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A FORMATIVE EVALUATION OF A TECHNOLOGY-MEDIATED ALTERNATIVE TO TRADITIONAL STUDY ABROAD

by

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A dissertation in practice submitted in partial fulfillment of the requirements
for the degree of Doctor of Education
in the College of Education and Human Performance
at the University of Central Florida
Orlando, Florida

Summer Term
2015

Major Professor: Glenda A. Gunter

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ABSTRACT

Purpose

The purpose of this study was to determine if a proposed technology-mediated intervention is a viable alternative to traditional study abroad for those who are unable to travel. While technology cannot reproduce the same experience of traveling abroad, the primary objective of this study was to determine if there is value in using Web conferencing technology to provide students with access to the same opportunity to interact with international experts in the field as their counterparts who were able to travel. This formative evaluation is the first in a series of iterative studies aimed at developing a viable, sustainable, technology-based solution through design-based research (Reeves, 2006).

Methodology/Design

Two guiding questions drove the focus of this formative evaluation: Did the program accomplish what was intended and was it implemented effectively? These generated a set of evaluation questions using the Online Learning Consortium (OLC) Quality Framework, which were used to evaluate the quality of a joint study abroad program in Brazil with students and instructors from the University of Central Florida and the University of Scranton. While studying global health management in Brazil, the group in the field broadcasted their site visits live to online participants back in the United States. Web conferencing tools allowed the online attendees to see and hear the group in Brazil and interact in real time through the audio or text chat. Evaluation data was compiled from multiple sources including an anonymous student survey, instructor interviews, session recordings, financial budgets, and online facilitator

observations in order to triangulate and evaluate the effectiveness of this Web-based intervention.

Findings

Web conferencing technology appears to be a viable alternative that is not necessarily as immersive as traveling abroad, but it does provide its own set of benefits to higher education students. This formative evaluation revealed clear areas for improvement, including technical and procedural elements, but instructors and online participants did find value in the experience. Was it perfect? No. Was it successful? Yes. Was it encouraging? Definitely. Exploration of the evaluation questions under each of the five pillars of the OLC Quality Framework revealed both success factors and areas for improvement in each of the following categories: learning effectiveness, scale (commitment & cost), access, faculty satisfaction, and student satisfaction.

Implications

Overall, this was a successful proof of concept that justifies future improvements and subsequent further evaluation in an iterative design-based research program. In addition to repeating this study with the joint global health management course in Brazil, this intervention could also be implemented and evaluated in other contexts, disciplines, and countries around the world. This formative evaluation produced a set of recommendations for the next study based on the success factors as well as the areas for improvement identified in this initial implementation in addition to a list of suggestions for future research.

This work is dedicated to my incredibly supportive husband, Douglas Howard. He truly is my greatest cheerleader and has supported me like no other could. Thank you for believing in me and embracing my goals and dreams as your own. We are an invincible team.

This dissertation is also dedicated to my parents, Jack and Connie Stahler. I did this for you too because you always told me I could do anything I truly wanted in life. Your love and encouragement has led me down a path of genuine happiness and enlightenment.

ACKNOWLEDGEMENTS

This document is the culmination of a three-year journey at the University of Central Florida, but the path that led me here started long before enrolling in this program. So many people have helped me get to this point, but I would like to acknowledge a few very special individuals who have each guided and supported me in unique ways.

Serving on a dissertation committee is no small task. It is truly an honorable service to both the doctoral candidate as well as our discipline, and I wholeheartedly appreciate the angels on my committee who provided their time, guidance, and commitment to academic excellence.

Dr. Glenda Gunter served as my committee chair and mentor. Thank you for guiding me through the entire doctoral research process, which can be both daunting and intimidating. Your advice through the planning and implementation and then your feedback during the writing phase helped me refine my research and produce a body of work that I can be proud of.

Dr. Bernardo Ramirez has been my greatest advocate and cheerleader. Thank you for championing our cause and taking a chance on testing my unproven intervention. Your trust in me and your willingness to take a risk on new technology has led to an exciting research agenda and some promising results.

Dr. Patsy Moskal is more than just a statistical genius; she is a wise sage and a gentle soul. Thank you for being my rock and for providing what felt like daily reassurance and encouragement. You have a gift for making complex data analysis seem simple, and you have helped me build my confidence as a researcher.

Dr. Tom Vitale served as a committee member, but he also served as an advisor throughout the entire program. Thank you for being a good listener and helping me

navigate the challenges I encountered throughout my coursework in addition to my dissertation research.

In many ways, I also had another honorary committee member, Dr. Chuck Dziuban. Thank you for expressing a genuine interest in my research and for your feedback and advice. From the bottom of my heart, thank you all for your service.

In the words of Sir Isaac Newton, "If I have seen further it is by standing on the shoulders of giants." A special acknowledgement and thank you Phil Peters and the Interactive Expeditions team for laying the groundwork in this area at UCF and then collaborating with me on research that inspired this study.

I also had the honor of partnering with two scholars from the University of Scranton, Dr. Dan West and Dr. Steve Szydlowski. Along with Bernardo Ramirez, they were professional collaborators and enjoyable travel companions. Thank you for embracing our idea and helping to make it a reality with our study abroad trip to Brazil.

As an undergraduate student at Rollins College I was blessed with a mentor, now friend, Steve Neilson. He planted a seed to pursue my doctorate decades ago and continued to encourage me over the years. Thank you Steve for never giving up on me and for pushing me to pursue my dream.

I was also blessed with an incredible support system. After hours the love and support of my family carried me through, but during the day my colleagues at the Center for Distributed Learning at UCF provided the ideal environment for this experience. Thank you to an amazing team of instructional designers for inspiring me through daily academic discourse that constantly raises the bar in terms of knowledge, goals, and awareness, and thank you to the entire CDL family for your support and encouragement through this right of passage.

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LIST OF ABBREVIATIONS/ACRONYMS

CDL	Center for Distributed Learning
CSCL	Computer Supported Collaborative Learning
DBR	Design-based Research
F2F	Face-to-face
IDT	Innovation Diffusion Theory
INTX	Interactive Expeditions
OIS	Office of International Studies (UCF)
OLC	Online Learning Consortium (formerly SLOAN Consortium)
TAM	Technology Acceptance Model
UofS	University of Scranton
UCF	University of Central Florida

CHAPTER ONE: INTRODUCTION

Introduction and Background of the Study

An increasing number of employers are seeking college graduates with global experience and intercultural competence, but the traditional study abroad approach is not always a feasible option for many college students. Despite the many benefits of international education, there is an access issue due to the financial and logistical constraints of traditional study abroad, and only a small fraction of students enrolled in postsecondary education programs in the United States actually travel outside of the country for their studies (Berdan & Johannes, 2014; Fischer, 2015). Many colleges and universities are implementing internationalization efforts at home for students who are unable to travel (Leask, 2004; Nilsson, 2003; Soria & Troisi, 2013). The Institute of International Education's Generation Study (Berdan & Johannes, 2014) think tank challenges educators to "…find new ways to extend international opportunities to those who are not currently taking part" (p. 5). While members of this think tank may not have had technology solutions in mind when they made this statement, the spirit of their message was to find creative ways to increase access to international education. At the same time, in a recent survey conducted by the Babson Survey Research Group over 70% of Chief Academic Officers agreed that online education is critical for their institution's long-term strategy (Allen & Seaman, 2015), and some experts are suggesting that interactive Web conferencing increases accessibility for adult learners (Macaulay & Dyer, 2011). This study investigates the effectiveness of using Web conferencing technology to increase access to international learning opportunities for students who are unable to participate in traditional study abroad programs.

Problem of Practice

At the University of Central Florida (UCF) approximately 1% of the student population participates in study abroad programs each year (UCF Office of International Studies, 2014b). Many students and faculty members at UCF would like to involve international collaboration and experiential learning in the curriculum, but the university lacks formal alternatives to the traditional study abroad programs. The problem addressed in this study is insufficient access to international education opportunities for students who are unable to travel. Dr. John Hitt, President of UCF has identified five goals for the university, and three of those goals include diversity and international initiatives (UCF Office of the President, 2014b). Yet students and faculty members are on their own to explore and implement alternative global experiences.

Specific to this study Dr. Bernardo Ramirez, Associate Professor, Director e-MSHSA, and Director, Global Initiatives in the Health Management and Informatics department, teaches a global health systems management course in the College of Health and Public Affairs at UCF. In the past, he has taken students on study abroad trips to places like Costa Rica so that they could meet with the local Ministries of Health and other public officials to analyze a specific health system need within the community. After returning to the US, students then prepare a proposal for that community as a final project. Over time, Dr. Ramirez was forced to eliminate the study abroad trip because the majority of his students were unable to travel. With an organizational culture that embraces both international and online education, he instead sought out technology-based alternative approaches to experiential learning because he still sees this project as a valuable learning tool for his students.

Organizational Context

The University of Central Florida is the nation's second-largest university, serving over 60,000 students on the main campus and nine regional campuses combined (University of Central Florida, n.d.). According to the UCF Website, this large research university "…promotes a diverse and inclusive environment," and out of state students come from 50 states and 145 countries (University of Central Florida, n.d.). As a state university that serves a large local commuter population, almost 95% of the total enrollment as of January 2014 has Florida residency status (UCF Institutional Knowledge Management, n.d.). One of President Hitt's five goals for the university is to "become more inclusive and diverse" (UCF Office of the President, 2014a). Fall 2013 total enrollment was 59,770 students: 57% White, 20% Hispanic/Latino, 10% Black/African American, 6% Asian (UCF Institutional Knowledge Management, n.d.). One service organization on campus, the Center for Distributed Learning (CDL) also supports President Hitt's goal to be more inclusive and expand access to education through distance education and online learning. The mission of CDL is to serve as "…the central agent for online learning at UCF, providing leadership in distance learning policies, strategies, and practices" (UCF Center for Distributed Learning, 2014b). During the 2013-2014 academic year over one-third of all student credit hours were generated by online modalities and 53,585 students, or more than 76% of all UCF students, took at least one online course and 90% of them reported satisfaction with the experience (UCF Center for Distributed Learning, 2014a). This demonstrates a culture of technology acceptance that has embraced online learning.

President Hitt has identified two additional university goals related to internationalization on his website, they are:

- Achieve international prominence in key programs of graduate study and research

- Provide international focus to our curricula and research programs (2014b)

The Office of the President website also states that UCF has become a major metropolitan research university of global impact, which supports these goals (UCF Office of the President, 2014a). The Office of International Studies supports internationalization efforts by coordinating study abroad programs as well as faculty exchange and international partnerships. At this time, UCF study abroad programs allow students to study and conduct research in 37 programs in 18 countries (University of Central Florida, n.d.). In contrast, the Office of Diversity and Inclusion supports on-campus efforts toward internationalization such as multicultural events, guest speakers, and the development of intercultural competence standards for faculty to utilize in their curriculum.

History and Conceptualization

Bolman and Deal (2008) offer a framework for analyzing organizational problems of practice through four frames, or lenses, and the history of this problem can be described in terms of all four frames: symbolic, structural, human resources, and political. For example, President Hitt's five goals for the university were originally introduced in 1992, which sets the symbolic tone for this problem of practice (UCF Office of the President, 2014a). His vision, as conveyed through these prominently published goals, sets the stage for the inclusive, internationally focused organizational culture that is felt on campus today. This was the first step in addressing the challenge of preparing UCF graduates to actively participate in a global economy.

Many of the initial solutions to this problem were structural in nature. In support of President Hitt's goals, the Office of International Studies adopted the following mission statement: "The Office of International Studies is an academic support unit whose mission is to

promote, support, facilitate, and implement activities that lead to the internationalization of education and research at the University of Central Florida" (UCF Office of International Studies, 2014a). In 1994 a new Office of Diversity Initiatives was established to support President Hitt's fourth strategic goal based on the recommendations of his Diversity Task Force (UCF Office of Diversity and Inclusion, 2014). More recently, this office has coordinated the efforts of university scholars first to develop a set of core cultural competencies in 2008 followed by more detailed descriptions and online faculty training for Performance Standards for UCF's Cultural Competencies (Hudson, 2014). Some instructors have ventured out on their own and tried using technology to solve this problem by setting up solutions such as online virtual team projects with university students in other countries or satellite broadcasting from remote areas around the globe; however, to date there are no formal programs for technology-mediated alternatives to traditional study abroad.

Bolman and Deal's (2008) political frame addresses power sources, budgetary constraints, and allocation of resources. Those who have attempted technological solutions to the problem have encountered challenges such as access to a single university system or compatible systems with their counterparts in other countries. For example, an English professor arranged for her students to work on a joint project with students at two other European universities, but they were unable to use UCF's learning management system due to security restrictions. A digital media professor broadcasted live, synchronous lectures and demonstrations back to his students on campus from remote areas in India, Africa, and the Bahamas using proprietary satellite technology, but he continues to struggle with funding (INTX Collaborative Learning Network, 2013; Peters, Katsaros, Howard, & Lindgren, 2012; Robert & Lenz, 2009). Even

traditional travel abroad programs are expensive and funding for that model can be a challenge as well.

From the human resource perspective, it is important to consider the motivation of both students and faculty members. Traditionally, many have presumed that students typically build global and intercultural competence through study abroad programs, and they blame financial and scheduling constraints for low participation in those programs since UCF is primarily a commuter campus where most students have jobs, families, and other obligations that make traveling difficult. When looking at faculty motivation, Owens and Valesky (2007, p. 98) cite Chester Barnard in their description of equilibrium where *the balancing of burdens by satisfactions* leads to continued participation by both the employee and the organization. With no sponsored programs that provide alternatives to study abroad, faculty members are forced to seek out their own creative solutions with no support structure in place. Alternative approaches to travel abroad that involve technology come with an inherent set of risks and burdens such as availability, reliability, and training or expertise, all of which are deterrents for instructors (Bohemia & Ghassan, 2012; Little, Titarenko, & Bergelson, 2005; Peters et al., 2012; Scovotti & Spiller, 2011).

In the case of Dr. Ramirez's health systems management class, he attempted several alternative solutions that would provide an international experience for his students, but he encountered many of the same challenges. First he attempted to partner with the UCF colleague who was using satellite technology to broadcast lectures from the field (INTX Collaborative Learning Network, 2013), but he was unable to secure enough funding to pay for the satellite technology and the field crew to operate it. Next, he offered a Massive Open Online Course (MOOC) on health systems management, where his students had an opportunity to interact with

participants from around the world. On the technological side, the CDL staff supported this effort with instructional design and technical support services. This reduced some of the instructor's burden, but the learning outcomes were not as strong. While his students did get to experience a global exchange of ideas with participants from all six habitable continents, it did not carry the same educational value as the original study abroad experience where students interacted with local experts and subsequently applied what they learned in a final project.

Factors That Impact the Problem

Based on data collected by the Office of International Studies at UCF only 461 students, less than 1% of total enrollment, participated in traditional study abroad programs during the 2012-2013 academic year (UCF Office of International Studies, 2014b), and roughly the same percentage (635 students) participated in the 2013-2014 academic year (D. Mosley, personal communication, April 9, 2014). The Assistant Director clarified that, "Unfortunately, OIS only collects data on UCF programs processed through this office. I know our numbers are lower than the actual number of students who participated in a study abroad, but we don't know by how much. There isn't a process in place to capture that information" (D. Mosley, personal communication, April 9, 2014). This indicates a symptom of the larger problem, which is some faculty have been conducting study abroad experiences without going through the official channels of the Office of International Studies. Many have gone rogue and sought out their own solutions both on and off campus.

At the same time, most departments at this large institution operate independently as silos as described by McGeown (as cited in Kenny & Gunter, 2015), which is a structural cause that further complicates the problem. The individual Offices of International Studies (OIS), Diversity

and Inclusion, and the Center for Distributed Learning (CDL) all serve niche markets, which leaves a gap for alternative international programs. Should they fall under OIS because of the international involvement or do they fall under CDL because it involves online learning and distance education? No single office owns this realm, and there is no precedent to follow. In the meantime, each year the UCF Summer Faculty Development Conference has separate tracks dedicated to intercultural competencies and international studies, and CDL offers workshops on related technologies, but there is no coordinated effort to collaboratively address this problem of practice.

According to the Institute of International Education, less than 10% of the 2.6 million students who graduated with associates or baccalaureate degrees in 2011/12 actually studied abroad (Berdan & Johannes, 2014). They conducted an in-depth study to identify the obstacles to study abroad (both perceived and real), and they found that the numerous and complex challenges could be organized in three categories: cost, curriculum, and culture (Berdan & Johannes, 2014). Similarly, Soria and Troisi (2013) found that issues such as cost, delayed progress toward graduation, and familial obligations and concerns were all deterrents to traditional study abroad. Based on national trends and discussions with staff in UCF's Office of International Studies, the primary cause appears to be low student participation in traditional study abroad programs due to financial, logistical, and scheduling concerns.

Others have implemented various technology-mediated interventions, but many of them highlight the inherent complexities and risks that accompany the use of technology (Bohemia & Ghassan, 2012; Little et al., 2005; Peters et al., 2012; Scovotti & Spiller, 2011). In addition, the literature describes the recent pressure and importance of developing a clear plan for internationalization efforts (Brookes & Becket, 2010; Dolby & Rahman, 2008; Nilsson, 2003),

which indicates that the absence of formalized alternatives to traditional study abroad may be a cause as well. Without organizational support and well-defined programs, students and faculty are left to their own devices to seek out and implement their own alternative approaches.

Proposed Intervention

Researchers with instructional design expertise at UCF's Center for Distributed Learning have proposed a technology-mediated strategy using Web conferencing software to include students back on the main campus in a live discussion with remote experts in the field during a short-term international study abroad experience. By adding the cost of one additional traveler to facilitate the online interaction, many students back on the main campus can participate online in real time. They can see and hear the site visit with experts in the field through the use of a Web cam and microphone. If hardware and Internet speeds allow, they can interact with the group in the field through their own Web cams and microphones. The online participants also have the online chat functionality to interact with the facilitator without disrupting a formal presentation and request an opportunity to address the group when appropriate. This is illustrated in Figure 1 below.

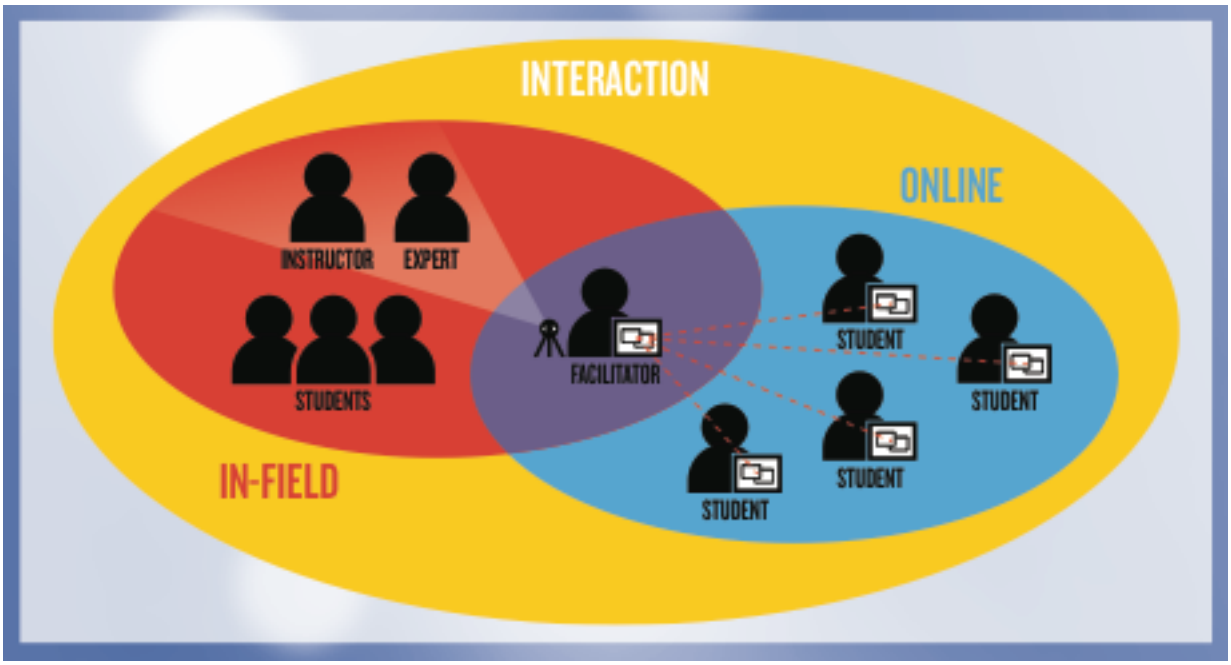


Figure 1. W. Howard's illustration of the communication model.

