

THE EFFECT OF VIRTUAL REALITY ON DESTINATION IMAGE: A CASE
STUDY OF EDUCATION ABROAD PROGRAMS

by

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ABSTRACT

The goal of this paper is to determine the effect that a virtual reality tourism experience has on destination image, focusing on destinations that are available through the study abroad program. Virtual reality tourism has the potential to encourage participation in travel and tourism by allowing participants to virtually visit the destination beforehand, which could lead to a decline in fear and apprehension of other cultures. Participants were asked to complete a pre-survey, partake in a virtual reality tourism experience, and then to complete a post-survey to determine any changes their behavioral intention or perception of a destination. The survey instrument for this study focused on three major areas of comparison: behavioral intention, perception of infrastructure, attractions, and people, and destination image. The results of this study showed significant shift in participants' behavioral intention to travel, perception of infrastructure, attractions, and people, and destination image after the virtual reality tourism experience.

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CHAPTER I: INTRODUCTION

Background Information

Study abroad programs have been popular with college students, particularly among U.S. students, for many years. Often referred to as education abroad, study abroad is a program that allows students to fulfill college credit requirements while living overseas. There are different options for study abroad, such as destination, length of the program, and purpose. According to the Institute of International Education (2017), currently, the top three destination choices for students from the United States are the United Kingdom, Italy, and Spain, with the destination popularity shifting each year. However, Japan, Cuba, and the Netherlands are quickly increasing their popularity with university students in the United States (Institute of International Education, 2017). Study abroad can range in length of the program from short-term programs, such as two-week trips, to year-long programs. While there are a variety of study abroad options for students, the most popular subjects of study abroad programs are science, technology, engineering, and math, as well as business and communications (Institute of International Education, 2017). According to the National Association of Foreign Student Advisors (NAFSA), in the 2010-2011 academic year 273,986 students participated in study abroad programs. Since then the participation rate has continued to increase. In 2015, more than 313,000 U.S. college students participated in study abroad programs. By 2016, this number had grown to over 325,000 (National Association of Foreign Student

Advisors, 2018). Overall, there has been a positive trend in participation of study abroad programs.

Benefits and positive results of study abroad were reported by several studies as the participants continue to grow. Goldstein (2006) suggests that students were motivated to participate in study abroad programs because of how they would be viewed during the highly competitive job search post graduation. Not only does study abroad encourage positive performance in the workplace, but it also has positive effects on other characteristics, making participants more well rounded students and future employees. Study abroad experiences enhance global competencies, affect cultural awareness and interests, improve foreign language skills, and potentially dissolve the ethnocentric mindset among participants. Participation in study abroad programs could also positively affect a change in attitude, personal growth, and cultural awareness (Costello, 2015; Soto 2015).

Despite the positive trend in participation and known benefits of study abroad programs, the reported percentage of students who participate in study abroad programs is only 1.3% of eligible participants, which is surprisingly low (National Association of Foreign Student Advisors, 2018). Between 2010 and 2016 there was a .3% increase in participation of study abroad programs by students in the United States, peaking at 1.6% (National Association of Foreign Student Advisors, 2018). While this increase in participation has been noted, there is still a need for improvement. Because of the lack of participation, college study abroad programs continue to look for new ways to attract participants. The National

Association of Foreign Student Advisors (NAFSA) has a professional resource page that offers information regarding marketing, branding, and education of study abroad programs (National Association of Foreign Student Advisors, 2018). NAFSA suggests several traditional on-campus marketing materials include study abroad fairs, posters, updated websites, information sessions, advertisements, and information tables. NAFSA has also created and revealed some interactive marketing tips and techniques such as videos, online tours, and commercials to help promote study abroad programs.

Travel and tourism, including study abroad, have long used the idea of interactive and marketing techniques (commercials, online tours, etc.). However, these techniques are not quite as interactive as a virtual reality trip would be. Virtual reality has the ability to “transport” the user to a different destination, giving the user a more immersive experience. The user would be engaged with a virtual environment when using the virtual reality headset and headphones. The use of the virtual reality equipment eliminates most distractions and disruptions to provide a more realistic and focused experience. Traditional marketing techniques such as commercials and online tours allow the user to interact emotionally with the brand or destination that is being advertised. Certain types of music and scenery have the ability to connect with the user via the advertisement, but the user is still aware of their physical surroundings. This is the difference between traditional interactive marketing techniques and virtual reality. Virtual reality tourism has the ability to use similar elements to traditional interactive marketing techniques such as tours,

narration, historical information, scenery, and music, but will deliver a more immersive and interactive experience.

Virtual reality trips would allow the potential study abroad participants to explore and develop an opinion of a destination without needing to worry about the constraints and fears that come with physically visiting a destination. According to a study published by Huang and his colleagues (2016), a three-dimensional (3D) experience is related to the enjoyment of the experience of virtual tourism. The visual resemblance, cultural authenticity, and the feeling of being in a destination will make the 3D virtual reality experience more useful and enjoyable (Huang, Backman, Backman, and Chang, 2016). Not only will virtual reality visitors be able to explore the area and see the major sights, but the visitors could also listen to local music, gain a better understanding of the local environment, and observe locals, dependent upon the virtual reality hardware. These elements of virtual reality will give a much more detailed and realistic viewpoint of the destination as opposed to a commercial or online tour.

Understanding which marketing techniques are the most useful is important when promoting study abroad programs. Particularly the ones that target the elimination of travel constraints. Research showed that there are many constraints to traveling and participating in study abroad programs, including cost, interference with graduation or academic goals, lack of language skills, and interference of careers (Curtis & Ledgerwood, 2017; Gitelson & Kerstetter 1994). Students also feel that there may be disconnect between their academic intentions and their study

abroad participation, as well as lack of familial and friend support. Two of the largest deterrents of participating in study abroad programs are linked to ethnocentrism and lack of financial resources (Goldstein & Kim, 2005). According to Neuliep (2002, pg 203), ethnocentrism can lead someone to “intentionally circumvent communication with persons of different cultures.” Ethnocentrism essentially results in lack of communication with and apprehension of unfamiliar cultures as well as a threatening fear of the unknown (Goldstein & Kim, 2005). This lack of communication and interaction with other cultures can lead to a sense of fear of other cultures in the perceiver. Virtual reality tourism may not be able to support a potential study abroad participant financially, but it could help participants to become less weary of destinations through their virtual visits.

The use of interactive marketing techniques such as virtual reality may eventually lead to increase participation of the study abroad programs. According to Kang and Megehee (2014), when a student feels that an activity is risky, that student tends to gather more information about the risky activity. Gathering more information of a risky activity, such as a study abroad trip, will lead to a deeper level of thinking about the trip, as well as the feasibility of the trip itself (Smith & Bing, 2009). Research has revealed that using 3D tourism during the planning stages of a trip has been found to positively affect the behavioral intention of the planner (Huang et al., 2016). This would mean that the increased knowledge that 3D tourism provides has potentially increased the likelihood that the planner will follow through with going on the trip that was planned. The elements of the 3D tourism,

such as music, storytelling, graphics, videos, and more, provide a 'sense of place' to the visitor, which also contributes to behavioral intentions of planning a trip.

Problem Statement

The benefits of study abroad outweigh some of the constraints that students face, such as apprehension and fear. Study abroad programs are searching for new ways of marketing and informing students of the benefits of education abroad, but the statistics regarding the percentage of students who participate are alarmingly low. Although there has been a trending rise in the number of participating students, there are still less than 2% of students participating in these programs (National Association of Foreign Student Advisors, 2018). The right marketing tool, such as a virtual reality tourism program, could allow students to "tour" a destination and potentially alter students' predetermined of said destination.

While previous research has supported the idea that virtual reality can be used to help promote tourism, there is no current research that tests the link between virtual reality and the promotion of study abroad. Most of the research that has been published regarding virtual reality and tourism has based the research on a virtual environment where users interact via avatars (i.e. Second Life) or on traditional interactive marketing techniques (i.e. commercials, online tours). There is a lack of knowledge in the concept of using virtual reality as a marketing tool for study abroad programs, and this study hopes to bridge the gap in current research.

Purpose of the Study

The focal point of this study seeks to answer the question: how does virtual tourism experience change students' perception toward a study abroad destination? The use of virtual reality as a marketing tool is a new concept in the travel and tourism industry, but is believed to be effective in creating a realistic experience, as well as providing important and authentic data to users and affecting behavioral intentions toward a particular destination (Huang et al., 2016; Guttentag, 2010). There is a limited amount of research on this topic, particularly in the tourism industry. This study hopes to bridge the gap within the current research to determine the efficacy of virtual reality and its effect on destination image in potential tourists.

Destination image is a theoretical concept examining peoples' perception toward a destination. Research has shown that the perceiver's image of a destination is valuable in understanding why the perceiver may select certain destinations (Baloglu & McCleary, 1998). Destination image is formed by previous knowledge and perceptions of a destination. This includes personal experiences, advertisements, stories, and pictures. Examining the shift in destination image after the virtual tourism experience could provide more valuable information regarding destination image, selection of destination, and behavioral intention to visit the chosen destination.

Research Hypotheses

Four research hypotheses were developed to answer the research question: how does virtual tourism experience change students' perception toward a study abroad destination?

H0. The virtual reality tourism experience has no effect on participant's behavioral intention, perception, or destination image of a specific destination.

H1. The virtual reality tourism experience will have positive influence on participant's behavioral intentions regarding traveling to a specific destination.

H2. The virtual reality tourism experience will positively affect the perception of the destination's infrastructure, attractions, and people.

H3. The virtual reality tourism experience will positively affect the perception of the destination's image.

Assumptions

This study assumes that all participants answer the questions honestly and to the best of their ability. It is also assumed that the participants' answers accurately reflect their personal experiences. This study assumes that the participants have previous biases of the destinations that are involved in this research study, i.e. San Miguel de Allende, Mexico and the nation of Japan.

Definitions of Terms

Virtual Reality is a computer-generated simulation of a three-dimensional image or environment that can be interacted with in a seemingly real or physical way. The virtual reality user will be using equipment to encourage the three-dimensional environment such as goggles and hand-held controllers.

Destination Image is the perception of a destination that a person has created. This image of the destination includes, but is not limited to, the person's perception of the people, culture, place, and physical environment. This sum of beliefs is created through personal interactions with the destination and culture, as well as second-hand interactions with the destination.

Study Abroad Programs is defined in this study as college-level travel programs that are affiliated with a university academic unit. This type of program gives university students the opportunity to travel internationally while receiving college class credits. These programs range in time from one week to one year and are created for a variety of university programs and majors.

Interactive is the act of being involved with a virtual environment, but not in a physical way. This type of involvement may include being emotionally and mentally connected, but will not include being physically connected.

Immersive technology gives the idea that the person or user is physically involved within the virtual reality.

Behavioral Intention is defined as the likelihood that a person will follow through with a behavior, such as traveling.

CHAPTER II: LITERATURE REVIEW

Introduction

The purpose of this study is to determine the effectiveness of virtual reality as a marketing tool for study abroad programs. The research that has been done in support of this study has been focused on three main subjects: virtual reality, destination image, and study abroad programs. While there is little research that has been published on the effectiveness of virtual reality in tourism marketing, there is substantial research that has been published regarding interactive marketing, destination image, study abroad, and virtual reality communities. This literature review examines the use of virtual reality tourism, the perception of study abroad programs, including the benefits and constraints, and the definition and measurement of destination image, along with the marketing techniques related to destination image, as well as where virtual reality fits in to the tourism marketing realm.

Virtual Reality

Virtual reality is described as a virtual environment that the user can navigate through, explore, and potentially interact with (Gutierrez, Vexo, & Thalmann, 2008). Per Cheong (1995), virtual reality is different than previous interactive marketing tools. The information is not a two-dimensional display on a computer monitor as it has been previously seen in commercials, online tours, and videos, but instead the user will find themselves immersed within the same dimension as the data that is being provided. Virtual reality replaces the user's physical environment with a three-dimensional (3D) world that includes but is not limited to graphics, data, information, videos, and music. Virtual reality

has been proven to be effective in promoting tourism. A previous study in 2007 suggested that virtual experiences were more effective than typical tourism marketing, such as brochure (Wan, Tsaur, Sheng, Chiu, & Wen, 2007). Lee and Oh (2007) presented their finding that supports the use of virtual tours on hotel websites. This study stated that a virtual tour made of panoramic photos could potentially lessen anxiety and provide psychological relief to those individuals that are planning trips. Virtual reality allows for the broadening of communication platforms among tourists and could serve as a useful tool for the tourism industry because of its ability to 'place' the user in a new environment and promote education and awareness (Buhalis & Law, 2008).

Dependent upon the virtual reality program and tools that are being used, there are different levels of interaction that the user could experience. Sight is the most obvious element of virtual reality that provides the user with a 3D environment to explore. While being immersed in the 3D digital environment, users could also experience sound stimulation. Elements such as music, talking, explanations, stories, etc. are all sounds that could potentially be a part of a virtual reality experience. While it is not as popular, touch is also a potential element of virtual reality for users to experience. There are some virtual reality systems that provide gloves for the user. Once the user attempts to touch something in the virtual environment, the gloves exert pressure on the fingertips and palms to further deepen the virtual experience. Smell and taste are two more elements of virtual reality that are rarely used, but also help to fully immerse the user in the virtual environment (Cheong, 1995).

While there are other experiences, such as commercials, videos, and online tours, that will allow users to experience the different elements of interactive and digital

storytelling, virtual reality is different because of the “psychological presence” that users experience (Guttentag, 2010). The sight and sound elements of interactive marketing tools have proven useful, but virtual reality allows for immersion. Once a user is immersed in a virtual environment, interaction with their actual environment is limited. They will still have the ability to smell, touch, taste, and potentially hear some things that are a part of their actual environment, but the use of the goggles, headphones, and virtual environment should enhance the experience in a way that the user feels they are transported into a different type of environment. This virtual environment and stimulation is what separates interactive tools from immersive tools. The users are likely to be more influenced, particularly in their feeling of being present, when experiencing virtual reality (Banos, Alcaniz, Liano, Guerrero & Rey., 2004). This feeling of presence that users experience could have potential to change marketing for the tourism industry, especially as the technology continues to evolve and become more sophisticated.

Guttentag (2010) states that virtual reality could provide many benefits to the tourism industry including education, marketing, accessibility, and heritage preservation. The sensory elements that virtual reality provides are the basis of marketing tourism experiences. As tourism is not a product that can be tested before purchased, it is a purchase of faith (Doolin, Burgess, & Cooper, 2002). Virtual reality experience using goggles and headphones will allow users and potential customers to ‘visit’ and psychologically immerse themselves in a new culture before making a purchase of a trip. Virtual reality elements such as sound and sight will give users more information and realistic expectations (Hobson &, 1995). These elements will in essence be a digital storytelling experience of the destination that the user has visited. This storytelling idea

supports Guttentag's expectations that virtual reality will educate users and preserve heritage.

Study Abroad Programs

Study abroad programs continue to grow year after year. There has been a steady increase in participation since 2010. According to NAFSA, the participation rate has increased from 1.3% to 1.6% between 2010 and 2016. Although this is a mild increase, there is still a need for higher participation rates.

Ballah (2013) describes study abroad as an experiential type of learning. The students will spend a portion of the school year in a different country taking classes and earning credit toward a degree at their university in the U.S. These programs remain popular because of the perceived benefits of participating in a study abroad program. Students have reported increased foreign language skills as well as intercultural competencies. Studies have shown that a connection has been made between participation in study abroad programs and higher graduation rates, as well as retention rates, a positive change in attitude, cultural tolerance, self-confidence, empathy, and independence (Whatley, 2017; Black & Duhon, 2006).

There is also evidence to support the idea that participation in study abroad programs has a significant impact on careers. Wallace (1999) surveyed alumni of a study abroad program 10 years after their participation. According to the results, 71% agreed that their participation in a study abroad program had constructively influenced their career. Fifty-nine percent of the participants stated that their participation had a moderate to very significant influence in their career development. Norris and Gillespie (2009), found a significant number of study abroad alumni that state that their participation in study

abroad programs has either affected their career choice and/or encouraged them to develop careers with global dimensions.

Despite the well-researched and supported benefits that come from participating in study abroad programs, there is still a lack in participation rates. As previously stated, less than 2% of enrolled college students participate in a study abroad program. This is likely due to the deterrents of studying abroad such as cost, interference with careers and academic goals, lack of support, and ethnocentrism (Curtis & Ledgerwood, 2017; Whatley, 2017; Goldstein & Kim, 2005). While many of these constraints are inevitable, virtual reality has the potential to combat ethnocentrism. Virtual reality will give users the ability to 'visit' the destination to gain a better understanding of the physical environment, culture, and history. If users are given the chance to increase their knowledge and comfort level of international destinations, it may be more likely that they will participate in study abroad programs.

