Abstract

Case Study of Access to Higher Education Through Technology in the Resource-Poor Country of Haiti

by

Jean-Jacques Medastin

MS, American Intercontinental University, 1998

BA, Kean State University, 1995

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Walden University

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Abstract

According to the Federal Ministry for Economic Cooperation and Development (2012-2013), access to higher education is extremely limited in most of the developing countries due to inadequate budgets, lack of schools and teaching staff, costs of attending school, and lack of higher learning institutions. The use of educational technology could help bridge the gap, but the current and past studies only explore the use of available technologies to enhance learning where higher education is already accessible. The purpose of this case study was to investigate the use of one-to-many videoconferencing as an education access tool for high school seniors seeking higher education in the most devastated areas of Haiti. The theoretical framework for this study is based on the social learning theory of Albert Bandura, activity theory, and constructivist epistemology. This study attempts to answer the following questions: How does one-to-many videoconferencing learning enhance access to education in Haiti? What are the experiences of various sets of participants? The data were drawn from interviews with the school officials, the students, and the instructors and corroborated by hours spent observing the same participants engaged in classroom activities via videoconferencing. The data from this study suggest that by preserving the features of the familiar classroom model, videoconferencing could be successfully utilized to compensate for the lack of other facilities for higher education. The study will allow Haitian professionals living outside of the country to affect change in access to higher learning in Haiti.

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I dedicate this dissertation to my friends and family, especially my beloved wife, Linda Medastin who would not let me go to sleep until I give her a report on my progress with the objectives I set for myself and made her aware of. My children also, Fabrice and Daitza Medastin, are to be praised for their remarkable patience, enduring gracefully diverse sorts of privations from adolescence to adulthood while I was working on my dissertation.

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Chapter 1: Introduction to the Study

Introduction

Illiteracy is plaguing the underdeveloped countries due to extreme poverty and illnesses; access to education is very limited in most cases due to cost and locations of learning institutions, especially after the earthquake of 2010 that nearly destroyed the country's infrastructure (Portilla et al., 2010). Haiti is one of those underdeveloped countries where education is a luxury, and as a result of a dreadful earthquake that claimed the lives of nearly 300,000 people on January 12, 2010, hundreds of school buildings have been destroyed creating more chaos and despair among the displaced students.

According to the United Nations Children's Fund (United Nations Children's Fund [UNICEF], 2010), a full assessment of earthquake damage to Haiti's education infrastructure has yet to be completed, but an estimated 90% of schools in the Port-au-Prince area and 40% of schools in the southern port city of Jacmel and other stricken localities were damaged or destroyed. This could mean that as many as 2 million children are being deprived of the right to education. This has compounded an already precarious situation. The pre-earthquake educational infrastructure in Haiti was already minimal. According to Dominican Today (2009), students constantly cross the border to the Dominican Republic for a chance to study medicine, engineering, business administration, and so on. In its efforts to promote and facilitate education in less fortunate countries, UNICEF (2010) has emphasized the importance of education in

reducing poverty. “Every child has the right to an education” is the slogan on the UNICEF (2010) education page. Education, as stated on that page, “transforms lives and breaks the cycle of poverty that traps so many children. An educated person will ensure that her own children receive an education”. This organization has been active in developing innovative ways to help educate children in countries that have been devastated by wars and natural disasters. However, despite all the efforts of UNICEF and other organizations to overcome poverty through education, there appears to be a widening digital gap between developed and underdeveloped nations. This “digital divide” may have created the impression that the more advanced countries have an unfair advantage over impoverished countries. The use of technology in education has irreversibly changed the way people learn in the more fortunate countries while impoverished countries can only make incremental progress toward achieving what is already an outdated goal: educating their children in the traditional, low technology system. The U.S. Department of Commerce (2002) reported U.S. Census data showed that 143 million Americans, or about 54% of the population, were using the Internet. More recently, Edutopia (2012) reported that the rate of growth of Internet use in the United States is currently 2 million new Internet users per month, with Internet use continuing to increase across income, education, age, race, ethnicity, and gender lines. By contrast, in South Africa, according to Roodt, Paterson, & Weir-Smith (2007), 13.6 % of households could access a PC in 2003. Clearly, the authors added, “most citizens would not be able to participate optimally in the Information economy if they were to depend

exclusively on household computer access". A more affordable technology may be necessary if higher learning is to be made accessible to students in impoverished countries. Video conferencing is particularly of interest because of its low connection cost (often free) and minimal infrastructure requirement (moderate bandwidth and just one computer plus camera per class).

According to Anyangwe (2011), the world is witnessing the birth of an overwhelming transformation in education due to technology. However, the author was referring to student engagement and collaboration in distance learning in developed countries; little attention is being paid to the limitations in the underdeveloped world for providing access to higher education through technology. Like many researchers, Anyangwe (2011) focused his attention on the power of Internet technologies to transform education by resolving distance related issues. Students of poor families in Haiti, however, may only think of one way to increase their chances of attending college or university: flee to the Dominican Republic (Dominican Today, 2009). However, there may be alternatives that have not yet been fully explored.

According to Lucas (2012), there has also been research and anecdotal evidence that gains in employment, education, and community development are the result of technology training and access. Johnson (2012) argued in reference to U.S. society's dependence upon web technology that the current digital divide is caused by differences in income, location, and quality of Internet access, which ultimately affects the availability of educational opportunities for many Americans. The situation is far worse

in countries like Haiti where the gap between those who have and those Internet access and those who do not is wider on several levels. What this study attempted to address, however, was not the digital divide per se but rather the educational divide that stands in the way of closing such gaps. According to Krebeck (2010), closing the digital gap may be easier to do than is commonly believed: A public computer center costing about $10,000 might suffice for serving an average of 300 users per computer per month, as was accomplished in Waldorf, Maryland. In fact, such a solution could help a government like the Haitian government make higher education more accessible to the population at large.

The high school students of Haiti need access to higher education but they also need to become computer literate to take advantage of any online learning opportunity, which is something that can resolve itself through a public computer center like the one mentioned above. There may be skepticism about whether a technology-deprived student population will do well in online learning. Furthermore, the National Staff Development Council contends that evidence of pedagogical quality and student satisfaction with online learning is scarce (Holmes, Signer, & MacLeod, 2010). Having no or limited access to a computer or the internet, the majority of the student population in a country such as Haiti might find the idea of asynchronous communication to facilitate learning intimidating. However, this study explored how access to higher education might be achieved using the power of the Internet and videoconferencing technology. While there may exist an achievement gap, a difference in academic attainment among the students

based on the type of resources that are available to them (Jimenez-Castellanos, 2010), that denial of opportunity involve more factors than unequal access to helpful resources. For example, a study done in the District of Columbia by Filardo et al. (2008) showed that, contrary to popular belief, poor school systems may contribute to the decline of neighborhoods just as poor neighborhoods engender poor schools. This suggests that if the focus were to shift from fear and skepticism of technology in educational settings in developing countries to embracing the possibilities it may offer to provide cost-effective access to higher education for all, then more high school students may consider attending college instead of resigning themselves to less constructive options.

There are a number of sociocultural issues that seem to suggest that the Haiti high school student population would be unable to function successfully in an online environment, since their only experience to date may have been with a face-to-face instructional approach. Having students suddenly shift to a computer-centered model might not be ideal for learning even if the technology were provided. Furthermore, due to their inexperience with the online environment, they may feel discouraged by failed attempts to understand it. This study sought to propose a model that could be more culturally acceptable to such students than an interactive model might be.

Even with technological advances and the knowledge that accompanies it in distance education, poor infrastructure makes it impossible to promote eLearning in impoverished countries such as Haiti, thereby widening the gap in access to higher education between the more fortunate and the less fortunate citizens of the world. Botha

(2011) argues that high costs and limited connectivity restrict the scope for exploiting the full potential of Information and communication technology (ICT) education. Botha also argued that the global digital divide and the global education divide will become self-reinforcing with children denied a chance to gain the skills of ICTs that are vital for future employment and increased prosperity. It is relevant that Botha addresses the global digital divide and the global education divide in the same context because this study explores ways to reduce the latter in spite of the former. Johnson (2012) attempted to answer the question "Where is the digital divide in education?" by arguing that among the things that caused the digital divide, such as differences in income and location, the quality of Internet access or the lack thereof affects the availability of educational opportunities the most for many Americans. That study demonstrated that the digital divide changed from differences in computer ownership among Americans to differences in levels of Internet access. That may be so, considering the cost associated with having constant access to the Internet. Again, this is a gap that may be difficult for low or no-income families in underdeveloped countries to overcome.