Purpose and Objectives

The purpose of this study was to determine if the proposed technology-mediated intervention is a viable alternative to traditional study abroad for those who are unable to travel. There are many benefits to studying abroad (Berdan & Johannes, 2014; Chieffo & Griffiths, 2004; Deardorff, 2006; Detweiler, Welna, & Anderson, 2008; Goel, de Jong, & Schnusenberg, 2010; Hovland, 2010; Immelman & Schneider, 1998; McKeown, 2009; Roberts, Conner, & Lynn Jones, 2013; Rubin & Matthews, 2013; Soria & Troisi, 2013; Spencer & Tuma, 2002; Tarrant, 2010), but for the vast majority of students at UCF there is an issue of access. While technology cannot reproduce the same experience of traveling abroad, the primary objective of this study was to determine if there is value in using Web conferencing technology to provide students with the ability to interact with international experts in the field in real time like their counterparts who were able to travel. This formative evaluation is the first in a series of iterative

studies aimed at developing a viable, sustainable, technology-based solution through design-based research (Reeves, 2006). By evaluating the effectiveness of the proposed intervention, the goal was to extract best practices as well as areas for improvement in order to refine and re-evaluate in subsequent research cycles.

Evaluation Questions

This evaluation study has two main components: intended outcomes typical of the study abroad experience and implementation of the technology-based intervention (Fitzpatrick, Sanders, & Worthen, 2010). The first set of evaluation questions focus on the student experience and overall satisfaction while the second set of questions focus more on the impact of the technology used in this instructional activity.

- Did the program accomplish what was intended?
    1. What is the difference in student engagement with experts in the field between students who travel abroad and those who participate via Web conferencing?
    2. What is the difference in student satisfaction with the overall experience between students who travel abroad and those who participate via Web conferencing?
    3. How were the experiences of the online and face-to-face groups similar and how were they different?
    4. What is the potential impact of this program for providing UCF students access to international learning opportunities?
- Was the program implemented effectively?

5. What were online participants' reactions to the Web conferencing system used in this intervention?
6. What was the impact of technology on the students' ability to participate in remote instructional activities?
7. How can this intervention be improved?
8. What were the instructors' perceptions about their teaching experience with this technology-mediated intervention?
9. How does the cost of this intervention compare to previous technology-mediated attempts?

In an effort to develop a viable technology-mediated alternative to traditional study abroad, these questions elicit both positive and constructive feedback to inform recommendations for future improvement. These questions captured the elements that led to positive student experiences, satisfaction, and engagement so that they may be maintained in the next iterative study. Likewise the negative feedback generated recommendations for improvement. In a similar fashion, the second set of questions will assist in evaluating the effectiveness of the specific technology that was selected for the study.

Limitations of the Study

The limitations of the study were:

1. While there are multiple factors that contribute to this complex problem of practice, this study focuses on alternative virtual interventions that can be implemented concurrently with existing short-term study abroad trips or during a professional visit abroad.

2. Study abroad trips may address a variety of instructional goals, but the aspect addressed in this study was providing students with an opportunity to interact live with international experts in the field.
3. The sample was limited to participants in the HAD 584: South American Health Systems course offered through the University of Scranton in spring 2015. Face-to-face participants from UCF and UofS were students enrolled in the course, but online participants were all volunteers invited by the instructors based on their interest in the subject matter. Online participation did not require enrollment in a specific course.
4. Due to the small sample size, results may not be generalized beyond the scope and context of this case study.
5. Validity of results relies on participants' honest responses to survey and interview questions.
6. The evaluator participated in the study by serving as the online facilitator and recording observations, which introduces the risk of potential bias.

Assumptions of the Study

The assumptions of the study included:

1. Study participants responded to survey and interview questions in an honest fashion.
2. Participant responses to survey and interview questions are based on their own beliefs and perceptions.
3. Study participants are representative of the general population at UCF.
4. The evaluator has made every effort to remove bias and conduct a fair and impartial evaluation.

Organization of the Dissertation

This dissertation is organized in five chapters. Chapter One is the introduction, which provides background and context for the problem of practice addressed in this study. Chapter Two is the literature review, which provides a historical account of related research as well as a theoretical basis for this study. Chapter Three is the methodology, which details the steps taken to collect and analyze the data for this evaluation. Chapter Four details the results of the data analysis as it relates to each of the evaluation questions. Chapter Five describes the recommendations and conclusions that follow from the previous chapter in addition to limitations and implications for future research. Appendices include the survey and interview instruments as well as the IRB approval letter. References are then provided at the end.

Definition of Terms

Specific terminology is defined below within the context of this study:

Center for Distributed Learning (CDL): the department responsible for supporting all online learning efforts at UCF, and according to their website, "The Center supports and expands student access to education through the advanced application of instructional technology, data analysis, policy, and strategic planning for distributed learning programs and courses" (UCF Center for Distributed Learning, 2014b).

Expert in the Field: the general term used to describe the local hosts at each of the site visits in Brazil. This includes tour guides, administrators, and other staff members who presented to the participants at the partner institutions at various locations in Brazil.

Global and Intercultural Competence or Awareness: used interchangeably in this evaluation and generally refer to the knowledge, skills, and attitudes that allow students to communicate and operate effectively outside their native environment. Please see the *Global and Intercultural Competence* section of Chapter Two for a detailed explanation.

Onsite and In the Field: both are used to describe the group on location in Brazil during the data collection phase of this study.

Office of International Studies (OIS): responsible for all study abroad programs at UCF, and their Website adds, "The Office of International Studies (OIS) is an academic support unit whose mission is to promote, support, facilitate, and implement activities that lead to the internationalization of education and research at the University of Central Florida" (UCF Office of International Studies, 2014a).

Online Learning Consortium (OLC): an internationally recognized professional association formerly known as the SLOAN Consortium. According to their website, "The Online

Learning Consortium is the leading professional organization devoted to advancing quality online learning providing professional development, instruction, best practice publications and guidance to educators, online learning professionals and organizations around the world" (Online Learning Consortium, 2015).

Online Versus Face-to-face Participants: in this case the online participants used the Web conferencing intervention during the broadcasts while the face-to-face participants were onsite in Brazil for all the meetings.

Short-term Study Abroad: defined in the literature as less than eight weeks and typically occurring during a break in the regular class schedule (Chieffo & Griffiths, 2004; McKeown, 2009; Spencer & Tuma, 2002; Tarrant, 2010). This study abroad trip was ten days in duration.

Synchronous Communication: refers to live interaction that occurs in real-time.

Technology-mediated: refers to the use of technology as a communication tool. For example, in this study Web conferencing technology was used as a technology-mediated intervention for the live broadcasts.

Traditional Study Abroad: general term that refers to any study abroad program that involves traveling outside the student's home country, short or long term, as opposed to the online method of participation evaluated in this study.

Virtual: refers to online as opposed to face-to-face. It does not involve the use of avatars or refer to virtual worlds within the context of this study.

Web conferencing: communication technology that allows participants to communicate online using video, audio, text, and/or screen sharing. The Web conferencing tool used in this study was Adobe Connect.

CHAPTER TWO: LITERATURE REVIEW

The body of knowledge related to international education and internationalization of the curriculum has evolved in recent years. As demand for college graduates with global experience and intercultural competence increases, educators continue to seek out alternative means to serve this need for students who are unable to travel (Fischer, 2015; Leask, 2004; Soria & Troisi, 2013). Despite the many benefits of international education, there is an access issue due to financial and logistical constraints of traditional study abroad and only a small fraction of students enrolled in postsecondary education programs in the United States actually travel outside of the country for their studies (Berdan & Johannes, 2014; Fischer, 2015). This chapter addresses 1) the general fields of traditional study abroad and global and intercultural competence, 2) technology-mediated instructional strategies, and 3) the theoretical framework that supports this evaluation study.

The problem associated with the lack of formal alternatives to traditional study abroad programs at the University of Central Florida (UCF) is complex and the national and international literature informs this problem on multiple levels. First, it is important to address the current state of traditional study abroad programs and extract the benefits of such programs in order to preserve them in alternative interventions. The goal is to increase global and intercultural competence through experiential learning at the course level and internationalization of the curriculum at the organizational level. In addition, others have attempted technology-mediated alternatives and reported their successes and challenges, which also informs potential solutions at UCF. Finally, this chapter also presents the theoretical framework used in this formation evaluation, which is the Online Learning Consortium's Quality Framework.

Background

Traditional Study Abroad

One of the initial questions to address is why do students study abroad? Goel, de Jong, and Schnusenberg (2010) developed a framework for analyzing students' study abroad intentions and behaviors based on the Theory of Planned Behavior. They found that behavioral beliefs are the primary indicator of a student's intention to study abroad. This would include beliefs such as the level of impact a study abroad experience might have on the student's academic or career goals. Traditionally, study abroad programs have provided students with experiential learning opportunities where they can build knowledge based on their interactions within a foreign environment (Kolb, 1984). In addition, the Institute of International Education's Generation Study think tank gathered in New York and issued a call to action in their 2014 report, encouraging educators to better prepare students for a global economy where, "The ability to work across cultures is no longer a nice-to-have skill set for elite executives or diplomats; every year it becomes more essential to finding any job at all" (Berdan & Johannes, 2014, p. 5). Similarly, research has been conducted to determine why students do *not* choose to study abroad. In a 2014 report, the Institute of International Education acknowledged that the barriers to study abroad are numerous and complex, but they grouped them into three primary categories: cost, curriculum and culture (Berdan & Johannes, 2014).

Numerous studies have focused on the learning outcomes associated with traditional study abroad programs. Detweiler, Welna, and Anderson (2008) developed and tested an instrument for assessing learning outcomes in a traditional study abroad program with a focus on liberal education based on a review of existing assessments. This pre/post survey assessment includes sections on reasons for studying abroad, satisfaction with the experience, and scenarios

that require students to make intercultural judgments. Similarly, Immelman and Schneider (1998) developed a model for assessing student learning in study abroad programs, however, Immelman and Schneider used a framework based on Bloom's (1956) cognitive, behavioral, affective and social domains of learning, and they used focus groups to deliver the assessment. Many instruments are available to assess the effectiveness of study abroad programs, but it is important to make sure the tool assesses learning outcomes, not just student satisfaction (Hovland, 2010; Rubin & Matthews, 2013). Also, while it may not always be practical, Rubin and Matthews (2013) recommend using multiple sources and methods of data collection in addition to large, multi-institutional, diverse samples when assessing learning outcomes of study abroad programs whenever possible.

Much of the literature in this area focuses on more traditional study abroad programs that are a semester or year in duration; however, there are benefits to short-term experiences as well (Chieffo & Griffiths, 2004; McKeown, 2009; Spencer & Tuma, 2002; Tarrant, 2010). Chieffo and Griffiths (2004) conducted a study comparing students who participated in short-term travel abroad programs to their peers who took traditional short-term classes on campus in their ability to increase global awareness, and they found that student attitudes can be affected by short-term abroad experiences. Tarrant (2010) also developed a conceptual framework for developing global citizenship through short-term study abroad experiences based on the work of McKeown. McKeown (2009) reported on the benefits of what he calls the *first time effect* even if a student's first experience abroad is short-term. Jones (as cited in Brookes & Becket, 2010) reports on the effectiveness of short-term experiences as well, but others (Hunter, White, & Godbey, 2006) are more skeptical. More recently there has been a push to internationalize the curriculum at a program level (Brookes & Becket, 2010) and offer repeated exposure to intercultural learning

environments and activities (Nilsson, 2003). Brookes and Becket (2010) promote internationalization both at home and abroad to support students and staff in their efforts to develop global perspectives through cross-cultural experiences. Regardless of the duration, Roberts, Connor, and Lynn Jones (2013) promote the use of pre-reflection and reflection activities before, during, and after an international experience. They conducted an extensive literature review, which led to the development of an experiential learning framework to help instructors engage students in activities that impact both the cognitive and affective domains. Overall, the literature promotes study abroad experiences as ideal for developing intercultural communication skills and global awareness (Berdan & Johannes, 2014; Chieffo & Griffiths, 2004; Fischer, 2015; McKeown, 2009; Tarrant, 2010), particularly multiple experiences over time (Nilsson, 2003). However, there is still much debate over the duration and how to properly assess learning outcomes.

Global and Intercultural Competence

The demand for graduates with intercultural skills and global competence in the 21st century workplace is well recognized (Berdan & Johannes, 2014; Bohemia & Ghassan, 2012; Brookes & Becket, 2010; Deardorff, 2011; Fischer, 2015; Gertsen, 1990; Hunter et al., 2006; Little et al., 2005; Scovotti & Spiller, 2011). In a 2014 report from the Institute of International Education, experts (Berdan & Johannes, 2014) from their think tank stated, "Learning how to interact with people from other countries and cultures will be essential for all careers, be they in business, manufacturing, engineering, government, academia or not-for-profit. Study abroad is basic training for the 21st century" (p. 4). Internationalization and the development of multicultural societies have driven the need for students to develop intercultural communication

and collaboration skills as well as increased global awareness in order to participate successfully, both socially and in business.

Global Competence

In this relatively young field of study terms such as intercultural, multicultural, and global competence tend to get used interchangeably. Hunter, White, and Godbey (2006) attempted to define the concept of global competence at a time when multiple terms and definitions were used to describe this construct within specific contexts. They used the Delphi Technique to research and develop a definition for global competence based on input from transnational corporations, international educators, intercultural trainers, United Nations and foreign government officials, which resulted in the following definition: "…having an open mind while actively seeking to understand cultural norms and expectations of others, leveraging this gained knowledge to interact, communicate and work effectively outside one's environment…" (Hunter et al., 2006, p. 277). Many postsecondary educators assume travel abroad and learning a foreign language are required to build global competence, but this study revealed that neither is required. Hunter and his colleagues (2006) determined that the list of knowledge, skills, and attitudes for global competence developed in this study could be achieved through alternate means that does not necessarily involve travel. Global awareness is a component of global competence, and as a predecessor to Hunter's study, Velta Clarke (2004) surveyed 701 randomly selected college students to evaluate their level of global awareness and attitudes about internationalization. In Clarke's (2004) study, she measured global awareness by:

> (a) academic study of at least a year of a foreign language; (b) number of visits to a foreign country; (c) degree of exposure to the media through television, magazines, and journals; (d) study of a course in non-western civilization; and (e) personal involvement

(the number of times the respondent had visited or entertained someone from another country) (p. 56).

Furthermore, Clarke (2004) measured attitudes and beliefs by:

> (a) whether the respondent would work in a foreign country; (b) whether the respondent would study in a foreign country; (c) at the macro level, their belief as to whether the United States should be isolationist or participate in the global economy; (d) whether the United States should give military; (e) economic assistance to foreign countries; and (f) whether the respondents perceived other cultures to be as good as that of the United States" (p. 56).

Clarke (2004) also acknowledges that the United States, among others, is a 'microcosm of global society' and through local diversity students could gain intercultural experience without necessarily traveling abroad.

Intercultural competence

Intercultural competence is similar to global competence, but it implies a slightly broader context whereby it can be achieved locally in a culturally diverse environment more easily. Deardorff (2006) used the Delphi Technique to research and develop a definition of intercultural competence based on input from a panel of internationally known intercultural scholars and then validated by a sample of higher education administrators. Many definitions were put forth, but the top-rated definition among intercultural scholars according to Deardorff (2006) was "...the ability to communicate effectively and appropriately in intercultural situations based on one's intercultural knowledge, skills, and attitudes" (p. 247). Furthermore, Deardorff developed a process model for intercultural competence that illustrates how a student would potentially start by modifying attitudes then building knowledge and skills, which would lead to desired internal

then external outcomes. In a discussion of how to assess intercultural competence, she warns that a single activity is insufficient. Instead, Deardorff (2011) advises that intercultural learning opportunities should be infused throughout courses and in a variety of ways, such as "…using students' diverse backgrounds within a course, and requiring students to have either a local cultural immersion or an education abroad experience" (p. 69). She also promotes the use of a speaker series to raise awareness of other perspectives and worldviews since the one thing that all the experts in her 2006 study could agree upon was the importance of understanding others' worldviews.

For the purposes of this study, the terms global and intercultural competence or awareness will be used interchangeably because the context of this study does not distinguish between the two. Both definitions highlight the importance of knowledge of other cultures in order to communicate effectively in an international experience, which is the learning goal behind the technology-mediated intervention that is being evaluated in this study.

Technology-Mediated Strategies: The Media Debate

In order to give more students international opportunities to build global competence, technology may be able to provide access to experiential learning environments outside of the classroom. While many educational dilemmas or issues can be resolved with the use of newer up-to-date solutions like added technology, there is often a debate over the value technology might bring to the learning situation. When technology is introduced to solve a learning problem the role of that technological tool must be closely examined, as highlighted in what has become known as the Media Debate (Clark & Feldon, 2014; Clark, 1983, 1994; Clark, Yates, Early, & Moulton, 2008; Kozma, 1991, 1994). The trigger that started the debate was Clark's (1983)

meta-analysis on the effects of media in which he concluded that media does not influence learning. Specifically, Clark (1983) stated, "Consistent evidence is found for the generalization that there are no learning benefits to be gained from employing any specific medium to deliver instruction" (p 445). This triggered a response from Kozma (1991), who conducted his own review of literature. He concluded that media selection did impact the learning process. In his rebuttal Kozma (1991) states, "Various aspects of the learning process are influenced by the cognitively relevant characteristics of media: their technologies, symbol systems, and processing capabilities" (p. 205). Clark separated the medium from the method while Kozma argued in some ways the medium was the method and that the two were integrated in the instructional design. In response to Kozma's criticism, Clark (1994) clarified his argument that media and technology are merely tools or delivery trucks in the instructional process and that there is no empirical evidence that demonstrates causation; however, he does concede that there are often benefits of using media such as decreased cost, increased speed, and convenience. Essentially, the instructional method influences learning and if the method is effective, the use of media may be more efficient or economical (Clark, 1994; Clark et al., 2008). This statement provides support for the use of technology as an alternative delivery mechanism for the same instructional method. Even in his most recent publications, Clark (2014) advocates for multimedia instruction, but warns that research evidence should be considered before blindly accepting assumptions about multimedia instruction.