Finances are a major constraint for students in regards to participating in study abroad programs. Research shows that student loans, as well as the lowest and a highest estimated family contributions negatively influence a student's decision in studying abroad (Whatley, 2017). Thus, students whose family is expected to contribute to their school funding and those who have the least amount of financial aid from their family are the students who are least likely to participate in study abroad programs.

While there are many other deterrents for study abroad programs, the one that this study will focus on is ethnocentrism. One of the earliest definitions of ethnocentrism is the "... view of things in which one's own group is the center of everything, and all others are scaled and rated with reference to it" (Sumner, 1906, pg. 13). This concept is known to

prevent cultural competency and promote apprehension of other cultures.

Ethnocentrism also has the tendency to promote failure of interethnic relationships and diminish interest in a cross-cultural relationship (Goldstein & Kim, 2006; Toale & McCroskey, 2001). Goldstein (2005) states that a more prominent attitude of ethnocentrism would result in a lack of interest in cross-cultural interactions, thus lowering the participation in study abroad programs. Neuliep and Ryan (1998) suggest that the unknown of the cross-cultural interactions allows for potential stress and anxiety related to intercultural communication. Ethnocentrism continues to be a leading constraint on students and their participation in study abroad programs because it affects so many of the benefits that study abroad provides. Ethnocentrism not only affects potential participants stress and anxiety levels, it lessens their desire to learn a new language, increases prejudices, lack of interaction with other races and nationalities, and an intolerance for cultural ambiguity (Neuliep & Ryan, 1998; Goldstein, 2005; Fiske, 2002).

To improve the participation rates in study abroad programs, the benefits need to outweigh the constraints. While there are a multitude of study abroad benefits, such as increased, there are also deterrents. Study abroad programs may not be able to offer financial aid to each of their potential participants, but they could begin to diminish the cultural barriers that are set up by ethnocentrism. Virtual reality tourism could begin to help promote cross cultural awareness and interest.

Destination Image

Destination image is critical to the marketing and branding side of tourism. The industry is dependent upon positive images to encourage positive behavioral intentions. The term “destination image” has been researched and analyzed by a variety of scholars, but for this paper we will use the definition proposed by Kotler, Heider, and Rein (1994), which states that destination image is the “sum of beliefs, ideas, and impressions that a people have of a place” (p. 156).

According to Baloglu and McCleary (1999), the formation of destination image is dependent upon two main components: stimulus and personal factors. The stimulus factor is reliant upon external stimulus, which would consist of, but is not limited to, marketing ads, books, stories, and personal experiences. The personal factor of destination image is formed by the perceiver and is associated with their describing characteristics. The perceiver’s age, values, personality, education, financial situation, and other describing characteristics would be considered a personal factor. Although destination image is formed through a combination of stimulus and personal factors, once the perceiver visits the destination the image will be modified or altered based on the experience (Echtner & Ritchie, 2003).

The tourism marketing of a destination becomes much simpler once a destination image has been established. Destination image plays a large role in marketing because of its effect on the tourist intentions. A more positive destination image is going to result in a more positive and intentional purchase, while a negative destination image may deter potential visitors. A model proposed by Gunn (1988) places destination image as an important part of the seven phases of the travel experience. The accumulation of mental

images and modification of the destination image after gathering more information will help to determine the behavior of the tourist. Gunn also states that once the tourist has traveled to the destination and returned home, the tourist will modify their destination image once again based on the vacation experience.

A positive destination image is going to allow for the brand of the destination to be established as well. The destination image not only needs to be a positive one, but also an image that sets the destination apart from its competitors. If a destination has a unique image, then the destination 'brand' will be unique as well (Qu, Kim, & Im, 2011). The brand of a destination differs from the image in that an image is a belief or knowledge of a destination while the brand plays on the affective emotional connection to the attributes of the destination. The brand places a set of characteristics on a destination (Baloglu & McCleary, 1999; Aaker, 1997). Destination image and destination branding are related concepts, but are not interchangeable. Destination image is a tool that provides the knowledge that is needed to develop a destination brand, which is used to market a destination.

Marketing in the tourism industry has traditionally depended upon word of mouth to market and create images of certain destinations. Word of mouth communication has been one of the most influential and prominent sources of information for tourism. Because of the lack of physical social contact with a widespread group of people, word of mouth is only beneficial to those in the nearby area. The rise of technology and more interactive medias, such as blogs, videos, online reviews, and chat rooms, electronic word of mouth has become increasingly popular and is able to reach users around the world (Ishida, Slevitch,

& Siamionava, 2016). Both physical word of mouth and electronic word of mouth, hold the potential to help develop destination images.

Beerli and Martin (2004) suggest that destination image can be viewed as the impression of a tourist destination based upon attributes associated with said destination. Destination image has the ability to influence tourist destination choice, satisfaction, and future behavior. Interactive marketing tools are one of the more popular options in the tourism industry (Doolin, Burgess, & Cooper, 2002). This type of marketing involves getting the consumer involved on some level, whether that is a physical or emotional level of involvement. The use of videos, music, and touchscreen interactions with advertisements are all examples of interactive marketing. The rise of the Internet has changed marketing, particularly among the tourism sector. The increase of Internet use has also led to an increase in participation among online communities. These communities allow organizations to focus their marketing for certain destinations or experiences on the e-communities. These communities, blogs, online threads, chat rooms, etc. all have shared interests, participate often, are emotionally connected to the topic of the group, and share resources (Wang, Yu, & Fesenmaier, 2002). The Internet also provides organizations with the ability to promote their destination or experience with online videos, virtual tours, pictures, and reviews. These types of interactive marketing tools prompt users to involved with the online or virtual experience. While these experiences are not as immersive as a virtual reality experience, they are certainly interactive which tend to have a higher level of involvement, especially if there is personal relevance to the product being marketed (Park & Young, 1986).

The level of involvement with marketing tools such as commercials, videos, virtual tours, etc. is not as high as it would be when experiencing virtual reality, but they do share some of the same elements. These classic and well-used marketing tools (commercials, videos, etc.) enhance the marketing experience by providing sound and sight elements. Research shows that using music in a marketing tool such as a commercial will significantly affect the brand attitude. Research also shows that the type of music in association with a brand can lead to a high level of involvement between the consumer and the marketing campaign (Park & Young, 1986). These findings are significant because the use of these elements has been shown to produce a high involvement impact on consumers during an interactive experience that is not fully immersive. Once a user begins to implement these elements in an immersive environment, the interaction level should exceed that of the commercials, videos, and virtual online tours.

The marketing sector of the tourism industry is expected to benefit from the use of virtual reality as a marketing tool. Hobson and Williams (1995) suggested that virtual reality has the ability to revolutionize tourism marketing. Most of this is due to the fact that virtual reality can provide potential tourists with the sensory and psychological benefits of visiting a destination, which could affect the user's destination image of said destination. Once that destination image has been shifted to a more positive one, the consumer behavior will shift dependent upon the modified destination image (Guttentag, 2010; Wang & Hsu, 2010).

Conclusion

Study abroad is a well-known and respected part of the higher education system. Although there are more than 300,000 U.S. students that participate in study abroad each

year, this is still less than 2% of the potential participants. While there are financial constraints on those potential participants, one of the main deterrents of study abroad programs is related to ethnocentrism. This idea of ethnocentrism has led to a lack of knowledge of and a heightened fear of interacting with other cultures (NAFSA, 2016); Whatley, 2017; Goldstein & Kim, 2005).

Virtual reality is a tool that can be used to help alleviate the fears and concerns of other cultures. Allowing potential students to temporarily and virtually immerse themselves in another culture could peak interest as well as dissolve apprehension regarding the destination that they have virtually visited. Virtual reality tourism has the ability to modify existing images of the destinations, as well as allow the destinations to build a brand for themselves. Virtual reality could prove to be an effective marketing tool for study abroad programs.

The benefits that are expected and produced from study abroad programs are significant. Increased graduation rates, cultural competency, development of foreign language, and higher chances of employment post graduation are all positive outcomes of study abroad programs. Virtual reality could reduce the amount of deterrents of study abroad programs, which would allow for an increase in the amount of students that receive the benefits from participating in education abroad (Whatley, 2017; Goldstein & Kim, 2005).

CHAPTER III: METHODOLOGY

Sample

This sample includes a diverse range of undergraduate students at a university setting in the Southeast region of the United States. Respondents were asked to complete a pre-survey, participate in a virtual reality tourism experience, and then complete a post-survey. The data was collected until the timeframe to collect data ended or the goal has been met. This study is anticipating a 5% margin of error at a confidence interval of 95%.

Setting

The data for this study were collected at a university in the Southeast region of the United States. Students volunteered to participate in this study. Participants were given a pre-experience survey prior to participating in the virtual reality tour of Japan or San Miguel de Allende, Mexico. After the four and a half minute immersive virtual reality experience, participants were given a post survey. The students were placed in an immersive 360 video virtual environment. The technology that was used during this study is the HTC Vive, which is a head mounted display system.

The use of virtual reality comes with some unavoidable risks. These risks include dizziness, nausea, or being overwhelmed emotionally by the content of the videos. Prior to the virtual experience, there was a thorough explanation and instructions given to each individual student. This included things such as how to

use the controllers, how to move and interact within the virtual environment, and when to voice any potential discomfort.

Students voluntarily experienced virtual reality tourism in one pre-determined location. There were two different location options including multiple locations in Japan (including the countryside, historical locations, and Tokyo) and the city of San Miguel de Allende, Mexico. These locations were chosen based on the availability of study abroad programs to these areas.

Virtual Setting

The virtual reality program that was used in this study is called Travel VR. Each of these virtual reality videos has been produced by a different organization, so there is variation among the videos. In an effort to control the content, the researcher has chosen which videos the participant will view based on content. Both videos are approximately four and a half minutes in length and include narration and explanations throughout the virtual tour.

One of the most notable differences among the videos is the scope of the tours. Japan's virtual tour includes many different parts of the country, exploring the countryside as well as large metropolitan areas. The virtual tour of San Miguel de Allende explores the highlights of the entire city. The videos of Japan and San Miguel de Allende are both narrated by an anonymous voice in the background. Although these videos differ, they were chosen because of the similarities in narration, time length of the video, and quality of the content.

Survey Instrument

The instruments for this study were created using previously established resources. The questions for the pre and post instrument were adopted from Baloglu and Usakli (2011), Chalip and Green (1996), Ong and Horbunluekit (1997), and Kotler, Heider, and Rein (1993).

This study used two surveys, a pre-test and post-test survey. The pre-experience survey has 5 sections: 1) demographics, 2) familiarity and favorability, 3) behavioral intentions, 4) infrastructure, attractions, and people, 5) perceived image. The pre and post survey have many similarities so that the study can control the results as much as possible. The demographics and familiarity and favorability sections are exclusive to the pre-experience survey and will not appear in the post-experience survey.

The demographic section of this survey includes six questions including age, race, gender, year in university, household income, and the financial aid and federal grant status. Age is an open-ended scale question, while the remaining questions have categorical response choices. This section of the survey also measures whether or not the participant has ever been interested in participating in a study abroad program, and is measured in a categorical response system of “yes” or “no.”

The familiarity and favorability section does not appear in the post-experience survey. There are three questions that measured the participants' familiarity and favorability toward the pre-selected destination. The first question

measures the participant's previous experience with the destination (*Have you been to destination before?*) and is given the categorical response choices of "yes" and "no."

The remaining two questions in this section rate the familiarity (*How familiar are you with destination?*) and favorability (*If you are familiar with destination, how favorable do you feel toward destination?*) of the destination. These questions are measured on a 5-point Likert scale with responses varying from never heard of it to know very well and very unfavorable to very favorable, respectively.

The post-experience survey consists of three sections: 1) infrastructure, attractions, and people, 2) perceived image, 3) behavioral intentions. The infrastructure, attractions and people section, as well as the perceived image section, are identical to those of the pre-experience survey. The behavioral intention portion of the post-experience survey differs from the pre-experience survey in that there is one additional question added to the post-experience survey.

Behavioral intention questions are rated on a 10-point Likert scale. The pre-experience survey has one behavioral intention question while the post-experience survey has two behavioral intention questions. The behavioral intention section on both the pre and post-experience surveys include the following question: *Removing constraints, such as finances, please rate the level of your intention to visit (destination) for vacation purposes.* This question has a response option of a 10-point Likert scale ranging from 1 (do not intent to visit) to 10 (intend to visit).

The post-experience survey includes an additional question that will measure behavioral intention. The question that is posed on the post-test is as follows: *Removing constraints, such as finances, how likely is it that you would visit (destination) through a study abroad program?* This question has a response option of a 10-point Likert scale, ranging from 1 (not at all likely) to 10 (extremely likely).

The infrastructure, attractions, and people portion is identical on both surveys. There are eight different measurement tools in this section of the survey: 1) The transportation system is good, 2) the landscape in the area is varied, 3) it is an expensive place to visit, 4) there are opportunities to increase my knowledge, 5) it is a romantic place to visit, 6) the weather is predictable, 7) it takes too much time to get there, and 8) it is a family oriented place.

The perceived image of the pre-selected destinations is measured using a 7-point bipolar adjective instrument. There are eight pairs of bipolar adjectives that will measure the perceived image of the destination: 1) Friendly – cold, 2) exciting – boring, 3) safe – unsafe, 4) dirty – clean, 5) interesting – uninteresting, 6) crowded – isolated, 7) underdeveloped – overdeveloped, and 8) modern – traditional.

The measurement tools for this study were developed using previously published and established resources. These tools were developed specifically to measure certain aspects of the participants' perspectives of the destinations. The measurement tools are purposefully extremely similar so that the researcher can control the answers and significance of responses.

Data Analysis

The surveys that were given to respondents recorded two types of data: descriptive and inferential. The descriptive data that was obtained through the surveys includes demographics such as age, race, income, and gender. Descriptive data also includes the respondents' year in university, financial aid status, and interest in study abroad. In regard to destination specific questions, the descriptive data also included the familiarity and favorability portion of the survey.

While the descriptive data was obtained to know the 'facts' about each participant, the inferential data is what is needed to answer the three hypotheses that were proposed in this study:

H0. The virtual reality tourism experience has no effect on participant's behavioral intention, perception, or destination image of a specific destination.

H1. The virtual reality tourism experience will have positive influence on participant's behavioral intentions regarding traveling to a specific destination.

H2. The virtual reality tourism experience will positively affect the perception of the destination's infrastructure, attractions, and people.

H3. The virtual reality tourism experience will positively affect the perception of the destination's image.

Participants were asked to complete a pre-survey, a four and a half-minute virtual reality experience, and then to complete a post-survey, resulting in a total of

72 completed questionnaires (all 36 participants completed 2 questionnaires). The questions that were used to determine the results of the hypotheses are identical on the pre and post-test. The inferential data set will include the data that comes from the behavioral intention, infrastructure, attractions, and people, and destination image portions of the survey instrument. The inferential data will be used to determine the significance of the study, answer the hypotheses, and make data-based suggestions and conclusions for the future. The identical questions prompted the researcher to run a paired t-test to determine the significance of each result. If the results of the paired t-test violated the normality assumption, as assessed by the Shapiro-Wilk's test, then the data was ran through the Wilcoxon signed-rank test, a non-parametric test that is equivalent to paired t-test, to determine the difference of median results. However, if the results of the Wilcoxon signed-rank tests were determined as non-symmetrical when using a histogram, a sign test was conducted. Both Wilcoxon signed-rank tests and sign tests results are described using medians of data, whereas paired t-tests results are described using means of data to determine the statistical differences between pre-experience and post-experience perceptions.

CHAPTER IV: RESULTS

Results

This study used the data received from 36 participants to answer the research question: how does virtual tourism experience change students' perception toward a study abroad destination? This study is also focused on addressing the hypotheses that were formed in the beginning stages of this study:

H0. The virtual reality tourism experience has no effect on participant's behavioral intention, perception, or destination image of a specific destination.

H1. The virtual reality tourism experience will have positive influence on participant's behavioral intentions regarding traveling to a specific destination.

H2. The virtual reality tourism experience will positively affect the perception of the destination's infrastructure, attractions, and people.

H3. The virtual reality tourism experience will positively affect the perception of the destination's image.

This chapter is divided into two main sections: descriptive statistics and inferential statistics. The descriptive statistics reports the findings from the survey, beginning with demographics of all participants, and then reporting the demographics of the groups, i.e. students who chose the San Miguel de Allende, Mexico virtual reality experience and students who chose the Japan virtual reality experience.

The inferential portion of the paper is divided into three main sections: 1) behavioral intention, 2) infrastructure, attractions, and people, and 3) destination image. Each of these sections looks to answer one of the hypotheses presented in the beginning of this study. These sections also provide the overall data, the data determined from the students who chose to virtually experience San Miguel de Allende, Mexico, and the data determined from the students who chose to virtually experience Japan. Each data set will present the means that were determined from the paired t-test, however if there were additional tests necessary, i.e. Wilcoxon signed-rank test or sign test, the appropriate results are reported.