Dogget (2007) contended that the advantages of video conferencing in educational institutions are well documented in the scholarly literature. The technology reduces time and costs of travel between remote locations, fills gaps in teaching services, increases training productivity, enables meetings that would not be possible due to prohibitive travel costs, and improves access to learning. In his research, Dogget attempted to assess the effectiveness of videoconferencing technology in learning from a

student's perspective. That study attempted to investigate whether students would prefer videoconferencing over face-to-face learning if they were given a choice. These findings would not apply to Haitian students, however, as they are not given a choice between the two methods. As Falloon (2012) argued, while videoconferencing technology is not new, how effective it can be in the delivery of education is still being investigated. The solution being proposed in this study is unique in that no one-to-many solutions have been proposed since the advent of the instructional television fixed service (ITFS) technology, which was described in 1963 by the Federal Communications Commission (FCC) as "A fixed station operated by an educational organization and used primarily for the transmission of visual and aural instructional, cultural, and other types of educational material to one or more fixed receiving locations" (Cooper, 1967). Those locations could be any accredited public and private school, college, or university. This description applies to the model proposed in this study despite the fact that the technology available then would have been insufficient for the long distance live video conferencing capability needed to achieve the goals of the study.

Another proposed solution is the integrated services digital network (ISDN), which is described by Acker & Albarran (1988) as "a set of technical standards and network architecture that describe a digital telecommunications channel able to carry voice, data, and compressed video on the same telecommunications network". The authors argue that in the case of ISDN, its technical strengths stem from its potential to bring order in the chaotic telecommunications marketplace. In today's environment,

however, this system's bandwidth of 144/kbs would be insufficient for international video conferencing communication. Yet it is these obsolete technologies that have paved the way for more robust and more reliable technologies.

This study attempted to fill the gap in the literature for the use of videoconferencing as a means to increase access to higher education in an affordable way in the context of educational systems in developing countries. One large classroom from the school selected for the study was equipped with videoconferencing technology for an English course to be taught from a distance by a volunteer instructor from the instructor's home or office in the United States or other location at class time. The students came to class as they normally did for face-to-face learning, but they could only see and hear their instructor through a large screen. Most studies on the use of two-way video conferencing technology in education date back to the 1970s and 1980s and did not address the issue of access to higher education for students in underdeveloped countries. In addition, the solutions proposed in those studies, among ITFS and later, ISDN, were too costly to be considered in the poor countries. Yet, considering the limited access to higher education in countries such as Haiti today due to poverty and the current affordability of more effective models of videoconferencing technologies, one promising option may be videoconferencing between small groups of students and a remote instructor. By preserving the features of the familiar classroom model of face-to-face instruction, students may adapt more easily to this strategy.

It could be argued that certain circumstances often have the ability to create opportunities that would not be exploited otherwise. Flanigan (2012) reported that in the aftermath of the 2010 earthquake that ravaged Haiti, Skype was the tool used to communicate with students back in the United States while in Haiti to assess the situation for worried Haitian-American students. However, I found no studies that investigate Skype as a potential tool for direct instruction. Given that Flanigan effectively used Skype from Haiti to communicate with the U.S. students, then volunteers in the United States might also use two-way videoconferencing technology in a central location for educational purposes, as opposed to via personal computers, which students may not be able to afford.

Background

The Haitian earthquake of 2010 victimized a town of nearly 67,000 inhabitants. Among many solutions for rebuilding the educational infrastructure being explored by educators and benefactors, the owner-principals of a K-12 school of 400 students a contemplated the possibility of expanding the school to include a technical college that might better equip their graduates for participation in the global workforce. Many Haitian professionals living outside the country have expressed the desire to offer their technical expertise for skill building. That proposition would satisfy the school's need for qualified instructors, which would be unattainable under their current economic situation. Online training, however, was not an option because most of the students could not even afford a refurbished computer let alone have Internet access in a country wherewith severely

compromised infrastructure. Unfortunately, most of the research literature on access to education focuses on face-to-face learning versus online learning without considering the possibility that for some cultures neither option is feasible for the majority of students due to their limited infrastructure.

This qualitative study attempted to discover how video conferencing technology can provide better educational opportunities in underdeveloped countries such as Haiti. Currently, most Haitian students have only the slim opportunity of moving to the neighboring country of the Dominican Republic to attend a technical college or university. Studying abroad is not an option due to limited resources. Those technical schools that are or may become available in Haiti face large numbers of applicants only a fraction of whom can be served. While distance or online education could be seen as a feasible option, cost and Internet access present barriers. Videoconferencing technology used in this context could be a feasible alternative.

Problem Statement

While little or no data are available on the feasibility of any type of educational technology implementation in poor developing countries such as Haiti, the possibility of using technology in a meaningful way in spite of the known limitations must not be overlooked. The feasibility of using educational technology in providing access to higher education in Haiti remains unexplored. Although according to Flanigan (2012), Skype was used to deliver instruction to US students residing in Haiti immediately following the earthquake, the native population remained without such access due to the extreme

poverty and substantial infrastructure devastation. Johnson (2012) listed a number of factors that could impact the delivery of education via video conferencing to students residing in the rural areas of the United States such as reliable internet access. However, Haitian students cannot even count on reliable access to electricity. Muhirwa (2009) stated that most IDE projects in sub-Saharan Africa (SSA) seemed to have been implemented based less on evidence from thorough needs/sector analyses and more on assumptions about their potential to rescue the battered educational and training systems in developing countries. This may also be the case in Haiti since to date there do not seem to be any projects focusing on using videoconferencing technology in a way that addresses the lack of access to higher education.

Purpose

The purpose of this case study was to investigate the use of one-to-many videoconferencing as an education access tool for high school seniors seeking higher education in the most devastated areas of Haiti. The model was created and used within the cultural norms and expectations of the Haitian people.

Research Questions

The research questions of this study were:

- How does one-to-many videoconferencing learning enhance access to education in Haiti?
- What are the experiences of various sets of participants?

Framework

The theoretical framework for this study is based on the social learning theory of Albert Bandura, activity theory, and constructivist epistemology. Driscoll (2006) argued that constructivism is grounded on interaction, communication, and collaboration to facilitate and promote critical thinking, reasoning, retention, understanding, self-regulation, and mindful-reflection, all of which would be instrumental to the success of this project. Proponents of the activity theory present it as a system of multiple means of coordination, communication, and work that are used, perhaps differently, by multiple people (subjects) performing some activity (Georg, 2011). In this regard, activity theory seems in line with the current study.

Telecommunication technologies have made scientific collaboration possible in (near) real time regardless of geographical distances between collaborators. The power of the internet in enabling the dissemination of media of any type, including videos, has made it easier to create synchronous collaboration that enables a more timely and verbal exchange of facts and information (Ke, 2010). According to Ardley (2009), Video-Mediated Conferencing (VMC), an alternative terms for videoconferencing, enhances learners' participation in hands-on activities. Furthermore, VMC encourages critical thinking, and teacher exchange can be fostered through collaborative efforts involving video-mediated conferencing in cases where technology-enabled classrooms are used to provide a more synchronous and cost-effective distance education in a classroom setting

(Ardley, 2009). A synchronous and cost-effective solution to the problem of limited access to higher education for the poor is what this study aimed to discover.

In an EDUCAUSE article entitled "7 things to know about video communication" (EDUCAUSE, 2013), the 5th point refers to how online video tools enable classroom activities that previously were only feasible at considerable expense and logistical coordination. These new tools, the author explained, are easy to use and require little support (EDUCAUSE, 2013). This was fortunate for this study because the modest school where this project was implemented was not be able to afford a support staff for high maintenance equipment. With regard to the real cost of this project for an average school in Haiti, a comparison can be made with a study done in May 2014 by the Consortium of School Networking and Education Superhighway (CoSN) for the purpose of identifying the key equipment and services typically used to deploy and maintain a robust LAN, Wi-Fi, and core WAN network and estimating the aggregate cost of the equipment for a U.S. school (CoSN, 2014). The cost per room without a projector was less than a thousand U.S. dollars. Therefore, for an average school in Haiti to be equipped with video-conferencing technology, the amount required may be far less than anticipated. In addition, as Mwanza and Engeström (2005) argued, developing good technology tools for educational purposes requires good understanding of pedagogical and contextual practices.