In light of this debate, newer studies have examined the effectiveness of technology as a tool for instructional delivery. Akintunde (2006) echoed Clark's argument when he stated, "Technology is not a deterrent to the educational process, it enhances it" (p 35). He continued, "As educators we are charged with using the phenomenal technology available to us to its

greatest advantage. Modern technology cannot and must not be seen as an end but as a means to an end" (p. 44). This case study based on Akintunde's online course on Multiculturalism provides support for the argument that online technology provides an even better forum than traditional classroom discussion for sharing and reflecting on multicultural issues because students feel safer. In contrast, Ko (2012) found that media had no significant effect when he combined quasi-experimental research with qualitative research to analyze the experiences of twelve Taiwanese university students as they learned French. In this mixed methods case study approach the students were assigned to one of three groups to compare three different learning environments: video and audio online, audio only online, and face-to-face. In the end, some students demonstrated improvements in oral proficiency, but they were spread across all three groups, so the modality did not appear to have any effect.

Kear, Chetwynd, Williams, & Donelan, (2012) conducted a pilot investigation that used mixed methods, mostly qualitative, to analyze the perceptions and experiences of six tutors at the UK Open University using Web conferencing for the first time. They found that the benefits of using Web conferencing were that students enjoyed the additional modalities and travel/institutional costs were reduced while the disadvantages were the high cognitive load on tutors due to the multiple modalities and technical problems. They also reported that it was more difficult to improvise and new resources may be needed because face-to-face resources may not always migrate well. Also, they reported concerns that there may be less interaction online and challenges related to the lack of visual cues when communicating online.

Lazakidou and Retalis (2010) conducted a systematic evaluation case study where they followed twenty-four 4th grade students in rural Greece for two months as they practiced a progressive method for self-regulated problem solving via a synchronous collaborative online

learning system. While this study took place in Greece, it was not cross-cultural in nature; however, they did find that with synchronous online technology performance did improve, there was a decrease in problem-solving duration, the use of metacognitive strategies increased, and students did demonstrate self-regulated problem solving.

Stephens and Mottet (2008) conducted an experimental study based on Rhetorical and Relational Goal Theory of Instructional Communication to analyze how trainers and trainees interact in the mediated Web conference training context. The first two hypotheses that online interactivity before and during the Webinar would increase learning and satisfaction were both unsupported, however, the results did show that interactivity increased the students' perception of instructor credibility, specifically the caring dimension.

Poirier and Feldman (2004) compared the performance of students in an online section to that of students who received the same instruction in a traditional classroom in an experimental study where 23 undergraduate students were randomly pulled from a waiting list or pool and assigned to either an online or traditional classroom introductory psychology course section. The results showed that the online students performed better on exams than the traditional classroom students and equally well on the written assignments. In addition, the online students reported greater course satisfaction on the final evaluations.

While not Web conferencing technology, Solimeno and his team used an experimental design to compare computer supported collaborative learning (CSCL) with face-to-face (F2F) in effectiveness for increasing academic knowledge and professional skills (Solimeno, Mebane, Tomai, & Francescato, 2008). The results showed that collaborative learning strategies were effective in both groups and that CSCL was "at least as effective" as F2F seminars.

This collection of literature generally supports the use of Web conferencing and related online technology to solve some learning problems. The next section summarizes the body of literature specific to the use of such technology within an *international* learning context.

Web Conferencing and Online Technology for International Interaction

International & National

Many researchers and practitioners have designed, implemented, and evaluated various computer-mediated strategies specifically for incorporating an international experience in their courses (Bohemia & Ghassan, 2012; Gunter & Kenny, 2014; Leask, 2004; Little et al., 2005; Mendoza & Matyók, 2013; Peters et al., 2012; Robert & Lenz, 2009; Roberts & Monroe-Baillargeon, 2012; Robinson, 2012; Scovotti & Spiller, 2011; Shively, 2010). This list is by no means exhaustive, but it does provide a representative cross-section of various synchronous and asynchronous Web-based solutions to this problem of practice.

For example Little, Titarenko, and Bergelson (2005) recognized that traditional study abroad is out of reach for many college students in the US due to financial and scheduling constraints, and their study demonstrates that cross-national learning experiences can be achieved online with a distance-learning model. In this case they used asynchronous online discussions with students in other countries within the context of a sociology course on social control, and Little et al. (2005) argue that "…technological and pedagogical developments in distance education now make it possible to create international virtual classrooms that bring together college students and professors from different societies for learning and educational dialogue" (p. 355). While the authors acknowledge that their online solution was not perfectly analogous to a full immersive semester abroad, they do present evidence of increased cross-

cultural knowledge with their online solution, which employed asynchronous online discussions to offer students an opportunity to interact directly with others abroad (Little et al., 2005).

Scovotti and Spiller (2011) utilized both synchronous and asynchronous technology to provide students with an online opportunity to collaborate with students in other countries. In fact, they found after three iterations that introducing video conferencing enhanced productivity and student satisfaction. In this case study, MBA students in the US and Germany were placed in cross-cultural teams and tasked with solving a real world business challenge. Scovotti and Spiller (2011) explained that the international collaboration "…was seen as a way to extend the cultural lessons learned by studying abroad to those who could not or did not participate" (p. 58). The instructors and students did encounter some logistical challenges related to technology and time zone differences in addition to some negative student feedback related to cultural differences and typical challenges associated with a team project. For example, the instructors experienced some technical challenges with their videoconferencing systems because the two schools had different Cisco TelePresence systems on different networks, but some of the student teams set up their own videoconferences on Skype and those teams actually reported that they built stronger relationships than those that did not. Despite the challenges, Scovotti and Spiller (2011) did report that videoconferencing permitted better cross-cultural collaboration, students were able to achieve the project performance goals, and overall the student satisfaction was significantly higher than in previous years when they did not use the videoconferencing.

Bohemia and Ghassan (2012) also studied the impact of using technology to facilitate cross-cultural collaboration with students based in England and Asia where the majority of their students reported that the international collaboration project facilitated their learning, particularly their development of virtual teamwork and communication skills. They simulated a real-world

scenario with distributed cross-cultural student project teams. While the purpose of this program is to link students with other students internationally, the same concept could be applied to a real-world remote client situation as well. Similar to Scovotti and Spiller, they encountered some challenges related to technology and language differences. Initially they assumed that students entering the program were digital natives, but they found that the technology did impede learning for some, however, some student teams sought out their own communication technologies such as Web conferencing tools (Skype) to overcome the limitations of the Website (WordPress) that was provided for them. In addition, Bohemia and Ghassan (2012) discovered that many students initially experienced anxiety over working with foreign students and in some cases language differences hindered the learning process. In their own words:

> This project was challenging for participating academics and students in terms of organizational and operational issues. However, it provided students with a valuable opportunity to experience a cross-institutional peer-learning environment using Web 2.0 technologies that afforded an opportunity to develop contemporary employability skills (p. 122).

Bohemia and Ghassan (2012) concluded that students did gain insights into the challenges associated with cross-cultural distributed work environments, and "…the vast majority (88 percent) of all participating students reported that the learning experience was better or the same as in other modules of instruction in design" (p. 122). In the end, Bohemia and Ghassan echo Nilsson's (2003) recommendation to offer students multiple options for building intercultural competence and offer them more frequently so that students may continue to build these valuable intercultural communication skills over time.

Roberts and Monroe-Baillargeon recently reported on the current state of "technology-facilitated multicultural learning environments," and they specifically named Web-based videoconferencing as one of the tools that are breaking down the barriers to international collaboration (2012). Acknowledging the internationalization trend in higher education as well as limited access to traditional study abroad, Roberts and Monroe-Baillargeon (2012) state:

> The benefits of multiculturalism and cross-cultural exchange, once only available to individuals with the resources to travel abroad, are increasingly available through information technology and creative pedagogy. Those professors who effectively integrate technology in their teaching will now have the ability to reach across borders to create virtual multicultural learning communities (p. 41).

They do confess that it is not without its own challenges such as limited bandwidth and research in addition to cultural, language, and time zone differences, and they point out that technology also brings distinct advantages to those participating online such as access to more tools to remediate language differences.

Local

As described within the organizational context, a UCF team of researchers have implemented a series of Webcasts to infuse a virtual-abroad experience into several courses (Peters et al., 2012). They developed a synchronous, two-way, mobile Webcasting system called Interactive Expeditions (INTX) in partnership with a satellite company, Cobham, to put students in direct contact with remote research teams in the field in real time. Peters and his team (2012) identified their target audience as place-bound students who would not be able to travel abroad, and they stated, "The pedagogical objective was to discover effective ways for these distributed learners to actively participate in authentic field research" (p. 85). Their most recent study

involved what they called a Cultural Transect across South Africa, which was a series of Webcasts from various locations throughout the country. They compared the students' experiences with the Webcasts against that of more traditional online coursework using online discussions earlier in the course, and a preliminary analysis showed that students were more engaged in the Webcasts (Peters et al., 2012). The Webcasts allowed students to ask questions and interact directly with the people in the region they were studying, which provided them an experiential learning opportunity without the time and expense of traveling around the globe.

In a follow up study using the same technology, Gunter and Kenny (2014) looked at motivation, social presence, and instructor immediacy in a similar live broadcast from INTX, this time from India. Some students participated onsite in India while others logged in to the live broadcast online. Ten live broadcasts were scheduled over three weeks, and they collected feedback from participants through surveys, focus groups, and personal observation. One finding of particular interest was that the online participants were able to multitask using the text chat feature, which appeared to increase their engagement and their sense of social presence in the class.

Perhaps the most similar in context to this study is one conducted by Robert and Lenz (2009) because they used the INTX conferencing technology to broadcast a remote field experience back to students who did not travel to the site, but they focused on social presence and comparing satisfaction of students in a live synchronous session versus an asynchronous recorded session. One of the primary findings was that students cited the ability to ask questions as a primary factor in their level of attention. An additional finding of interest was that students were willing to accept lower quality broadcast performance.

Technology Acceptance & Innovation Diffusion

As with any new technological solution, it is important to consider how and why educators and students would use and possibly embrace the new technology. Two theories inform this discussion and attempt to answer the question *If you build it, will they come?* The original technology acceptance model (TAM) asserted that perceived usefulness and perceived ease of use influence the decision to use a new technology (Davis, 1989). Later this evolved into a new model (TAM 2) that integrated seven other technology acceptance models with the original. The TAM 2 model added two additional factors and stated that user acceptance and usage behavior is influenced by performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh, Morris, Davis, & Davis, 2003). Venkatesh and Bala (2008) then expanded the model one more time to address interventions and the determinants of an individual's perceived ease of use. Rogers (1962) identified five categories of adopters within his innovation diffusion theory (IDT); they are innovators, early adopters, early majority, late majority and laggards. For example, Bohemia and Ghassan (2012) described a subset of students who reported challenges with the technology (late majority) while others sought out Web conferencing tools such as Skype on their own and they reported great success (early adopters).

In their quantitative study Lee, Hsieh, and Hsu (2011) crossed innovation diffusion theory (IDT) with the technology acceptance model (TAM) and ended up testing 6x3 hypotheses linking compatibility, complexity, relative advantage, observability, and trialability to perceived use, perceived ease of use, and behavioral intention to use an eLearning system provided by the participants' employers. Survey data was collected from 552 employees using an online learning system in businesses in Taiwan. Fifteen of the eighteen (15 out of 18) hypotheses were supported, so almost all of the IDT characteristics had a positive impact on perceived use,

perceived ease of use, and behavioral intention to use the eLearning system. While this was not a sample of postsecondary students, it was a corporate training context with adult learners, so it could easily be applied to higher education.

These two theories assist in setting realistic expectations regarding adoption of new technological solutions to learning problems. Instructor and student perceptions and time influence the acceptance of a new technology regardless of how effective the instructional strategy may appear. Bohemia and Ghassan (2012) discovered unexpected risks associated with technology where some students reported that their learning was impeded by technology and conceded that they incorrectly assumed that all students would be digital natives. They also pointed out that "technology is not culturally neutral," and through the diffusion process it may take longer for some groups to adopt a new technology than others. Roberts and Monroe-Baillargeon (2012) cite a model program at East Carolina University where the use of technology such as Web conferencing has "…not depreciated the value of the traditional study-and-live-abroad program – far from it" (2012, p. 40). For these early adopters, the technology-based experience has become very popular and participation in the traditional study abroad programs has also increased, which provides encouragement for the diffusion of technology-based international experiences throughout higher education.

Theoretical Framework

Educational Design Research

In recent years educational design research has evolved from design-based research (DBR) as a research approach aimed at solving complex educational problems of practice (McKenney & Reeves, 2012; Plomp, 2013). This systematic approach to designing and

developing interventions to solve complex educational problems often requires a series of cyclical studies over time (Plomp, 2013). Reeves (2006) describes the process of analysis, development, testing, refinement, and reflection in Figure 2 below:

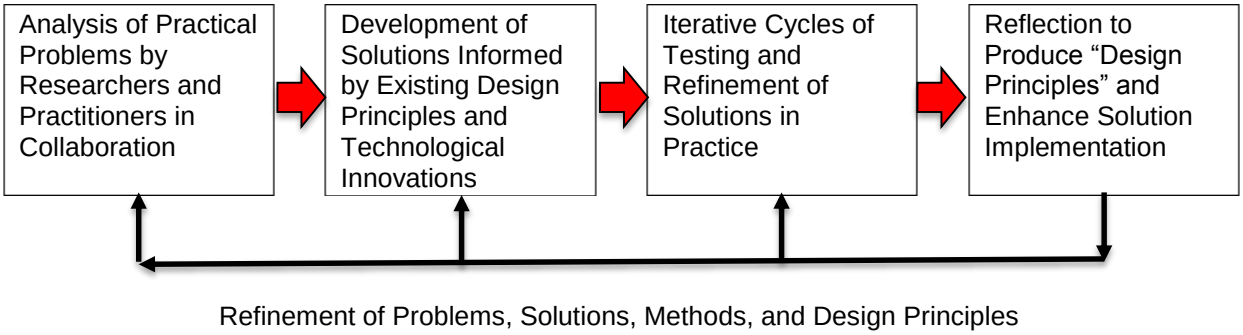


Figure 2. Reeves' design-based research model. Reprinted with permission.

At quick glance this appears to be a linear process, but the arrows depict a cyclical nature that allows the researcher to further refine the intervention after each iteration. This cyclical process may be better illustrated by McKenney's (2005) illustration in Figure 3.

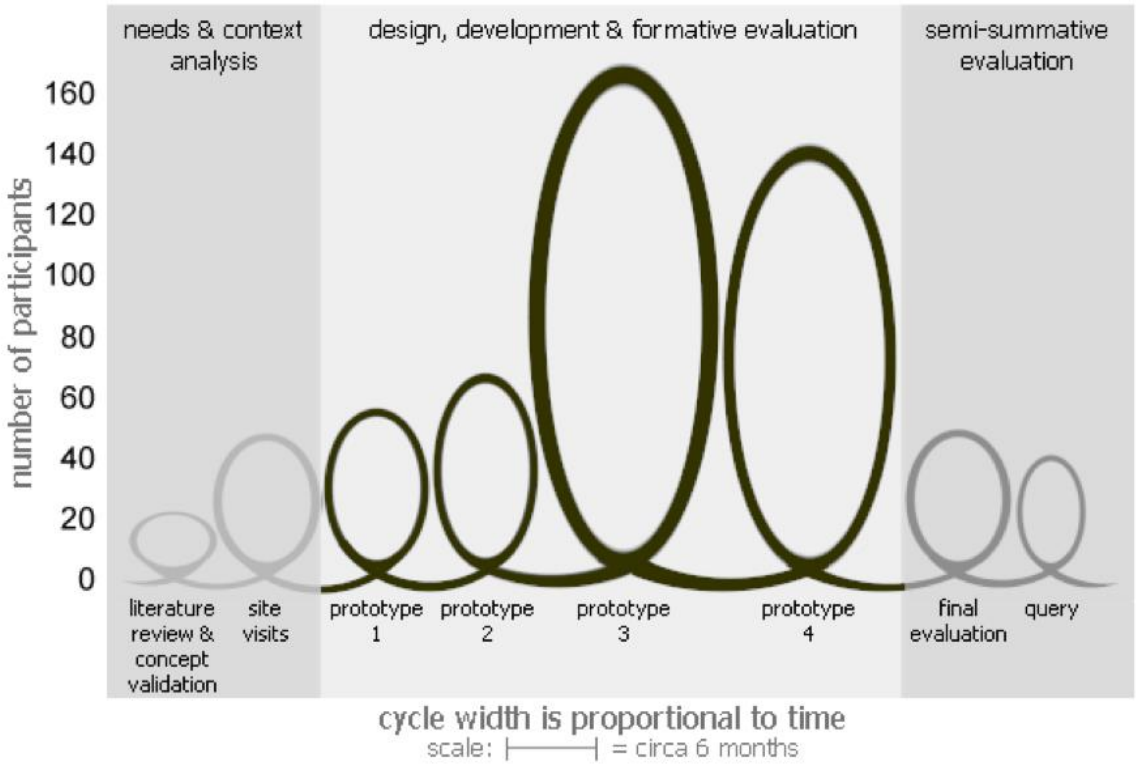


Figure 3. McKenney's model for design-based research. Reprinted with permission.

This dissertation research is a singular study situated within a larger design based research agenda. This study consists of the testing and formative evaluation of a prototype that has been proposed to solve the issue of access to international study at UCF. Nieveen and Folmer (2013) describe the phases of research involved in this type of study. They describe the preliminary research phase as the analysis of the problem to be solved and identification of the desired features of the intervention followed by the evolutionary prototyping and formative evaluation.

The Online Learning Consortium Quality Framework

The Online Learning Consortium (OLC), formerly the Sloan Consortium, is a professional organization dedicated to the advancement of quality online education, and they have developed a quality framework to help organizations set goals for online learning and then measure their progress toward those goals (Online Learning Consortium, 2014). According to the OLC (2014), any institution can demonstrate quality in online learning in the following five interrelated areas, known as the Five Pillars of Quality Online Education. Moore (2011) describes the five pillars as:

> **Learning effectiveness**: Online learning outcomes meet or exceed institutional, industry, and/or community standards.
>
> **Scale**: Institutions continuously improve services while reducing cost to achieve capacity enrollment.
>
> **Access**: All learners who wish to learn online have the opportunity and can achieve success.
>
> **Faculty satisfaction**: Faculty achieve success with teaching online, citing appreciation and happiness.
>
> **Student satisfaction**: Students are successful in learning online and are pleased with their experience (p. 92).

The interrelated nature of these five key principles is illustrated in Figure 4 below.