Descriptive Statistics

There is an equal amount of male and female respondents, 50% ($n = 18$) respectively, with no respondents claiming non-binary as their gender. The mean age of respondents is 22.7 ($SD = 5.806$) years of age, with a minimum age of 18 years and a maximum age of 49 years. There were two outlying respondents over the age of 25. The distribution of race among respondents is grossly skewed, with 16.7% ($n = 6$) of respondents claiming Asian as their race, 25.0% ($n = 9$) claiming African American, 55.6% ($n = 20$) claiming Caucasian, and 2.8% ($n = 1$) claiming Other. There were no respondents who claimed their race as Hispanic.

All of the respondents for this study were university students. There were no freshman participants in this study. Sophomores made up 16.7% ($n = 6$) of respondents, 47.2% ($n = 17$) of respondents were juniors, 30.6% ($n = 11$) of

respondents were seniors, and 2.8% ($n = 1$) of respondents were not classified as any of these.

Respondents were asked about their household income and financial aid awards. Respondents that had a household income of less than \$35,000 made up 26.5% ($n = 9$) of participants. Respondents with a household income of \$35,000 - \$99,999 made up 50.0% ($n = 17$) of participants. Respondents with a household income of over \$100,000 made up 23.6% ($n = 8$) of participants. According to the data, 54.3% ($n = 19$) of respondents did receive some sort of financial aid to attend university while 45.7% ($n = 16$) did not receive financial aid awards.

This study is focusing on education abroad programs and destinations. 80.0% ($n = 28$) of the respondents stated that they had been interested in participating in study abroad programs, while 20.0% ($n = 7$) of the respondents stated that they had not ever been interested in participating in study abroad programs.

The participants of this study were given the option of focusing their experience either on San Miguel de Allende, Mexico or the nation of Japan. Japan was the more popular choice with 58.3% ($n = 21$) of respondents choosing to focus on Japan and 41.7% ($n = 15$) focusing on San Miguel de Allende, Mexico. The researchers chose these destinations based on study abroad program availability, similar video content, and high video quality. These choices were made to control the study.

San Miguel de Allende, Mexico Demographics

San Miguel de Allende, Mexico was the destination that was chosen by 41.7% ($n = 15$) participants. The mean age for San Miguel de Allende, Mexico was 21.8 ($SD = 1.781$) years of age, with a minimum age of 19 years and a maximum age of 25 years. Gender demographics for this portion of the study were reported as 53.3% ($n = 8$) of respondents were female and 46.7% ($n = 7$) of respondents were male. There was a strong presence of Asian respondents, making up 33.3% ($n = 5$) of the respondent pool for San Miguel de Allende, Mexico. Caucasians made up 46.7% ($n = 7$) of respondents and African Americans made up 20% ($n = 3$) of the respondents. There were no Hispanic or "Other" races that chose to participate in the San Miguel de Allende, Mexico experience.

The San Miguel de Allende option in this study had 13.3% ($n = 2$) of sophomore respondents, 40% ($n = 6$) of junior respondents, 40% ($n = 6$) of senior respondents, and 6.7% ($n = 1$) of respondents that were not represented among those classifications.

The respondents of this study were asked about their household income and financial aid status. 21.4% ($n = 3$) of respondents reported having a household income less than \$35,000, 50.0% ($n = 7$) of respondents reported having a household income of \$35,000 - \$99,999, and 28.5% ($n = 4$) of respondents reported having an income of \$100,000 or more. Among the respondents of the San Miguel de Allende experience, 35.7% ($n = 5$) respondents did receive financial aid, while 64.3% ($n = 9$) did not receive any type of financial aid.

San Miguel de Allende, Mexico was chosen as an option for the virtual reality experience because of this study's focus on education abroad programs and Mexico's availability as a study abroad destination option. There were a reported 71.4% ($n = 10$) of the respondents that have had a previous interest in study abroad programs. Only 28.6% ($n = 4$) of respondents stated that they had never been interested in study abroad programs.

Respondents were asked about their experience with the destination. In regard to San Miguel de Allende, Mexico, 13.3% ($n = 2$) of respondents reported that they had previously visited Mexico. During this study, 86.7% ($n = 13$) of respondents reported that they had never visited Mexico. Respondents were asked about their familiarity with Mexico. None of the participants said that they had never heard of Mexico, 20.0% ($n = 3$) of respondents stated that they had heard of Mexico, 53.3% ($n = 8$) of respondents stated that they knew a little about Mexico, 20.0% ($n = 3$) stated that they knew a fair amount about Mexico, and 6.7% ($n = 1$) of participants stated that they knew Mexico very well.

Respondents were asked about their favorability in regard to Mexico. None of the respondents reported being very unfavorable of Mexico, 7.7% ($n = 1$) of respondents stated that they were somewhat unfavorable of Mexico, 30.8% ($n = 4$) of respondents stated that they were indifferent in regards to Mexico, 53.8% ($n = 7$) stated that they were somewhat favorable of Mexico, and 7.7% ($n = 1$) of respondents stated that they were very favorable of Mexico.

Japan Demographics

Japan was the virtual reality destination that was chosen by 58.3% ($n = 21$) of participants. The mean age for Japan was 23.3 ($SD = 7.465$) years of age, with a minimum age of 18 years and a maximum age of 49 years. In regard to gender, 47.6% ($n = 10$) of respondents were female and 52.4% ($n = 11$) of respondents were male. There are a much smaller percentage of Asian respondents for the Japan experience in comparison to the Mexico experience, making up only 4.8% ($n = 1$) of respondents for Japan. Caucasians made up 61.9% ($n = 13$) of respondents and African Americans made up 28.6% ($n = 6$) of the respondents. 4.8% ($n = 1$) of respondents for the Japan experience were classified as 'Other' race. There were no respondents who identified as Hispanic.

The Japan option in this study had 20.0% ($n = 4$) of sophomore respondents, 55.0% ($n = 11$) of junior respondents, and 25.0% ($n = 5$) of senior respondents. There were no respondents who were classified as freshman or other.

The respondents of this study were asked about their household income and financial aid status. 30.0% ($n = 6$) of respondents reported having a household income less than \$35,000, 50.0% ($n = 10$) of respondents reported having a household income of \$35,000 - \$99,999, and 20.0% ($n = 4$) of respondents reported having an income of \$100,000 or more. Among the respondents of the San Miguel de Allende experience, 66.7% ($n = 14$) respondents did receive financial aid, while 33.3% ($n = 7$) did not receive any type of financial aid.

The nation of Japan was chosen as an option for the virtual reality experience because of this study's focus on education abroad programs and Japan's availability as a study abroad destination option. In respect to interest in education abroad programs, 85.7% ($n = 18$) of the respondents reported having a previous interest in study abroad programs. Only 14.3% ($n = 3$) of respondents stated that they had never been interested in study abroad programs.

Respondents were asked about their experience with the destination. In regard to Japan, 9.5% ($n = 2$) of respondents reported that they had previously visited Japan while 90.5% ($n = 19$) of respondents reported that they had never visited Japan. Respondents were asked about their familiarity with Japan. None of the participants said that they had never heard of Japan, 9.5% ($n = 2$) of respondents stated that they had heard of Japan, 71.4% ($n = 15$) of respondents stated that they knew a little about Japan, 14.3% ($n = 3$) stated that they knew a fair amount about Japan, and 4.8% ($n = 1$) of participants stated that they knew Japan very well.

Respondents were asked about their favorability in regard to Japan. None of the respondents reported being very unfavorable or somewhat unfavorable of Japan. 42.1% ($n = 8$) of respondents stated that they were indifferent in regards to Japan, 36.8% ($n = 7$) stated that they were somewhat favorable of Japan, and 21.1% ($n = 4$) of respondents stated that they were very favorable of Japan.

Inferential Statistics

The following information has been determined using a process of paired t-tests, assessing normality according to Shapiro-Wilk test of normality, then using

the necessary extra tests (Wilcoxon signed-rank test and sign test) to determine whether there is a statistically significant differences between pre and post perceptions. This portion of Chapter 4 addresses the research hypotheses and is divided into three sub-sections including future behavioral intention; infrastructure, attractions, and people; and destination image.

Behavioral Intention

The surveys that were given to respondents were comprised previously validated tools of measurements. Three of these questions were chosen by researchers to measure participants' behavioral intention in regard to participants' willingness to travel to the chosen destination. The behavioral intention section of the paper is looking to determine the significance of the virtual reality experience on participant behavioral intention. This is a response to the first hypothesis of the study:

H0. The virtual reality tourism experience has no effect on participant's behavioral intention, perception, or destination image of a specific destination.

H1. The virtual reality tourism experience will have positive influence on participant's behavioral intentions regarding traveling to a specific destination.

Prior to participating in the virtual reality experience, participants were asked their level of intention to travel to the destination (removing financial constraints). Participants were asked to rate their level on a scale of 1 (do not intend

to visit) to 10 (intend to visit). The mean response for this question on the pre-test among all participants was recorded as 7.323 ($SD = 2.522$), meaning that prior to the virtual reality experience and removing all constraints, participants had a high intention to travel to a specific destination.. This same question is asked in the post-test after the respondents had the opportunity to participate in the virtual reality experience. The mean response for this question on the post-test was recorded as 8.417 ($SD = 2.075$). The post-test response shows that the intention to travel to a specific destination increased to a higher level after the virtual reality experience.

This data set proved to have outliers, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 10, so this data was not transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p < .0005$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' behavioral intention. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 31 participants, the virtual reality experience had a positive result in 17 (51.839%) of the participants, compared to 11 (35.484%) participants with no improvement, and three (9.677%) participants with negative results. There was a statistically significant ($p = 0.004$, $z = -2.861$) median increase in participants' behavioral intention ($Mdn = 1$) after participants' virtual reality experience ($Mdn = 9$), as compared to behavioral intention prior to the virtual reality experience (Mdn

= 8). This result is a median increase toward the “intend to visit” end of the Likert scale, meaning that participants are more likely to travel to the destination, removing all constraints, after the virtual reality experience.

Respondents were also asked about their behavioral intention regarding their level of intention or likelihood to visit the destination through a study abroad program (removing financial constraints). This question appears on the post-test, which respondents answered after participating in the virtual reality experience. Respondents were asked to rate their level of intention on a scale of 1 (not at all likely) to 10 (extremely likely). The mean response for this question was 7.472 ($SD = 2.762$). This response shows that participants had a high level of intention regarding traveling to a specific destination with a study abroad program, removing all constraints.

The pre-test did not include a copy of this question, but did ask respondents if they had ever been interested in participating in study abroad. This question had a categorical response answer choice of ‘yes’ and ‘no.’ In an effort to make a comparison, the ‘yes’ and ‘no’ answers have been assigned as ‘1’ and ‘2’, respectively. Regarding the behavioral intention question of likelihood to visit the destination with a study abroad program Likert scale answers of 1-10 have been categorized as ‘yes’ and ‘no.’ Answers ranging from 1-5 are categorized as a ‘no’ and answers ranging from 6-10 are categorized as a ‘yes.’ These ‘yes’ and ‘no’ responses have been assigned as ‘1’ and ‘2’, respectively. The mean response of the pre-test question regarding previous interest in study abroad had a mean response of 1.200

($SD = 0.406$). This response shows that most of the participants had previously been interested in study abroad programs. The post-test question regarding likelihood to travel to destination with a study abroad program had a mean response of 1.229 ($SD = 0.422$), showing that there was a slight decrease of intention to study abroad on the post-test response when compared to the pre-test response.

San Miguel de Allende, Mexico Behavioral Intention

Prior to participating in the virtual reality experience, participants were asked their level of intention to travel to Mexico for vacation purposes (removing financial constraints). Respondents were asked to rate their level on a scale of 1 (do not intend to visit) to 10 (intend to visit). The mean response for this question on the pre-test among all participants was recorded as 7.385 ($SD = 2.323$), meaning that participants had a level of intention to travel to Mexico prior to the virtual reality experience. This same question is asked in the post-test after the respondents had the opportunity to participate in the virtual reality experience. The mean response for this question on the post-test was recorded as 7.933 ($SD = 2.576$). This post-test response shows that participants' level of intention to travel to Mexico slightly increased after partaking in the virtual reality experience.

This data set proved to have one outlier, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 10, so this data was not transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.002$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' behavioral intention. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve. Of the 13 participants, the virtual reality experience had a positive result in six (46.154%) of the participants, compared to five (38.462%) participants with no improvement, and two (15.385%) participants with negative results. There was not a statistically significant ($p = 0.281$, $z = -1.078$) median increase or decrease in participants' behavioral intention ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 9$), as compared to behavioral intention prior to the virtual reality experience ($Mdn = 8$). This result is a median increase toward the "intend to visit" end of the Likert scale, meaning that participants are more likely to travel to the destination, removing all constraints, after the virtual reality experience.

Respondents were also asked about their behavioral intention regarding their level of intention or likelihood to visit Mexico through a study abroad program (removing financial constraints). This question appears on the post-test, which respondents answered after participating in the virtual reality experience. Respondents were asked to rate their level of intention on a scale of 1 (not at all likely) to 10 (extremely likely). The mean response for this question was 6.867 ($SD = 2.850$), showing that participants' level of intention to travel with a study abroad program was somewhat high after the virtual reality tourism experience.

The pre-test did not include a copy of this question, but did ask respondents if they had ever been interested in participating in study abroad questions. This question had a categorical response answer choice of 'yes' and 'no.' In an effort to make a comparison, the 'yes' and 'no' answers have been assigned as '1' and '2', respectively. Regarding the behavioral intention question of participants' likelihood to visit the destination with a study abroad program, Likert scale answers of 1-10 have been categorized as 'yes' and 'no.' Answers ranging from 1-5 are categorized as a 'no' and answers ranging from 6-10 are categorized as a 'yes.' These 'yes' and 'no' responses have been assigned as '1' and '2', respectively. The mean response of the pre-test question regarding previous interest in study abroad had a mean response of 1.286 ($SD = 0.469$). This response shows that most of the participants had previous interest in study abroad programs. The post-test question regarding likelihood to travel to destination with a study abroad program had a mean response of 1.267 ($SD = 0.458$). This result shows that there was a slight increase of intention to travel with a study abroad program after the virtual reality experience.

Japan Behavioral Intention

Prior to participating in the virtual reality experience, participants were asked their level of intention to travel to Japan for vacation purposes (removing financial constraints). Respondents were asked to rate their level on a scale of 1 (do not intend to visit) to 10 (intend to visit). The mean response for this question on the pre-test among all participants was recorded as 7.278 ($SD = 2.718$), meaning that participants had a high level of intention to travel to Japan, removing all

constraints, prior to the virtual reality experience. This same question is asked in the post-test after the respondents had the opportunity to participate in the virtual reality experience. The mean response for this question on the post-test was recorded as 8.762 ($SD = 1.610$). This post-test result shows a significant increase in intention to travel to Japan, removing all constraints, after participating in the virtual reality experience.

This data set proved to have one outlier, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so the outlier was kept for analysis and the data was not transformed. The data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.001$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the effect of the virtual reality experience on participants' behavioral intention. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' behavioral intention. Of the 18 participants, the virtual reality experience had a positive result in seven (38.889%) of the participants, compared to 11 (61.111%) participants with no improvement, and one (5.556%) participant with negative results. There was a statistically significant ($p = 0.006$) median increase in participants' behavioral intention ($Mdn = 1.000$) after

participants' virtual reality experience ($Mdn = 9.000$), as compared to ranking prior to the virtual reality experience ($Mdn = 7.500$). This result is a median increase toward the "intend to visit" end of the Likert scale, meaning that participants are more likely to travel to the destination, removing all constraints, after the virtual reality experience.

Respondents were also asked about their behavioral intention regarding their level of intention or likelihood to visit Japan through a study abroad program (removing financial constraints). This question appears on the post-test, which respondents answered after participating in the virtual reality experience.

Respondents were asked to rate their level of intention on a scale of 1 (not at all likely) to 10 (extremely likely). The mean response for this question was 7.905 ($SD = 2.682$). This result shows a high level of intention to travel with a study abroad program, removing all constraints.

The pre-test did not include a copy of this question, but did ask respondents if they had ever been interested in participating in study abroad questions. This question had a categorical response answer choice of 'yes' and 'no.' In an effort to make a comparison, the 'yes' and 'no' answers have been assigned as '1' and '2', respectively. Regarding the behavioral intention question of participants' likelihood to visit Japan with a study abroad program, Likert scale answers of 1-10 have been categorized as 'yes' and 'no.' Answers ranging from 1-5 are categorized as a 'no' and answers ranging from 6-10 are categorized as a 'yes.' These 'yes' and 'no' responses have been assigned as '1' and '2', respectively. The mean response of the pre-test

question regarding previous interest in study abroad had a mean response of 1.143 ($SD = 0.359$), meaning that most of the participants had a previous interest in study abroad programs. The post-test question regarding likelihood to travel to Japan with a study abroad program had a mean response of 1.238 ($SD = 0.402$). These post-test results showed a slightly lower level in intention to travel to Japan with a study abroad program, removing all constraints.