In Bandura's modeling process, one step that may be facilitated by the video-mediated classroom models is attention. These models provide the ability to review a

video to capture details that may have been overlooked in the previous viewing. Moreover, the ability to retrieve stored information at one's own discretion for review has been proven to help retention and reproduction, both of which are at the core of the social learning theory. For the constructivist, knowledge is constructed through experience and learning is self-directed. Thus, the instructional model developed in this study aligns with both theories in that it fosters collaboration, communication, critical thinking and self-regulation. It was developed to be used by volunteer instructors who may not have prior training in teaching with technology. The challenge was to create a model that would be designed to be mastered quickly and easily by the volunteers and acceptable to both the instructors and the students.

Nature of the Study

The focus of this case study was to build a framework for a learning model that could be implemented in the resource-poor developing country of Haiti within the cultural norms and expectations of the Haitian people. Due to the unique nature of the study, an ethnographic method of inquiry was adopted so that a full range of activities surround the phenomenon being investigated could be studied and observed in the final analysis. This model is unique in that it is not about online learning; it is rather a semi face-to-face model that involves the use of video conferencing as the main method for content delivery. According to Wilson (1977), from a naturalistic-ecological perspective there is a strong belief among social scientists that human behavior is significantly influenced by the settings in which it occurs. Therefore, it is crucial to study the Haitian

phenomenon within its own socioeconomic context. In addition, even within the same setting, there is the possibility for divergent findings to emerge from a particular study. Wilson (1977) argued that one cannot understand human behavior without understanding the framework within which the subjects interpret their thoughts, feelings, and actions. Thus, in order to have a comprehensive perspective on this Haitian phenomenon, a fieldwork strategy to collect the data was necessary in order to achieve depth of understanding. As Patton (2002) argued, this study design requires multiple sources of data because no single source of information provides a completely valid picture of the phenomena studied. Different data sources were needed to validate and crosscheck the findings. Therefore, this study used a combination of observations, interviewing, and document analysis. As Patton (2002) explained, each type and source of data has its strengths and weaknesses. The strategies used for collecting data in this study were through interviews, observations, and discussions with key informants. Ten people selected from the chosen classroom in one research setting were interviewed in addition to the principal, the instructor, and the computer lab technician. Of that group, four key informants were used for further discussions. In addition, observations were undertaken to get a broader view of the physical base of the research setting as well as an analysis of the content of the collected relevant documents. The focus was on the earthquake-damaged area because it represented the most resource-poor context in the subject country. The sample included individuals who choose not to attend college for reasons they may or may not want to divulge and individuals who simply cannot attend.

Definition of Terms

Educator: A person who understands educational principles and can develop education (Xing and Zhuolin, 2013).

Sociocultural issues: Social implications of high-speed communication in higher education and cultural relevance of the use of high-tech information networks in the delivery of education (Jones, 1996).

Socioeconomic status: The position of individuals, families, and households based on dimensions of stratification. These dimensions comprise education, income, prestige (occupational status), and wealth (Daraei and Mohajery, 2013).

Underdeveloped countries: Countries with more than half of their adult population illiterate (Golden, 1955).

Assumptions

As a participant-observer who was very familiar with the immediate context of the study by having lived in the town from birth to adulthood, it became natural for me to make certain assumptions that may or may not be relevant to the study. However, without those assumptions, it was almost impossible for the study to be relevant. Wilson (1977) argued that the underlying principle guiding this kind of research is the assumption that individuals have meaning structures that determine much of their behavior. This study, as Wilson (1977) suggested for any study, sought to discover what these meaning structures are, how they develop, how they influence behavior, and, more importantly, how they

may impact the outcome of the study. Below are the assumptions that seem appropriate for this study in no particular order:

- The participants will answer honestly because they will be made aware of the fact that there will be no reward or adverse consequence for the answers given. Also, they will be informed that they will remain anonymous throughout the study and after the results have been published, and that they may withdraw from the study at their own discretion.
- The proposed learning model will be accepted and used beyond the study based on the positive nature of the participants' experiences and observations.
- The sample of 10 students for a month-long course is representative of the population from which I wish to make inferences because it is a reasonable class size and all the participants reportedly wish to attend college upon graduating from high school.

Limitations

The economic infrastructure of the context of this study is such that the most reliable source of electrical power, which is essential for the proposed learning model, is a generator made by Honda and used as a backup power source in case the electricity goes out, as it often does for the majority of each day. In addition, there are not enough reliable technology-savvy workers at the school to ensure that a scheduled class session via video conferencing will go as planned. The inherent limitations of this methodology

should not be overlooked either due to its newness in the field of higher education or the lack of research supporting its use.

Delimitations

In order to limit the scope of this study for more reliable results the participants were selected from the same high school and numbered no more than 10. Furthermore, although the country is plagued with many other problems that could be investigated, access to higher education seemed to be the easiest to address and the objective seemed to be more attainable in a short-term period. The geographic location was also chosen strategically as the problem is more prevalent in that area of the country and may be applicable to many other countries with the same economic conditions and limitations.

Summary

According to the Federal Ministry for Economic Cooperation and Development (2012-2013), access to higher education is extremely limited in most developing countries due to inadequate budgets, lack of schools and teaching staff, costs of attending school, and locations of higher learning institutions. As a result of the high illiteracy rates and failing vocational training and higher education systems, there is a persistent lack of adequately trained experts to sustain economic development. The current and past studies only explore the use of available technologies to enhance learning where higher education is already accessible (Federal Ministry for Economic Cooperation and Development, 2016). Studies that involve the use of technology in education mostly evolve around the “anytime, anywhere” concept. This study was an attempt to fill the gap

in the literature for the use of videoconferencing to increase access to higher education in an affordable way in places where it is merely a bare necessity. A small pilot test was conducted as a proof of concept for an instructional model using videoconferencing in this context.

This study developed and field tested a model to help offset the lack of access to higher education among the Haitian high school students and thereby foster social change. Specifically, the study explored the feasibility of using educational technology, particularly videoconferencing technology, to help bridge the educational gap between the advanced countries and underprivileged countries such as Haiti, thereby giving hope to those who may have given up trying to obtain an education beyond high school. According to Weisner (1996), an important goal of ethnographic research is to describe and understand the cultural place and its influence on the everyday lives of its members. That is what this study attempts to do in order to bring about positive social change through proper education.

Chapter 2: Literature Review

Introduction

There have been multiple studies over the past decades on the use of technology in education. Most of these studies focused on the impact of technology on pedagogy and whether the lack of access to technology could hinder learning. A number of theories have been proposed in an attempt to uncover the ways in which decades of technological advancement have improved learning outcomes for students and educators who have access to such technologies. In preparation for this study, a comprehensive literature review has been done to ensure that the relationship between videoconferencing technologies and access to higher education is well covered. Some of the peer-reviewed databases, such as ERIC, Education Research Complete, SAGE Premier, ProQuest Central, and Academic Search Complete, have been searched for articles published within the past 5 years. These databases were searched for *videoconferencing, distance learning, affordable education, videoconferencing in higher education, synchronous communication in education, Television Fixed Service (ITFS), Integrated Services Digital Network (ISDN), Information Communication Technology (ICT), equal access to higher education, educational technology,* and *equitable distribution of educational resources.* The results reported in those articles were well crafted for their specific purposes and were very useful in shaping the argument for the current project as their generalizability makes them applicable to this context. Ten studies were located that were published within the last five years. Some of the more recent studies have even tied the

constructivist theory to the current social media phenomenon, which applies to a broad range of contexts for teaching and learning. Among the articles that were found to be relevant to this study due their scholarly nature and their commonality with the goal of fostering social change, more than a dozen will be discussed in this chapter.