Figure 4. Online Learning Consortium's Quality Framework: Five Pillars of Quality Online Education

Since its emergence in 1997, this framework has continued to be cited as an industry standard for assessing the quality of online learning (Boubsil, Carabajal, & Vidal, 2011; Callahan, Jones, & Bruce, 2012; Clark, Holstrom, & Millacci, 2009; Fey, Emery, & Flora, 2008; Karamizadeh, Zarifsanayei, Faghihi, Mohammadi, & Habibi, 2012; Ng, 2006; Schnetter et al., 2014; Wang, 2006). For example Fey, Emery, and Flora (2008) used the OLC quality framework to examine student success and retention in an inter-institutional online program, and they organized their findings under each of the five pillars. Similarly, researchers at the University of Cincinnati used the OLC quality framework for a case study review of their online education programs where they tied examples of success strategies to each of the five pillars (Clark et al., 2009). Schnetter, Lacy, Jones, Bakrim, Allen, & O'Neal (2014) selected the OLC quality framework to organize their recommendations for developing effective Web-based nursing courses. Qi Wang (2006) also recognized the OLC quality framework in a compilation of best practices for quality assurance and assessing online programs, and in a review of American-model higher education overseas Boubsil and Carabajal (2011) recognize the OLC quality

framework for evaluating the effectiveness of online education. Others have focused their research on individual pillars as well (Karamizadeh et al., 2012; Ng, 2006). For example, Cheuk Fan Ng (2006) cited the OLC quality framework but then focused her research on faculty satisfaction, specifically for institutions with geographically dispersed faculty members teaching online. Karamizadeh et al (2012) focused on learning effectiveness and student satisfaction in their evaluation of a blended medical training course. This industry-respected framework is also used to organize the data collection and results presented in this study.

CHAPTER THREE: METHODOLOGY

Introduction

This chapter describes the research design and procedures used to evaluate the technology-mediated intervention outlined in Chapter One. It includes descriptions of the study design, evaluation questions, study population, instrumentation, data collection, and data analysis procedures.

Design of the Study

Michael Scriven (1991) defines evaluation as "…the process of determining the merit, worth and value of things" (p. 1). This study is situated within the iterative design process of developing a viable technology-mediated alternative to study abroad for those who cannot travel. As such, the formative evaluation methods utilized in this study are intended to furnish information that will guide program improvement for future iterations (Fitzpatrick et al., 2010). The output of this evaluation will be used to modify the design and serve as input for the next formative evaluation study. Based on the types of evaluation questions involved, this was both a process and an outcomes evaluation (Fitzpatrick et al., 2010).

More specifically, this was an objectives-oriented evaluation (Fitzpatrick et al., 2010) based on the Online Learning Consortium (OLC) Quality Framework, which addresses the following *Five Pillars* of quality online programs: learning effectiveness, scale (cost effectiveness and institutional commitment), access, faculty satisfaction, and student satisfaction (Online Learning Consortium, 2014). According to the OLC (2014), the goal for learning effectiveness is to demonstrate that the learning outcomes from online instruction meet or exceed

accepted standards, which can be measured by faculty feedback or student assessment. The goal behind the scale pillar is to continuously improve instruction while reducing cost (Online Learning Consortium, 2014). As discussed earlier, the problem addressed in this study is really an access issue, and according to the OLC another goal is to provide all learners with access to a wide array of online learning opportunities if they wish (Online Learning Consortium, 2014). The goal behind the last two pillars is to ensure both faculty and student satisfaction with the experience, which can be measured by survey or interview data (Online Learning Consortium, 2014). These five pillars provide a theoretical framework for the evaluation methodology as well as the activities and outcomes outlined in the logic model in Figure 5 below.

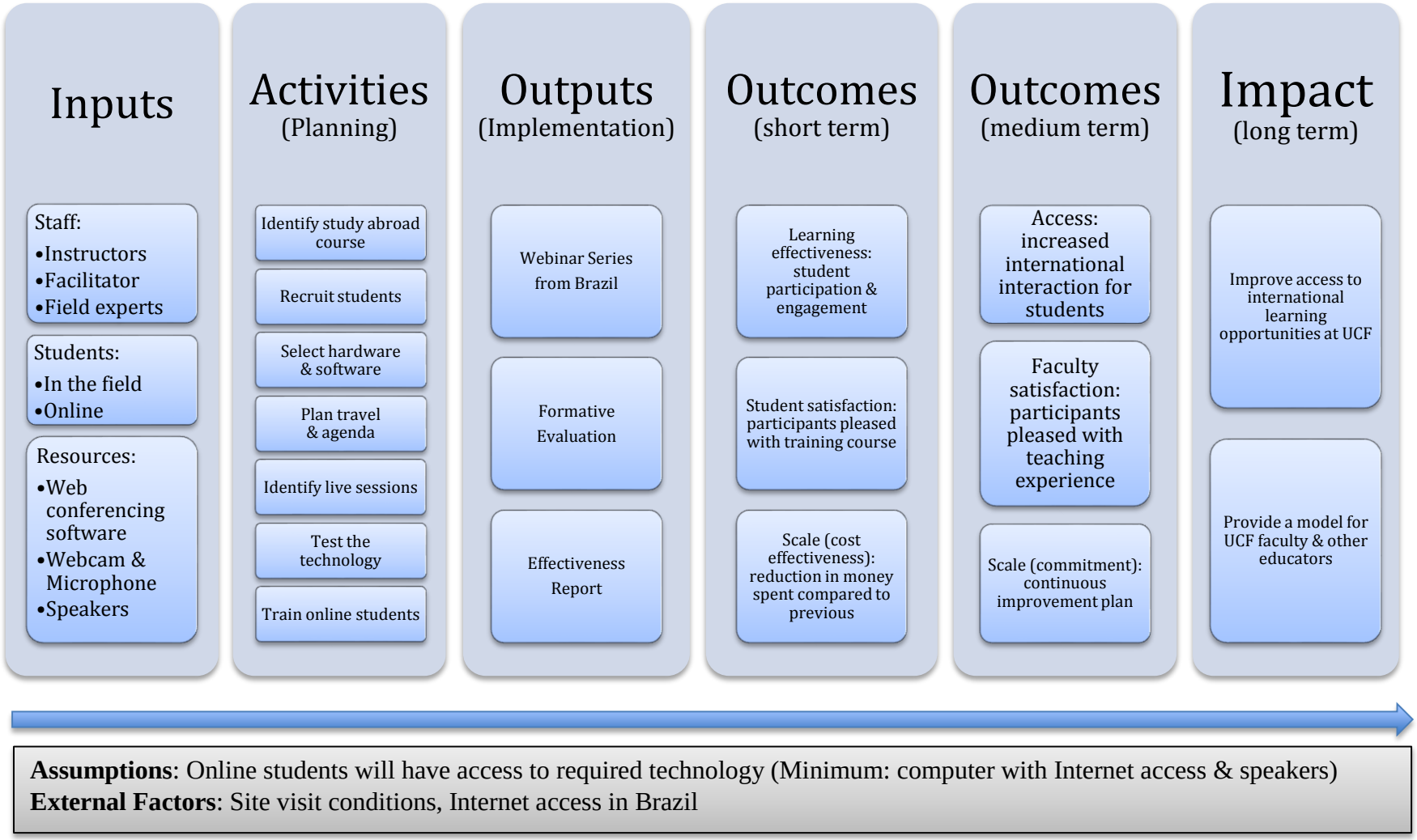


Figure 5. W. Howard's Logic Model for Online Alternative Evaluation

Evaluation Questions

This evaluation study examines two main components: intended outcomes typical of the study abroad experience and implementation of the technology-based intervention (Fitzpatrick et al., 2010). The first set of evaluation questions focuses on the student experience and overall satisfaction while the second set of questions focuses more on the impact of the technology used in this instructional activity.

- Did the program accomplish what was intended?
    1. What is the difference in student engagement with experts in the field between students who travel abroad and those who participate via Web conferencing?
    2. What is the difference in student satisfaction with the overall experience between students who travel abroad and those who participate via Web conferencing?
    3. How were the experiences of the online and face-to-face groups similar and how were they different?
    4. What is the potential impact of this program for providing UCF students access to international learning opportunities?
- Was the program implemented effectively?
    5. What were online participants' reactions to the Web conferencing system used in this intervention?
    6. What was the impact of technology on the students' ability to participate in remote instructional activities?

7. How can this intervention be improved?
8. What were the instructors' perceptions about their teaching experience with this technology-mediated intervention?
9. How does the cost of this intervention compare to previous technology-mediated attempts?

The evaluation sub-questions can also be organized under each of the five pillars from the OLC Quality Framework as outlined in Table 1.

Table 1. Evaluation Sub-questions Organized Under OLC's Five Pillars

Learning Effectiveness: 1. What is the difference in student engagement with experts in the field between students who travel abroad and those who participate via Web conferencing? 3. How were the experiences of the online and face-to-face groups similar and how were they different?
Scale: 7. How can this intervention be improved? 9. How does the cost of this intervention compare to previous technology-mediated attempts?
Access: 4. What is the potential impact of this program for providing UCF students access to international learning opportunities?
Faculty Satisfaction: 8. What were the instructors' perceptions about their teaching experience with this technology-mediated intervention?
Student Satisfaction: 2. What is the difference in student satisfaction with the overall experience between students who travel abroad and those who participate via Web conferencing? 5. What were online participants' reactions to the Web conferencing system used in this intervention? 6. What was the impact of technology on the students' ability to participate in remote instructional activities?

In an effort to develop a viable technology-mediated alternative to traditional study abroad, these questions have elicited both positive and constructive feedback to inform

recommendations for future improvement. These questions have also captured the elements that led to positive student experiences, satisfaction, and engagement so that they may be maintained in the next iterative study. Likewise, the negative feedback has generated recommendations for future improvements. In a similar fashion, the second set of questions has assisted in evaluating the effectiveness of the specific technology that was selected for the study.

Population and Sample

The population that served in this evaluation study was a broad mix of students and educators within the field of global health education. Most of the online participants were from either the University of Central Florida (UCF) or the University of Scranton (UofS), but invitations to participate online were also extended to interested educators at Harvard University and Florida State University. UCF is a large, public research university with over 60,000 students (University of Central Florida, n.d.), and UofS is a small, private Jesuit university with less than 6,000 students (The University of Scranton, 2013). Students who participated in the traditional study abroad experience in the field were from both UCF and UofS, but they all enrolled in the HAD 584: South American Health Systems course offered through UofS. The study abroad course in Brazil was team taught by instructors from both universities as well. The three instructors performed all recruitment activities and marketed both the travel abroad and online option to students and colleagues on their respective campuses and within their professional communities. Participants online were both students and educators from all four aforementioned institutions, and all participated on a volunteer basis. They were invited to participate in any or all of the following sessions via Web conferencing:

- National Cancer Institute presentation and tour
- Favela tour
- PUC-RIO University presentation and tour
- FIOCRUZ National School of Public Health presentations
- Reflective discussion on social justice and community engagement

The sessions were recorded and made available to participants who were unable to attend synchronously, but only those who attended at least one live session were asked to complete a survey. Online participants had the option to either come to a classroom on the UCF or UofS campus to access the live meeting or login on their own. Once logged in to the Web conference, participants were able to view the video feed from the perspective of the online facilitator in the field. They were able to hear the live discussion, but their microphones remained muted until they were ready to speak to the group. In addition, online participants were able to view presentation slides when they were available and communicate via text chat as well. Please see Chapter One for a more detailed description of the setup.

Online participants and students who traveled abroad were asked to complete a voluntary, anonymous online survey. All ten students who traveled to Brazil responded to the survey, and 18 out of 33 online participants completed the survey. In addition, all three instructors participated in the interview.

Instrumentation

Multiple data sources were employed in order to triangulate and thoroughly explore the evaluation questions above as recommended by Rubin and Matthews (2013). The primary source

of data was online anonymous participant surveys, which collected both quantitative and qualitative data from students who participated in the field and online. Many of the questions were Likert-scale so that the two groups could be compared. The instructors were also interviewed individually after the trip to collect data from their perspectives. Both the survey instrument and interview protocols are described in this section, and the full instruments are available in Appendix B & C, respectively.

Online Survey

The anonymous online survey was provided to both the students in the field and the online participants. It was administered through Qualtrics, which allowed a branching scenario based on whether the respondent participated face-to-face or online. Questions specific to technology implementation and participants' experiences with the Web conferencing tool were only delivered to those who participated online. The complete survey instrument is available in Appendix B. The survey questions came from multiple sources as outlined in Table 2.

Table 2. Table of Specifications

Evaluation sub-questions	Data Type	Instrument	Sample
Learning effectiveness: How were the experiences of the online and face-to-face groups similar and how were they different?	Quantitative	Q15 & Q16 NSSE Engagement Survey (Indiana University School of Education, 2014)	Students in field and Online participants
	Qualitative	Q17 & Q18 (Written by Evaluator)	Students in field and Online participants
Scale: How can this intervention be improved?	Qualitative	Q11 & Q12 (Written by Evaluator)	Online participants
Student Satisfaction: What is the difference in student satisfaction with the overall experience between students who travel abroad and those who participate via Web conferencing?	Quantitative	Q14 (Richardson & Swan, 2003)	Students in field and Online participants
	Qualitative	Q10 (Picciano, 2002)	Online participants
Student Satisfaction: What were online participants' reactions to the Web conferencing system used in this intervention?	Quantitative	Q8 IBM PSSUQ Survey (Lewis, 1993)	Online participants
Student Satisfaction: What was the impact of technology on the students' ability to participate in remote instructional activities?	Quantitative	Q6 & Q9 (Richardson & Swan, 2003) & (Picciano, 2002)	Online participants
	Qualitative	Q11, Q12, & Q17 (Picciano, 2002) & (Written by Evaluator)	Online participants

Qualitative survey questions were written by the researcher in order to thoroughly explore the evaluation questions. Quantitative survey questions were compiled from four different sources. Two of the survey questions with a total of 12 items were adapted from the National Survey of Student Engagement (NSSE) developed by the Indiana University School of Education (2014). According to the NSSE Website (Indiana University School of Education, 2014), "The NSSE survey, launched in 2000 and updated in 2013, assesses the extent to which students engage in educational practices associated with high levels of learning and

development" (para.1). These two questions were selected to measure similarities and differences in engagement and learning effectiveness between the online and face-to-face participants, and the only modification was that the instructions were modified to reflect the instructional activity rather than a full academic program.

Another pair of questions with a total of 9 items came from Part I of Richardson and Swan's (2003) survey, which they used to investigate social presence in an online learning environment. Richardson and Swan (2003) clarify, "More specifically [the study] examined the relationship among students' perception of social presence in online courses, students' perceived learning and their satisfaction with the instructor" (p. 71). The first part of their survey was selected to measure student satisfaction and comfort in this study, and the instructions were modified to reflect a single instructional activity rather than a complete course.

Picciano's (2002) survey instrument was also adapted to measure student satisfaction in this study, but it focused more on the technology and therefore was only used to gather feedback from the online participants. A question with 9 items extracted from Picciano's (2002) survey instrument was used to assess the impact of technology on the students' ability to interact with the remote experts. Again, the only modification was in the instructions where participants were asked to respond based on their experience with the instructional activity rather than a full course.

Lastly, a question with 11 items was selected from the IBM Computer Usability Satisfaction PSSUQ Questionnaire (Lewis, 1993) which was intended to elicit students' reactions to the technology-mediated environment. This question was not modified in any way. Lewis (1993) conducted an analysis of the IBM PSSUQ Survey which revealed excellent reliability and validity. According to Lewis (1993), "Coefficient alpha analyses showed that the reliability of

the overall summative scale (OVERALL) was .97, and ranged from .91 to .96 for the three subscales (SYSUSE=.96, INFOQUAL=.91, and INTERQUAL=.91). Therefore, the overall scale and the three subscales have excellent reliability" (p. 15). Regarding validity, Lewis (1993) also reported, "Correlation analyses support the validity of the scales. The OVERALL scale correlated highly with the sum of the ASQ ratings that participants gave after completing each scenario (r(20)=.80, p=.0001). OVERALL also correlated significantly with the percentage of successful scenario completion (r(29)=-.40, p=.026)" (p.15).

For the survey instrument used in this study, the quantitative survey questions have been grouped into three scales in order to evaluate the internal consistency of survey items and determine the reliability of the instrument based upon the recommendations of Gliem & Gliem (2003). The Alpha Reliability Analysis, also known as Cronbach's Alpha, is a statistical tool that Gliem & Gliem (2003) argue should be used to calculate and report the internal reliability for scales or subscales. Cronbach's Alpha is defined as

$$\alpha = \frac{K}{K-1}\left(1 - \frac{\sum_{i=1}^{K} \sigma_{Y_i}^2}{\sigma_X^2}\right) \quad (1)$$

and was used to calculate the internal reliability of three scales: learning effectiveness (LEARNEFF), satisfaction with experience (SATEXP), and satisfaction with technology (SATTECH). The survey items identified for each scale and their corresponding alpha reliability values are summarized in Table 3.

Table 3. Survey Scales and Reliability

Scale	Code	Survey Questions	Total # of Items	Cronbach's Alpha
Learning Effectiveness	LEARNEFF	Q15 & Q16	12	.97
Satisfaction with Experience	SATEXP	Q14	6	.96
Satisfaction with Technology	SATTECH	Q6, Q8 & Q9	22	.99

Based on the reliability coefficients reported in Table 3, Cronbach's Alpha reported excellent reliability for all three scales.

Interview Protocol

The interview protocol was designed by the evaluator to compile instructor feedback on the computer-mediated intervention. It was intended to be delivered by either phone or face-to-face, and the goal was to keep the interview close to 30 minutes in duration. Questions were designed to elicit instructor perceptions of learning effectiveness, student satisfaction, and faculty satisfaction based on the OLC Quality Framework (Online Learning Consortium, 2014). The complete interview protocol is available in Appendix C. In addition, a data collection blueprint that matches the evaluation questions to the data type, instrument, and sample for all data sources is available in Appendix D.

Data Collection Procedures

Multiple sources of information were used in order to triangulate the data and provide a comprehensive formative evaluation (Maxwell, 1996). While most of the feedback data was collected after the group returned from Brazil, some of the data was collected before and during the site visits. For example, online and face-to-face participants were surveyed and instructors were interviewed after the trip, but the online sessions were recorded and observational data was logged while there. Furthermore, budgetary data was collected prior to the trip. The procedures used to collect data from each of these sources are discussed in more detail below.

Survey

An online anonymous survey was used to collect both quantitative and qualitative feedback from the students who traveled to Brazil for the study abroad course as well as the online participants. The complete survey instrument is available in Appendix B. The same survey was distributed to both groups online via Qualtrics software, but online participants were asked to respond to additional questions about the technology that did not apply to those who attended face-to-face. Online participants were provided a link to the anonymous survey at the end of each live meeting and through a reminder email after the session. Students in the field were sent an email invitation with the survey link at the end of the trip and through a reminder email.

All individual quantitative survey data has been kept confidential; it was analyzed in aggregate form with de-identified participant data. All individual qualitative survey and interview responses are published anonymously, and no individual participant is identified in any analyses or reporting. All data collected has been secured electronically on a password-protected computer accessed only by the evaluator.

Interviews

All three instructors were interviewed after the trip to collect feedback on their perceptions and experiences. The complete interview protocol is available in Appendix C. The two instructors from UofS were interviewed via phone, and the instructor from UCF was interviewed in person. The names of the interview respondents are confidential and only known to the evaluator. All three interviews were recorded with permission and then transcribed by the

evaluator for analysis. During the analysis phase the strategy of member checking was used to increase validity and avoid misinterpretation of data (Maxwell, 1996). After transcribing each interview, the evaluator emailed a copy of the transcription to the respective interviewee to validate and append if needed. Then after analyzing the transcript of each interview, the evaluator emailed preliminary results and conclusions to each interviewee and asked him to review them in writing and either confirm their validity or clarify any misinterpretation in writing.

