcher involvement. Furthermore, as Bell et al (2009, p. 26) explains, "…the successful fielding of a fully-immersive survey within a virtual world confirms that the virtual world population can be treated as a "real" population for survey research". We would like to provide the following takeaways to the hospitality researchers that would like to conduct research in virtual worlds:

a) Virtual worlds can be utilized as good platforms for research. Based on the feedback we received from the participants, participants like the visual medium and interactive nature of this study. Visual and concrete type of studies would be appropriate in this platform.
b) Technical expertise of the researcher is of great importance when designing the surveys in the virtual world. We used a very complicated method that involved knowledge and expertise that might not be readily available to all researchers. As we mentioned earlier, there are different survey methods available in these platforms.

Researchers should choose method that would work best for them given their resources and constraints.

c) Technical expertise of the participants should also be taken into consideration. If the skill level of the participants is not up to the expectations of the researcher, it can create problems for both participant and researcher. Researcher should provide detailed instructions to explain how to answer the survey questions in addition to providing contact information to answer participants' questions. For example, phase 2 was more complicated and required higher skill level which ended up increasing the drop rate. For phase 1, during six weeks' survey period, 1557 survey invitation note cards have been sent out. 672 SL residents visited survey rooms, 455 of them attempted to complete the survey and 400 of them completed successfully. For phase 2, during nine weeks' survey period, 3578 survey invitation note cards have been sent out. 906 SL residents visited survey rooms, 487 of them attempted to complete the survey and 400 of them completed successfully.
d) Unlike other types of surveys, it is relatively easy to engage and re-engage participants. Once the participants' avatar name and contact information is captured, the same avatar can be contacted for future studies. This allows researchers to collect data from the same participants over time. For example, approximately half of the participants from phase 1 participated to phase 2 of our study.
e) Conducting survey in virtual worlds is a cost effective option given that there is no printing involved during data collection process and only a small honorarium (typically around 1 USD) is paid to the respondents. Similar to the real world, a researcher should be hired to spend time in the virtual world to set up the data collection platform.
f) Depending on the purpose of the research, researchers can select different types of virtual worlds as platforms.

4. Research Limitations

We faced three main challenges in collecting data. First challenge is related to the international time zones. Our researcher in Hong Kong needed to collect data across various time zones when SL users were active. This meant mainly working in the mornings and (Hong Kong time) to collect data from users in North America and in the evenings to get data from Europe and Asia. The second limitation is related to language issues: A large number of users of SL come from Korea and Japan – however, we found their English language level was often not good enough for us to be able to engage them in the survey. This created a bias as only users who are able to communicate in English could participate the study. Third, it was very time consuming to travel across the thousands of islands in SL to meet users, who may, or may not agree to take part in the survey. This method of data collection requires persistence, patience and a thick skin at times.

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Tables

Table 1 Registered accounts in Virtual Worlds 2009

Age Range	Quarter 1	Quarter 2	Quarter 3	Quarter 4
5 to 10	77m	114m	152m	179m
10 to 15	246m	334m	367m	392m
15 to 25	73m	99m	117m	193m
25+	23m	32m	35m	39m
Total	419m	579m	671m	803m

Note: Adapted from from Kzero Worldswide

Table 2 Review of Virtual World Survey Methods

Method	**How it Works**	**Advantages**	**Disadvantages**
1. Projector survey	Sitting on a chair to do survey on the projector screen.	Simulates real life survey environment.	Cannot interact with objects. A normal online survey
2. Survey Sofa	Avatar sits on a sofa to do survey within SL.	User friendly, visual 3D environment	When sofa is occupied by a participant, others cannot take the survey. A normal online survey
3. Survey ATM		Link to external webpage to do the survey.	A normal online survey.
4. HUD (Head User Display) Survey	User attached head user display to conduct survey	Survey can conduct variety of basic question types such as multiple-choice, rating scale, checklist and open ended.	Can only display short questions. HUD objects must be worn on avatar's head when using.. Blocks users' view when taking the survey.
5. Survey Avatar Bots (artificial intelligence avatar robot)	Scripted avatar bot detects an avatar passing by, catches up with them and asks them to take part in the survey.	Simulates real person asking questions. Questions are asked and answered by using SL chat channel.	Hard to get answers right. Easily interrupted
6. Survey Question Kiosk	Virtual Data Collection Interface (VDCI).	Fully functional Survey tool. Can conduct multiple-choice & long answers	Lacks the personal interaction that would take place if an avatar conducted the survey
7. The PolyU Virtual Hotel Survey Method	A personal data collection method based on VDCI Kiosk and enhanced for more personal interviewing.	As with (6.) above. In addition, information about participants can be reordered. Answers can be sent to any email account. Automatically pays participants.	Labour intensive, requires many hours spent in busy areas making contact with users/residents to ask them to take part in the research.