Summary of Behavioral Intention

This portion of the study required that there were three different types of tests conducted on the data set: 1) paired t-test, 2) Wilcoxon signed-rank test, and 3) sign test.

When analyzing the overall data set (including participants who chose Mexico and Japan), there was a statistically significant result, inferring that the virtual reality experience had a positive effect participant behavioral intention.

The Mexico data set seemed to be the least affected by the virtual reality experience. Unlike the overall data set and the Japan data set, there was no significant result in participant behavioral intention regarding traveling to Mexico.

In regard to Japan, there was a statistically significant result in participant behavioral intention. This implies that the virtual reality experience had a positive effect on participants' behavioral intention.

While there are varying results among each data set, there were two significant findings. Participants who chose to Japan as their virtual experience found the virtual reality experience to be significant, shifting their behavioral

intention in a positive manner. The same is true of the overall data set, although the participants who chose San Miguel de Allende, Mexico as their virtual experience did not have the same significant results.

These results allow the researcher to reject the null hypothesis, and conclude that the virtual reality experience had a positive influence on participant's behavioral intentions in regards to traveling to a specific destination.

Infrastructure, Attractions, and People

Respondents were asked to rate their perception of the infrastructure, attractions, and people of the destination that was chosen for the virtual reality experience. These 8 questions were posed on a bipolar adjective Likert scale, with 7 possible choices, ranging from 1 to 7, between each of the two adjectives. Each question is identical on both the pre-test and post-test. The infrastructure, attractions, and people section of the paper is looking to determine the effect of the virtual reality experience on participant perception of the destination. This data set is used to address the second hypothesis of the study:

H0. The virtual reality tourism experience has no effect on participant's behavioral intention, perception, or destination image of a specific destination.

H2. The virtual reality tourism experience will positively affect the perception of the destination's infrastructure, attractions, and people.

The first bipolar adjective scale question asked respondents to rank the destination on a scale from friendly to cold, with seven possible choices (1 =

friendly, 7 = cold). The mean response to this question on the pre-test was 3.303 ($SD = 1.311$), meaning that the average pre-test response was somewhat friendly. The mean response on the post-test was 2.306 ($SD = 1.369$), moving more toward the friendly end of the scale.

This data set had no outliers, as assessed by a boxplot. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.011$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' ranking of friendly – cold. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 33 participants, the virtual reality experience had a positive result in 3 (9.100%) of the participants, compared to 11 (33.333%) participants with no improvement, and 19 (57.576%) participants with negative results.

There was a statistically significant ($p < 0.0005$, $z = -3.641$) median decrease in participants' ranking of friendly – cold ($Mdn = -1$) after participants' virtual reality experience ($Mdn = 2$), as compared to the response prior to the virtual reality experience ($Mdn = 3$). These median results show that the pre-test results were somewhat friendly, and the post-test result moved more toward being friendly.

The second bipolar adjective scale question asked respondents to rank the destination on a scale from exciting to boring (1 = exciting, 7 = boring). The mean

response to this question on the pre-test was 2.559 ($SD = 1.655$), meaning that the destination was seen as somewhat exciting. The mean response on the post-test was 2.086 ($SD = 1.379$), moving more toward the exciting end of the scale.

This data set had no outliers, as assessed by a boxplot. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p < 0.0005$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' ranking of exciting - boring. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 33 participants, the virtual reality experience had a positive result in 2 (6.100%) of the participants, compared to 18 (54.545%) participants with no improvement, and 13 (39.394%) participants with negative results.

There was a statistically significant ($p = 0.005$, $z = -2.828$) median decrease in participants' ranking of exciting - boring ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 2$), as compared to the result prior to the virtual reality experience ($Mdn = 2$). There was no median change, so the median results show the pre-test result as exciting and the post-test result as exciting.

The third bipolar adjective scale question asked respondents to rank the destination on a scale from safe to unsafe (1 = safe, 7 = unsafe). The mean response

to this question on the pre-test was 3.371 ($SD = 1.592$), meaning that the pre-test response was seen as somewhat safe. The mean response on the post-test was 2.714 ($SD = 1.287$), moving more toward the safe end of the scale.

There were outliers found in this dataset, but after an inspection, they were kept in the analysis. This is due to the fact that the data is already restricted on a Likert scale ranking of 7 choices. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.166$).

The paired-sample T test results showed that participants ranking of safe – unsafe shifted after their virtual reality experience ($M = 2.714, SD = 1.274$) when compared to their ranking prior to the virtual reality experience ($M = 3.371, SD = 1.592$), a statistically significant mean decrease of 0.657, 95% CI [0.063, 1.252], $t(34) = 2.246, p = 0.031, d = 0.380$.

The fourth bipolar adjective scale question asked respondents to rank the destination on a scale from dirty to clean (1 = dirty, 7 = clean). The mean response to this question on the pre-test was 4.514 ($SD = 1.597$), meaning that the pre-test response was neutral on the dirty – clean scale. The mean response on the post-test was 5.286 ($SD = 1.512$), moving more toward the clean end of the scale.

There were no outliers found in this dataset. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.058$).

The paired-sample T test results showed that participants ranking of dirty – clean shifted after their virtual reality experience ($M = 5.286, SD = 1.506$) when compared to their ranking prior to the virtual reality experience ($M = 4.514, SD =$

1.597), a statistically significant mean increase of -0.771, 95% CI [-1.376, -0.164], $t(34) = -2.583, p = 0.014, d = -0.437$.

The fifth bipolar adjective scale question asked respondents to rank the destination on a scale from interesting to uninteresting (1 = interesting, 7 = uninteresting). The mean response to this question on the pre-test was 2.543 ($SD = 1.738$), meaning that the pre-test response was interesting. The mean response on the post-test was 1.944 ($SD = 1.393$), moving toward the very interesting end of the scale.

This data set proved to have one outlier, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not excluded or transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p < 0.0005$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' ranking of interesting - uninteresting. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' ranking of interesting – uninteresting. Of the 35 participants, the virtual reality experience had a positive result in 2 (5.714%) of

the participants, compared to 19 (54.286%) participants with no improvement, and 14 (40%) participants with negative results.

There was a statistically significant ($p = 0.004$) median decrease in participants' ranking of interesting – uninteresting ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 1.500$), as compared to the result prior to the virtual reality experience ($Mdn = 2$). The median results show that the pre-test response was interesting, and the post-test results were very interesting.

The sixth bipolar adjective scale question asked respondents to rank the destination on a scale from crowded to isolated (1 = crowded, 7 = isolated). The mean response to this question on the pre-test was 2.200 ($SD = 1.491$), meaning that the pre-test response was very crowded. The mean response on the post-test was 3.028 ($SD = 1.765$), moving more toward somewhat crowded.

This data set proved to have outliers, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not excluded or transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = .001$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' ranking of crowded – isolated. The difference scores were approximately

symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 34 participants, the virtual reality experience had a positive result in 19 (55.882%) of the participants, compared to 13 (38.235%) participants with no improvement, and 2 (5.882%) participants with negative results. There was a statistically significant ($p = 0.001$, $z = -3.202$) median increase in participants' ranking of crowded – isolated ($Mdn = 1$) after participants' virtual reality experience ($Mdn = 3$), as compared to the result prior to the virtual reality experience ($Mdn = 2$). The median results show that the pre-test was at crowded, and the post-test was ranked as somewhat crowded.

The seventh bipolar adjective scale question asked respondents to rank the destination on a scale from underdeveloped to overdeveloped (1 = underdeveloped, 7 = overdeveloped). The mean response to this question on the pre-test was 4.629 ($SD = 1.395$), meaning that the pre-test response was pretty neutral on the underdeveloped – overdeveloped scale. The mean response on the post-test was 4.917 ($SD = 1.339$), moving to somewhat overdeveloped.

This data set proved to have outliers, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not excluded or transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.047$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' ranking of underdeveloped – overdeveloped. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 35 participants, the virtual reality experience had a positive result in 16 (45.714%) of the participants, compared to 11 (31.429%) participants with no improvement, and 8 (22.857%) participants with negative results. There was no statistically significant ($p = 0.074$, $z = -1.784$) median increase or decrease in participants' ranking of underdeveloped – overdeveloped ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 5$), as compared to the result prior to the virtual reality experience ($Mdn = 4$). The median results show that the pre-test response was neutral and the post-test response was somewhat overdeveloped.

The eighth and final bipolar adjective scale question asked respondents to rank the destination on a scale from modern to traditional (1=modern, 7 = traditional). The mean response to this question on the pre-test was 3.314 ($SD = 1.395$), meaning that the pre-test response was somewhat modern. The mean response on the post-test was 3.806 ($SD = 1.737$), moving more toward a neutral response on the modern – traditional scale.

This data set proved to have one outlier, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not excluded or transformed. The difference scores for this data set were

determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = .023$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' ranking of modern - traditional. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' ranking of modern - traditional. Of the 35 participants, the virtual reality experience had a positive result in 13 (37.143%) of the participants, compared to 10 (28.571%) participants with no improvement, and 12 (34.286%) participants with negative results.

There was no statistically significant ($p = 1$) median increase or decrease in participants' ranking of modern - traditional ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 4$), as compared to the result prior to the virtual reality experience ($Mdn = 4$). There was no change in the median responses. The pre-test response was neutral and the post-test response was neutral on the modern - traditional scale.

This portion of the study required that there were three different types of tests conducted on the data set: 1) paired t-test, 2) Wilcoxon signed-rank test, and 3) sign test. To determine the effect of virtual reality on the participant's perception of the infrastructure, attractions, and people of the destinations, eight different

measurement tools were used. This data set is a combination of the data collected from the participants who chose Mexico as well as Japan for their virtual reality experience. In regard to the overall data set of the study, six of the eight measurement tools saw a significant change in results from the pre-test to the post-test. This data found that the significant post-test responses moved more toward the friendly, exciting, safe, clean, interesting, and isolated ends of the 'friendly – cold,' 'exciting – boring,' 'safe – unsafe,' 'dirty – clean,' 'interesting – uninteresting,' and 'crowded – isolated' scales, respectively.

San Miguel de Allende, Mexico Infrastructure, Attractions, and People

Respondents were asked to rate their perception of the infrastructure, attractions, and people of San Miguel de Allende, Mexico. These 8 questions were posed on a bipolar adjective Likert scale, with 7 possible choices, ranging from 1 to 7, between each of the adjectives. Each question is identical on both the pre-test and post-test.

The first bipolar adjective scale question asked respondents to rank Mexico on a scale from friendly to cold, with seven possible choices (1 = friendly, 7 = cold). The mean response to this question on the pre-test was 3.692 ($SD = 1.437$), meaning that the pre-test result was somewhat friendly. The mean response on the post-test was 3.308 ($SD = 1.668$), moving more toward the friendly end of the scale.

There were no outliers found in this dataset. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.181$).

The paired-sample T test results showed that participants ranking of friendly – clean improved after their virtual reality experience ($M = 3.308, SD = 1.653$) when compared to their ranking prior to the virtual reality experience ($M = 3.692, SD = 1.437$), a statistically insignificant mean increase of 0.385, 95% CI $[-0.196, -0.965]$, $t(12) = 1.443, p = 0.175, d = 0.400$.

The second bipolar adjective scale question asked respondents to rank Mexico on a scale from exciting to boring (1 = exciting, 7 = boring). The mean response to this question on the pre-test was 3.429 ($SD = 1.949$), meaning that the pre-test response was somewhat exciting. . The mean response on the post-test was 2.867 ($SD = 1.767$), moving the response to exciting.

This data set proved to have no outliers, as assessed by a boxplot. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p < 0.0005$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' ranking of exciting - boring. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 14 participants, the virtual reality experience had a positive result in 1 (7.143%) of the participants, compared to 7 (50.000%) participants with no improvement, and 6 (42.857%) participants with negative results. There was no statistically significant ($p = 0.058, z = -1.897$) median increase or decrease in

participants' ranking of exciting – boring ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 2$), as compared to the result prior to the virtual reality experience ($Mdn = 3$). The median response shifted from being somewhat exciting on the pre-test to exciting on the post-test.

The third bipolar adjective scale question asked respondents to rank Mexico on a scale from safe to unsafe (1 = safe, 7 = unsafe). The mean response to this question on the pre-test was 3.857 ($SD = 1.351$), meaning that the pre-test response was somewhat safe. The mean response on the post-test was 3.357 ($SD = 1.424$), moving more toward the safe end of the scale, but still staying at somewhat safe.

There were no outliers found in this dataset. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.480$).

The paired-sample T test results showed that participants ranking of safe - unsafe improved after their virtual reality experience ($M = 3.357$, $SD = 1.336$) when compared to their ranking prior to the virtual reality experience ($M = 3.857$, $SD = 1.351$). However, the mean increase of 0.500 was not statistically significant, 95% CI [-0.506, 1.506], $t(13) = 1.073$, $p = 0.303$, $d = 0.287$.

The fourth bipolar adjective scale question asked respondents to rank Mexico on a scale from dirty to clean (1 = dirty, 7 = clean). The mean response to this question on the pre-test was 3.786 ($SD = 1.122$), meaning that the pre-test response was somewhat dirty. The mean response on the post-test was 5.200 ($SD = 1.014$), moving the response to somewhat clean.

This data set proved to have one outlier, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not excluded or transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.039$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' ranking of dirty - clean. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 14 participants, the virtual reality experience had a positive result in 11 (78.571%) of the participants, compared to 2 (14.286%) participants with no improvement, and 1 (7.143%) participant with negative results. There was a statistically significant ($p = 0.021$, $z = -2.300$) median increase in participants' ranking of dirty – clean ($Mdn = 1.000$) after participants' virtual reality experience ($Mdn = 5.000$), as compared to the result prior to the virtual reality experience ($Mdn = 3.500$). The median responses for the dirty – clean scale shifted from being somewhat dirty to somewhat clean.

The fifth bipolar adjective scale question asked respondents to rank Mexico on a scale from interesting to uninteresting (1 = interesting, 7 = uninteresting). The mean response to this question on the pre-test was 3.500 ($SD = 2.066$), meaning that the pre-test response was somewhat interesting. The mean response on the post-

test was 2.667 ($SD = 1.799$), moving the response to interesting on the interesting – uninteresting scale.

This data set proved to have one outlier, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not excluded or transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.011$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' ranking of interesting - uninteresting. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' ranking of interesting – uninteresting. Of the 14 participants, the virtual reality experience had a positive result in one (7.143%) of the participants, compared to seven (50.000%) participants with no improvement, and six (42.857%) participants with negative results.

There was no statistically significant ($p = 0.125$) median increase in participants' ranking of interesting – uninteresting ($Mdn = 0.000$) after participants' virtual reality experience ($Mdn = 2.000$), as compared to the result prior to the virtual reality experience ($Mdn = 3.500$). The median

response shifted from being somewhat interesting on the pre-test to interesting on the post-test.

The sixth bipolar adjective scale question asked respondents to rank Mexico on a scale from crowded to isolated (1 = crowded, 7 = isolated). The mean response to this question on the pre-test was 3.071 ($SD = 1.439$), meaning that the response on the pre-test was somewhat crowded. The mean response on the post-test was 4.200 ($SD = 1.612$), moving the response to neutral on the crowded – isolated scale.

This data set proved to have one outlier, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not excluded or transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p < 0.0005$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' ranking of crowded – isolated. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' ranking of crowded - isolated. Of the 14 participants, the virtual reality experience had a positive result in 10 (71.429%) of the participants, compared to three (21.429%) participants with no improvement, and one (7.143%) participant with negative results.

There was a statistically significant ($p = 0.012$) median increase in participants' ranking of crowded - isolated ($Mdn = 1$) after participants' virtual reality experience ($Mdn = 4$), as compared to ranking prior to the virtual reality experience ($Mdn = 3$). The median responses for crowded - isolated shifted from being somewhat crowded in the pre-test to neutral in the post-test.

The seventh bipolar adjective scale question asked respondents to rank Mexico on a scale from underdeveloped to overdeveloped (1 = underdeveloped, 7 = overdeveloped). The mean response to this question on the pre-test was 3.643 ($SD = 0.745$), meaning that the pre-test response was somewhat underdeveloped. The mean response on the post-test was 4.067 ($SD = 1.222$), moving the response to neutral on the underdeveloped - overdeveloped scale.

This data set proved to have outliers, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 - 7, so these data was not excluded or transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.019$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' ranking of underdeveloped - overdeveloped. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' ranking of underdeveloped - overdeveloped. Of the 14 participants, the virtual reality experience had a positive result in six (42.857%) of the participants, compared to six (42.857%) participants with no improvement, and two (14.286%) participants with negative results.

There was not a statistically significant ($p = 0.289$) median increase or decrease in participants' ranking of underdeveloped – overdeveloped ($Mdn = 0.000$) after participants' virtual reality experience ($Mdn = 4.000$), as compared to the result prior to the virtual reality experience ($Mdn = 3.500$). The median responses on the underdeveloped – overdeveloped scale shifted from somewhat underdeveloped on the pre-test to neutral on the post-test.