Observations

As the online facilitator traveling with the group in Brazil, the evaluator was in a unique position to observe both the online participants and those in the field. Immediately following each of the five live sessions, the evaluator recorded observation data regarding quantity and quality of participation, issues related to technology, similarities and differences between the two groups, what worked well, and areas for improvement. These logs were later used to triangulate with survey and interview data in the analysis phase (Maxwell, 1996). Adobe Connect Web conferencing software was used for the live sessions, and each session was recorded for future review and additional observations for triangulation as well. The recordings were saved on a secure server and links to view the recordings were shared with all participants.

Additional Data Sources

Two additional data sources were utilized in this evaluation: budget information and unsolicited feedback via email. In order to evaluate the cost effectiveness of this intervention,

budgetary information needed to be compiled and then compared. To this end, all costs above and beyond the traditional study abroad trip that were associated with the online component and the facilitator were tallied. The evaluator also requested a copy of the proposed budget based on the satellite technology solution discussed in Chapter One that had been implemented previously at UCF (Peters et al., 2012; Peters, 2014). In addition, the evaluator received unsolicited feedback from some of the participants via email. These comments were from both online and face-to-face participants, and they were added to the qualitative feedback data for triangulation purposes in the analysis.

Data Analysis

As described in the Instrumentation section above, multiple data sources were used for triangulation in the analysis phase. The first data point is the anonymous online survey, which was used to compile both quantitative and qualitative data from the students in the field as well as online participants. The quantitative survey data has been analyzed in terms of the three scales (learning effectiveness, satisfaction with experience, & satisfaction with technology) in order to describe what happened during the instructional activity with the Web conferencing intervention. Comparative statistics were used to measure the differences between the experiences of the students in the field and the online participants while descriptive statistics were used for the online participants' perceptions of the technology. Then the qualitative survey data provided insights that help explain why the participants responded the way they did.

As a second data point the instructors were interviewed to capture their perceptions after the final event in order to further explore learning effectiveness, scale, student satisfaction, and

faculty satisfaction. In addition, online facilitator observations during the events served as a third data point when triangulating the data. The sessions were also recorded so that evaluators could collect additional quantitative data such as the number of participants and the frequency and duration of student participation. To address cost-related issues, the budget for this intervention was compared to the total budget of a similar solution that had been previously implemented at UCF.

Summary

This objectives-oriented evaluation was intended to be formative in nature so that it may be used as a feedback loop for continuous improvement within a larger design-based research program focused on developing a viable technology-mediated alternative to study abroad for those who cannot travel. The ten evaluation sub-questions were designed to use the Online Learning Consortium's Quality Framework to assess the outcomes and the implementation of the Web conferencing intervention employed by instructors from the University of Central Florida and the University of Scranton on a global health management study abroad course in Brazil. The instruments, data collection procedures, and data analysis plan are described in great detail in this chapter. Multiple data sources including online anonymous surveys, instructor interviews, online facilitator observations, and budget documents were used to triangulate and explore the evaluation questions.

CHAPTER FOUR: FINDINGS

The purpose of this study was to determine if the proposed technology-mediated intervention is a viable alternative to traditional study abroad for those who are unable to travel. This chapter reports on the results of the data analysis, which included both quantitative and qualitative survey data, interview, and observation data. It is organized by the Five Pillars of the Online Learning Consortium (OLC) Quality Framework: learning effectiveness, scale, access, faculty satisfaction, and student satisfaction (Online Learning Consortium, 2014). Each section starts with the corresponding evaluation questions and data collection blueprint followed by the results.

Learning Effectiveness

The first of the five pillars explored in this study was learning effectiveness, which Moore (2011) describes as "Online learning outcomes meet or exceed institutional, industry, and/or community standards" (p. 92). The evaluation questions used to assess learning effectiveness for this evaluation are:

- What is the difference in student engagement with experts in the field between students who travel abroad and those who participate via Web conferencing?
- How were the experiences of the online and face-to-face groups similar and how were they different?

Table 4 describes the data sources that were used to evaluate each of the questions related to learning effectiveness. Differences in engagement were evaluated using both interview and

observation data while experiences of the two groups were compared using interview data in addition to quantitative and qualitative survey responses.

Table 4. Data Collection Blueprint for Learning Effectiveness

Evaluation sub-questions	Data	Instrument	Sample
What is the difference in student engagement with experts in the field between students who travel abroad and those who participate via Web conferencing?	Observation data	Observation Form (including number of participants, frequency & nature of participation)	Online facilitator
	Interview	Questions 1-2	Instructors
How were the experiences of the online and face-to-face groups similar and how were they different?	Quantitative	Online Survey: Q15 & Q16	Students in field and Online participants
	Qualitative	Online Survey: Q17 & Q18	Students in field and Online participants
	Interview	Questions 6-9	Instructors

The sample consisted of ten students who traveled abroad to Brazil and eighteen online participants. It should be noted that while the number of participants in the field remained constant (10 students), the number of online participants varied greatly in each of the five sessions, which makes a direct quantitative comparison difficult. A total of fourteen online participants joined the National Cancer Institute presentation and tour, only one logged into the favela tour, one attended the PUC-RIO University presentation and tour, five participated in the FIOCRUZ National School of Public Health presentations, and twelve joined the reflective

discussion on social justice and community engagement. In addition, all three instructors participated in the interview.

> What is the difference in student engagement with experts in the field between students who travel abroad and those who participate via Web conferencing?

Both observation and interview data were gathered to evaluate the differences in engagement between the two groups. The instructor interview data and an unsolicited email message from an online participant provided triangulation. This section is organized based on three different sessions that were broadcasted live from Brazil.

National Cancer Institute (INCA) presentation and tour

During the National Cancer Institute tour there were 14 online participants total, but seven of them were together in a UCF classroom using one connection to the Web conference with a shared keyboard, speakers, and a projector in the room. The online facilitator observed that while the students who were located onsite were respectfully quiet and asked the occasional question when prompted by the tour guide, the online participants had an ongoing dialogue in the text chat window. The online participants did not ask any questions of the tour guide like those onsite. Instead they used the text chat to report any technical concerns such as the audio volume or to offer commentary or feedback. For example, Participant A wrote, "Thank you for sharing this transmission! Interesting to be following you through the tour." Most of the comments in the chat were directed toward the facilitator, but a few times they would respond to each other's comments like this:

> Participant B: Excellent work respecting patient privacy in these recordings! Very important!

> Participant C: I agree! great job giving those of us not there a wonderful tour of this facility! and a great job respecting patient privacy! I'm curious to see students' reactions to being there.

The online facilitator also observed some technical difficulties that may have impacted the level of engagement online. While touring the hospital, the Internet connection dropped several times and it ranged from a few seconds to several minutes to reconnect. During the interview Instructor A stated, "I think that when there's technical difficulties with anything there's a sense of distraction. We might lose interest from students saying this isn't working, it keeps breaking up." Also, to protect patient privacy there were several times during the tour where the online facilitator was asked to put down the camera but keep the audio running. While the online participants commented that they appreciated that, it may have impacted their level of engagement.

FIOCRUZ National School of Public Health presentations

There were only five participants online during the visit to Fiocruz, and due to circumstances beyond the instructors' control the session started almost an hour early, so they were only present toward the end of the session. In addition, each of the ten students onsite were given the opportunity to deliver a brief presentation to the experts at the research facility. Initially the online chat was used to check audio and video quality followed by a few congratulatory comments after the first couple of student presentations, but toward the end of the session online participants started engaging more with questions and comments based on the content delivered in the presentations. After reviewing the recordings and logging the number of questions asked after each presentation, it was determined that the online participants asked a

total of four questions while the students onsite did not ask any. Instructor A shared how excited the host was to interact with the online participants, "I recall a student thru chat asking a question and Dr. Ferriera's eyes lit up and he was excited and responded to the student." The online facilitator invited them to turn on their microphones to ask their questions but most preferred to type it in the chat and let the facilitator ask their questions on their behalf. The last question was more complex, so that participant did turn on his microphone and a brief dialogue ensued. Instructor B mentioned this student and commented "In that session where that student was asking a question after the presentations, he was really trying to be engaged and tried to use his microphone and all that, but there were very few of those that we could determine." When asked about online student feedback, Instructor A shared that some of the online students told him they wish they had been there to experience the ability to present. All three instructors agreed that next time they would like to give online students the opportunity to present as well using the Web conferencing technology.

Reflective discussion on social justice and community engagement

The final reflective session was far more interactive than the others, but the discussion took place in the hotel with just the class so there were no external experts involved. This time the online participants engaged much more in the discussion and asked a total of eleven questions. They were limited to the text chat though because almost all of the online participants were in a computer lab with no microphones. The nature of the discussion was much more informal in this final session, so the initial questions were more jovial at first asking about the trip itself: how was the beach, did the instructors play golf? Then the discussion shifted to issues of social justice and community engagement.

All three instructors provided general feedback regarding engagement, which can be summarized by the following comment from Instructor B:

> I still think that the ones that went [to Brazil] seemed to be much more enthusiastic than the ones that didn't go, but the ones that didn't go I think are enthusiastic on a different level. I don't think it's directly comparable, but I think they are very enthusiastic, just the amazement of being here and watching something that is so far away in real time.

Instructor A focused on the impact of limiting the five senses to just sight and sound for the online participants. When asked to compare the level of engagement, he explained:

> The obvious response to that is that they are more engaged simply because of the fact that they're on premise during the study abroad in country, so they have the opportunity to experience through senses other than the visual and sound but through smells and just feeling interaction with individuals in country so that level of engagement I think is something that you can't gather from a Web-based venue. However, the real time ability for students that are not in country but are participating via Web and Internet technology can experience in real time the same exposure students are getting from a visual perspective, from a sound perspective, and getting the feedback and narrative from the instructor of record and those that are traveling with students. So, the degree to which online students are engaged and the level of engagement is the same as it pertains to the visual aspects and the ability to communicate with our partners in country and our students and faculty. The main difference I see is the actual cultural immersion and other senses that you get when you're on the premise.

Instructor C described a difference in the level of engagement based on intensity and duration of the experience. In his words, "Obviously with the students who are with us in the actual location

the level of engagement there is more intense and more sustained." He went on to explain that students onsite had the advantage of being able to immediately interact with the experts while those online experienced a delayed effect and in many ways they were at the mercy of those onsite.

A final factor that was highlighted regarding engagement is motivation. All three instructors cited the same potential reason for lower engagement online in this case study: not only were many of the online participants different in each session compared to a consistent set of students onsite, they were also volunteers. Instructor A explained:

> The difference is the online students that were here in Scranton were not part of the formal course so they weren't required to do research papers. They weren't required to prepare a presentation. They didn't do the oral exam. They didn't have the readings. Whereas our students that were registered for the class obviously had those academic requirements. So that's a significant difference. It might be useful at some point to bridge that gap where the difference is, is to have students enroll in the course although they can't travel and hold them to the same academic requirements where they can get credit, do the research, do the presentation, take the oral exam, do the readings, provide a journal and a reflection paper based on the technology that's being used… It's kind of comparing apples to oranges at some level because they weren't registered online, but I think that could be addressed if they were registered online.

Instructor C added that videos were provided to online participants to watch in advance, but he had no way of knowing if they actually did watch them. He explained:

> This wasn't my course, so I couldn't mandate that they go online and look at everything we had available there. But if I was teaching that course and said, ok, this is part of the

> assignment and you must do that and reflect on it and use it in the dialogue, in the conversations we're gonna have, I think the results would be different. But I'm not controlling that other class.

Instructor B expressed similar comments and recommended tying online participation to course credit. Participant F from the online group also suggested structuring a parallel experience for remote participants in the following survey response:

> The activities and technology seemed successful in allowing the participants in Brazil to share their experiences and learning with audiences at a distance (which was one of the primary objectives). However, there was a missed opportunity since the learners in the U.S. seemed to be primarily passive listeners. If the students from the U.S. had engaged in a somewhat parallel field learning experience locally, they would have had something to contribute and add to what the students in Brazil were doing and enriched both of their experiences in the process.

The general consensus among the instructors and the online facilitator was that the students onsite were more engaged than those online, but both groups engaged in different ways. In the field, students had input from all five senses, not just sight and sound, and their exposure was more intense and sustained. The online participants engaged more through text chat and had technical distractions to overcome. In an unsolicited email an online participant stated, "You did a great job keeping the remote attendees involved." One recommendation all three instructors and the online facilitator agreed upon was to offer online participation to students enrolled in a course with the same or similar course requirements.

How were the experiences of the online and face-to-face groups similar and how were they different?

Three different data sources were triangulated to analyze this evaluation question: two quantitative student survey questions with a total of 12 items (Q15 & Q16), two qualitative student survey questions (Q17 & Q18), and the instructor interviews. The total number of survey responses was 28 out of 43 total participants, which yielded a response rate of 65%. Chapter Three described the reliability of three subscales within the survey. The first subscale was learning effectiveness (LEARNEFF), which consisted of twelve items from questions Q15 & Q16 and was found to be highly reliable ($\alpha = .97$). The students who participated face-to-face in Brazil ($M = 55.33$, $SD = 5.85$) reported significantly higher levels on the learning effectiveness scale than those who participated online ($M = 39.47$, $SD = 9.72$), $t(22) = 4.42$, $p < .05$.

Analysis of the individual survey questions identified specific areas where members of the two groups differed. Q15 asked respondents to indicate the quality of their interactions with the instructors, the experts in the field, the online facilitator, and other students. While the students in the field were consistently 100% positive regarding their interactions, most of the online participants were positive as well. Because the sample size was so small, one person who was negative had a significant impact on the comparative statistics. One individual represents six percent of the online respondents, and the researchers were able to confirm that it was the same individual who responded negatively to all four items on this question. Table 5 compares the responses from students onsite to those who participated online. Notice the positive column for both groups is consistently high, and the 6% negative responses from the online group represent a single individual.

Table 5. Comparison of responses to Q15: Please indicate the quality of your interactions with the following people during this instructional activity.

	Online Participants (N = 16)			**Students Onsite (N = 10)**		
	Negative	Ambivalent	Positive	Negative	Ambivalent	Positive
Instructors	6%	0%	94%	0%	0%	100%
Experts in the field	6%	6%	88%	0%	0%	100%
Online facilitator	0%	6%	94%	0%	0%	100%
Other students	6%	6%	88%	0%	0%	100%

Responses to Question 16 on the survey (Q16) were more inconsistent. This question asked participants to quantify how much their experience during this instructional activity contributed to their knowledge, skills, and personal development in eight different areas. Overall, students in the field tended to report a higher contribution to their knowledge, skills and personal development than online participants. Also, online participants responded fairly consistently except for one item, which was understanding people of other backgrounds. More respondents reported a higher contribution to this item than the other seven items in the question. Table 6 compares the responses to this question from students onsite to those who participated online. In general, the majority of students onsite reported the experience contributed quite a bit or very much to their learning while the majority of the online participants reported that it contributed very little or some to their knowledge, skills, and personal development.

Table 6. Comparison of responses to Q16: How much has your experience during this instructional activity contributed to your knowledge, skills, and personal development in the following areas?

	Online Participants (N = 16)		**Students Onsite (N = 10)**	
	Very Little/ Some	Quite a Bit/ Very Much	Very Little/ Some	Quite a Bit/ Very Much
Speaking clearly and effectively	69%	31%	10%	90%
Thinking critically and analytically	69%	31%	0%	100%
Acquiring job- or work-related knowledge and skills	69%	31%	10%	90%
Working effectively with others	69%	31%	11%*	89%*
Developing or clarifying a personal code of values and ethics	69%	31%	20%	80%
Understanding people of other backgrounds (economic, racial/ethnic, political, religious, nationality, etc.)	50%	50%	10%	90%
Solving complex real-world problems	69%	31%	20%	80%
Being an informed and active citizen	60%*	40%*	10%	90%
* Note: One person did not respond to this question.				

Some of the open-ended survey questions may explain the similarities and differences between these two groups. Several participants from both groups reported that the site visits and tours were what they liked best about the whole experience. Table 7 reports responses from both groups.

Table 7. Survey Q17: Comments that highlighted site tours

What did you like most about this activity?	
Online Participants	**Students Onsite**
• "Learning about hospital environment in Brazil first-hand (even though I could not be there)" • "I enjoyed seeing the students go through the facility, getting to interact with their counterparts in Brazil and having the opportunity to ask questions." • "Experiencing a healthcare facility in a different part of the world." • "It was really neat to see students and instructor walk-through the hospital"	• "I really enjoyed the visits to the institutions and to the favela. It was a once in a lifetime experience." • "Site visits to healthcare facilities, the PUC-RIO, favela"

Several participants from both groups also discussed interaction as an element that they liked best. Their comments are compiled in Table 8.

Table 8. Survey Q17: Comments that highlighted interaction

What did you like most about this activity?	
Online Participants	**Students Onsite**
• "I enjoyed seeing the students go through the facility, getting to interact with their counterparts in Brazil and having the opportunity to ask questions." • "The interaction" • "Real-time interaction with enthusiastic participants"	• "The ability to interact with students back in the United States!" • "Being able to interact with other students in the United States live while we were traveling in Brazil and they were able to participate in the experience and discussion." • "The chance to be able to experience things hands on and be able to interact with people of different areas of expertise"

At the same time, the open-ended survey questions also identified differences that may explain why the online participants reported lower levels of learning effectiveness compared to

the online students. Four views emerged in the qualitative survey responses listed in Table 9. Both groups provided positive feedback on the process of students in the field sharing their experiences with participants online. The students in the field commented on the recordings, but the online participants did not. Both groups provided comments related to traveling, and while the online participant commented on the convenience of not traveling, he still expressed an interest in participating onsite like the other group. Both groups identified technical issues and provided constructive criticism related to agendas and more structured facilitation of the discussion. Table 9 provides specific comments that illustrate these similarities and differences.

Table 9. Survey Q17 & Q18: Differences in what participants liked most and least

Online Participants	**Students Onsite**
Several respondents liked learning from their peers abroad: • "Nice to hear from friends that are experiencing Brazil" • "Learning from peers about their experience" • "I would like to see and hear more reactions and thoughts from those that are at the site. I feel like we can experience what they see, but getting more reactions would be nice."	Students onsite reported that they liked reflecting on their experiences abroad and sharing them with online participants: • "Discussing and analyzing our experiences"
Some online participants liked that they did not have to travel: • "Didn't have to travel to Brazil to see the presentations, however I wouldn't have mind traveling to Rio!"	Some students reported they liked the firsthand experience of being present in the field the most: • "I really enjoyed the visits to the institutions and to the favela. It was a once in a lifetime experience." • "The chance to be able to experience things hands on and be able to interact with people of different areas of expertise" • "Actually going to experience and visit Rio de Janeiro!!"

Online Participants	Students Onsite
Many online participants cited technical issues when asked what they liked least: • "The technical issues experienced." • "It was difficult to hear the presenters at time. Also the picture quality was moderately good." • "The quality of the audio and video" • Four respondents listed Internet connection.	Several students onsite also cited technical issues as what they liked least: • "Sometimes the technology didn't always work as it was supposed to." • "Technology problems" • "The webcam/audio interviews"
One online participant suggested preparing an agenda to set expectations in advance: • "Agenda for what to expect during activity period would have been nice, but not required"	Students onsite also cited concerns related to schedules and planning for group discussions: • "Changes in the timeline without adequate communication to the group as a whole." • "During the group debrief sessions I didn't like how some students had the opportunity to answer first, leaving the rest of the students with nothing to say." • "Most of the experience was a positive one, however I was not very happy about the fact that some of the other students ended up discussing all the information and leaving little for other students to talk about. This could also be due to the fact that they were not properly informed on what topics to discuss by the instructors prior to the meeting."