The first article is one that presents a study of post-secondary distance education in a contemporary colonial context. Simon, Burton, Lockhart, and O'Donnell (2014) brilliantly recounted the experiences of students in a rural First Nation in Canada claiming their right to postsecondary education from their rural regions instead of moving closer to the universities in cities. According to the authors, First Nations are politically autonomous Indigenous communities in Canada who, in 1972, outlined the requirements for their own education system in their In*dian Control of Indian Education* paper in an attempt to ensure that First Nations people will be leading the development and operation of their schools and education programs. Until the advent of technologies such as videoconferencing, it has been difficult to circumvent the inequalities with distance education. Simon et al. reported that currently several universities in New Brunswick, as well as the neighboring province of Nova Scotia and further afield, offer distance education to the First Nation community members. The authors also reported that the courses are offered through videoconferencing or the web for individuals and groups in community classrooms. Of course, this method of delivery is not without its challenges, as the authors argued. However, they could also report that, as a result of those efforts to make secondary education more accessible to that student population, the number of

university graduates in 2006 was up 30% from the 2001 census, which had recorded a population of 1,100 adults. The type of videoconferencing referred to in Simon et al.'s (2014) article uses dedicated room-based units rather than videoconferencing on a personal computer. This is the exact model this study is proposing for Haitian students. The difference is that the Haitian students do not have the option to move closer to universities in the cities. Thus, their context is unique in that their perceptions of and experiences with videoconferencing would be untainted by the affordability of multiple choice options. Simon et al. concluded their article by suggesting that more support for and attention to the students' preferences of learning styles will lead to more successful distance education programs in those communities. This is not the issue being addressed in this study. However, their instructional model is worth considering as it relates to the current study. VMC was used to deliver social work education at a distance to community service staff members at a remote location. The authors stated that the approaches and technologies included readings, audio and video clips, reflection logs, quizzes and downloadable toolkits, and instructional support via e-mail and videoconferencing (Simon et al., 2014).

The next study in this category is about the use of videoconferencing as a form of technology-enabled learning and teaching in a multicampus Chinese university. Szeto (2014) reported that videoconferencing was integrated in a blended synchronous approach to teaching remote and face-to-face students in that university. The study focused on first-year engineering students' learning and instructor's teaching experiences,

reflecting the instructional potential of videoconferencing. The study was well done for its purpose. Szeto argued that with the advance of ICT, blended synchronous learning and teaching visually and verbally mediated by videoconferencing, is widely promoted in changing the higher education landscape. Again, the study was about using videoconferencing technology to facilitate students' connection for the purpose of enriching university learning and teaching (Szeto, 2014).

A similar concept was explored in a study that analyzed a system of virtual attendance, called audio visual over internet protocol (AVIP), at the Spanish Open University (UNED) in Spain. Vazquez-Cano, Fombona, and Fernandez (2013) used a quantitative methodology to analyze the perception of students and tutors of the new model of virtual tutoring called AVIP classrooms. In this model, the author stated, contents are transmitted from classrooms and online conference rooms for storage and delayed live broadcast. The AVIP tool provides "virtual attendance"; that is, students and tutors can access classroom activities of any center from any center or classroom. Still, the was convenient access through a new model which Vazquez-Canon et al. argued has greatly improved the orientation and teaching methodology of tutors. In that context, a program called Educational Technology Architecture for the Associated Centers (ATECA) was developed with the objective of strengthening virtual attendance, which involves creating classrooms with videoconferencing over synchronous IP—AVIP-classrooms—enabling the associated centers to deliver tutoring and mentoring services to geographic areas that were previously beyond reach. The new AVIP classroom system,

the authors argued, permits almost the same types of interaction in distance learning that are possible in traditional face-to-face learning scenarios. This was very important for this study as the tool combines high-end videoconferencing with low-end web-conferencing and smart board-based learning. The results of the study, as reported by the authors in an unbiased format, show key aspects of the way by which AVIP classrooms, based on videotutoring, can improve the distance teaching-learning process when students receive the content through virtual attendance (Vasquez-Canon et al, 2013).

Magzan and Aleksic-Maslac's (2009) study about ICT as an effective tool for internationalization of higher education is no less relevant, though it stems from the needs for institutions to be internationalized as they strive to prepare students for the global market. Magzan and Aleksic-Maslac attempted, therefore, to offer a descriptive analysis in a study that investigated how internationalization of higher education can be facilitated by the effective use of information and communication technologies. A number of technologies and tools have been explored over the years at Zagreb School of Economics and Management (ZSEM) in Croatia without real student engagement success, but due to the availability of videoconferences, ZSEM students have the opportunity to hear lectures by world leading experts and educators". A question can be raised based on the authors' conclusion that "due to rapid growth of the knowledge economy, the transfer of knowledge and internationalization of educational services becomes an inevitable issue that every higher education institution has to focus on" (Magzan & Aleksic-Maslac, 2009): Does this generalization apply to underdeveloped cultures where the mere access

to higher education, even on the local level, is restricted for some students and nonexistent for the rest of them? Evidently, the issue of continuous intention to attend online classes via videoconferencing raised by Hsiao (2012) in his study published in the *Turkish Online Journal of Educational Technology* is irrelevant to the context of the current study. In Hsiao's study, thirty university students were invited to attend a 10-week videoconferencing course in an attempt to explore the factors that would affect continuous intention. In the context of the study, the results of the survey administered by the researcher indicated that social environmental factors (normative belief and subjective norms) and personal factors (affect and performance outcome expectations) can significantly influence users' continuous intention. In the context of this study, however, continuous intention is irrelevant as these students would only forfeit their opportunity to attend college by rejecting videoconferencing as a feasible model.

In 2013, Koon Hwee Kan from Kent State University wrote an article that was a tribute to a global art education project, which aimed to experiment with the integration of advanced web technology to forge tighter connections between art education programs in two institutions across national borders (Kan, 2013). Videoconferencing technology was used to enhance those connections. The author quoted that as novel educational technology, the face-to-face feature of videoconferencing has considerable potential to bridge vast distances between educational settings for all levels (Kan, 2013). The article served well its purpose in conveying the importance of connecting arts students around the world. Students from the two universities, the author explained, gained appreciation

and respect for 20 individuals who made a difference in their respective cultures and helped shape contemporary art worlds (Kan, 2013). The relevance of the article to this study is a reinforcement of how well a two-way videoconferencing model can work in bridging the higher education access gap.

The World Bank's effort to bridge the education gap should not be underestimated. In fact, in their August 2014 "Education for all" brief, they listed six specific goals, one of which is to ensure that the learning needs of all young people and adults are met through equitable access to appropriate learning and life-skills programs (World Bank, 2014). Although videoconferencing appears to play an integral role in World Bank's several distance learning initiatives around the world, no recent data were found relating to a two-way video-conferencing model involving volunteer instructors from the developed cultures such as the US.

The closest we have seen to the model proposed in this study appeared in an article published by Virtual School Meanderings reporting the announcement by VSCHOOLZ, Inc. to partner to deliver a groundbreaking model of e-Learning with the Jamaica based CaribbeaniSchool (Barbour, 2012). According to Barbour (2012) VSCHOOLZ was founded by a team of educators to provide e-learning solutions for schools or districts that want to support a blended digital learning environment in traditional schools or that want to launch their own virtual programs. By any standard, this is a good step in the right direction.

The nature of this study, however, calls for a more holistic approach to the literature review for it involves the use of technology to provide access to learning as a bare necessity as opposed to enhancing existing pedagogy and teaching methods. A number of factors come into play as the study develops including the socio-cultural context in which it is being conducted. Haiti is a former French colony and, as such, is heavily influenced by the French education system. Haiti's educational system is also tainted by the American culture in many ways due to its proximity to the United States and the vast number of immigrants who have returned to Haiti to help rebuild the country after the devastating 7.0 magnitude earthquake of 2010. In addition, as in any country or community where natural disasters have taken place, there is an avalanche of nongovernmental organizations from different parts of the world proposing policies to effect educational reforms in the devastated land. Consequently, this study will span over cultural contexts and generations as it analyzes past and current methods by which educators and philanthropic organizations have attempted to bridge the gap in access to Higher Education.

Activity Theory

A number of component theories and constructs will be explored in this study as predicted in the proposed theoretical framework. Irrespective of any particular order, the activity theory whose main contributors include Lev Vygotsky, Yrjö Engström, Mikko Korpela, and a host of others. (Georg, 2011) will be addressed first as possibly underlying the logical model of this study. The activity theory is based on the principles

of tool mediation, which means that all human activity is mediated by implicit and explicit norms and conventions, and contradictions, which are conflicts and tensions within the activity systems (Georg, 2011).