The eighth and final bipolar adjective scale question asked respondents to rank Mexico on a scale from modern to traditional (1=modern, 7 = traditional). The mean response to this question on the pre-test was 4.929 ($SD = 0.917$), meaning that the pre-test response was neutral on the modern – traditional scale. The mean response on the post-test was 4.733 ($SD = 1.334$), moving more toward the modern end of the scale, but still staying neutral.

There were outliers found in this dataset, but after an inspection, they were kept in the analysis. This is due to the fact that the data is already restricted on a Likert scale ranking of seven choices. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.222$).

The paired-sample T test results showed that participants ranking of modern – traditional increased after their virtual reality experience ($M = 4.643$, $SD = 1.336$) when compared to their ranking prior to the virtual reality experience ($M = 4.929$, $SD = 0.917$). However, the mean increase of 0.286 was not statistically significant, 95% CI [-0.544, 1.116], $t(13) = 0.744$, $p = 0.470$, $d = 0.199$.

This portion of the study required that there were three different types of tests conducted on the data set: 1) paired t-test, 2) Wilcoxon signed-rank test, and 3) sign test. To determine the effect of virtual reality on the participant's perception of the infrastructure, attractions, and people of Mexico, eight different measurement tools were used. In regard to the Mexico data set of the study, two of the eight measurement tools saw a significant change in results from the pre-test to the post-test: 1) dirty – clean and 2) crowded – isolated. The significant post-test responses moved more toward the clean and isolated ends of the 'dirty – clean' and 'crowded – isolated' scales.

Japan Infrastructure, Attractions, and People

Respondents were asked to rate their perception of the infrastructure, attractions, and people of Japan. These eight questions were posed on a bipolar adjective Likert scale, with seven possible choices between each of the adjectives. Each question is identical on both the pre-test and post-test.

The first bipolar adjective scale question asked respondents to rank Japan on a scale from friendly to cold, with seven possible choices (1 = friendly, 7 = cold). The mean response to this question on the pre-test was 3.050 ($SD = 1.191$), meaning that

the pre-test response was somewhat friendly. The mean response on the post-test was 1.762 ($SD = 0.768$), moving the response to very friendly.

This data set proved to have no outliers, as assessed by a boxplot. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.029$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' ranking of friendly - cold. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' ranking of friendly - cold. Of the 20 participants, the virtual reality experience had a positive result in one (5.000%) of the participants, compared to five (25.000%) participants with no improvement, and 14 (70.000%) participants with negative results.

There was a statistically significant ($p = 0.001$) median decrease in participants' ranking of friendly - cold ($Mdn = -1.500$) after participants' virtual reality experience ($Mdn = 2.000$), as compared to ranking prior to the virtual reality experience ($Mdn = 3,000$). The median responses on the friendly - cold scale shifted from being somewhat friendly to friendly.

The second bipolar adjective scale question asked respondents to rank Japan on a scale from exciting to boring (1 = exciting, 7 = boring). The mean response to

this question on the pre-test was 1.950 ($SD = 1.099$), meaning that the pre-test response was very exciting.. The mean response on the post-test was 1.500 ($SD = 0.513$), moving more toward the exciting end of the scale but staying at very exciting.

This data set proved to have no outlier, as assessed by a boxplot. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.001$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' ranking of exciting - boring. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' ranking of exciting – boring. Of the 19 participants, the virtual reality experience had a positive result in one (5.263%) of the participants, compared to 11 (57.895%) participants with no improvement, and seven (36.842%) participants with negative results.

There was no statistically significant ($p = 0.070$) median decrease in participants' ranking of exciting – boring ($Mdn = 0.000$) after participants' virtual reality experience ($Mdn = 1.500$), as compared to ranking prior to the virtual reality experience ($Mdn = 2.000$). The median results on the exciting –

boring scale shifted from exciting on the pre-test to very exciting on the post-test.

The third bipolar adjective scale question asked respondents to rank Japan on a scale from safe to unsafe (1 = safe, 7 = unsafe). The mean response to this question on the pre-test was 3.048 ($SD = 1.687$), meaning that the pre-test response was somewhat safe. The mean response on the post-test was 2.286 ($SD = 1.056$), moving the response to safe.

There were no outliers found in this dataset. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.151$).

The paired-sample T test results showed that participants ranking of safe – unsafe shifted after their virtual reality experience ($M = 2.286, SD = 1.056$) when compared to their ranking prior to the virtual reality experience ($M = 3.048, SD = 1.687$). The mean increase of 0.762 was not statistically significant, 95% CI [-0.038, 1.562], $t(20) = 1.986, p = 0.061, d = 0.433$.

The fourth bipolar adjective scale question asked respondents to rank Japan on a scale from dirty to clean (1 = dirty, 7 = clean). The mean response to this question on the pre-test was 5.000 ($SD = 1.703$), meaning that the pre-test response was somewhat clean. The mean response on the post-test was 5.429 ($SD = 1.805$), moving more toward the clean end of the scale, but staying at somewhat clean.

There were no outliers found in this dataset. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.193$).

The paired-sample T test results showed that participants ranking of dirty – clean improved after their virtual reality experience ($M = 5.429$, $SD = 1.805$) when compared to their ranking prior to the virtual reality experience ($M = 5$, $SD = 1.703$). However, the mean increase of -0.429 was not statistically significant, 95% CI [-1.237 , 0.380], $t(20) = -1.105$, $p = 0.282$, $d = -0.241$.

The fifth bipolar adjective scale question asked respondents to rank Japan on a scale from interesting to uninteresting (1 = interesting, 7 = uninteresting). The mean response to this question on the pre-test was 1.905 ($SD = 1.136$), meaning that the pre-test response was very interesting. The mean response on the post-test was 1.429 ($SD = 0.676$), moving more toward the interesting end of the scale but staying at very interesting.

This data set proved to have no outliers, as assessed by a boxplot. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.001$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' ranking of interesting - uninteresting. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 21 participants, the virtual reality experience had a positive result in one (4.762%) of the participants, compared to 12 (57.143%) participants with no improvement, and eight (38.095%) participants with negative results. There was a

statistically significant ($p = 0.021$, $z = 2.308$) median increase in participants' ranking of interesting – uninteresting ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 1$), as compared to the results prior to the virtual reality experience ($Mdn = 2$). The median results of the interesting – uninteresting scale shifted from interesting on the pre-test to very interesting on the post-test.

The sixth bipolar adjective scale question asked respondents to rank Japan on a scale from crowded to isolated (1 = crowded, 7 = isolated). The mean response to this question on the pre-test was 1.619 ($SD = 1.244$), meaning that the pre-test response was very crowded. The mean response on the post-test was 2.190 ($SD = 1.365$), moving the response to crowded.

There were outliers found in this dataset, but after an inspection, they were kept in the analysis. This is due to the fact that the data is already restricted on a Likert scale ranking of seven choices. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.091$).

The paired-sample T test results showed that participants ranking of crowded – isolated changed after their virtual reality experience ($M = 2.190$, $SD = 1.365$) when compared to their ranking prior to the virtual reality experience ($M = 1.619$, $SD = 1.244$), a statistically significant mean increase of -0.571, 95% CI [-1.139, 0.003], $t(20) = 2.098$, $p = 0.049$, $d = -0.458$.

The seventh bipolar adjective scale question asked respondents to rank Japan on a scale from underdeveloped to overdeveloped (1 = underdeveloped, 7 = overdeveloped). The mean response to this question on the pre-test was 5.286 ($SD =$

1.347), meaning that the pre-test response was somewhat overdeveloped. The mean response on the post-test was 5.524 ($SD = 1.078$), moving the response more toward the overdeveloped end of the scale, but staying at somewhat overdeveloped.

There were no outliers found in this dataset. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.144$).

The paired-sample T test results showed that participants ranking of underdeveloped – overdeveloped improved after their virtual reality experience ($M = 5.524, SD = 1.078$) when compared to their ranking prior to the virtual reality experience ($M = 5.286, SD = 1.347$). However, the mean increase of -0.238 was not statistically significant, 95% CI $[-0.880, 0.404]$, $t(20) = -0.773, p = 0.448, d = -0.169$.

The eighth and final bipolar adjective scale question asked respondents to rank Japan on a scale from modern to traditional (1=modern, 7 = traditional). The mean response to this question on the pre-test was 2.238 ($SD = 1.513$), meaning that the pre-test response was modern. The mean response on the post-test was 3.143 ($SD = 1.711$), moving the response to somewhat modern.

There were no outliers found in this dataset. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.321$).

The paired-sample T test results showed that participants ranking of modern – traditional improved after their virtual reality experience ($M = 3.143, SD = 1.711$) when compared to their ranking prior to the virtual reality experience ($M = 2.238, SD = 1.513$). However, the mean increase of -0.905 was not statistically significant, 95% CI $[-1.869, 0.059]$, $t(20) = -1.957, p = 0.065, d = -0.427$.

This portion of the study required that there were three different types of tests conducted on the data set: 1) paired t-test, 2) Wilcoxon signed-rank test, and 3) sign test. To determine the effect of virtual reality on the participant's perception of the infrastructure, attractions, and people of Japan, eight different measurement tools were used. In regard to the Japan data set of the study, three of the eight measurement tools saw a significant change in results from the pre-test to the post-test: 1) friendly – cold, 2) interesting – uninteresting, and 3) crowded - isolated. The significant post-test responses moved more toward the friendly, interesting, and isolated ends of the 'friendly – cold,' 'interesting – uninteresting,' and 'crowded – isolated' scales.

Summary of Infrastructure, Attractions, and People

When analyzing the overall data set (including participants who chose Mexico and Japan), six of the eight measurement tools proved to have a significant result, concluding that the virtual reality experience had a positive influence on the participant's perception of infrastructure, attractions, and people. The measurement tools that had a significant result were friendly – cold, exciting – boring, safe – unsafe, dirty – clean, interesting – uninteresting, and crowded – isolated.

The Mexico data set seemed to be the least affected by the virtual reality experience. Only two of the eight measurement tools saw a significant change in participant perception, including dirty – clean and crowded – isolated.

In regard to Japan, three of the measurement tools saw a significant change in participant perception, while the other five measurement tools did not. The three

measurement tools that had significant results are friendly – cold, interesting – uninteresting, and crowded – isolated.

While there are varying results among each data set, there were many significant findings. There was one measurement tool that saw significant results among all three data sets, i.e. crowded – isolated. Each of these data sets proved that the virtual reality experience had a positive effect on the participant's perception of how crowded or isolated the destinations were, with each data set moving more toward the isolated end of the scale after the virtual reality experience.

These results allow the researcher to reject the null hypothesis and conclude that the virtual reality experience had a positive influence on participant's perception of infrastructure, attractions, and people of a specific destination.

Destination Image

Respondents were asked to rate their perceived image of the chosen destination on both the pre-test and post-test. Destination image was measured through eight questions using a seven point Likert scale. For each question, the respondents were asked to respond to a statement describing the image of a destination. The responses were measured on a scale of 1 – 7 (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither agree nor disagree, 5 = somewhat agree, 6 = agree, 7 = strongly agree). The statements and response choices are identical on the pre-test and post-test. The destination image section of the paper is looking to determine participant's perception of the destination. This is a response to the third hypothesis of the study:

H0. The virtual reality tourism experience has no effect on participant's behavioral intention, perception, or destination image of a specific destination.

H3. The virtual reality tourism experience will positively affect the perception of the destination's image.

The first question to measure destination image is measuring the respondent's perception of the transportation system. The first statement is "the transportation system is good." The mean response on the pre-test was 4.457 ($SD = 1.540$), meaning that the pre-test response was neutral (neither agree nor disagree). The mean post-test response was 4.583 ($SD = 1.538$), moving the response more toward the 'agree' end of the scale, but staying neutral.

This data set proved to have outliers, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not excluded or transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.001$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' perception of transportation systems. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 35 participants, the virtual reality experience had a positive result in 11 (31.429%) of the participants, compared to 16 (45.714%) participants with no improvement, and eight (22.857%) participants with negative results. There was no statistically significant ($p = 0.601$, $z = -0.523$) median increase in participants' perception of transportation systems ($Mdn = 0.000$) after participants' virtual reality experience ($Mdn = 4.500$), as compared to the results prior to the virtual reality experience ($Mdn = 4.000$). The median result in response to participants' perception of the transportation system was neutral in the pre-test and stayed neutral in the post-test.

The second question to measure destination image is measuring the respondent's perception of the landscape. The second statement is "the landscape in the area is varied." The mean response on the pre-test was 4.343 ($SD = 1.211$), meaning that the pre-test response was neutral (neither agree nor disagree). The mean post-test response was 5.583 ($SD = 1.204$), moving the response to somewhat agree.

This data set proved to have no outliers, as assessed by a boxplot. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.011$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' perception of landscape variation. The difference scores were approximately

symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 35 participants, the virtual reality experience had a positive result in 22 (62.857%) of the participants, compared to 10 (28.571%) participants with no improvement, and three (8.571%) participants with negative results. There was a statistically significant ($p = 0.001$, $z = -3.439$) median increase in participants' perception of landscape variation ($Mdn = 1$) after participants' virtual reality experience ($Mdn = 6$), as compared to the results prior to the virtual reality experience ($Mdn = 4$). The median results in response to participants' perception of the landscape shifted from being neutral in the pre-test to agree in the post-test

The third question to measure destination image is measuring the respondent's perception of the expense of visiting. The third statement is "it is an expensive place to visit." The mean response on the pre-test was 4.324 ($SD = 1.532$), meaning that the response was neutral (neither agree nor disagree). The mean post-test response was 4.333 ($SD = 1.492$), moving more toward the 'agree' end of the scale, but staying neutral.

This data set proved to have one outlier, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not excluded or transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.001$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' perception of expense. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 34 participants, the virtual reality experience had a positive result in 11 (32.353%) of the participants, compared to 11 (32.353%) participants with no improvement, and 12 (35.294%) participants with negative results. There was no statistically significant ($p = 0.637$, $z = -0.472$) median increase in participants' perceived expense to travel to the destination ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 4$), as compared to the result prior to the virtual reality experience ($Mdn = 4$). The median results in response to participants' perception of travel expense were neutral in the pre-test and remained neutral in the post-test.

The fourth question to measure destination image is measuring the respondent's perception of the opportunities available to increase the participant's knowledge. The fourth statement is "there are opportunities to increase my knowledge." The mean response on the pre-test was 6.086 ($SD = 0.919$), meaning that the pre-test result was 'agree.' The mean response on the post-test was 6.167 ($SD = 1.320$), moving more toward the strongly agree end of the scale, but remaining at 'agree.'

This data set proved to have no outliers, as assessed by a boxplot. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.001$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' perception of the opportunities available to increase knowledge. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 35 participants, the virtual reality experience had a positive result in 13 (37.143%) of the participants, compared to 17 (48.571%) participants with no improvement, and five (14.286%) participants with negative results. There was no statistically significant ($p = 0.161$, $z = -1.400$) median increase in participants' perception of opportunities available to increase knowledge ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 6.500$), as compared to the results prior to the virtual reality experience ($Mdn = 6$). The median results in response to participants' perceived opportunities to increase knowledge were 'agree' in the post test and remained at 'agree' in the post-test.

The fifth question to measure destination image is measuring the respondent's perception of a romantic environment. The fifth statement is 'it is a romantic place to visit.' The mean response on the pre-test was 4.114 ($SD = 1.231$), meaning that the pre-test response was neutral (neither agree nor disagree). The mean response on the post-test was 5.167 ($SD = 1.000$), meaning that the result moved to 'somewhat agree.'

This data set proved to have no outlier, as assessed by a boxplot. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.004$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' perception of romanticism. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' perception of romanticism. Of the 35 participants, the virtual reality experience had a positive result in 23 (65.714%) of the participants, compared to 11 (31.429%) participants with no improvement, and one (2.857%) participant with negative results.

There was a statistically significant ($p < 0.001$) median increase in participants' perception of romanticism ($Mdn = 1$) after participants' virtual reality experience ($Mdn = 5$), as compared to the result prior to the virtual reality experience ($Mdn = 4$). The median results in response to participants' perception of romanticism shifted from neutral in the pre-test to 'somewhat agree' in the post-test.

The sixth question to measure destination image is measuring the respondent's perception of the weather. The sixth statement is "the weather is predictable." The mean response on the pre-test was 3.829 ($SD = 0.857$), meaning

that the pre-test response was 'somewhat disagree.' The mean response on the post-test was 4.250 ($SD = 0.769$), moving to a neutral response (neither agree nor disagree).

This data set proved to have outliers, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p < 0.0005$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' perception of the weather. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 35 participants, the virtual reality experience had a positive result in 13 (37.143%) of the participants, compared to 19 (54.286%) participants with no improvement, and three (8.571%) participants with negative results. There was a statistically significant ($p = 0.018$, $z = -2.372$) median increase in participants' perception of the weather ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 4$), as compared to the result prior to the virtual reality experience ($Mdn = 4$). The median results in response to participants' perception of the weather were neutral in the pre-test and remained neutral in the post-test.