In addition, two students who traveled abroad described the added benefit of watching the recorded videos that were made available after each session while none of the online participants mentioned the video recordings. In response to what he liked most Participant D stated, "The ability to reference videos long after the experience is over to refresh my memory and relive some of the experiences." Participant E explained:

> By utilizing technology to record our trip to Brazil it allows us to live vicariously through the videos after our trip. I believe that it allowed us all to learn more by being able to reflect upon our activities. By having these recordings it will help us write our reflection papers by watching the videos again. It also allows all of the students who were unable to come on the study abroad trip to keep up with all of the activities the students are involved in. Truly a wonderful experience and I believe they should continue to do this.

Even though the online participants did not mention the videos, at least one of the students in the field perceived their usefulness for both groups.

Instructor interviews provided additional insight into the similarities and differences between the two groups. All three instructors agreed that the experts in the field did not behave differently with the online participants. In fact, one instructor described how excited one of the field experts was to interact with the online participants. A consistent viewpoint among all three instructors was that both groups benefitted from the experience, just in different ways.

- Instructor B explained that the content was the same for both groups, but the way they experience it was different:

  > For instance, the presentation of the professor explaining how the Brazilian health system works. I think for some of those things, the experience has to be very similar. I think the people that watch on a video and the people that were sitting there in the room probably have the same level of information and sense of experience. I think as it moves more to sensations and emotions and those kinds of things, is where people probably, the ones that don't have that direct contact, they probably experience that in a different way.

- Instructor A described the same phenomena with two examples, one where the five senses provided a more immersive experience and one where the additional sensory input may not be as important as it may be in other venues:

  For example, when we engaged in the social justice and community engagement in the favela, the visual aspect I think is (from my perspective) just as equally powerful as it is for the students in terms of seeing the conditions, seeing the sewage and the garbage, the living quarters and the conditions but again, the students that were there onsite in that particular example smelled the sewage and smelled some of the feces and things that were on the tour where students online could not experience that.

  The other example would be when we were visiting the INCA and the hospital visit, again I think the learning from both the online students and the students onsite were able to experience pretty much the same thing because they can see through the Web technology for example, the lab or when we went into some of the various departments within that hospital. And they were able to see the presentation by the executive director and hear what he had to say as to the various social determinants of health and health aspects in Brazil. So those in my mind would be equal learning opportunities for students.
- Instructor C described this as differences in intensity and duration of exposure where students in the field had a more immersive experience than those who had limited exposure in one-hour increments online.

All three instructors independently described a similar phenomenon in which both groups benefitted from the experience but in different ways.

Scale

Another one of the five pillars, scale, refers to reducing cost while committing to continuous improvement (Moore, 2011). The evaluation questions explored in this area are:

- How can this intervention be improved?
- How does the cost of this intervention compare to previous technology-mediated attempts?

Table 10 describes the data sources that were used to evaluate each of the questions related to scale. One evaluation question was analyzed using survey, interview, and observation data to evaluate continuous improvement while the other used budget data to compare the cost of this implementation against that of a previous proposal.

Table 10. Data Collection Blueprint for Scale

Evaluation sub-questions	Data	Instrument	Sample
How can this intervention be improved?	Qualitative	Online Survey: Q11 & Q12	Online participants
	Observation data	Observation Form	Online facilitator
	Interview	Questions 9 & 10	Instructors
How does the cost of this intervention compare to previous technology-mediated attempts?	Documents	INTX proposed budget & Actual Budget for this study	

How can this intervention be improved?

Online participants were asked if they experienced any challenges with technology, and several issues were reported. Four respondents reported connectivity issues, eight reported issues

with audio quality, and two described concerns with video quality. This aligns with the observations recorded by the online facilitator. In general the Internet connection in Brazil was not as strong as what most experience on US college campuses like UCF and UofS, so it was assumed that most connection issues were on the presenter side. Most of the time the online facilitator used a mobile Wi-Fi unit, but there were a few times when she tried using the host institution's wireless connection. For example, during the first session at INCA, the online facilitator started out with the host's wireless network in the conference room but then switched over to the mobile Wi-Fi unit for the tour. According to the online facilitator's observation form, the connection remained relatively strong except for times they were forced to use the elevator or enter rooms with lead-lined walls.

Another major concern reported by online participants was audio quality. Six of the eight participants that reported issues with audio participated in the final reflection session. Instructor interviews also confirmed an audio issue in that session. The online facilitator recorded an account of the issue in the observation form immediately following the event. During this session the online facilitator used a laptop with an external microphone, which was placed closer to the group of participants in the room. In the text chat online participants reported low volume during the session, so students started passing the microphone around to the person talking, which did not help. It was then determined to be user error, because the audio input source had been accidentally changed to the built in microphone in the laptop. The online facilitator recorded two recommendations to avoid this type of issue in the future:

1. Create an online facilitator pre-session checklist that includes verifying the audio input source, and

2. Login to the online meeting with a second device that has headphones to test and verify audio levels before the start of the meeting.

The online facilitator also noted that often there was no opportunity to schedule a setup time on site visits, so this should be taken into account. Two of the instructors made similar suggestions in their interviews. Of the remaining two respondents that reported issues with audio, one attended the INCA tour, which is when the online facilitator used the built in microphone in the iPad, and the other one participated in the Fiocruz session where an external microphone was plugged into the laptop, but it was placed near the presenters which was a fair distance from the rest of the audience physically in the room.

Two participants reported low quality video, which represents only 11% of the online respondents. Their comments were, “Poor audio and video at times” and “The picture was also grainy.” The online facilitator observation form noted that online participants appeared to be more forgiving with video quality, and that audio was the bigger concern. The instructors did not mention anything related to video quality in the interviews.

How does the cost of this intervention compare to previous technology-mediated attempts?

To evaluate the cost effectiveness of the recommended intervention, the actual costs for this intervention in Brazil were compared to the most recent budget proposal for a comparable UCF study abroad trip to Costa Rica using the INTX satellite technology. An initial requirement of the researchers was to minimize costs and make use of existing hardware and software wherever possible. For a fair comparison the total cost was calculated with the assumption that all hardware and software used must be purchased. The actual costs incurred are provided as

well. In both cases the cost of the intervention in this study was less than the previously proposed satellite-based intervention. Table 11 summarizes the two budgets in terms of four categories: travel expenses, cost of broadcasting, hardware, and software. These are all the additional costs that occur above and beyond the traditional study abroad trip.

Table 11. Cost Comparison

	INTX Proposal	**This Study (If hardware & software needed)**	**This Study (Actual costs)**
Assumptions:	• Satellite technology • 4 Webcasts • 10 days/9 nights • 1faculty member + 3 graduate assistants	• Mobile Wi-Fi • 5 Webcasts • 10 days/9 nights • 1 faculty member • Hardware & software must be purchased	• Mobile Wi-Fi • 5 Webcasts • 10 days/9 nights • 1 faculty member • Use existing University resources for hardware & software
Travel expenses:	$8,085	$3,400	$3,400
Cost to broadcast:	$19,000	$180	$180
Hardware:	$14,700	$3,600	$0
Software:	$500	$55	$0
TOTAL:	**$42,285**	**$7,235**	**$3,580**

Access

The next pillar addressed in this evaluation was access, which Moore (2011) describes as, "All learners who wish to learn online have the opportunity and can achieve success" (p. 92). This speaks directly to the problem addressed in this study: access to international learning opportunities for students who are unable to travel to a foreign country. The following evaluation question was used to assess the issue of access:

What is the potential impact of this program for providing UCF students access to international learning opportunities?

Login data was used to validate the number of participants who accessed the online sessions, which is described in Table 12.

Table 12. Data Collection Blueprint for Access

Evaluation sub-questions	Data	Instrument	Sample
What is the potential impact of this program for providing UCF students access to international learning opportunities?	Observation data	Observation Form (including number of participants)	Online facilitator

As described in the learning effectiveness section of this chapter, a total of 33 online participants were provided an international learning experience. Fourteen were able to tour the National Cancer Institute in Brazil, one witnessed a guided tour of the largest favela in Rio, one toured PUC-RIO University and participated in a discussion with the head of their international office, five attended presentations at FIOCRUZ National School of Public Health, and twelve contributed to a reflective discussion on social justice and community engagement in Brazil. These are 33 people who would not have experienced these events in Brazil otherwise. The technology used in this study (Adobe Connect) did not limit the number of participants; it could have accommodated more online participants than the total number of participants in this case. As discussed in Chapter Three the sample in this study was comprised of volunteers recruited by the instructors at their respective universities. The instructors in their interviews and the online facilitator in her observation forms concurred that in the future this intervention could be

marketed to students enrolled in specific courses through both universities, which would further increase access to this international learning experience.

Faculty Satisfaction

This section discusses faculty satisfaction, which is also one of the five pillars of the OLC Quality Framework (Online Learning Consortium, 2014). The following evaluation question guided the research in this section:

> What were the instructors' perceptions about their teaching experience with this technology-mediated intervention?

The three instructors were the primary data sources for this section, and Table 13 summarizes the interview data that was used to evaluate their level of satisfaction.

Table 13. Data Collection Blueprint for Faculty Satisfaction

Evaluation sub-questions	Data	Instrument	Sample
What were the instructors' perceptions about their teaching experience with this technology-mediated intervention?	Interview	Questions 10-13	Instructors

When asked to quantify their level of comfort on a scale of one to five, all three instructors indicated that they were very comfortable leading the site visits with the added facilitator and online audience with a mean rating of 4.83. In addition, three patterns emerged across all the interviews: new instructional strategy/technology, concerns with the technology, and high satisfaction. None of the instructors involved in this study had attempted a live, online instructional strategy in the field or abroad even though they have all led multiple study abroad

trips in the past. Instructor A stated, “I’ve never seen this technology used before.” Instructor C shared, “We’ve never done it, and it was different, but I see the value of it.”

All three instructors reported concerns with the technology, but they all appeared to be optimistic that the technical issues experienced on this trip could be resolved for the next one. They all referenced the audio issues that had been reported by the online participants, but Instructor C elaborated:

> Well, we had some audio issues. We had some camera on/camera off, but you would expect that based on how we were doing it. So I wasn’t uncomfortable with it. It’s just what we were using at the time to capture what we wanted to capture. So could it be improved upon the next time? Yeah, of course it could. And that’s what continuous quality improvement is about.

Instructor B discussed the importance of backup plans and how the online facilitator came prepared with backup systems for when things go wrong. The optimism was highlighted by this statement from Instructor C, “Even though maybe there were mistakes, even though it didn’t work perfectly, the point is that it’s good. It’s good stuff!”

All three instructors expressed a general sense of satisfaction with the overall experience, as evidenced by the following quotes:

- Instructor B shared:

  I was very satisfied and I don’t know if I’m an average faculty person in that sense, but I love experiencing new stuff and I don’t mind the risk. I know that sometimes I’m gonna experience something that’s gonna crash on me because I don’t know how it works, but I’m willing to run the risk for that, so I can sacrifice a little bit of safety net with the excitement of a new idea.

- Instructor A stated:

  I'm a strong advocate for students getting involved in global health, global initiatives, global experiences. The reality is not all students can afford it. So from a faculty satisfaction perspective, I would say that I am extremely satisfied in that it gave our students back in the States in Central Florida and Scranton the opportunity to experience live and with video clips and chat, the ability to experience a study abroad opportunity that they may not have had.

- Instructor C added:

  I think that it helped some of the students that we had [onsite] focus in on the right things also. It's obviously very helpful back here because there are people who couldn't have that experience if it were not for what we were doing. So when I look at the larger educational context, it's a very appropriate venue to be using, so I was very satisfied with what we did.

Within the context of satisfaction two unplanned benefits also resulted from this study. One was the use of technology to better prepare students for the workforce and the other was additional uses for the recordings in future classes. During the visit to Fiocruz students had the opportunity to present their research to administrators while simultaneously broadcasting online. Instructor A described the unplanned benefit to the students and his subsequent satisfaction:

> And one other aspect in terms of faculty satisfaction, we always try to help best prepare our students for the workforce, and they will need to prepare and present in virtual meetings. If the headquarters is in San Francisco and they're based out of Chicago, they're gonna need to present via Web and that's what our students were able to do. We have not done that on a study abroad before, so I'm extremely satisfied with this aspect in

> terms of giving our students the ability to present not only onsite to professionals in country and fellow students and faculty, but present using a Web-based technology, getting in front of the camera that's presenting and being projected back to another geographic region. I'm extremely satisfied with that. I think that has great value in preparing students for real world careers.

The other unplanned benefit was being able to repurpose the session recordings in other ways. Instructor C explained how he used the recordings as a marketing tool to promote the study abroad trip in other classes. As a result, three students have already signed up for next year's trip. He also described how he would like to share clips of the recordings in his future classes, particularly those he teaches online.

Student Satisfaction

The final pillar addressed in this study was student satisfaction, which was evaluated using the following set of questions:

- What is the difference in student satisfaction with the overall experience between students who travel abroad and those who participate via Web conferencing?
- What were online participants' reactions to the Web conferencing system used in this intervention?
- What was the impact of technology on the students' ability to participate in remote instructional activities?

Quantitative and qualitative survey data in addition to instructor interviews were used to analyze these student satisfaction questions, which is detailed in Table 14.

Table 14. Data Collection Blueprint for Student Satisfaction

Evaluation sub-questions	Data	Instrument	Sample
What is the difference in student satisfaction with the overall experience between students who travel abroad and those who participate via Web conferencing?	Quantitative	Online Survey: Q14	Students in field and Online participants
	Qualitative	Online Survey: Q10	Online participants
	Interview	Questions 3-5	Instructors
What were online participants' reactions to the Web conferencing system used in this intervention?	Quantitative	Online Survey: Q8	Online participants
What was the impact of technology on the students' ability to participate in remote instructional activities?	Quantitative	Online Survey: Q6 & Q9	Online participants
	Qualitative	Online Survey: Q11, Q12 & Q17	Online participants

What is the difference in student satisfaction with the overall experience between students who travel abroad and those who participate via Web conferencing?

Both students onsite in Brazil and online participants were asked about their overall satisfaction in Q14 of the online survey, which had a total of six items. Three subscales were tested for reliability of the survey instrument, and the subscale for satisfaction with experience (SATEXP) was found to be reliable ($\alpha = .96$). While both groups reported high levels of satisfaction, the students in the field ($M = 27.40$, $SD = 2.50$) reported significantly higher levels of satisfaction than those who participated online ($M = 22.13$, $SD = 5.28$), $t(24) = 2.94$, $p < .05$. Analysis of the individual survey questions identified specific areas where members of the two groups differed.

One question set, Q14, asked respondents to indicate the degree to which they agreed or disagreed with several statements regarding their level of comfort participating and satisfaction with the learning experience. While the students who traveled to Brazil were consistently 100% positive regarding their level of satisfaction, the majority of the online participants were as well. Because the sample size was so small, one person had a significant impact on the comparative statistics. One individual represents six percent of the online respondents, and the researchers were able to confirm that it was the same individual who responded negatively to all four items on this question. The one item in this question that appears to be inconsistent with the others is the fifth item, which asks about satisfaction with the level of learning, which showed slightly lower responses from both groups. Interviews with the instructors confirmed that course evaluation feedback from students in the field was extremely positive and that anecdotally online participants seemed to be generally satisfied. Instructor B explained:

> I still think that the ones that went seemed to be much more enthusiastic than the ones that didn't go, but the ones that didn't go I think are enthusiastic in a different level. I don't think it's directly comparable, but I think they are very enthusiastic that just the amazement of being here and watching something that is so far away in real time.

Regarding the items related to comfort level, Instructor A shared that online participants told him they felt the need to break the ice with more informal discussion before diving into the formal class discussion topics. A comparison of both groups' responses to all six items of Q14 is displayed in Table 15. The most significant trend was the majority of both groups agreed or strongly agreed with every statement, but the onsite group was consistently higher.

Table 15. Comparison of responses to Q14: Overall satisfaction

	Online Participants (N = 16)			**Students Onsite (N = 10)**		
	Disagree/ Strongly Disagree	Neither	Agree/ Strongly Agree	Disagree/ Strongly Disagree	Neither	Agree/ Strongly Agree
I felt comfortable participating in the group discussion.	6%	13%	81%	0%	0%	100%
I felt comfortable interacting with other participants in the meeting.	6%	13%	81%	0%	0%	100%
I felt that my point of view was acknowledged by other participants in the meeting.	6%	25%	69%	0%	0%	100%
I was able to form distinct individual impressions of some meeting participants.	6%	31%	63%	0%	0%	100%
My level of learning that took place in this meeting was of the highest quality.	19%	19%	62%	0%	10%	90%
Overall this session met my learning expectations.	6%	31%	63%	0%	0%	100%

To further explore this evaluation question, online participants were asked if they perceived any benefits over students in the field in Q10. This question revealed mixed responses. Three online participants perceived the onsite experience to be more valuable. Instructor interviews provided some additional insight in that they reported students in the field experienced an intense cultural immersion, which is difficult to replicate in a single online meeting with limited exposure.

A common benefit expressed in the positive responses was convenience and being able to participate live without having to travel. This was reinforced by instructor interviews as well.

Instructor B shared this feedback regarding the tour of the National Cancer Institute, "Two people that are not used to this kind of environment were also very impressed that they were able to walk into these rooms with diagnostic equipment and see so close what was going on." In addition, one respondent highlighted the benefit of having a private conversation through the text chat without disturbing the rest of the group onsite. This was reinforced by the online facilitator's observations as well. The positive and negative responses to this question revealed much more positive comments than negative (see Table 16).

Table 16. Survey Q10: Did you feel that you experienced any benefits participating online over students who were onsite?

Positive	Negative
• "Yes, very much so." • "Being able to do it from anywhere (i.e. no down time for traveling)" • "Convenience" • "I could do it in my PJs ;) it was great to walk the halls with everyone virtually!" • "Online enables your attention to be focused and controlled by the presenter (video feed, text, etc.). Online also enables ability to openly converse with others around you while muted, so as to not bother the local group. This enabled immediate and stimulating conversation." • "Yes, because it was live" • "I think it was just great to hear from them" • "I did feel I experienced benefits participating online over students because I learn about different county without even being there."	• "No. I think students there onsite benefited more." • "I think students on-site benefited more" • "I think it would have been better to be on site"

What were online participants' reactions to the Web conferencing system used in this intervention?

The final subscale was related to the satisfaction with technology (SATTECH). This subscale is based on Q8, which consisted of ten items, Q6 with three items, and Q9, which had nine items. It was also found to be highly reliable with a Cronbach's alpha of .99. Because this subscale only applied to online participants, there is no comparison with students onsite. Therefore, descriptive statistics were used for the analysis. Q8 explored online participants' satisfaction with the technology itself, and descriptive statistics show that only two respondents were consistently dissatisfied across all ten items while the majority of them were satisfied. Researchers were able to confirm that one respondent consistently responded to every item with strongly disagree and one person consistently selected disagree for all ten items. The one that strongly disagreed with all ten statements also provided multiple comments regarding dissatisfaction with the audio. The findings revealed that the majority of online participants were satisfied with the technology. Please see Table 17 for a detailed breakdown of participant feedback on their satisfaction with the Adobe Connect Web conferencing system across all ten items.