Faloon (2012), in his study on students' perceptions of videoconferences as an interactive medium for developing content knowledge, used a case study approach to determine the factors that influenced interaction between students and the scientists in the study and how. A series of three videoconference workshops in three virtual labs were conducted, involving four scientists and 37 senior secondary school students and their teacher over a six-month period. The 5-point Likert scale analysis results suggested strong support for the teaching workshops as worthwhile learning experiences. The majority of the students viewed videoconferencing as an effective learning medium. The author concluded that as internet Protocol desktop systems, Web 2.0 video-based collaborative tools, and high-speed data networks become commonplace, using videoconferencing to synchronously connect students to knowledge and experience worldwide will become a viable option for many schools. The study exposed the challenges presented to scientists wishing to evolve their videoconference practice models based on more constructive pedagogies. According to Falloon (2012), the implications for future studies, hence this study, are such that efforts must be made to address the challenges of dealing with the mediating effect of videoconferencing on relationship formation, the amount of planning and preparation time needed, and evolving curriculum and assessment design to more closely align with the capabilities of

the medium. Undeniably, the implementation of the project that inspired this study will require extensive and thorough planning. Georg (2011) argued that a key point of interest in understanding the activity theory is that the original theory introduces contradictions as sources of tension in an activity system and therefore as drivers of evolution. Georg (2011) also indicated that Engström is credited with the extended diagram as shown in figure 1. It is often said that in order for effective change to occur a certain level of discomfort must take place in the subjects that would be affected by the change. As Georg (2011) explained, by looking at the structure of the vertices of the triangle one can deduct the mediations among the different interacting components.

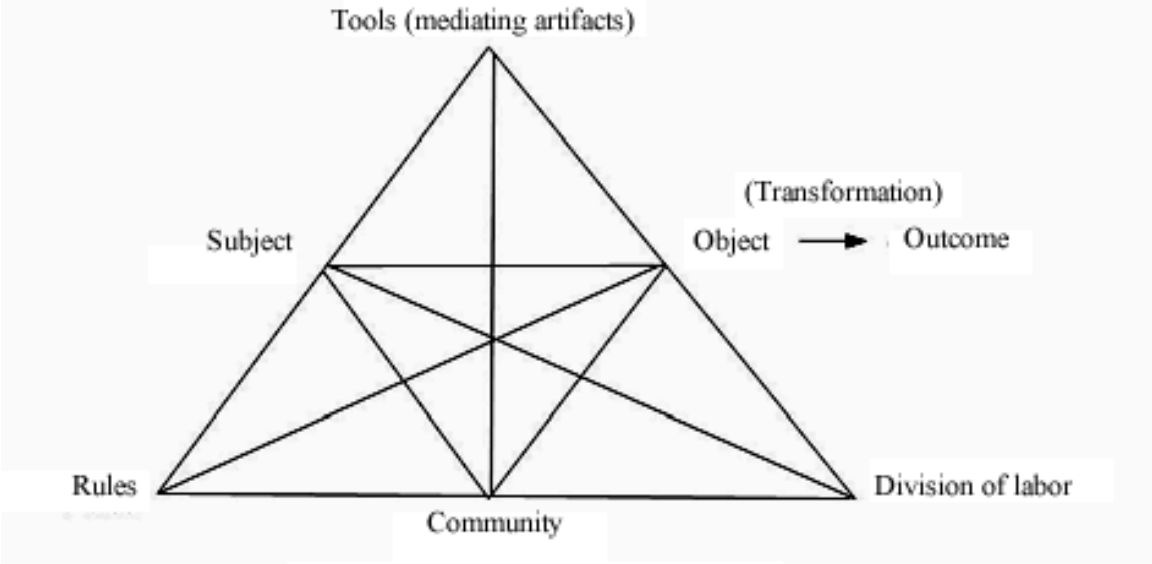

Figure 1 **Engström's activity system (Mwanza and Engeström, 2005).**

This study aligns with Engström (1987)'s argument, which suggests that contradictions serve as the means by which new knowledge about the activity being

examined emerges. In fact, every component in this study's activity system appears new to the subjects. For example, rules are being presented in a new light as they relate to live distance learning via video-conferencing technology. Contradictions are then inevitable but desirable as all the components in the activity system for this study, portrayed in Figure 2, are assembled into a unified whole.

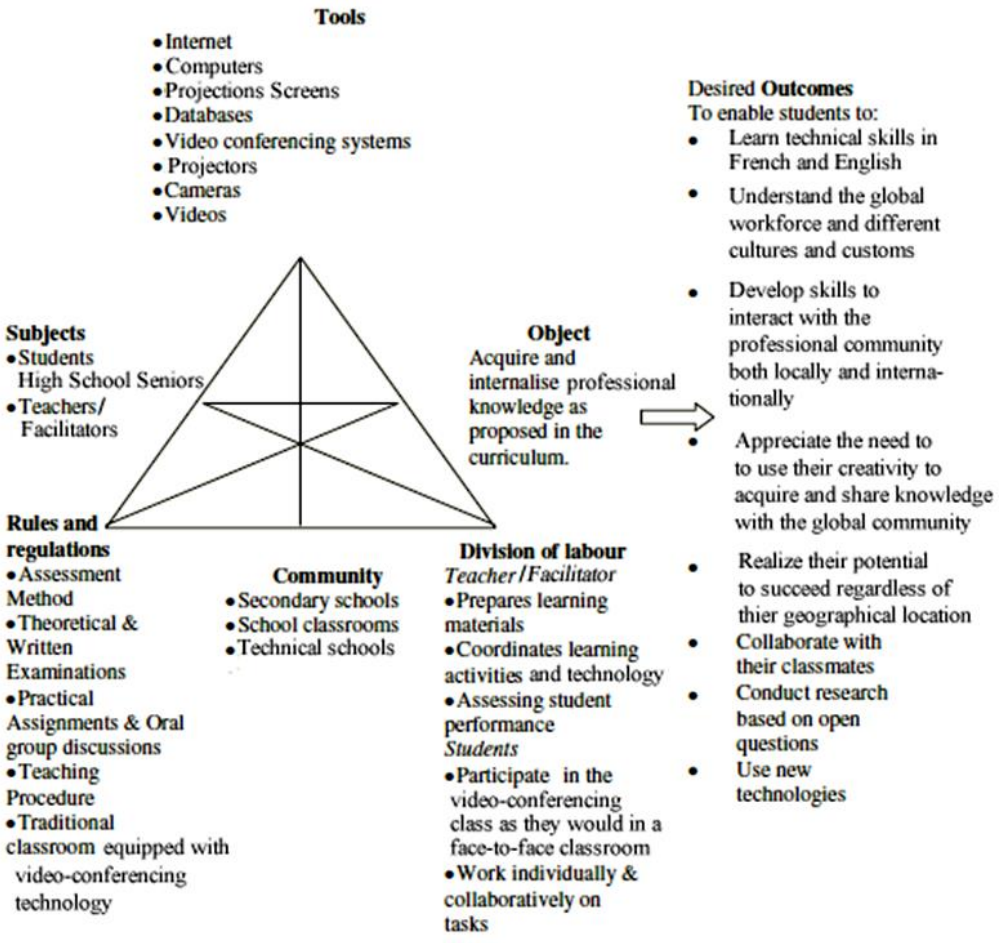

Figure 2: Visualization of objects in the subjects taught via videoconferencing
(adapted from Mwanza and Englestrom 1987)

The activity theory has also been considered as a theory for studying human computer interaction. Hardman (2005) used the activity theory as a framework for looking at how human computer interaction forces the researcher to aim at tracking changes across an entire system, rather than merely tracking changes with the individual. Through a case study involving six hours of video data (two face-to-face and two computer lessons), the author attempted to discover whether the introduction of a new tool such as a computer impacts on how a lecturer mediates content in a postgraduate course or whether the introduction of a computer-based learning environment force a shift in a lecturer's pedagogical practice. His findings indicated that the use of a computer as a teaching/learning tool does indeed force a shift in the activity system, transforming traditional behaviors, leading to contradictions in and between systems and, consequently, forcing changes in and between systems. The implications for the current study are evident in that a whole system is being readjusted for the purpose of the study. Perhaps, one relevant study to the overall impact of this project would be Goode (2010)'s study of identity development and the functioning of schools in reproducing the social, economic, and political relationships in society. In his study, Goode (2010) explored the educational and social factors that are related to the reported technological proficiency level of university students and how students' levels of technological proficiency shape their engagement in their university work. The results of that study indicated that technology experiences lead to technological proficiency, which in turn corresponds to affective relationships with the computer. The author concluded that Technology is a tool

that acts as a broker to social reproduction in K-12 education and extends the findings to higher education. Thus, the affordances of knowing about computers are exceptionally significant in the digital information age. Universities, argued Goode (2010), will have to develop a strong technology identity to prevent students from avoiding classes that might incorporate technology due to a lack of technology skills, attitudes, and/or motivation to work with technology hence the importance of this project for those students who have limited or no access to technology.