The seventh question to measure destination image is measuring the respondent's perception of the time it takes to travel to the destination. The seventh statement is "it takes too much time to get there." The mean response on the pre-

test was 4.600 ($SD = 1.576$), meaning that the pre-test response was neutral (neither agree nor disagree). The mean response on the post-test was 4.222 ($SD = 1.533$), meaning that the response shifted more toward 'disagree' but remained neutral.

This data set proved to have some outliers, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p < 0.0005$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' perception of time it takes to travel to the destination. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' perception of the time it takes to travel to the destination. Of the 35 participants, the virtual reality experience had a positive result in four (11.429%) of the participants, compared to 19 (54.286%) participants with no improvement, and 12 (34.286%) participants with negative results.

There was no statistically significant ($p = 0.077$) median decrease in participants' perception of time it takes to travel to the destination ($Mdn = 0$)

after participants' virtual reality experience ($Mdn = 4$), as compared to the result prior to the virtual reality experience ($Mdn = 4$). The median results in response to participants' perception of the time it takes to travel a destination were neutral in the pre-test and remained neutral in the post-test.

The eighth question to measure destination image is measuring the respondent's perception of the family environment of the destination. The eighth statement is "it is a family oriented place." The mean response on the pre-test was 4.514 ($SD = 1.378$), meaning that the pre-test result was neutral (neither agree nor disagree). The mean response on the post-test was 5.139 ($SD = 1.073$), meaning that the response moved to 'somewhat agree.'

This data set proved to have outliers, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not excluded or transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.001$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' perception of a family-oriented environment. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 35 participants, the virtual reality experience had a positive result in 15 (42.857%) of the participants, compared to 16 (45.714%) participants with no improvement, and four (11.429%) participants with negative results. There was a statistically significant ($p = 0.011$, $z = -2.552$) median increase in participants' perception of a family-oriented environment ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 5$), as compared to behavioral intention prior to the virtual reality experience ($Mdn = 4$). The median results in response to participants' perception of a family-oriented environment shifted from being neutral in the pre-test to 'somewhat agree' in the post-test.

This portion of the study required that there were three different types of tests conducted on the data set: 1) paired t-test, 2) Wilcoxon signed-rank test, and 3) sign test. To determine the effect of virtual reality on the participant's destination image of a specific destination, eight different measurement tools were used. In regard to the overall data set of the study, four of the eight measurement tools saw a significant change in results from the pre-test to the post-test: 1) The landscape in the area is varied, 2) it is a romantic place to visit, 3) the weather is predictable and 4) it is a family-oriented place. The significant median post-test response for the 'landscape' measurement tool moved from 'neither agree nor disagree' to 'agree.' The significant median post-test response for the 'romanticism' measurement tool moved from 'neither agree nor disagree' to 'somewhat agree.' The significant median post-test response for the 'weather' measurement tool was the same as the pre-test response: 'neither agree nor disagree.' The significant median post-test

response for the 'family-oriented' measurement tool moved from 'neither agree nor disagree' to 'somewhat agree.'

San Miguel de Allende, Mexico Destination Image

Respondents were asked to rate their perceived image of Mexico on both the pre-test and post-test. Destination image was measured through eight questions using a 7-point Likert scale. The respondents were asked to respond to a statement. The responses were measured on a scale of 1 – 7 (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither agree nor disagree, 5 = somewhat agree, 6 = agree, 7 = strongly agree). The statements and response choices are identical on the pre-test and post-test.

The first question to measure destination image is measuring the respondent's perception of the transportation system in Mexico. The first statement is "the transportation system is good." The mean response on the pre-test was 3.733 ($SD = 1.222$), meaning that the pre-test response was 'somewhat disagree.' The mean post-test response was 4.133 ($SD = 1.302$), moving the response to neutral (neither agree nor disagree).

This data set proved to have some outliers, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p < 0.0005$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' perception of transportation systems. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' perception of transportation systems. Of the 15 participants, the virtual reality experience had a positive result in four (26.667%) of the participants, compared to nine (60.000%) participants with no improvement, and two (13.333%) participants with negative results.

There was no statistically significant ($p = 0.289$) median increase in participants' perception of transportation systems ($Mdn = 0.000$) after participants' virtual reality experience ($Mdn = 4.000$), as compared to the result prior to the virtual reality experience ($Mdn = 3.500$). The median results in response to participants' perception of Mexico's transportation systems were 'somewhat disagree' in the pre-test to neutral (neither agree nor disagree) in the post-test.

The second question to measure destination image is measuring the respondent's perception of the landscape in Mexico. The second statement is "the landscape in the area is varied." The mean response on the pre-test was 4.400 ($SD = 0.986$), meaning that the pre-test response was neutral (neither agree nor disagree).

The mean post-test response was 4.867 ($SD = 1.407$), moving more toward the 'agree' end of the scale, but remaining neutral.

There were outliers found in this dataset, but after an inspection, they were kept in the analysis. This is due to the fact that the data is already restricted on a Likert scale ranking of 7 choices. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.063$).

The paired-sample T test results showed that participants' perception of landscape variations changed after their virtual reality experience ($M = 4.867$, $SD = 1.407$) when compared to the result prior to the virtual reality experience ($M = 4.400$, $SD = 0.986$). However, the mean increase of -0.467 was not statistically significant, 95% CI [-1.376, 0.442], $t(14) = -1.101$, $p = 0.290$, $d = -0.284$.

The third question to measure destination image is measuring the respondent's perception of the expense of visiting Mexico. The third statement is "it is an expensive place to visit." The mean response on the pre-test was 3.067 ($SD = 1.222$), meaning that the pre-test result was 'somewhat disagree.' The mean post-test response was 3.600 ($SD = 1.454$), moving more toward the 'agree' end of the scale, but remaining at 'somewhat disagree.'

This data set proved to have outliers, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not excluded or transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.002$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' perception of the expense required to travel to Mexico. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 15 participants, the virtual reality experience had a positive result in six (40.000%) of the participants, compared to seven (46.667%) participants with no improvement, and two (13.333%) participants with negative results. There was no statistically significant ($p = 0.251$, $z = -1.149$) median increase in participants' perception of the expense required to travel to Mexico ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 4$), as compared to the result prior to the virtual reality experience ($Mdn = 3$). The median results in response to participants' perception of the expense required to travel to Mexico were 'somewhat disagree' in the pre-test and neutral (neither agree nor disagree) in the post-test.

The fourth question to measure destination image is measuring the respondent's perception of the opportunities available in Mexico that would increase knowledge. The fourth statement is "there are opportunities to increase my knowledge." The mean response on the pre-test was 5.867 ($SD = 0.834$), meaning that the pre-test response was 'somewhat agree.' The mean response on the post-test was 5.600 ($SD = 1.765$), meaning that the response moved more toward the 'disagree' end of the scale, but remained at 'somewhat agree.'

This data set proved to have no outliers, as assessed by a boxplot. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.035$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the effect of the virtual reality experience on participants' perception of the opportunities available to increase knowledge. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' perception of the opportunities available to increase knowledge. Of the 15 participants, the virtual reality experience had a positive result in seven (46.667%) of the participants, compared to four (26.667%) participants with no improvement, and four (26.667%) participants with negative results.

There was no statistically significant ($p = 0.549$) median decrease in participants' perception of the opportunities available to increase knowledge ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 6$), as compared to the result prior to the virtual reality experience ($Mdn = 6$). The median results in response to participants' perception of the opportunities available to increase knowledge were 'agree' in the pre-test and remained as 'agree' in the post-test.

The fifth question to measure destination image is measuring the respondent's perception of Mexico as a romantic environment. The fifth statement is 'it is a romantic place to visit.' The mean response on the pre-test was 4.267 ($SD = 1.579$), meaning that the pre-test response was neutral (neither agree nor disagree). The mean response on the post-test was 5.267 ($SD = 1.033$), meaning that the post-test response was 'agree.'

There were no outliers found in this dataset. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.333$).

The paired-sample T test results showed that participants' perception of romanticism improved after their virtual reality experience ($M = 5.267, SD = 1.032$) when compared to the result prior to the virtual reality experience ($M = 4.267, SD = 1.580$), a statistically significant mean increase of -1, 95% CI [-1.755, -0.245], $t(14) = -2.842, p = 0.013, d = -0.734$.

The sixth question to measure destination image is measuring the respondent's perception of the weather in Mexico. The sixth statement is "the weather is predictable." The mean response on the pre-test was 3.667 ($SD = 0.976$), meaning that the pre-test response was 'somewhat disagree.' The mean response on the post-test was 4.267 ($SD = 0.458$), meaning that the post-test response was neutral (neither agree nor disagree).

There were no outliers found in this dataset. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.217$).

The paired-sample T test results showed that participants' perception of weather in Mexico shifted after their virtual reality experience ($M = 4.267$, $SD = 0.458$) when compared to the result prior to the virtual reality experience ($M = 3.667$, $SD = 0.976$). However, the mean increase of 0.600 was not statistically significant, 95% CI [-1.221, 0.021], $t(14) = -2.073$, $p = 0.057$, $d = -0.535$.

The seventh question to measure destination image is measuring the respondent's perception of the time it takes to travel to Mexico. The seventh statement is "it takes too much time to get there." The mean response on the pre-test was 4.133 ($SD = 1.356$), meaning that the pre-test response was neutral (neither agree nor disagree). The mean response on the post-test was 3.600 ($SD = 1.352$), meaning that the post-test response was 'somewhat disagree.'

This data set proved to have outliers, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not excluded or transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p < 0.001$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the effect of the virtual reality experience on participants' perception of the time it takes to travel to Mexico. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual

reality experience on the participants' perception of the time it takes to travel to Mexico. Of the 15 participants, the virtual reality experience had a positive result in one (6.667%) of the participants, compared to nine (60.000%) participants with no improvement, and five (33.333%) participants with negative results.

There was no statistically significant ($p = 0.219$) median decrease in participants' perception of the time it takes to travel to Mexico ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 4$), as compared to the result prior to the virtual reality experience ($Mdn = 4$). The median results in response to participants' perception of the time it takes to travel to Mexico were neutral in the pre-test, and remained neutral in the post-test.

The eighth question to measure destination image is measuring the respondent's perception of the family-oriented environment of Mexico. The eighth statement is "it is a family oriented place." The mean response on the pre-test was 4.800 ($SD = 1.568$), meaning that the pre-test results were neutral (neither agree nor disagree). The mean response on the post-test was 5.133 ($SD = 1.187$), meaning that the post-test response was 'agree.'

This data set proved to have one outlier, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was kept for analysis. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.011$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants'

perception of a family environment. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 15 participants, the virtual reality experience had a positive result in six (40.000%) of the participants, compared to seven (46.667%) participants with no improvement, and two (13.333%) participants with negative results. There was no statistically significant ($p = 0.272$, $z = -1.098$) median increase in participants' perception of a family-oriented environment ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 5$), as compared to the result prior to the virtual reality experience ($Mdn = 5$). The median results in response to participants' perception of a family-oriented environment were 'agree' in the pre-test and remained as 'agree' in the post-test.

This portion of the study required that there were three different types of tests conducted on the data set: 1) paired t-test, 2) Wilcoxon signed-rank test, and 3) sign test. To determine the effect of virtual reality on the participant's destination image of Mexico, eight different measurement tools were used. In regard to the overall data set of the study, one of the eight measurement tools saw a significant change in results from the pre-test to the post-test: It is a romantic place to visit. The significant mean post-test response for the 'romanticism' measurement tool moved from 'neither agree nor disagree' to 'somewhat agree.'

Japan Destination Image

Respondents were asked to rate their perceived image of Japan on both the pre-test and post-test. Destination image was measured through 8 questions using a 7-point Likert scale. The respondents were asked to respond to a statement. The responses were measured on a scale of 1 – 7 (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither agree nor disagree, 5 = somewhat agree, 6 = agree, 7 = strongly agree). The statements and response choices are identical on the pre-test and post-test.

The first question to measure destination image is measuring the respondent's perception of the transportation system in Japan. The first statement is "the transportation system is good." The mean response on the pre-test was 5.000 ($SD = 1.556$), meaning that the pre-test response was 'agree.' The mean post-test response was 4.905 ($SD = 1.640$), meaning that the post-test response shifted to neutral (neither agree nor disagree).

This data set proved to have no outliers, as assessed by a boxplot. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.014$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' perception of transportation systems in Japan. The difference scores were approximately symmetrically distributed, as determined by a histogram with a superimposed normal curve.

Of the 20 participants, the virtual reality experience had a positive result in seven (35%) of the participants, compared to seven (35%) participants with no improvement, and six (40%) participants with negative results. There was no statistically significant ($p = 0.851$, $z = -0.188$) median increase in participants' perception of transportation systems ($Mdn = 0.000$) after participants' virtual reality experience ($Mdn = 5.000$), as compared to the result prior to the virtual reality experience ($Mdn = 5.500$). The median results in response to participants' perception of transportation systems were 'somewhat agree' in the pre-test and remained as 'somewhat agree' in the post-test.

The second question to measure destination image is measuring the respondents' perception of the landscape in Japan. The second statement is "the landscape in the area is varied." The mean response on the pre-test was 4.300 ($SD = 1.380$), meaning that the pre-test response was neutral (neither agree nor disagree). The mean post-test response was 6.150 ($SD = 0.700$), meaning that the post-test response was 'agree.'

There were no outliers found in this dataset. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.052$).

The paired-sample T test results showed that participants' perception of landscape variation improved after their virtual reality experience ($M = 6.150$, $SD = 0.6708$) when compared to the result prior to the virtual reality experience ($M = 4.300$, $SD = 1.380$), a statistically significant mean increase of -1.850, 95% CI [-2.613, -1.087], $t(19) = -5.072$, $p < 0.0005$, $d = -1.134$.

The third question to measure destination image is measuring the respondents' perceived expense of visiting Japan. The third statement is "it is an expensive place to visit." The mean response on the pre-test was 5.316 ($SD = 0.885$), meaning that the pre-test response was 'somewhat agree.' The mean post-test response was 4.842 ($SD = 1.315$), meaning that the post-test response was neutral (neither agree nor disagree).

There were no outliers found in this dataset. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.230$).

The paired-sample T test results showed that participants perceived expense of visiting Japan shifted after their virtual reality experience ($M = 4.842$, $SD = 1.385$) when compared to their ranking prior to the virtual reality experience ($M = 5.316$, $SD = 0.885$). However, this mean decrease of 0.474 was not statistically significant, 95% CI [-0.156, 1.103], $t(18) = 1.580$, $p = 0.132$, $d = 0.362$.

The fourth question to measure destination image is measuring the respondent's perception of the opportunities available in Japan that would increase the participant's knowledge. The fourth statement is "there are opportunities to increase my knowledge." The mean response on the pre-test was 6.250 ($SD = 0.967$), meaning that the pre-test response was 'agree.' The mean response on the post-test was 6.571 ($SD = 0.676$), meaning that the post-test response shifted more toward the 'strongly agree' end of the scale, but remained at 'agree.'

This data set proved to have no outlier, as assessed by a boxplot. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p < 0.0005$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' perception of opportunities available to increase knowledge. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' perception of opportunities available to increase knowledge. Of the 20 participants, the virtual reality experience had a positive result in six (30%) of the participants, compared to 13 (65%) participants with no improvement, and one (5%) participant with negative results.

There was no statistically significant ($p = 0.125$) median increase in participants' perception of opportunities available to increase knowledge ($Mdn = 0.000$) after participants' virtual reality experience ($Mdn = 7.000$), as compared to the result prior to the virtual reality experience ($Mdn = 6.500$). The median results in response to the participants' perception of opportunities available to increase knowledge were 'agree' in the pre-test and shifted to 'strongly agree' in the post-test.

The fifth question to measure destination image is measuring the respondent's perception of Japan as a romantic environment. The fifth statement is 'it is a romantic place to visit.' The mean response on the pre-test was 4.000 ($SD = 0.918$), meaning that the pre-test response was neutral (neither agree nor disagree). The mean response on the post-test was 5.095 ($SD = 0.995$), meaning that the post-test response shifted to 'somewhat agree.'

This data set proved to have no outlier, as assessed by a boxplot. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.019$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' perceived romanticism. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' perceived romanticism. Of the 20 participants, the virtual reality experience had a positive result in 13 (65%) of the participants, compared to seven (35%) participants with no improvement, and no participant with negative results.

There was a statistically significant ($p < 0.001$) median increase in participants' perceived romanticism ($Mdn = 1$) after participants' virtual reality experience ($Mdn = 5$), as compared to the result prior to the virtual

reality experience ($Mdn = 4$). The median results in response to participants' perceived romanticism were neutral in the pre-test and shifted to 'somewhat agree' in the post-test.

The sixth question to measure destination image is measuring the respondent's perception of the weather in Japan. The sixth statement is "the weather is predictable." The mean response on the pre-test was 3.950 ($SD = 0.759$), meaning that the pre-test result was 'somewhat disagree.' The mean response on the post-test was 4.238 ($SD = 0.944$), meaning that the post-test response was neutral (neither agree nor disagree).