Table 3 Phase 1- Response from the participants

Positive feedback
“If you have any more surveys later, I will be happy to do them” Z. Humphrey
“Like a real hotel room” A. Kappler
“Amazing Hotel and survey” S. Snook
“I have no difficulty to do that”. T. Rubble
“I liked your set up for data collection”. J. Urqhart
“This was a unique experience. I'll pass along the info. Hope you get a lot more participants.” C. Marenwolf
“You have very nice virtual hotel here and I will thank you for this opportunity to take part of this experiment. I will be interested in next survey from you. You have done special work”. A. Juliesse
“It was a very interesting activity, and I wish you good luck in getting results”. D. Dreamscape
“It was a fun survey. Congratulations on an innovative use of SL”. K. Miranda
“Good luck with the research, very impressive!”. A. Mahfouz
“Interesting survey! Would like to see the results sometime”. W. Kling
“Thank you for letting me use your excellent hotel room”. G. Huckleberry
“Very interesting use of SL”. M. Arida
“Great survey concept by the way”. P. Magic
“Nice seeing people using SL for these things, I really like how you used the visual aspect of SL to support your survey makes it more interesting for the people taking the survey”. D. Masala
“Thank you for the opportunity to participate in this survey. It is an excellent use of SL capabilities”. R. Beresford
“The set-up is very nice, definitely somewhere I would like to stay”. A. Blackheart
“I thought your survey was actually quite enjoyable”. C. Carnell
“Finished your survey, very neat idea. Incredible. I love that you are using SL to get information and give a virtual kind of tour”. B. Clary
“I liked the hotel room, thought it was cute, the bathroom is lovely”. B. Bonde
“Great survey - easy to complete and great idea to gain consumer feedback!”S. Spyker
Negative feedback
“You should allow people to bypass the salary question. Q12 is very misleading as you can into a full survey. I suspect some people will not be happy with this, like a trick”. M. Twine
“I thought your hotel room was splendid but just a bit too small (and if an avatar like me -- that is someone seasoned -- had difficulties moving about, newbie avatars will really have a hard time)”. K. Mayako

Note: Participant names are SL names.

Table 4 Stage 1 & 2 Respondents’ socio-demographics and trip characteristics

Variables	**Phase 1**	**Phase 2**
Age group (%)		
25 or less	21.75	30.50
26-35	26.25	29.75
36 - 45	25.00	22.75
46 - 55	17.00	11.00
56 - 65	9.00	5.75
66 or above	1.00	0.25
Gender (%)		
Female	59.75	69.00
Male	40.25	31.00
Region of residence (%)		
Asia Pacific	12.00	11.00
Europe	30.00	37.00
North America	54.00	43.00
South America	3.00	7.00
Other	1.00	2.00
Education (%)		
Secondary	3.50	5.00
High school	15.75	22.25

College	33.25	41.00
Undergraduate	17.00	12.50
Postgraduate	30.50	19.25
Monthly household income before taxes (mean) (US Dollar)	26,372.83 (71% valid)	24,685.26 (78% valid)
Travel experience (%)		
Inexperienced	8.50	14.50
Some experience	34.00	38.25
Average experience	22.75	23.50
Experienced	24.00	18.00
Very experienced	10.75	5.75
Average hotel stay annual (%)		
1-3 times	53.25	63.75
4-6 times	24.50	20.00
7-9 times	12.75	8.25
over 10 times	9.50	8.00
Average length of stay (%)		
1-3 days	53.50	49.25
4-7 days	35.75	37.75
8 days & more	10.75	13.00
Accommodation types (%)		
Friend's or relative house	17.25	24.50
Guesthouse	9.25	10.50
Hotel	73.5	65.00
Travel expenses paid by (%)		
Myself	48.75	55.00
Company	31.0	22.50
Family members	16.25	19.25
Other	4.0	3.25

Note: Sample size was 400 for both studies.

Table 5 Phase 2- Response from the participants

Positive feedback
“Thanks for this. It was fun”. S. Peapod
“Very interesting survey…” U. Palianta
“I enjoy viewing how you are using the platform! Finally, I will pass your survey invitation to my educator friends”. Kay McLennan
“Thank you for allowing me to take your survey it was fun if you know of any other surveys such as this please send me a message, thanks again”. D. Rexen
“This survey was very interesting... I really enjoyed doing this survey”. Q. Aeon
“Thank you!! It was fun!” J. Llewellyn
“I like your surveys, I've been going to school for restaurant and hospitality management so I like doing these”. E. Danick
“Woo Hoo what a challenge!” B. Oh
“I enjoy doing the surveys” H. Thespian
“I did the survey - interesting initiative”. I. Jigsaw
“Thank you for the interesting survey”. S. Paule
“I enjoy the survey”. D. Gloom
Negative feedback
“This was very complicated”. A. Okelli
“Thanks for the opportunity. Very confusing! Hope it is okay”. R. Thespian
“This particular survey is very complicatedly posted for the review of just 4 items. People will be more interested in the comfort and design of the room than just the brands”. B. Republic
“I tried to do my best to complete your survey, but it is quite complicated, I am afraid... Good luck with your research project! K. Voss
“It’s a bit tedious to compare the room available”. M. Destiny
“I completed the survey - but I made a mistake, lag made me mess up”. J. Writer
“Anyway I think virtual surveys are smart although that one is a bit confusing. It is hard to keep track of the letter begin deposited”. A. Inglewood

Note: Participant names are SL names.