From a student's perspective, the activity system is not less complex. Doggett (2008) attempted to explore the effectiveness of videoconferencing classrooms from a student's perspective to potentially answer the following questions: does videoconferencing technology adequately serve the needs of students enrolled in videoconferences courses? If given a choice, would students select videoconferencing over face-to-face instructional methods? A student survey was prepared using questions from Free Assessment Summary Tool (FAST). A 5-point Likert scale was used to collect student responses. 100% of the students who were offered to take the survey responded with 90% stating that they attended 75% of the lectures. Over 80% of the students agreed that they understood the purpose of using videoconferencing technology to compensate for the lack of face-to-face interactions. The author concluded that despite the negative perceptions of the students who attended class via the videoconferencing technology due to lack of resources, there was no difference in grades between the two groups. Hence, for students who do not have the option of attending a class face-to-face, videoconference

technology is ideal for providing equal access to learning. Of course, for videoconferencing courses to be successful, it is crucial to ensure that the technology is implemented efficiently, that it is of high quality, and that the instructors know how to use it properly. This will make students more comfortable taking a videoconferencing course as perceptions play a major role in their decision making process. Consequently, according to Doggett (2008), since videoconferencing is the closest to a face-to-face experience for students in remote locations future research needs to include making their experience as seamless as possible through technology enhancement addressing perceptions and comfort. The current project needs to address this issue to the fullest extent.

Videoconferencing technology has gone through decades of iterations as researchers struggled to establish the pedagogical value of using it to enhance learning. social cognitive theory (SCT) to explain individuals' online behavior assuming that the interactivity of video conferencing software is categorized into two major types of interactions: (a) human-system interaction (HIS); and (b) human-human interaction (HHI). Hsiao (2012) proposed nine hypotheses with regard to SCT:

*H*1: The degree of affect is positively influenced by the degree of HIS

*H*2: The degree of affect is positively influenced by the degree of HHI.

*H*3: The degree of continuance intention is positively influenced by the degree of affect.

*H*4: The degree of continuance intention is positively influenced by the degree of performance outcome expectations.

*H*5: The degree of performance outcome expectations is positively influenced by the degree of learning self-efficacy.

*H*6: The degree of subjective norms is positively influenced by the degree of normative belief.

*H*7: The degree of personal outcome expectations is positively influenced by the degree of subjective norms.

*H*8: The degree of continuance intention is positively influenced by the degree of subjective norms.

*H*9: The degree of learning effectiveness is positively influenced by the degree of continuance intention.

According to the author, 30 university students aged between 18 and 22 participated in 5 ten-week long online courses with a pre-test and a post-test developed by the two English teachers. Learning effectiveness was measured by the difference in scores between the pre-test and the post-test. Partial Least Square (PLS) analysis was used to conduct the proposed model and hypothesis analysis. The overall result showed that 61.1 percent of the participants are in favor of video-conferencing courses. The author found that all hypotheses were supported. The intention would positively influence students' grades. Therefore, videoconferencing courses can be a good learning solution to save students' time for commute. The implication for this study is that in order to

increase the usage intention, teachers and classmates' beliefs about the videoconferencing courses are very critical. Part of what this study is attempting to do is to create an atmosphere of excitement and comfort around the project to stimulate interest.

Rantanen and Smagner (2011) found similar results when they attempted to discover whether Telecommunication technologies can be an effective replacement for face-to-face interactions for learning or scientific collaboration in (near) real time regardless of geographical distances between collaborators. Their qualitative study involved a 32-questions usability survey administered through an Institute of Technology. 73 responses were received and analyzed. According to the authors, the participants indicated that the majority of the cyber collaboration limitations encountered could be solved by having live synchronous collaboration, as Video-conferencing was the most used technology among them. The authors concluded that usability of cyber collaboration technologies must be founded on two equally important principles: meeting the existing needs of the collaborators without detrimental side effects and provide affordances for new and more effective collaborative behaviors. Undeniably, cyber collaboration technologies offer a uniquely diverse platform on which learning can be shared, assessed, and enhanced through collaboration.

Based on the results of the studies examined so far, there seems to be some advantages of using Web 2.0 tools like 21st century video conference technology to connect professional learners for knowledge sharing. In their survey of Web 2.0 tools

Little and Housand (2011) suggested that Online Professional Learning may present effective ways of connecting gifted education professionals across multiple schools and districts and providing professional learning experiences. Factual data were presented based on the authors' experiences and literature reviews on diverse Web 2.0 tools currently in use for educational purposes. They concluded that Web 2.0 tools such as web video conferencing are effective in seamlessly connecting professional learners and educators across the globe. In considering implementing online professional development school leaders and learning providers should consider all the key elements that may impact learning. Again, this is in line with the active theory concept of an activity system supported by intermediations.

Videoconference technology's rate of adoption has been very slow. In 2009, this technology was referred to by many as VMC. Ardley (2009) used an iterative story-telling framework to investigate Collaborative Learning and cooperating teachers' reactions to VMC in classroom practices. Semi structured interviews were used in this qualitative study involving 17 teachers (12% black females, 88% white females) between 20 and 50 years old. They shared the same native language: English. The study spanned over a 15-week semester period for a total of 15 hours in 2-hour segments. The author noted the emergence of fours themes in the analysis:

- Risk taking as a crucial dimension in being a featured teacher in a videoconference.

- Video-mediated conferencing enhances children's participation and on-task behaviors.
- Video-mediated conferencing encourages critical thinking and reevaluation of assumptions.
- Teacher change can be fostered through collaborative efforts involving video-mediated conferencing.

The author concluded that VMC enhances learners' participation in hands-on activities; VMC encourages critical thinking; and teacher change can be fostered through collaborative efforts involving video-mediated conferencing. Even then it was shown that video-mediated conferencing allows for more concrete instructions than just voice-mediated conferencing as students' behaviors are more controlled with the perception of constant supervision though, it was also evident that more research that supports the learning of diverse stakeholders should be conducted involving diverse asynchronous and synchronous communication tools.

Be that as it may, in addition to the affordability of using one classroom equipped with video conferencing technology versus asynchronous online learning, student engagement may be more evident in a video-mediated classroom. In their interpretive analysis on experiential learning and collaborative learning in relation with increasing student engagement, Karpova et al. (2011) argued that much learning takes place in the global collaboration mediated by video conferencing technology. It was a qualitative study using an essay evaluation approach which involved 172 undergraduate students

enrolled in three apparel programs located in three different countries. The author concluded that based on the content of the essays written by the participants, there were an increased awareness of culture, time management skills, integrity and tolerance, ethical practice, and leadership. It is clear from this study that exposure to different cultures even virtually reduces fears of the unknown and fosters cognitive learning, personal and professional development and maturity.

In another study Rush and Wheeler (2011) asked 131 scholars some open-ended questions about how a collaborative process can impact productivity among young faculty seeking promotions and/or recognition. According to authors, analysis of participants' responses all result in a need for more networking opportunities expressed by the junior faculty. Schedule conflicts, time, and distance are the major factors preventing better development and maintenance of networks with senior faculty. They concluded that video streaming augment the networking opportunities for junior faculty aspiring to be tenured. It also expands the field of senior faculty with whom they can share data. Online technology, more specifically video-conferencing technology holds the promise for increasing participation from faculty around the world as well as facilitating the participation of those who cannot physically attend an event.

The quest for better ways to achieve learning outcomes through video goes as far back as a few decades. Birmingham (1970) submitted an evaluation of ITFS as a method of transmission of televised instruction. The analysis was merely exploratory and did not involve any hypothesis testing. A thorough and extensive review of the literature was

submitted to the readers' interpretation. A summary of the data derived from the surveys and interviews was presented. The author concluded then "Five years of field experience indicate that, as a technical entity, ITFS is a practical and reliable method of communication which offers significant advantages in terms of instructional capability and basic economies in terms of spectrum conservation" (Birmingham, 1970). An extensive literature review is essential to establish the effectiveness of a technology on a more general scale. It was the case with ITFS; it is still the case with current educational technologies. Current studies have benefited from the vast amount of data analysis and results derived from past studies.

ICT was also considered as a bridge between learner and teacher in Open and Distance Education. Ofulue (2011) sought to answer the following three questions in their study:

What are the various ICTs available to distance learners in their environment?

What are the barriers to ICTs that distance learners face?

What strategies do distance learners employ to overcome these barriers?