This data set proved to have some outliers, as assessed by a boxplot. However, this data is also restricted by Likert scale options, ranging from 1 – 7, so this data was not excluded or transformed. The difference scores for this data set were determined as not normally distributed, as assessed by Shapiro-Wilk's test ($p = 0.002$).

Due to the non-normality result, a Wilcoxon signed-rank test was conducted to determine the significance of the virtual reality experience on participants' perception of the weather. The difference scores were not symmetrically distributed, as determined by a histogram with a superimposed normal curve.

The lack of symmetrical distribution resulted in the assessment of a sign test on the data. An exact sign test was conducted to determine the effect of the virtual reality experience on the participants' perception of the weather. Of the 20 participants, the virtual reality experience had a positive result in six (30%) of the

participants, compared to 13 (65%) participants with no improvement, and one (5%) participant with negative results.

There was no statistically significant ($p = 0.125$) median increase in participants' perception of the weather ($Mdn = 0$) after participants' virtual reality experience ($Mdn = 4$), as compared to the result prior to the virtual reality experience ($Mdn = 4$). The median results in response to participants' perception of the weather were neutral in the pre-test and remained neutral in the post-test.

The seventh question to measure destination image is measuring the respondent's perception of the time it takes to travel to Japan. The seventh statement is "it takes too much time to get there." The mean response on the pre-test was 4.950 ($SD = 1.669$) meaning that the pre-test response was neutral (neither agree nor disagree). The mean response on the post-test was 4.600 ($SD = 1.528$), meaning that the post-test response moved more toward to the 'disagree' end of the spectrum, but remained neutral.

There was one outlier found in this dataset, but after an inspection, it was kept in the analysis. This is due to the fact that the data is already restricted on a Likert scale ranking of 7 choices. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.088$).

The paired-sample T test results showed that participants perception of the time it takes to travel to Japan improved after their virtual reality experience ($M = 4.600$, $SD = 1.536$) when compared to the result prior to the virtual reality

experience ($M = 4.950$, $SD = 1.669$). However, the mean decrease of 0.350 was not statistically significant, 95% CI $[-0.159, 0.859]$, $t(19) = 1.437$, $p = 0.167$, $d = 0.321$

The eighth question to measure destination image is measuring the respondents' perception of the family environment of Japan. The eighth statement is "it is a family oriented place." The mean response on the pre-test was 4.300 ($SD = 1.218$), meaning that the pre-test response was neutral (neither agree nor disagree). The mean response on the post-test was 5.143 ($SD = 1.014$), meaning that the post-test response was 'somewhat agree.'

There were no outliers found in this dataset. The assumption of normality was not violated, as assessed by Shapiro-Wilk's test ($p = 0.188$).

The paired-sample T test results showed that participants perception of a family environment shifted after their virtual reality experience ($M = 5.100$, $SD = 1.021$) when compared to their ranking prior to the virtual reality experience ($M = 4.300$, $SD = 1.218$), a statistically significant mean increase of 0.800, 95% CI $[-1.437, -0.163]$, $t(19) = -2.629$, $p = 0.017$, $d = -0.588$.

This portion of the study required that there were three different types of tests conducted on the data set: 1) paired t-test, 2) Wilcoxon signed-rank test, and 3) sign test. To determine the effect of virtual reality on the participant's destination image of Japan, eight different measurement tools were used. In regard to the overall data set of the study, three of the eight measurement tools saw a significant change in results from the pre-test to the post-test: 1) The landscape in the area is varied, 2) it is a romantic place to visit, and 3) it is a family oriented place. The

significant mean post-test response for the 'landscape' measurement tool moved from 'neither agree nor disagree' to 'agree.' The significant median post-test response for the 'romanticism' measurement tool moved from 'neither agree nor disagree' to 'somewhat agree.' The significant mean post-test response for the 'family-oriented' measurement tool moved from 'neither agree nor disagree' to 'somewhat agree.'

Summary of Destination Image

This portion of the study required that there were three different types of tests conducted on the data set: 1) paired t-test, 2) Wilcoxon signed-rank test, and 3) sign test.

When analyzing the overall data set (including participants who chose Mexico and Japan), four of the eight measurement tools proved to have a significant result, concluding that the virtual reality experience had a positive influence on the participant's destination image of the following: idea of landscape variation, romanticism, weather predictability, and family-oriented environments.

The Mexico data set seemed to be the least affected by the virtual reality experience. Only one of the eight measurement tools saw a significant change in participant destination image, i.e. the idea of romanticism

In regard to Japan, three of the measurement tools saw a significant change in participant perception, while the other five measurement tools did not. The three measurement tools that had significant results are participants' destination image of landscape variation, romanticism, and family-oriented environments.

While there are varying results among each data set, there were many significant findings. There was one measurement tool that saw significant results among all three data sets, i.e. romanticism. Each of these data sets proved that the virtual reality experience had a positive effect on the participants' destination image, particularly the idea that the specific destination is a romantic place to visit.

These results allow the researcher to reject the null hypothesis and conclude that the virtual reality experience had a positive influence on participant's destination image of a specific destination.

CHAPTER V: DISCUSSION AND RECOMMENDATIONS

Major Findings

The participants in this study were students at a university in the southeast region of the United States, with 47.2% of participants being classified as Juniors. The average of age of participants was 22.7 years of age, with a minimum age of 18 and only two participants over the age of 25. The gender profile was equal among participants, with 50% of participants being male, and 50% of participants being female. The majority (55.6%) of participants were classified as Caucasian.

Participants were also asked about their financial status. The majority (50%) of students claimed their household income to fall between \$35,999 and \$99,999. In addition to receiving information about their household income, participants were asked to report their financial aid status, with 54.3% of participants claiming that they received some sort of financial aid award to attend university.

Because this study focused on destinations that were available through the local study abroad program, participants were asked about their interest in traveling for study abroad purposes. In response previous interest in study abroad programs, 80% of participants stated that they had been interested in participating. After the virtual reality experience, participants were asked to rate their level of intention to participate in study abroad programs. The ranking system was from 1 (not at all likely to participate) to 10 (extremely likely to participate). The average response from participants was 7.472, meaning that the overall students were willing to travel with a study abroad program.

Additional information that was collected from participants was their familiarity and favorability of the destinations. The majority of participants (53.3%) who chose Mexico as their destination claimed that they “knew a little bit” about Mexico. Regarding favorability, 53.8% of the Mexico participants stated that they were somewhat favorable of Mexico. The Japan results differed from the results from Mexico. When asked about their familiarity, 71.4% of the participants who chose Japan stated that they knew a little bit about Japan. In regards to favorability of Japan, 42.1% of participants stated that they were indifferent to Japan.

Based on the responses from the 36 participants, the hypotheses of this study were answered. The results varied, based on the data set and the hypothesis that was being tested. The data set that resulted from the participants’ who chose Mexico as their virtual reality destination saw the least amount of significant findings. The Japan data set saw a moderate amount of significant findings, while the overall data set saw the most significant findings throughout the study.

Regarding behavioral intention, the researcher rejected the null hypothesis. There was a statistically significant result in the behavioral intention portion of the results, inferring that the virtual reality experience had a significant effect on participants’ intention to travel to a specific destination. The Mexico data set did not prove to be statistically significant in the behavioral intention portion, but the Japan and overall data sets were both found to be statistically significant.

The Mexico data set may not have been found to be significant, but there was a shift in the mean of level of behavioral intention from 7.385 ($SD = 2.323$) to 7.933

($SD = 2.576$), moving more toward the “intend to visit” end of the scale. The pre-test result (7.385 , $SD = 2.323$), was already a high intention level, but became higher after the virtual reality experience (7.933 , $SD = 2.576$). Japan and the overall data set were significant, each moving more toward a very high level of behavioral intention in regard to traveling to specific destinations.

Regarding infrastructure, attractions, and people, the researcher rejected the null hypothesis. There was a statistically significant result in this portion of the results, inferring that the virtual reality experience had a significant effect on participants’ perception of the infrastructure, attractions, and people of a specific destination. This portion of the survey instrument consisted of eight different measurement tools.

While all of the measurement tools did not have significant results, there were enough to claim significance for the infrastructure, attractions, and people section of the data. Mexico seemed to be the least effected by the virtual reality experience, with only two of the eight measurement tools having a significant improvement; dirty – clean and crowded – isolated. The Japan data set saw three of the eight measurement tools have a significant effect after the virtual reality experience; friendly – cold, interesting – uninteresting, and crowded to isolated. Six of the eight measurement tools in the overall data set had a significant change; dirty – clean, friendly – cold, exciting – boring, safe – unsafe, interesting – uninteresting, and crowded – isolated. The only measurement tool that had a significant change in all three data sets was the bipolar adjective of crowded – isolated, with all three data

sets moving more toward the isolated end of the spectrum after the virtual reality experience.

Regarding participant's destination image, the researcher rejected the null hypothesis after seeing a statistically significant result. These results infer that the virtual reality experience had a significant effect on participants' destination image of a specific destination. This portion of the survey instrument consisted of eight different measurement tools.

While all of the measurement tools did not have significant results, there were enough that proved to be significant to allow the researcher to reject the null hypothesis. Once again, the Mexico data set was the least affected by the virtual reality experience, with only one of the eight measurement tools being proven as significant, i.e. participants' perception of romanticism, moving more toward the 'agree' end of the scale. The Japan data set had significant results in three of the eight measurement tools: participants' perception of 1) landscape variation, 2) romanticism, and 3) family-oriented environment, with each moving more toward the 'agree' end of the scale. The overall data set had four of the eight measurement tools proven as significant: participants' perception of 1) landscape variation, 2) romanticism, 3) predictability of weather, and 4) family-oriented environment, with each moving more toward the 'agree' end of the scale. The one measurement tool that had significant results among all three of the data sets was the idea of romanticism, with each data set moving from neutral (neither agree nor disagree) to

'somewhat agree' on the 7-point Likert scale from 'strongly disagree' – 'strongly agree.'

Discussion

This study had 36 participants, providing the researcher with 72 questionnaires to use for data analysis. The goal for this study was 377 participants, leaving this study with only 10% of the goal number of respondents. The primary reason that there were only 36 participants is due to failed technology.

Unfortunately, the virtual reality program that was being used to perform the study stopped working midway through the study time. This technology issue was one that could not be solved, and the timeline for data collection was coming to a close, leaving the study with only 36 participants.

Of the 36 participants, six of them classified as "Asian," (16.7%) which is much different in comparison to the demographics of the available population. One of the goals of this study was to test a sample that reflected the population, however this was not the case. According to the 2015 student profile, Asians made up 4.9% of the student population at the university that this study took place at (Student Profile, 2019). Along with the high number of Asian participants, there were no Hispanic participants, which is also not in proportion with the population. According to the 2015 student profile, 4.5% of students were classified as Hispanic. This difference in the sample vs. population could potentially alter or skew results.

This could be improved by having a larger sample number. Due to the technological limitations, there was not enough time to gather more respondents.

However, if this study were to be repeated, it is advised that more participants are included in the sample. A larger sample number would help to even out numbers and include a more realistic sample of the population.

A major theme to come out of the data results is that the Mexico data set had a lack of significant results in comparison to the overall data set. The Mexico data set was the only data set that did not find a significant result in the behavioral intention portion. Regarding the infrastructure, attractions, and people and destination image portions of the study, the Mexico data set only had two of out eight significant results and one out of eight significant result, respectively.

The lack of significance in the Mexico data set could be due to the virtual reality video that was used in this study. While the researcher did choose this video based on content and quality, there are still some distinct differences from the Japan video. One of the major differences between these two videos is that the Mexico virtual reality video focused solely on one city, San Miguel de Allende, Mexico, while the Japan video was a summary of the nation as a whole. The video that was used for Japan was also a bit more dynamic, including festival and nightlife scenes, as well as historical and educational content. According to Huang, the enjoyment and usefulness of a 3D experience is a predictor of behavioral intention. Elements such as local music, storytelling, naturalistic elements, and cultural authenticity all contribute to planning for future sites (2016). If the video for Mexico had included some more exciting local graphics and cultural traditions, the change participant perception of Mexico may have been more significant.

Another possible reason for the lack of significance in the Mexico data set could be due to cultural distance. There has been research that suggests that travelers choose a destination that is culturally similar, as well as closer geographically (Liu, 2014). Because of the similar culture, as well as geographical proximity, there tends to be less interest in the culture, as well as less to learn. This study took place in the southeastern region of the United States, which is much closer geographically and much more similar culturally to Mexico as opposed to Japan, leaving participants with less to experience and learn from the Mexico virtual reality video.

There were two measurement tools that were found to be significant among the three data sets. One of these came from the infrastructure, attractions, and people section, while one came from the destination image section. These tools were measuring 1) participants' perception of how crowded – isolated the specific destination is, and 2) how romantic the participant perceived the specific destination to be.

Virtual reality's ability to "provide extensive sensory information" has been compared to other interactive forms of marketing (Guttentag, 2010, pg. 641). These marketing ideas such as videos, commercials, and virtual tours are focused on pulling tourists to the destination by using branding. According to Qu, Kim, and Im (2011), few things that branding a destination will focus on is the traveler's perception, destination image, and the uniqueness of a destination (including romanticism, culture, environment, nature, etc.). All of these concepts begin to

connect in a virtual reality experience: the videos are putting together a video that spotlights the destination brand to help shape the destination image and traveler perception, in an effort to pull tourism to the area. These virtual reality videos are immersive ways to learn more about the destination, including the population concentration and the romantic aspects of the culture.

This study focused on the shift in perception of a destination after a virtual reality experience, in an effort to determine whether having a virtual experience in a country would reduce constraints of travel (apprehension and ethnocentrism). These constraints have shown to reduce the willingness to communicate with other cultures (Neuliep, 2002), something that could potentially be altered by using a virtually reality experience.

Previous literature has noted that destination image is a total impression of a destination held by the traveler. This destination image is also influential in the traveler's decision-making process regarding traveling to the destination (Beerli & Martin, 2004, Wang, 2010). This study has been able to measure the participants' perception of destination image and behavioral intention, which both significantly improved.

Implications

This study does prove to have several practical implications. The significant results of this study have the ability to enhance the marketing of destinations. This study could also be used to help management and marketing officials to understand how a destination's image is perceived among potential tourists and what the best

mediums are to communicate that image. Previous literature has given many answers and suggestions on how to create interactive marketing and branding tools for a destination. While there is no option to change the virtual reality videos that were used in this study, we can now use the results of this study to determine what aspects of the video and culture were most significant. This gives researchers the opportunity to fill in the gaps with different types of education material or figure out a way to communicate aspects of a culture without the use of a virtual reality video.

The virtual reality experience had significant impact on participants' perception of infrastructure, attractions, and people, as well as destination image. This implies that virtual reality experiences could be used to improve potential travelers' perception of a destination, leading to a greater likelihood of traveling to a location. Another takeaway from this study is the potential that virtual reality could have on calming fears and apprehensions of a new environment. Virtual reality videos could potentially be used to help calm apprehensions in many different facets of life such as first day at school, new work place environment, moving to a new town, etc.

This study has re-iterated the importance of a positive destination image. If the image of a place is positive, then the likelihood that someone will visit increases. This is important for the branding and marketing of destinations. Marketing and branding teams can use this study to achieve higher travel rates, as well as create a brand that is going to create an interest and intention to travel. Not only is this study helpful in understanding that a positive destination image creates a higher level of

behavioral intention, but it also gives marketing teams the opportunity to compare their current marketing materials to the elements of the virtual reality videos that were used in this study. Comparing and contrasting marketing materials in accordance with this study could help to determine which elements should be added or removed based on the significance of this study.

Limitations

The small sample size of 36 participants is one of the limitations that this study faces. It does not allow for an accurate representation of the population because of a strong presence of Asian participants, and no Hispanic participants. A larger population sample would have provided a well-rounded participant group. This small sample size also had an effect on the way that the data was tested. Because of the small group sizes, the data was unable to meet the standards of normality, resulting in much of the data testing being conducted through non-parametric tests, as opposed to paired t-tests.

After this study had begun, the technology that was being used in this study was no longer available, resulting in the conclusion of the data collection with 36 participants. This technology also presented limitations when it came to choosing the virtual experience videos. The majority of the virtual reality videos did not have the content that was preferred by the researcher. Because this study was focused on study abroad destinations, the number of destinations to choose from was already limited. Once the researcher began to filter through the videos using the quality criteria, Mexico and Japan were some of the few options left for this study.

The virtual reality videos that were chosen also had their differences, along with being produced by different companies. The Mexico video was limited to a virtual reality tour of one city, San Miguel de Allende, while the Japan video toured small parts of the entire nation.

Not only was the Mexico video limited to one city, but it also did not include as many 'exciting' variables (i.e. festivals, nightlife) as the Japan video. The video for Japan also included more natural scenery than the San Miguel de Allende, Mexico video. These videos also may not accurately or fully represent the culture and lifestyle of the destinations as intended.