Table 17. Responses to Q8: Satisfaction with technology

	Online Participants (N = 16)		
	Disagree/ Strongly Disagree	Neither	Agree/ Strongly Agree
Overall, I am satisfied with how easy it is to use this system.	13%	13%	75%
It was simple to use this system.	13%	6%	81%
I could effectively complete the tasks and scenarios using this system.	13%	6%	81%
I was able to efficiently complete the tasks and scenarios using this system.	13%	6%	81%
I felt comfortable using this system.	13%	6%	81%
It was easy to learn to use this system.	13%	6%	81%
The interface of this system was pleasant.	13%	6%	81%
I liked using the interface of this system.	13%	6%	81%
This system has all the functions and capabilities I expect it to have.	13%	6%	81%
Overall, I am satisfied with this system.	19%	6%	75%

What was the impact of technology on the students' ability to participate in remote instructional activities?

Two survey questions were used to collect quantitative feedback on the impact of technology on the respondents' ability to participate in the remote instructional activities of this study. Q6 had three items and Q9 had nine items that contributed to the satisfaction with technology subscale (SATTECH), which had a high level of reliability ($\alpha = .99$). The majority of the online participants that responded to this survey were satisfied with the technology in terms of the 12 items in Q6 & Q9. Researchers were able to confirm that the individual who disagreed with all of twelve of these items is the same respondent as the individual who consistently

disagreed to the quantitative questions previously described in the learning effectiveness and overall satisfaction sections. While there was some variance, the findings revealed that the majority of online participants were again satisfied with the Web conferencing intervention. Table 18 summarizes the survey data from these two questions and illustrates the variance by describing the responses to each item.

Table 18. Responses to Q6 & Q9: Satisfaction with technology

	Online Participants (N = 16)		
	Disagree/ Strongly Disagree	Neither	Agree/ Strongly Agree
I felt comfortable conversing through this medium.	19%	6%	75%
I felt comfortable introducing myself in this online environment.	12%	12%	76%
The instructor created a feeling of an online community.	13%	6%	81%
I enjoyed the online instructional activity.	6%	25%	69%
Even though we were not physically together in a traditional classroom, I still felt like I was part of a group in the online meeting.	6%	19%	75%
The online instructional activity stimulated my desire to learn.	6%	19%	75%
An online meeting provides a personal experience similar to the classroom.	6%	25%	69%
An online meeting allows for social interaction.	6%	13%	81%
An online meeting allows me to express my feelings, and to learn the feelings of others.	6%	19%	75%
An online meeting provides a reliable means of communication.	6%	13%	81%
An online meeting is an efficient means of communicating with others.	6%	13%	81%
I did not find the online meeting threatening to me.	6%	6%	88%

The qualitative survey questions also elaborated on the impact of technology on respondents' ability to participate in the remote instructional activities. Two major themes emerged from Q11, Q12, and Q17: technical issues and interaction. The learning effectiveness section of this chapter describes the technical issues in great detail, and it is clear that these challenges related to audio and connectivity had a negative impact on their ability to participate. On the positive side, several online participants described the ability to interact through technology as an element that they liked best. Their comments were compiled in Table 8.

Summary

The purpose of this study was to evaluate the Web conferencing intervention used during a global health study abroad experience in Brazil to see if it was a viable alternative to traditional study abroad for those who are unable to travel. This formative evaluation utilized the Online Learning Consortium (OLC) Quality Framework (Online Learning Consortium, 2015) to objectively evaluate the intervention. The evaluation questions were categorized under each of the five pillars of the OLC Quality Framework, which formed the structure for this chapter. In order to properly triangulate, a mix of quantitative and qualitative participant survey questions, instructor interviews, online facilitator observations, and supporting documents were used to analyze each of the evaluation questions under each pillar. Both positive and negative feedback was received, and it is delivered in a neutral manner free of any judgments or conclusions in this chapter. This analysis lays the foundation for the next chapter where evaluative decisions will be made.

CHAPTER FIVE: DISCUSSION AND CONCLUSION

Chapter Five presents a discussion of the results of the data analysis presented in Chapter Four, and recommendations for improvements and future research are provided. The purpose of this study was to evaluate the effectiveness of the proposed technology-based intervention as an alternative to traditional study abroad for students who are unable to travel and subsequently identify areas for improvement to be implemented and re-evaluated in future iterative studies. Was it perfect? No. Was it successful? Yes. Was it encouraging? Definitely. Overall, Web conferencing technology does appear to be a viable alternative and while not as immersive as traveling abroad, it does provide its own set of benefits to higher education students. This formative evaluation revealed clear areas for improvement, including technical and procedural elements, but instructors and online participants did find value in the experience. Multiple data points provided a consistent theme that the online experience was not as immersive as being there, but for those who could not travel it was a viable alternative. The overall formative evaluation was comprised of five sections, which correspond to the five pillars of the Online Learning Consortium (OLC) Quality Framework: learning effectiveness, scale, access, faculty satisfaction, and student satisfaction (Online Learning Consortium, 2014). This chapter addresses each of these five areas and then discusses implications and recommendations for improvements and future research.

Discussion of Learning Effectiveness

The first of the five pillars explored in this study was learning effectiveness, which Moore (2011) describes as "Online learning outcomes meet or exceed institutional, industry, and/or community standards" (p. 92). The evaluation questions addressed in this section are:

- What is the difference in student engagement with experts in the field between students who travel abroad and those who participate via Web conferencing?
- How were the experiences of the online and face-to-face groups similar and how were they different?

The general consensus among the instructors and the online facilitator was that the students onsite were more engaged than those online, but both groups engaged in different ways. In the field students had additional sensory input, not just sight and sound, and their exposure was more intense and sustained. This was not surprising given that the online participants in this study volunteered to login for one hour increments and many only attended one session while students who traveled to Brazil were exposed 24 hours a day, 7 days a week. The content of each session was the same for both groups, but students in the field were more immersed in the sensory and cultural experiences. The online participants had engagement through text chat, which provided them with a private discussion forum that did not interrupt or interfere with the group in the field because only the online facilitator could see it. Participants online also had technical distractions to overcome such as audio issues, but the technology provided both groups with an unanticipated learning outcome related to career preparation. Online meetings and remote presentations are becoming more common in the workplace. Students onsite had the opportunity to physically present their research to a mixed audience online and face-to-face, and

online participants had the opportunity to login and attend a professional online meeting using Web conferencing technology. While both groups appeared to experience positive learning outcomes, overall the students who participated face-to-face in Brazil reported significantly higher levels on the learning effectiveness scale than those who participated online.

Several recommendations stemmed from these findings. One recommendation all three instructors and the online facilitator agreed upon was to offer online participation to students enrolled in a course with the same or similar course requirements to provide a more structured and integrated experience. One factor that may account for the difference in learning effectiveness is the level of motivation or incentive to participate. For this initial study volunteers were recruited for the online experience. Had they been enrolled in a course with the same or similar assignments as those in the field, they may have been incentivized to engage more in the discussions. If online participants had been required to attend all or most of the live sessions, watch the videos in between, and come to the next live session prepared to discuss what they saw, they may have engaged more and achieved higher learning outcomes. Online participants, the online facilitator, and the instructors all agreed that there was a missed opportunity for the online group in this pilot. They may have engaged more in the discussions if they had parallel experiences locally. Therefore, a more structured instructional strategy for the online participants may have a positive impact on their perceived learning effectiveness.

Another recommendation would be to allow online participants the opportunity to present their research as well. In this study they were able to watch the student presentations in the field and ask questions as an online audience, but they could have presented back to the group in the field in a more active role. An additional factor that impacted learning was technical challenges,

so additional steps should also be taken to minimize technical issues. This will be addressed in more detail in the Student Satisfaction section.

Discussion of Scale

The scale pillar refers to reducing cost while committing to continuous improvement (Moore, 2011). Two evaluation questions were designed in order to determine the following:

- How can this intervention be improved?
- How does the cost of this intervention compare to previous technology-mediated attempts?

The scale pillar addresses two components: commitment to continuous improvement and cost. Because this formative evaluation was the first in a series, there were no improvements yet to measure. Instead, evaluators took this opportunity to compile areas for improvement and make recommendations on how to address them in the next iteration of design research. While the details of each recommendation are addressed within the context of each of the other four pillars in this chapter, below is a summary of recommendations:

- Tie online participation to coursework (Learning Effectiveness)
- Provide online participants with an opportunity to present (Learning Effectiveness)
- Determine a fee structure that is scalable and sustainable (Access)
- Repurpose recordings for other uses (Faculty Satisfaction)
- Recruit a professional online facilitator (Faculty Satisfaction)
- Take additional steps to minimize technical issues (Student Satisfaction)

These recommendations should be implemented and re-evaluated in the next iteration in an effort to continuously improve.

In order to compare the cost of this intervention to that of previously proposed interventions, two cost comparisons were conducted: one assuming that all equipment and software licenses needed to be purchased and the actual costs utilizing existing university resources. Table 11 in Chapter Four itemized the cost comparison, but the final totals were:

- $42,285 for the previous proposal based on satellite technology
- $7,235 for this Web conferencing solution with no existing resources
- $3,580 actually spent using university resources

While the cost of this Web conferencing intervention was far less than the previous proposal, the major limitation is that it cannot be used everywhere. This intervention requires Internet access via Wi-Fi, which is subject to local coverage in the field while the more expensive satellite solution can broadcast from anywhere, including remote areas with no Internet access.

Discussion of Access

The third pillar of quality analyzed in this evaluation was access, which Moore (2011) describes as, "All learners who wish to learn online have the opportunity and can achieve success" (p. 92). This speaks directly to the problem addressed in this study: access to international learning opportunities for students who are unable to travel to a foreign country. The following evaluation question was used to assess the issue of access:

What is the potential impact of this program for providing UCF students access to international learning opportunities?

This initial proof of concept study provided an international educational experience to a total of 33 online participants across five different live sessions. Some might say that if this intervention provided even one student access to an international learning opportunity who would not have experienced it otherwise, then it was a success. The reality is that there are costs associated with this service, and a truly successful intervention must be both scalable and sustainable. In this particular instance the researcher paid for all the expenses directly attributable to the Web-based intervention, which totaled $3,580. This would be a high price tag for one student, but with 33 online participants it comes to approximately $108 per person, which is comparable to many textbooks. While this is significantly less than the cost to travel abroad, the question then becomes what are online students willing to pay for this experience? Most Web conferencing tools including Adobe Connect can support far more than 33 online participants, so the limitation is really how many individuals the online facilitator can effectively manage in a live meeting. One option for managing larger groups that was utilized in this study was gathering multiple participants in the same room with a moderator to assist with online communication. These questions and suggestions are outside the scope of this initial formative evaluation, but they should be explored in future research.

Discussion of Faculty Satisfaction

This section discusses faculty satisfaction, which is also one of the five pillars of the OLC Quality Framework (Online Learning Consortium, 2014). The following evaluation question guided the research in this section:

> What were the instructors' perceptions about their teaching experience with this technology-mediated intervention?

All three instructors stated that they were either very satisfied or extremely satisfied with overall experience, which led the evaluator to interpret their perceptions as positive in this learning environment. They all cited the ability to provide this experience to students who would not have access otherwise as one of the factors that contributed to their satisfaction. In addition, they all reported being very comfortable leading the site visits with the added facilitator and online audience. All three instructors were new to this type of technology, but they embraced it despite a few technical issues. Like the online participants, they expressed concerns about Internet connectivity and audio performance, but their interviews also revealed a sense of optimism that these issues could be resolved for the next trip.

Their feedback also included statements related to the importance of and their reliance on the online facilitator role, which led to their recommendation to recruit a professional for this role. The online facilitator must have strong technical skills to set up, test, run, and troubleshoot the technology in the field in addition to the communication and facilitation skills required to moderate the online meeting. The person in this role must also have the intercultural communication skills needed to interact with the hosts in country and any local IT staff who may

be involved at the host facility. While another instructor who is comfortable with the technology could fill the online facilitator role, it should be an additional instructor not already tasked with leading the onsite operations.

Discussion of Student Satisfaction

Student satisfaction is the last of the five pillars identified by OLC as an indicator of quality online programs (Online Learning Consortium, 2014). Three evaluation questions were used to assess student satisfaction with the Web conferencing intervention employed in this study:

- What is the difference in student satisfaction with the overall experience between students who travel abroad and those who participate via Web conferencing?
- What were online participants' reactions to the Web conferencing system used in this intervention?
- What was the impact of technology on the students' ability to participate in remote instructional activities?

While both groups reported high levels of satisfaction, the students in the field reported significantly higher levels of satisfaction than those who participated online. It should be noted that when responses to all the individual items that contributed to the overall satisfaction scale were aggregated into three categories (positive, negative, and indifferent):

- Students who traveled to Brazil were consistently 100% positive regarding their level of satisfaction, and
- The majority of the online participants were also satisfied.

The evaluator was able to determine that the same respondent consistently responded negatively to all of the items. Interviews with the instructors also confirmed that course evaluation feedback from students in the field was extremely positive and that anecdotally online participants seemed to be generally satisfied. Instructors shared that they believed the online participants were satisfied but in a different way. Three online participants perceived the onsite experience to be more valuable, but others listed ways that they felt they benefitted more than the students in the field. They cited factors such as convenience, eliminating the time and expense of travel, and the ability to engage in the text chat without disturbing the host or the group onsite. One online participant even liked that the online facilitator helped focus his attention.

Based on feedback from multiple sources (participant surveys, instructor interviews, facilitator observations, and Web conference recordings), technical issues with audio and Internet connectivity had a significant impact on the satisfaction and learning effectiveness for the online participants. In general the Internet connection in Brazil was not as strong as what most experience on US college campuses like UCF and UofS, so it was assumed that most connection issues were on the presenter side. While connectivity was not an issue at every site visit, there were a few locations that were more problematic than others. For example, in the National Cancer Institute (INCA) some laboratories had lead in the walls that blocked the wireless signal, there were times when riding the elevator was necessary and connection was often lost there, and sporadically throughout the building the Internet connection would momentarily drop. A different kind of connection issue was experienced during the favela tour up in the mountain where the connection stayed relatively consistent, but the signal strength was lower, so the video feed would often freeze. In contrast, at the Fiocruz research facility there were no connection issues.

The online participants, instructors, and the online facilitator all reported audio performance issues. The online facilitator reported two different potential causes that may account for this issue. In some cases the group was in a large conference room, and it was difficult to place the external microphone in a central location that would pick up everyone's voice, so the decision was made to place it closer to the presenter. During the reflection discussion on the last day, there was a severe audio issue that was caused by human error. At the beginning of the session, online participants reported that they had difficulty hearing, so the group onsite passed the external microphone around to the active speaker, which still did not appear to remedy the problem. Eventually the online facilitator discovered that the settings in Adobe Connect had reverted back to the default setting of using the laptop's built in microphone rather than the external microphone. Once that setting was changed, the online participants reported that they could hear perfectly. Unfortunately, it took time to troubleshoot in this case, and the quality of the discussion was negatively impacted.

Several steps may be taken to minimize these technical issues in the future. As challenging as it is in the field, every effort should be made to schedule setup and testing time before the live broadcast begins. This would include testing the Internet signal in different areas to be visited if the site visit includes meetings and touring. It also includes performing a sound check, which was not done well in this initial implementation. The online facilitator should login to two devices, one as the presenter and one as an attendee with headphones. That would minimize the impact of audio issues on the presenter side because the online facilitator could be proactive rather than waiting for feedback from the online audience. Also, when scheduling the visit prior to traveling, try to set expectations with the in country hosts in advance so that they understand what you plan to do with the technology and the possible impact it may have on the

schedule and the people and places being visited. Try to schedule a test run with the hosts or their local IT support to familiarize them with the technology and to troubleshoot technical issues in advance if possible. The online facilitator should always research Internet coverage in advance and be prepared for the unexpected. One backup plan may not be enough, so the online facilitator should be resourceful and prepare multiple backup plans whenever possible. These items, along with steps that contributed to the success of this initial experience, could be compiled in a facilitator checklist to minimize the risk in future implementations of this intervention.

Implications

Overall this was a successful evaluation of a proof of concept that justifies future improvements and subsequent re-evaluation in an iterative design-based research program. In addition to repeating this study with the joint global health management course in Brazil, this intervention could also be implemented and re-evaluated in other contexts, disciplines, and countries around the world. The ability to serve a population with no access to traditional study abroad options is worth exploring this intervention and continuously improving upon its design. This section outlines recommendations for such improvements followed by suggestions for future research.

Recommendations for Improvement

The following recommendations are based on the findings of this formative evaluation study and should be considered in the first round of design improvements to be re-evaluated in the next iterative study:

- ***Tie online participation to coursework***. In order to improve learning effectiveness, online participants should be enrolled in the same or similar course as the students in the field. They should have the same or equivalent assignments and assessments as well as required activities in between live broadcasts that would prepare them to actively participate in the live sessions.
- ***Provide online participants with an opportunity to present***. Active participation, including presenting back to the group onsite, would provide online participants with access to equivalent learning opportunities. It would also help prepare both groups of students for careers that may require online collaboration or presentations using similar technology.
- ***Determine a fee structure that is scalable and sustainable***. There is a cost associated with this intervention, and many universities may not already have a fee structure in place to pay for this type of service. Grants may be used for a pilot study, but a long-term solution requires scalability and sustainability.
- ***Repurpose recordings for other uses***. Instructors in this study used the recordings for instructional purposes in their other classes and to market future study abroad programs. There may even be additional uses that have not yet been explored.
- ***Recruit a professional online facilitator***. The role of the online facilitator is critical to the success of this intervention. An instructional designer, an instructional technologist, another instructor, or a professional with the necessary skills to manage both the technology and the online meeting may fill this role, but it should be an additional person not already tasked with managing the study abroad operations in the field.

- ***Set expectations in advance***. This applies to both the students and hosts in country. Prepare online participants in advance so that they know how to access the online meetings, how they are expected to participate during the meetings, and where to go for help if they experience technical difficulties. Students traveling should be briefed in advance so that they know what to expect in the field such as being on camera. Finally, try to prepare the in country hosts in advance so that they know what to expect and steps may be taken to minimize the impact of the technology and the online audience. Discuss any potential privacy or safety concerns with operating a video camera onsite and ask to schedule a test prior to traveling as well as setup time prior to the live broadcasts.
- ***Take additional steps to minimize technical issues in advance***. While it is impossible to anticipate every issue that may be encountered, a checklist may help the online facilitator anticipate and avoid potential issues by being proactive. This checklist would include tasks such as:
    - Prior to travel
        - Research Internet connectivity
        - Perform local test with equipment to be used in the field.

          (Test again upon arrival in country)
        - Reach out to in country hosts to request a test meeting

          (Ask if hard-wired connection is available in presentation room)
        - Schedule time for setup and testing before each live broadcast
        - Prepare multiple backup plans and discuss with instructor(s)

          (Including recording sessions in case Internet connectivity fails)

        - Run a test meeting locally with online participants
    - Onsite prior to broadcast
        - Test Internet connection in multiple locations if touring
        - Request any presentation slides so they can be pre-loaded into Web conferencing tool
        - Perform sound check with headphones on a secondary device (Set up additional speakers and Bluetooth devices to increase volume if needed)
        - Have backup equipment ready to go

These recommendations for improvement should be implemented in the next iterative evaluation study in the larger design based research program in an effort to develop and refine a model that is both scalable and sustainable and can be utilized in a variety of contexts.