Figures

Figure 1 Phase 1 - Hotel Room Design



Figure 2 Second Life in-world map, powered by Google

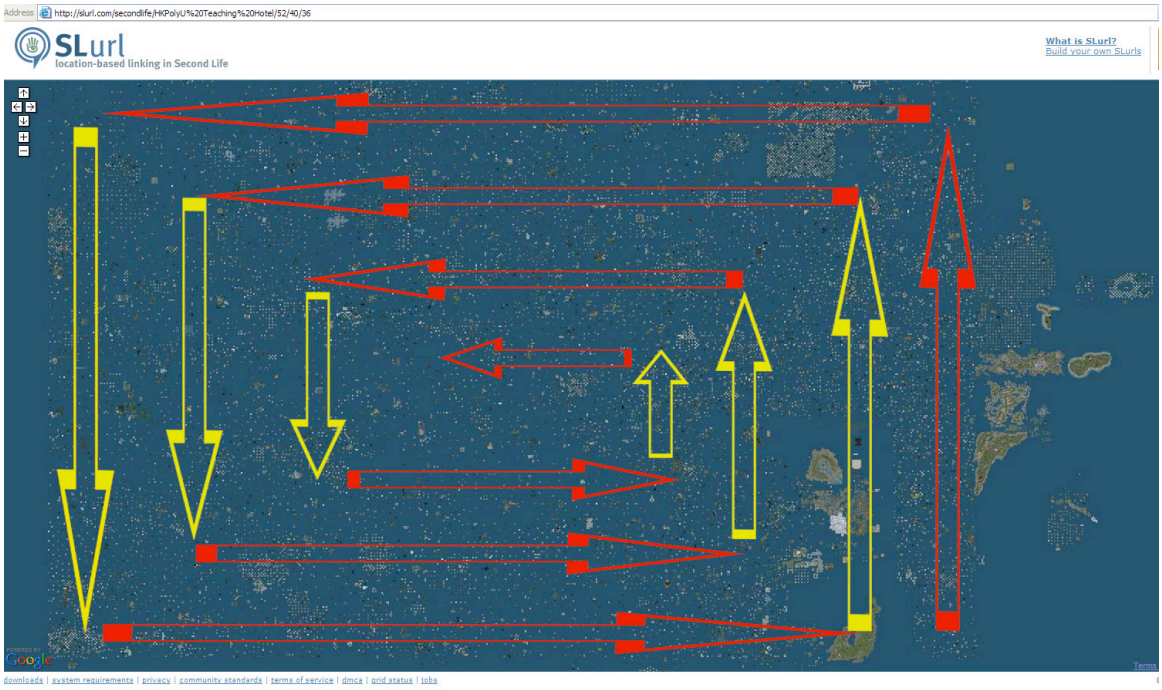


Figure 3 Data Collection Process and System

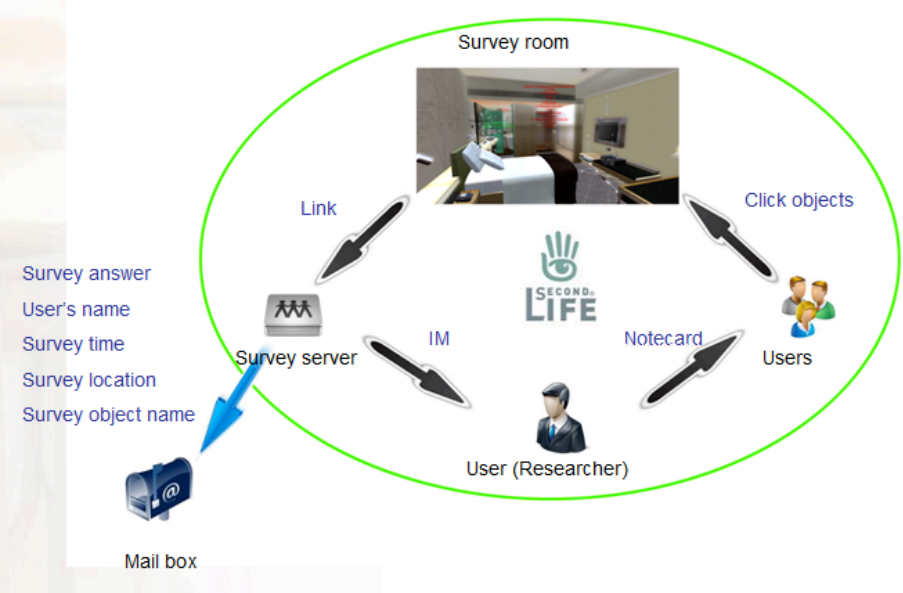


Figure 4 Phase 2 - Survey Room design



Figure 5 Phase 2 – Step 1: Collection of 22 room key note cards



Figure 6 Phase 2 – Step 2: Rank 22 room key note cards