600 questionnaires were sent to 3 universities in Nigeria with 215 returned. Results indicated that ICT services were available at those institutions at a rate of an average of 30% for radio, internet, telephone, email, and text-messaging. Print materials rate the highest (60%) for instructional learning. Lack of access to other ICTs is the limiting factor across the board. The author concluded that socioeconomic factors are a significant barrier to ICT use among distance learners in Nigeria. Access to ICT is largely

determined by the ability to afford them. Since the data shows that most can afford mobile phones in Nigeria, they may present a unique opportunity to be used as tools for learning. This study is exploring how to circumvent the socioeconomic factors that limit the expansion of distance education in developing countries as well as strengthening student engagement through videoconferencing technology.

Acker et al. (2008) investigated the effects of Integrated Digital Telecommunications systems on the educational environment and how integrated telecommunication systems differentially will affect voice, data, and video users. They also wondered whether Integrated Services Digital Network (ISDN) favor large or small customers for telecommunication services. A mixed-method Intervention-oriented methodology was used. It was a sociotechnical analysis approach that advocates the process of scanning the social environment of an institution to address problems introduced by the shift to a new technology and the implied change in how work is accomplished. A case study involving a large university has been developed for this paper. Descriptive data were utilized. According to the authors, all scales demonstrated good internal consistency, all case studies reveal substantial differences in the solutions created, and telecommunications costs increased for small users whose needs are concentrated in the voice area. Thus, the authors' conclusion was that inequalities were found between large and small user groups. Cost recoveries favor larger units while adversely affecting smaller units. In other words, this technology was expensive and out

of reach for the average school in the US let alone in a country such as Haiti where there are no subsidies or even an infrastructure to request equitable service from.

Even in the 1990's era educators were hopeful that online technology, more specifically video-conferencing technology holds the promise for increasing participation from faculty around the world as well as facilitating the participation of those who cannot physically attend an event. In a case study exploring distance learning as a medium for extending learning to remote locations, Thomas (1996) reported one university offering pharmacy courses to a remote location where pharmacy schools did not exist, via videoconferencing technology. According to the author, the analysis revealed no significant difference in learning outcomes achievements between the students who attended the lectures on campus and those who attended via videoconference. He concluded that there is a widespread agreement that institutions of higher education are in the midst of a paradigm shift: shrinking pool of traditional students and ever increasing pool of nontraditional students, which makes distance learning very relevant even essential. Institutions of Higher Learning must realize that distance learning, once frowned upon, has the potential to become a competitive advantage to those who understand its value. Faculty training is critical for distance learning success. More studies should be done on the impact of instructors' familiarity with technology on learning when it is done via videoconferencing.

It can be argued that advancement in technology should be credited for the current generation's affinity for gadgets even with regard to learning. In China, for example, Wang (2011) explored the following possibilities:

- How cell phones can be integrated into the traditional High School English as a foreign language (EFL) classrooms.
- The Chinese students' attitudes and technological readiness for using cell phones for English learning projects.
- The Chinese students' perceived learning through the C-learning (cell phone-based learning) project and
- The appropriateness of the design of the C-learning project for high school EFL learning in China.

A survey methodology and a guided reflection paper involving 96 high school students from Xiamen, China were used in the study. This method was used to evaluate the appropriateness of the C-Learning approach to EFL teaching in China. The results indicated that students are positive about using cell phones to complete their learning activities confirming that they have learned a lot in C-learning activities as if English has been brought to life through these activities. The author concluded that when technology is used appropriately learning occurs or is enhanced.

No technology can replace sound pedagogy and instructional design. However, when technology is used as a result of good planning it can improve learning outcomes. 21st century students are from a gadget generation. Therefore, educators should strive to

meet them where they are. If the cell phone is their best friend, it may as well be made to be their learning companion. That is also true for students in underdeveloped cultures though that is not the focus of the current study. However, the study, with its limitations, should inspire a continuous effort to incorporate technology in teaching and providing access to education. More studies of this sort should be done as new technologies emerge, especially it the technology contributes to closing a gap or bringing equality in access to education.

Conclusion

The complexities associated with using technology in education and the common perception of decades of illusory promises for educational prowess by technology makes it difficult to embrace a single theory for this study. However, from all the theories that have been proposed, the activity theory has a better grip on the systemic context of this project. The main idea of Activity Theory is that all human activity is mediated, argued Georg (2011). Further, since "the primary unit of any analysis must be the activity itself, not any one of its elements" Georg (2011), the activity of bringing access to Higher Education to the underdeveloped cultures seems to fit perfectly in the activity theory. Let us consider the four encompassing ideas in activity theory as described by Engström in the context of this study.

- The activity described in this study consists of multiple elements and their relations. Those elements are the teachers, the students, the videoconference

equipment, the technicians, the internet, and the learning materials. The work that makes up this activity is indeed hierarchical in nature.

- This activity system makes use of mediating artifacts as prescribed in the activity theory, and they are not restricted to any particular element making up the activity system.
- This activity system (elements, relations, and mediating artifacts) will evolve over time as more schools join in and bring mores resources and ideas to the table.
- Contradictions within and between activities will provide the tension that is required to effect evolution.

All things considered, this study benefited from the application of the activity theory as its encompassing framework. The lessons learned from the case studies above will help in deciding on the feasibility of a VMC instructional model and delivery in this study as they each contain some or all of the critical components that may contribute to its successful implementation.

Chapter 3: Research Method

Introduction

This qualitative study was an attempt to determine how videoconferencing technology can be used to provide access to higher education at a significantly reduced or no cost for low income high school students in underdeveloped countries. The objective was to enlist the support of Haitian professionals living overseas and other scholars who would be willing to donate an hour or two per week from their own homes or offices to teach high school students in Haiti who wish to attend college but cannot afford to do so. Since distance learning may not be suitable for these students in their current situation, a central location equipped with computers and videoconferencing technology would be ideal for attending class collectively. Therefore, the main focus was to develop the framework for a model that could be implemented in Haiti as well as in other situations.

This study used the activity theory framework to document daily situations and potential contradictions that may be caused by the introduction of the videoconferencing model in providing access to higher education for the Haitian high school students otherwise unable to afford college. Those contradictions helped determine whether the model would work. First, it would be a culture shock for the participants as emphasized by the tenets of the activity theory, where artifacts and mediation tools play prominent roles (Georg, 2011). The focus on group activity and interactions conditioned by the social (one central location), technological (videoconferencing), and intellectual

(volunteer professionals from overseas) resources to which they have access (Georg, 2011) formed the basis of this empirical investigation.

Methodology: Activity Theory and Ethnographic Field Trial Research

Activity theory is said to be concerned with the process of mediation: how practical activity shapes and is shaped (Meyers, 2007). Activity theory is also based on the principles of contradiction and contends that contradictions within and between activities provide the tension that is required to effect evolution (Georg, 2011). The situations at hand involve a poor architecture not suited for any technological innovation in a culture where a population that strives for a chance to attend college would welcome even basic educational opportunity. Contradictions will certainly arise as new models are proposed. Thus, a two-way videoconferencing instructional model with volunteer instructors and partners from the United States and other developed cultures will indeed be a drastic socioeconomic change in this context. Activity theory expands beyond ethnography, which Johnson (2000) defined as "a descriptive account of social life and culture in a particular social system based on detailed observations of what people actually do." (p. 111). This ethnographic trial field study used activity theory to isolate and emphasize the artifacts and situations that are the most significant for its design. The following paragraphs describe the key concepts of this research approach: the activity system and the contradictions within the system as it evolves to foster positive social change.

Research Design and Rationale

Reeves, Kuper, and Hodges (2008) defined ethnography as the study of social interactions, behaviors, and perceptions that occur within groups, teams, organizations, and communities. They also argued that the central aim of ethnography is to provide rich, holistic insights into people's views and actions, as well as the nature of the location they inhabit, through the collection of detailed observations and interviews. This study focuses on the quality of the Haitian high school students' experience and strives to describe and understand the essence of what they go through and how they cope with their situational limitations. It is fieldwork, which Wolcott (1995) defined as a form of inquiry that requires a researcher to be immersed personally in the ongoing social activities of some individual or group carrying the research. As such, the study naturally lends itself to ethnography, which is, as demonstrated above, is qualitative in nature, although it could be argued that quantitative methods may be needed for anthropological ethnographic studies (Whitehead, 2005), which is not the case in this context. A quantitative approach would have forced this study to be focused on more measureable factors that would not have necessarily addressed the real issues facing those students. The objective here was to integrate more subjective human experience in this context rather than purely objective external reality that undermines the essence of what this study is attempting to uncover. This study did not attempt to quantify the Haitian high school students' experience but rather to understand meaning through the contradictions (if any) within the system to which they belong and understand how it can evolve to provoke positive social change.