Recommendations for Future Research

Based on the findings of this initial formative evaluation, the following suggestions for future research have been made:

- Additional research is recommended in the form of a replication study in which the recommendations for improvement listed above are implemented and re-evaluated in the same context to refine the intervention as part of an iterative design research program.
- Additional research is recommended in the form of a replication study in which the recommendations for improvement listed above are implemented and re-

evaluated in the in different contexts such as other courses, disciplines, and countries to refine the intervention as part of an iterative design research program.

- Additional research is recommended in the form of a replication study in which the recommendations for improvement listed above are implemented and re-evaluated in a local 'study away' context to refine the intervention as part of an iterative design research program.
- Further research should be conducted on a more empirical, quantitative comparison of learning outcomes (including global or intercultural competence) to further explore the similarities and differences in learning effectiveness between students in the field and their peers online.
- Further research should be conducted to investigate additional uses for recordings of the live Web conferences and the impact of copyright and privacy concerns on the use of such recordings.
- Further research should be conducted on payment models to develop a fee structure that is scalable and sustainable, including best practices for how many students the online facilitator can effectively manage in one session.
- Additional research should be conducted to determine the marketability of this intervention at other institutions including demographics on the types of campuses that may or may not be interested or able to implement this intervention.
- Further research should be conducted on other types of tools or technologies that could be used to provide students with access to international learning opportunities and determine if they have a positive impact on global or intercultural competence.

- Further research should be conducted on specific instructional strategies involving Web conferencing technology that could be used to provide students with access to international learning opportunities and determine if they have a positive impact on global or intercultural competence.
- Further research should be conducted on the impact of text chat on participants' perception of social and cognitive presence in a class meeting delivered via synchronous Web conferencing.
- Further research should be conducted to investigate the extent to which students appear to me more or less engaged in the course content as a result of the ability to communicate among themselves with the chat tool in a class meeting delivered via synchronous Web conferencing.
- Additional research is suggested to determine if increased exposure to this Web conferencing-based intervention decreases instructor anxiety or increases technology acceptance or adoption.

APPENDIX A: IRB APPROVAL LETTER

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Wendy S. Howard**

Date: **December 29, 2014**

Dear Researcher:

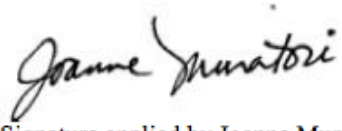
On 12/29/2014, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review:	Exempt Determination
Project Title:	A Formative Evaluation of a Technology-Mediated Alternative to Traditional Study Abroad
Investigator:	Wendy S Howard
IRB Number:	SBE-14-10851
Funding Agency:	
Grant Title:	
Research ID:	N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:



Signature applied by Joanne Muratori on 12/29/2014 08:36:05 AM EST

IRB Coordinator

APPENDIX B: ONLINE SURVEY INSTRUMENT

Q1 EXPLANATION OF RESEARCH
Title of Project: A Formative Evaluation of a Technology-Mediated Alternative to Traditional Study Abroad
Principal Investigator: Wendy Howard
Faculty Supervisor: Dr. Glenda Gunter, UCF Doctorate of Education program
Investigation site: UCF You are being invited to take part in a research study. Whether you take part is up to you.
Purpose of the study: The purpose of this study is to determine if a technology-mediated intervention using Web conferencing software is a viable alternative to traditional study abroad.
What you will be asked to do in the study: You will be asked to participate in an online survey about your experiences with this approach during a study abroad experience with health systems experts in Brazil.
Location: Qualtrics/online Time required: approximately 30 minutes
Compensation or payment: There is no compensation or payment. You must be 18 years of age or older to take part in this research study.
Study contact for questions about the study or to report a problem: If you have questions, comments or complaints, you may contact Wendy Howard via email: wendy.howard@ucf.edu or Dr. Glenda Gunter, Faculty Supervisor in the Department of Educational and Human Sciences, via email: glenda.gunter@ucf.edu.
IRB contact about your rights in the study or to report a complaint: Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901.

Are you willing to participate in this study?
- ❍ Yes (1)
- ❍ No (2)

Answer If EXPLANATION OF RESEARCH Title of Project: A Formative Evaluation of a Technology-Mediated Alternative to Traditional Study Abroad Principal Investigator: Wendy Howard Faculty Supervisor: Dr. Glen... No Is Selected

Q2 Thank you for attempting to participate in our study. You have selected NO to our consent request and consent is required to continue on. We appreciate your time and consideration, but you may have selected this option by mistake. So just to be sure...Are you willing to participate in this study?
- ❍ Yes (1)
- ❍ No (2)

If No Is Selected, Then Skip To End of Survey

Q3 Which institution are you most closely affiliated with?

- ❍ University of Central Florida (1)
- ❍ University of Scranton (2)
- ❍ Other (3) _____

Q4 Thank you for participating in the meeting with health systems management experts in Brazil. Did you participate in the live interactive session ONLINE or FACE-TO-FACE?

- ❍ Online (1)
- ❍ Face-to-face (2)

If Face-to-face Is Selected, Then Skip To End of Block

Q5 Please select all the sessions you attended.

- ❑ Thursday, January 22: National Cancer Institute (1)
- ❑ Friday, January 23: Favela - Social Justice Discussion and Community Engagement (2)
- ❑ Monday, January 26: PUC-RIO University (3)
- ❑ Tuesday, January 27: FIOCRUZ National School of Public Health (4)
- ❑ Tuesday, January 27: Rio - Dr. Spinelli class discussion (5)

Q6 Your responses to the following questions should reflect your experience with the live interactive session.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I felt comfortable conversing through this medium. (1)	❍	❍	❍	❍	❍
I felt comfortable introducing myself in this online environment. (2)	❍	❍	❍	❍	❍
The instructor created a feeling of an online community. (3)	❍	❍	❍	❍	❍

Q7 During this live interactive session you had several tools available to you in the Adobe Connect Web conferencing system. Please rate the following:

	Not Used (1)	Not Important Tool (2)	Somewhat Important Tool (3)	Very Important Tool (4)	Critical Tool (5)
Video stream from Brazil (1)	❍	❍	❍	❍	❍
Audio stream from Brazil (2)	❍	❍	❍	❍	❍
Audio chat (with your microphone and speakers) (3)	❍	❍	❍	❍	❍
Text chat (4)	❍	❍	❍	❍	❍
Other (5)	❍	❍	❍	❍	❍

Q8 Your responses to the following questions should reflect your experience with the Adobe Connect software used for the live interactive session.

	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Neither Agree nor Disagree (4)	Somewhat Agree (5)	Agree (6)	Strongly Agree (7)
Overall, I am satisfied with how easy it is to use this system. (1)	❍	❍	❍	❍	❍	❍	❍
It was simple to use this system. (2)	❍	❍	❍	❍	❍	❍	❍
I could effectively complete the tasks and scenarios using this system. (3)	❍	❍	❍	❍	❍	❍	❍

I was able to efficiently complete the tasks and scenarios using this system. (4)	❍	❍	❍	❍	❍	❍	❍
I felt comfortable using this system. (5)	❍	❍	❍	❍	❍	❍	❍
It was easy to learn to use this system. (6)	❍	❍	❍	❍	❍	❍	❍
The interface of this system was pleasant. (7)	❍	❍	❍	❍	❍	❍	❍
I liked using the interface of this system. (8)	❍	❍	❍	❍	❍	❍	❍
This system has all the functions and capabilities I expect it to have. (9)	❍	❍	❍	❍	❍	❍	❍
Overall, I am satisfied with this system. (10)	❍	❍	❍	❍	❍	❍	❍

Q9 Your responses to the following questions should reflect your experience with the live interactive session.

	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Neither Agree nor Disagree (4)	Somewhat Agree (5)	Agree (6)	Strongly Agree (7)
I enjoyed the online instructional activity. (1)	❍	❍	❍	❍	❍	❍	❍
Even though we were not physically together in a traditional classroom, I still felt like I was part of a group in the online meeting. (2)	❍	❍	❍	❍	❍	❍	❍
The online instructional activity stimulated my desire to learn. (3)	❍	❍	❍	❍	❍	❍	❍
An online meeting provides a personal experience similar to the classroom. (4)	❍	❍	❍	❍	❍	❍	❍
An online meeting allows for social interaction. (5)	❍	❍	❍	❍	❍	❍	❍
An online meeting allows me to express my feelings, and to learn the feelings of others. (6)	❍	❍	❍	❍	❍	❍	❍
An online meeting	❍	❍	❍	❍	❍	❍	❍

provides a reliable means of communication. (7)							
An online meeting is an efficient means of communicating with others. (8)	❍	❍	❍	❍	❍	❍	❍
I did not find the online meeting threatening to me. (9)	❍	❍	❍	❍	❍	❍	❍

Q10 Did you feel that you experienced any benefits participating online over students who were onsite? If so please explain.

Q11 Did you encounter any challenges with the technology used in this activity? If so, please describe.

Q12 Do you have any suggestions for improving this activity? If so, please describe.

Q13 Did you visit the Facebook page associated with this instructional activity?

❍ Yes (1)

❍ No (2)

Q14 Your responses to the following questions should reflect your experience with the live interactive session.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I felt comfortable participating in the group discussion. (1)	❍	❍	❍	❍	❍
I felt comfortable interacting with other participants	❍	❍	❍	❍	❍

in the meeting. (2)						
I felt that my point of view was acknowledged by other participants in the meeting. (3)	❍	❍	❍	❍	❍	
I was able to form distinct individual impressions of some meeting participants. (4)	❍	❍	❍	❍	❍	
My level of learning that took place in this meeting was of the highest quality. (5)	❍	❍	❍	❍	❍	
Overall this session met my learning expectations. (6)	❍	❍	❍	❍	❍	

Q15 Please indicate the quality of your interactions with the following people during this instructional activity.

	Very Poor (1)	Poor (2)	Fair (3)	Neither Good nor Bad (4)	Good (5)	Very Good (6)	Excellent (7)
Instructors (1)	❍	❍	❍	❍	❍	❍	❍
Experts in the Field (2)	❍	❍	❍	❍	❍	❍	❍
Online Meeting Facilitator	❍	❍	❍	❍	❍	❍	❍

(3) Other students (4)	❍	❍	❍	❍	❍	❍	❍

Q16 How much has your experience during this instructional activity contributed to your knowledge, skills, and personal development in the following areas?

	Very little (1)	Some (2)	Quite a bit (3)	Very much (4)
Speaking clearly and effectively (1)	❍	❍	❍	❍
Thinking critically and analytically (2)	❍	❍	❍	❍
Acquiring job- or work-related knowledge and skills (3)	❍	❍	❍	❍
Working effectively with others (4)	❍	❍	❍	❍
Developing or clarifying a personal code of values and ethics (5)	❍	❍	❍	❍
Understanding people of other backgrounds (economic, racial/ethnic, political, religious, nationality, etc.) (6)	❍	❍	❍	❍
Solving complex real-world problems (7)	❍	❍	❍	❍
Being an informed and active citizen (8)	❍	❍	❍	❍

Q17 What did you like most about this activity?

Q18 What did you like least about this activity?

APPENDIX C: INTERVIEW PROTOCOLS

INTERVIEW PROTOCOLS

Instructor: _____

Learning effectiveness: What is the difference in student engagement with experts in the field between students who travel abroad and those who participate via Web conferencing?

- Did you observe a difference in the level of participation between online and F2F students? If you did what were they?

- Did you observe a difference in the quality of participation between online and F2F students? Can you explain what those differences were in more detail?

Student Satisfaction: What is the difference in student satisfaction with the overall experience between students who travel abroad and those who participate via Web conferencing?

- Did you receive any feedback from the students who participated online? Can you explain the types and level of feedback you received?

- Did you receive any feedback from students who participated in the field? Can you explain the types and level of feedback you received?

- Did you observe any differences in their level of satisfaction? Can you explain the types and level of feedback you received?

Learning effectiveness: How were the experiences of the online and face-to-face groups similar and how were they different?

- What are your perceptions of the experiences of the online and face-to-face groups during the site visits?
    - How were they the same?
    - How were they different?

- Did you observe a difference in the way field experts interacted with online v. F2F students? Can you explain?

- Did you observe any positive effects of the facilitator moderating the communication for online students? What words would you use describe the positive effects?

- Did you observe any negative effects of the facilitator moderating the communication for online students? What words would you use describe the negative effects?

Faculty Satisfaction: What were the instructors' perceptions about their teaching experience with this technology-mediated intervention?

- Overall, by what means were you satisfied with the technology-mediated solution in this context? Please explain.

- By what means were you dissatisfied with the technology-mediated solution in this context? Please explain.

- On a scale of 1 – 5, with 1 being very uncomfortable and 5 being very comfortable: What was your level of comfort leading the site visits with the added facilitator and online audience? Please explain.

- Did the technology enhance or impede the instructional activity? In what ways?

- Did you encounter any challenges with the technology? If so can you explain what they were and why?

APPENDIX D: DATA COLLECTION BLUEPRINT

DATA COLLECTION BLUEPRINT

The table below relates each of the evaluation questions to one of the Five Pillars from the Online Learning Consortium's (2014) Quality Framework along with the data that was used to answer it.

Evaluation sub-questions	**Data Type**	**Instrument**	**Sample**
DID THE PROGRAM ACCOMPLISH WHAT WAS INTENDED?			
Learning effectiveness: What is the difference in student engagement with experts in the field between students who travel abroad and those who participate via Web conferencing?	Observation data	Observation Form (including number of participants, frequency & nature of participation)	Students in field and Online participants
	Interview	Questions 1-2	Instructors
Student Satisfaction: What is the difference in student satisfaction with the overall experience between students who travel abroad and those who participate via Web conferencing?	Quantitative	Online Survey: Q6 & Q14	Students in field and Online participants
	Interview	Questions 3-5	Instructors
Learning effectiveness: How were the experiences of the online and face-to-face groups similar and how were they different?	Quantitative	Online Survey: Q15 & Q16	Students in field and Online participants
	Qualitative	Online Survey: Q17 & Q18	Students in field and Online participants
	Interview	Questions 6-9	Instructors
Access: What is the potential impact of this program for providing UCF students access to international learning opportunities?	Observation data	Observation Form (including number of participants)	Students in field and Online participants

Evaluation sub-questions	Data Type	Instrument	Sample
WAS IT IMPLEMENTED EFFECTIVELY?			
Student Satisfaction: What were online participants' reactions to the Web conferencing system used in this intervention?	Quantitative	Online Survey: Q8	Online participants
Student Satisfaction: What was the impact of technology on the students' ability to participate in remote instructional activities?	Quantitative	Online Survey: Q6 & Q9	Online participants
	Qualitative	Online Survey: Q11, Q12, & Q17	Online participants
Scale: How can this intervention be improved?	Qualitative	Online Survey: Q11 & Q12	Online participants
	Observation data	Observation Form	Online facilitator
	Interview	Questions 9 & 10	Instructors
Faculty Satisfaction: What were the instructors' perceptions about their teaching experience with this technology-mediated intervention?	Interview	Questions 10-13	Instructors
Scale: How does the cost of this solution compare to previous technology-mediated attempts?	Documents	INTX proposed budget & Actual Budget for this study	

APPENDIX E: POSTER PRESENTED TO THE ASSOCIATION OF UNIVERSITY PROGRAMS IN HEALTH ADMINISTRATION (AUPHA)

REDESIGNING GLOBAL LEARNING: ONSITE AND ONLINE OPPORTUNITIES

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Steven Szydlowski, D.H.A., University of Scranton
Cherie L. Ramirez, Ph.D., Harvard University
Wendy Howard, M.A., University of Central Florida
Daniel J. West, Jr., Ph.D., University of Scranton

1 Purpose

As our healthcare systems serve increasingly diverse populations, global learning becomes an indispensable pillar to develop essential competencies for health care managers and leaders. Traditional study abroad approaches can accommodate limited numbers of students and may be costly, which decreases the accessibility of these critical learning experiences to the increasing numbers of students who could benefit greatly from them during their academic training. Through our research efforts and unique multi-program collaborative partnership, we have developed and tested onsite and online experiences to help address these challenges.

2 Methods and Key Ideas

Selected global healthcare management courses were redesigned to allow combination with other study abroad, virtual learning, and massive open course opportunities. Surveys and interviews were designed for the different courses and phases of each one of these activities. The lessons learned from these pilots are being used to improve subsequent activities and to enhance student learning with regard to global learning competencies.

3 Our Experience and Results

The main result of this project has been to develop an effective multi-national and multi-institutional collaboration arrangement that supports global learning in the health administration curriculum. It opens the opportunity to a greater number of students and faculty to engage in onsite and online learning activities that can produce life changing experiences. It creates cost effective solutions and access to opportunities that would otherwise be highly resource demanding.

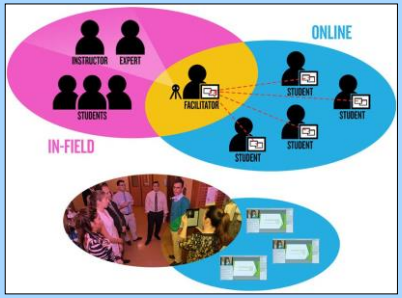


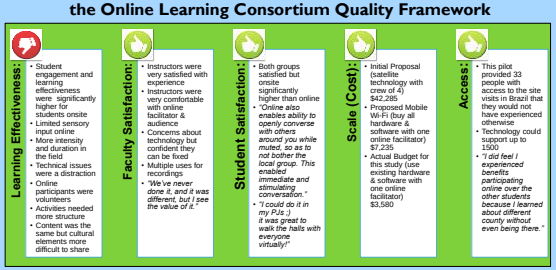
Fig. 1. Diagram of interactions between online and in-field learners and facilitators.

Fig. 2. Online interface.

Joint Meeting Schedule

Location (at right) Host (below)	University of Central Florida Classroom (HPAII, Room 247) & Online	University of Scranton Classroom (McGurrin Hall, Room 402) & Online	Online Only
National Cancer Institute of Brazil	Thursday, Jan. 22 9–10am EST		
Favela: Social justice discussion and community engagement			Friday, Jan. 23 8–9:30am EST
Pontifical Catholic University of Rio (PUC-Rio)			Monday, Jan. 26 11am-12:30pm EST
Fundação Oswaldo Cruz (Fiocruz): Student presentations	Tuesday, Jan. 27 8–9:30am EST		
PUC-Rio: Class discussion with Dr. Spinelli		Tuesday, Jan. 27 6–7:30pm EST	

Evaluation of Learning Experience According to the 5 Pillars of the Online Learning Consortium Quality Framework



Recommendations to improve quality of similar learning experiences:

- Tie online participation to course assignments
- Consider time zone differences and scheduling
- Research internet connectivity
- Set expectations with students and hosts in advance
- Test the technology in advance & in country
- Prepare multiple backup plans for technology
- Recruit a professional online facilitator

4 Conclusions

The use of these combined onsite and online methods creates a powerful learning environment that enables students to acquire competencies that are critical to manage within healthcare systems that serve diverse populations. Students experience directly or have an open interactive window to explore other cultures first hand; study different healthcare structures, designs services and systems; develop interprofessional communication skills; and understand and appreciate the importance of diversity and disparities.

Learn more:

- Hunter, B., White, G. P., & Godbey, G. C. What does it mean to be globally competent? Journal of Studies in International Education 2006, 10(3), 267–285.
- Quality Framework. Online Learning Consortium 2015. http://onlinelearningconsortium.org/about/quality-framework-five-pillars/.

Poster presented at the Association of University Programs in Health Administration (AUPHA) 2015 Annual Conference.

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