This study is being performed in the Southeast region of the United States at a public university, which also limits the generalizability of the study. Residents in the United States do not travel nearly as much as residents in Europe or Asia. This study may not apply to college students outside of the United States because of the difference in travel experience and intention.

Another limitation that this study faced was the previous bias. Although the hypotheses were not focused on study abroad intentions, the overall research question of the study is. The majority of students that participated in this study have previously expressed interest in study abroad programs, and therefore the generalizability of this study is limited.

Future Research

There is much to be learned regarding virtual reality and its effect on destination image. While this study proved to have significant findings, there were

limitations that prevented the study from being generalizable. The strong presence of Asian participants, the small samples size, and the technology used all limited this study. The survey instrument also could have been developed to answer the main research question of this study.

The purpose of this study was to answer the question: how does a virtual tourism experience change students' perception toward a study abroad destination? While this study did prove to be helpful in discovering participants' behavioral intention to travel after a virtual reality experience, those results were focused on vacation purposes, not study abroad. There was data gathered for the behavioral intention of traveling with a study abroad program, but there was no significance concluded from the data.

Future researchers may consider a few factors about their participants when looking to answer this question in the future. One common thread among participants who ranked themselves as a Senior was a lack of intention to participate in study abroad programs. This could be due to the fact that they are graduating soon and participating in a study abroad program would deter their graduation.

Along with the participants' year in university, future researchers may choose to determine the financial constraint of each participant. While this study did address behavioral intention removing constraints (such as finances), having more information on financial constraints could affect future studies. One last constraint that future researchers may consider would be the program of study of participants.

Study abroad programs are not always for general studies, with many being focused in certain majors or programs such as business or foreign language. If participants do not feel that a particular major or program is well represented among available study abroad programs, their behavioral intention to participate may not be as strong.

Future research may develop a survey instrument that is more focused on individual purposes of traveling, as opposed to generality. There also is room for improvement in the virtual reality video options. When imitating this study, future researchers may choose to develop their own virtual reality experience videos or to control them based on different criteria. If future researchers did choose to create their own videos, there is much research to be done on the criteria.

One suggested study would be for future researchers to create multiple different virtual reality videos of the same destination, with each video containing different elements. These elements could include different scenery, narration, music, tour guide, etc. Taking these videos, as well as a validated survey instrument, and creating a study to determine the most effective virtual reality elements in regard to behavioral intention to travel to a destination would bring a lot of knowledge to this subject matter.

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APPENDIX A

IRB Approval

IRB
INSTITUTIONAL REVIEW BOARD
 Office of Research Compliance,
 010A Sam Ingram Building,
 2269 Middle Tennessee Blvd
 Murfreesboro, TN 37129



IRBN001 - EXPEDITED PROTOCOL APPROVAL NOTICE

Monday, November 19, 2018

Principal Investigator **Sarah Collins** (Student)
 Faculty Advisor Nicky Wu
 Co-Investigators NONE
 Investigator Email(s) *Sc6d@mtmail.mtsu.edu; nicky.wu@mtsu.edu*
 Department Health and Human Performance

Protocol Title ***The effect of a virtual reality experience on destination image: A case study of education abroad programs***
 Protocol ID **19-2087**

Dear Investigator(s),

The above identified research proposal has been reviewed by the MTSU Institutional Review Board (IRB) through the **EXPEDITED** mechanism under 45 CFR 46.110 and 21 CFR 56.110 within the category (7) *Research on individual or group characteristics or behavior*. A summary of the IRB action and other particulars in regard to this protocol application is tabulated below:

IRB Action	APPROVED for ONE YEAR		
Date of Expiration	11/30/2019	Date of Approval	11/19/18
Sample Size	400 (FOUR HUNDRED)		
Participant Pool	Primary Classification: Healthy Adults (18 or older) Specific Classification: Attendees of the MTSU Study Abroad Fair		
Exceptions	Contact information can be collected to administer the survey		
Restrictions	1. Mandatory active informed consent; the participants must have access to an official copy of the informed consent document signed by the PI. 2. Identifiable personal information must not be retained.. 3. Inclusion/exclusion criteria must be followed as proposed.		
Comments	NONE		

This protocol can be continued for up to THREE years (**11/30/2021**) by obtaining a continuation approval prior to **11/30/2019**. Refer to the following schedule to plan your annual project reports and be aware that you may not receive a separate reminder to complete your continuing reviews. Failure in obtaining an approval for continuation will automatically result in cancellation of this protocol. Moreover, the completion of this study MUST be notified to the Office of Compliance by filing a final report in order to close-out the protocol.

Post-approval Actions

The investigator(s) indicated in this notification should read and abide by all of the post-approval conditions imposed with this approval. [Refer to the post-approval guidelines posted in the MTSU IRB's website.](#) Any unanticipated harms to participants or adverse events must be reported to the Office of Compliance at (615) 494-8918 within 48 hours of the incident. Amendments to this protocol must be approved by the IRB. Inclusion of new researchers must also be approved by the Office of Compliance before they begin to work on the project.

Continuing Review (Follow the Schedule Below:)

Submit an annual report to request continuing review by the deadline indicated below and please be aware that **REMINDERS WILL NOT BE SENT.**

Reporting Period	Requisition Deadline	IRB Comments
First year report	10/30/2019	NOT COMPLETED
Second year report	10/30/2020	NOT COMPLETED
Final report	10/30/2021	NOT COMPLETED

Post-approval Protocol Amendments:

Only two procedural amendment requests will be entertained per year. In addition, the researchers can request amendments during continuing review. This amendment restriction does not apply to minor changes such as language usage and addition/removal of research personnel. .

Date	Amendment(s)	IRB Comments
NONE	NONE.	NONE

Other Post-approval Actions:

Date	IRB Action(s)	IRB Comments
NONE	NONE.	NONE

Mandatory Data Storage Requirement: All of the research-related records, which include signed consent forms, investigator information and other documents related to the study, must be retained by the PI or the faculty advisor (if the PI is a student) at the secure location mentioned in the protocol application. The data storage must be maintained for at least three (3) years after study has been closed. Subsequent to closing the protocol, the researcher may destroy the data in a manner that maintains confidentiality and anonymity.

IRB reserves the right to modify, change or cancel the terms of this letter without prior notice. Be advised that IRB also reserves the right to inspect or audit your records if needed.

Sincerely,

Institutional Review Board
Middle Tennessee State University

Quick Links:

[Click here](#) for a detailed list of the post-approval responsibilities.
More information on expedited procedures can be found [here](#).

APPENDIX B

Informed Consent Form

IRB
INSTITUTIONAL REVIEW BOARD
 Office of Research Compliance,
 010A Sam Ingram Building,
 2269 Middle Tennessee Blvd
 Murfreesboro, TN 37129



IRBF016 - INFORMED CONSENT

A. INFORMATION AND DISCLOSURE SECTION
 (Participant Copy)

Primary Investigator(s)	Sarah Collins	Student <input checked="" type="checkbox"/>
Contact information	615-423-5806, sc6d@mtmail.mtsu.edu	
Department Institution	College of Graduate Studies	
Faculty Advisor	Dr. Nicky Wu	Department Health and Human Performance
Study Title	The Effect of a Virtual Reality Experience on Destination Image: A Case Study of Education Abroad Programs	
IRB ID	19-2087	Expiration 11/30/2021 Approval 11/19/2018

The following information is provided to inform you about the research project and your participation in it. Please read this disclosure carefully and feel free to ask any questions you may have about this study and the information given below. You must be given an opportunity to ask questions, and your questions must be answered. Also, you must receive a signed copy of this disclosure.

Your participation in this research study is voluntary. You are also free to withdraw from this study at any time. In the event new information becomes available that may affect the risks or benefits associated with this research study or your willingness to participate in it, you will be notified so that you can make an informed decision whether or not to continue your participation in this study.

For additional information about giving consent or your rights as a participant in this study, please feel free to contact the Middle Tennessee State University (MTSU) Office of Compliance (Tel 615-494-8918 or send your emails to irb_information@mtsu.edu). Please visit www.mtsu.edu/irb for general information on MTSU's research participant protection policies.

Please read this section and sign Section B if you wish to enroll in this study. The researcher will provide you with a copy of this disclosure form for you to keep for your future reference.

- Purpose of the study:** You are being asked to participate in this research study because there is a lack of research on the effect that virtual reality could have on preconceived images of destinations. This study's goal is to determine whether or not virtual reality trips have a significant impact on destination image. There is a lack of knowledge on this concept and this research study is looking to improve that knowledge base.
- Classification of procedures to be followed and approximate duration of the study:**
 - 2.1 *Educational Tests* – Study involves either standard or novel education practices which consists educational testing and such studies expose the participants to lower than minimal risk
 - 2.2 *Behavioral Evaluation* – Although the study may or may not involve educational tests, the specific aim is to understand behavioral characteristics.

The following classifications indicate that the participant will be asked to perform or part-take in physical activities or procedures. Examples of such studies simple physical exercises, medical or clinical intervention, pharmaceutical testing and etc. Due to the nature of these studies, you may be exposed risky situations that may exceed normal day-to-day scenarios.

 - 2.3 *Psychological intervention or procedures*
 - 2.4 *Physical Evaluation or Procedures*
 - 2.5 *Medical Evaluation or Clinical Research*
 - 2.6 *OTHER*

Participation in this study will last approximately 10 minutes.

3. What are procedures we intend on doing in this study?

You will be asked to go through a three step process, as follows:

1. Complete a Pre-experience survey that consists of 29 questions.
2. Participate in a virtual reality experience. The participant will go on a virtual tour of a destination.
3. Complete a Post-experience survey that consists of 20 questions.

There is no identifiable information asked during this process.

4. What will you be asked to do in this study?

Each participant will be asked to complete a pre and post survey. After completing the pre-survey, the participant will then participate in a virtual reality tour that will last approximately 4 and a half minutes. After the participant has finished the virtual reality experience, the participant will then complete a post survey.

5. What are we planning to do with the data collected using your participation?

The data collected from this study will be used to complete a research project that will help to determine if virtual reality can produce a significant change in destination image. The data that is collected for this study does not ask for any identifiable information and will be locked in a cabinet in a secure office on MTSU campus.

6. What are your expected costs to you, your effort and your time commitment?

There is no financial cost to participate in this study. You will commit approximately 10 minutes of time to participate in this study.

7. What are the potential discomforts, inconveniences, and/or possible risks that can be reasonably expected as a result of participation in this study?

Virtual reality technology comes with minimal risks. Potential risks are dizziness, nausea, and being emotionally overwhelmed. Any discomfort should be immediately voiced so that the participant can be removed from the experience without further injury.

8. How will you be compensated for your participation?

There will be no financial compensation for participating in this study.

9. What are the anticipated benefits from this study?

Participants will benefit from this study in two ways. The first benefit that participants will receive is the opportunity to experience advanced technology by using the virtual reality tools. Participants will also benefit from this study by having the opportunity to virtually experience and interact in international destinations.

10. Are there any alternatives to this study such that you could receive the same benefits?

No.

11. Will you be compensated for any study-related injuries?

There will be no compensation for study-related injuries.

12. Circumstances under which the researcher may withdraw you from this study:

Any discomfort during the virtual reality experience could lead to the participant being withdrawn from the study. If any participant is under the age of 18, then they will not be allowed to participate in the study.

13. What happens if you choose to withdraw your participation?

You may withdraw from this study at any time, and you will not be penalized in any way for deciding to stop participation.

14. Can you stop the participation any time after initially agreeing to give consent/assent?

Participation in this study is voluntary. You do not have to answer any question you do not want to answer. If at any time and for any reason, you would prefer not to participate in this study, please feel free not to. If at any time you would like to stop participating, please tell me. We can take a break, stop and continue at a later date, or stop altogether.

15. Contact Information. If you should have any questions about this research study or possibly injury, please feel free to contact Sarah Collins by telephone 615-423-5806 or by email sc6d@mtmail.mtsu.edu OR my faculty advisor, Dr. Nicky Wu, at nicky.wu@mtsu.edu, 615-904-8293.**16. Confidentiality.** All efforts, within reason, will be made to keep the personal information in your child's research record private but total privacy cannot be promised. Your information may be shared with MTSU or the government, such as the Middle Tennessee State University Institutional Review Board, Federal Government Office for Human Research Protections, if you or someone else is in danger or if we are required to do so by law.

You do not have to do anything if you decide not to participate. If you wish to enroll, then follow the direction next to the checked box below:

- Enter your name and age in the attached Section B document and sign in the space provided.
 Anonymous: Just your age and give consent by signing in the bottom of the space provided.
 Verbal Consent: Give consent verbally; this is done to protect your identity.

Consent obtained by: _____

Researcher's Signature _____

Name and Title _____

Date _____

IRB

INSTITUTIONAL REVIEW BOARD
Office of Research Compliance,
010A Sam Ingram Building,
2269 Middle Tennessee Blvd
Murfreesboro, TN 37129



B. Signature Section
(Researchers' Copy)

Primary Investigator(s) Sarah Collins Student
Contact information 615-423-5806, sc6d@mtmail.mtsu.edu
Department Institution College of Graduate Studies
Faculty Advisor Dr. Nicky Wu Department Health and Human Performance
Study Title The Effect of a Virtual Reality Experience on Destination Image: A Case Study of Education Abroad Programs
IRB ID 19-2087 Expiration 11/30/2021 Approval 11/19/2018

PARTICIPANT SECTION

(To be filled by the participant and return to the researcher)

Participant Name or ID	(print)	Age:
------------------------	---------	------

- No Yes I have read this informed consent document pertaining to the above identified research
 No Yes The research procedures to be conducted have been explained to me verbally
 No Yes I understand each part of the interventions and all my questions have been answered
 No Yes I am aware of the potential risks of the study

By signing below, I affirm that I freely and voluntarily choose to participate in this study. I understand I can withdraw from this study at any time without facing any consequences.

Follow the signage instruction next to the box checked below:

- Enter your name and age above and sign below to enroll in the study
 Anonymous: Just enter your age above and sign below; DO NOT ENTER YOUR NAME
 Verbal Consent: The participant will give consent verbally to protect the participant's identity.

Date _____ Signature of the Participant _____

RESEARCHER SECTION
(To be filled by the researchers)

Informed Consent obtained by:

Date _____ Signature _____ Print Name & Title _____

Faculty Verification if the PI is a student:

Date _____ Faculty Signature _____ Print Name & Title _____

Respondent Number: _____

MEXICO SURVEY (POST)**Please circle the answer that most closely describes your perception of Mexico.**

Friendly	1	2	3	4	5	6	7	Cold
Exciting	1	2	3	4	5	6	7	Boring
Safe	1	2	3	4	5	6	7	Unsafe
Dirty	1	2	3	4	5	6	7	Clean
Interesting	1	2	3	4	5	6	7	Uninteresting
Crowded	1	2	3	4	5	6	7	Isolated
Underdeveloped	1	2	3	4	5	6	7	Overdeveloped
Modern	1	2	3	4	5	6	7	Traditional

Please mark the box that most closely describes your perception of Mexico.

Statement	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
The transportation system is good.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The landscape in the area is varied.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is an expensive place to visit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There are opportunities to increase my knowledge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is a romantic place to visit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The weather is predictable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It takes too much time to get there.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is a family oriented place.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please circle the response that best represents your view.

Removing constraints, such as finances, please rate the level of your intention to visit Mexico for vacation purposes.

*1 = Do not intend to visit**10 = Intend to visit*

1 2 3 4 5 6 7 8 9 10

Removing constraints, such as finances, how likely is it that you would visit Mexico through a study abroad program?

*1 = Not at all likely**10 = Extremely likely*

1 2 3 4 5 6 7 8 9 10

Respondent Number: _____

JAPAN SURVEY (POST)**Please circle the answer that most closely describes your perception of Japan.**

Friendly	1	2	3	4	5	6	7	Cold
Exciting	1	2	3	4	5	6	7	Boring
Safe	1	2	3	4	5	6	7	Unsafe
Dirty	1	2	3	4	5	6	7	Clean
Interesting	1	2	3	4	5	6	7	Uninteresting
Crowded	1	2	3	4	5	6	7	Isolated
Underdeveloped	1	2	3	4	5	6	7	Overdeveloped
Modern	1	2	3	4	5	6	7	Traditional

Please mark the box that most closely describes your perception of Japan.

Statement	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
The transportation system is good.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The landscape in the area is varied.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is an expensive place to visit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There are opportunities to increase my knowledge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is a romantic place to visit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The weather is predictable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It takes too much time to get there.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is a family oriented place.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please circle the response that best represents your view.

Removing constraints, such as finances, please rate the level of your intention to visit Japan for vacation purposes.
1 = Do not intend to visit *10 = Intend to visit*

1 2 3 4 5 6 7 8 9 10

Removing constraints, such as finances, how likely is it that you would visit Japan through a study abroad program?
1 = Not at all likely *10 = Extremely likely*

1 2 3 4 5 6 7 8 9 10