Research Questions

The model developed in this study was contingent on the willingness of the natives of Haiti who have studied and live abroad to volunteer their time to teach students from their respective locations. In a field trial research such as this one, the successful implementation of the model may be a prerequisite to an objective exploration of the question. The multiple voices of the activity system must be heard prior to implementation, and the viewpoints, traditions, and interests of the entire community must be considered (Georg, 2011) in answering the fundamental question: How best can technology be employed to compensate for the lack of educational facilities in the underdeveloped culture of Haiti? To this end, discussions were held with the key informants selected from participants.

Participant Selection

The participants consisted of member of one unit, which is a classroom of with 20-25 students as they are accustomed to attend in their current settings. There was no difference in course content between the students' other classes and the participant class other than the mode of content delivery. The selection of the class to participate was not announced until after all the students have registered for a particular class to prevent selection bias. Then the informed consent forms were distributed.

Role of the Researcher

As the primary instrument in this study, I was deeply involved in the data collection process as a participant observer. I participated by interviewing and surveying

the participants while observing. That is, I conducted most of the work via videoconferencing as a means to mirror the implementation method and better understand the challenges that it might have posed for the participants. Because this is a technology-mediated ethnography, there may be concerns that the mandatory rules imposed by the Institutional Review Board (IRB) will not be sufficient to unravel all the issues of such method (Esposito, 2011). In collaboration with the school principal, I helped set up the classroom equipment and the number of classes that participated in the project.

As Esposito (2011) argued, because they are made by a complex blend of social norms, values and legal issues in online settings are dependent on national and local traditions, and refer to different philosophical frameworks of ethics. This is where activity theory is useful as mediations of the interactions between the community and the subjects under study become necessary.

The unique context of this study requires a unique approach to inquiry as it involves pulling together semi disparate resources for the purpose of a change to which the immediate context of the subjects is not conducive. Arguably, there is no longer anything complex about using videoconferencing to facilitate learning as can be seen in the many different contexts explored in this study. However, the uniqueness of this study and its context stems from the fact that though it may be relatively easy to exploit the value of such ubiquitous technology in developed cultures, it still remains out of reach for students in underdeveloped countries such as Haiti, where owning even a refurbished computer is a luxury. Thus, the potential feasibility of using a central location where

videoconferencing hours are donated to these students by instructors living in different states or even overseas is what is being analyzed in this study. There is little doubt that many necessary contradictions will arise as a result of the introduction of a new model into a barely defined and nearly stagnant activity system where the subjects are either inert or waiting for a miraculous breakthrough. The role of the researcher is then intertwined with the complexity of the data gathering process. Thus, in this context, the researcher cannot be a simple observer. Nonetheless, the ethical protection of the participants of the study was not undermined, as every precaution was taken to ensure that they were all aware of the purpose of the study and that there were no incentives to participate other than to attend classes offered via videoconferencing by experts from diverse backgrounds for free. In addition, the participants were informed that they would be interviewed before, during, and after the observation period and that the anonymous assessment data would be made available to the researcher. Also, participants would be involved in an iterative debriefing process, would be allowed to withdraw consent at any time and would be able to communicate to the researcher if they had any objections to being directly quoted by future researchers or if they would rather withdraw (Esposito, 2011).

General Model of Teacher-Student Activity

Historically, the Haitian educational model is a teacher-centered model from my personal experience. According to Näslund-Hadley et al. (2009), the shift from teacher-centered to student-centered learning represents a daunting pedagogical challenge in

Haiti. Students go to class and get lectured to. Then they go home to study without access to any lab materials and come back to school to regurgitate the knowledge they have memorized. There lies a source of contradiction within the existing system as instructors with different teaching styles come in via videoconferencing to propose that students play a shared role in their learning. The key stakeholders may wonder if that is even possible. In terms of aligning with the of activity theory, the context is defined as the acoustic classroom equipped with computers and video conferencing technology (mediating artifact), the students, the onsite facilitators, the offsite instructors (the community), and the internet connection as shown in figure 2 in the previous chapter of this study. This new approach will certainly change their perceptions about teaching and learning. This is what Engeström (1991) described as expansive learning. Contradictions, in the context of expansive learning, argued Engeström (1991), are necessary for changing activity systems. Thus, this innovative idea of using a one-to-many videoconferencing model to facilitate access to adequate education for the students of Haiti could have been provoked by the very contradictions within the system. Figure 3 below provides and overview of the expansive learning concept as it applies to this study.

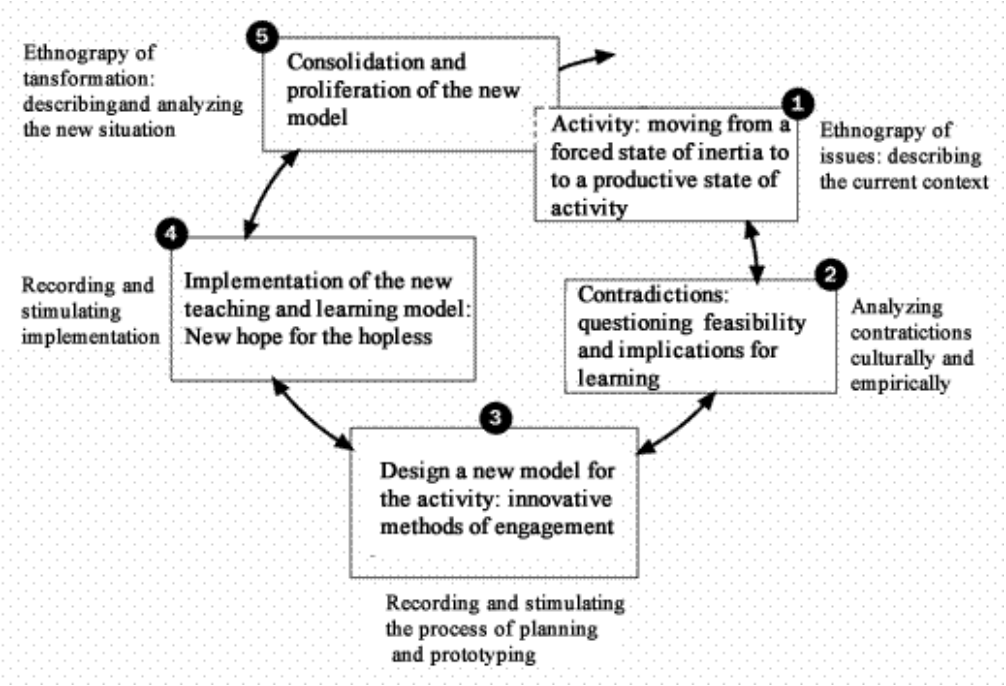

Figure 3. Expansive learning cycle. Adapted from "From activity to learning: using cultural historical activity theory to model school library programs and practices." by Meyers, 200, *Information Research, 12*(3) paper 313.

Instruments for Data Collection

During the initial data collection the researcher held face-to-face discussions and interviews with the participants as a means of getting familiar with their particular context and to design a learning model that supports the community of practice while creating a paradigm shift. At the same time the key stakeholders were given the opportunity to explore the new model of learning that may open a door to higher education for many who find themselves in similar situations. They participated either as students or as facilitators who are intrinsically vested in the project. This open forum l created a setting for the stakeholder to express any contradictions that may exist in their

interpretation of the new model as well as addressing the challenges that they may face in implementing it. The main purpose of these repetitive research activities was to promote evidence-based learning through a model that has not been explored before. These instruments were revised iteratively to better align with the evolving process of acclamation for both the researcher and the participants as shown in Table 1. After the interviews and the other activities the model was be formulated and it was used and implemented and the results or the outcome were be discussed.

Table 1
Aligning the expansive methodology with research methods and instruments

Expansive methodology	Research methods	Instruments of expansion
1. Describing the current situation and concerns	Observations, interviews, document analysis	Interviews
2. Analyzing and modelling contradictions as the new model is introduced	Iterative analysis. Interviews and discussions	"What if?" scenarios. Student engagement interviews
3. Constructing the new model of activity	Researcher interventions: open dialogues	Student interviews
4. Implementing the new model	Site visits and interview via Videoconference Technology	weekly report
5. Evaluating the new model	Observations, interviews, document analysis	Final report

Table 1. Aligning the expansive methodology with research methods and instruments. Adapted from "From activity to learning: using cultural historical activity theory to model school library programs and practices." by Meyers, 200, *Information Research, 12*(3) paper 313.

Implementation Time line

• Second series of interviews	September 15, 2015
• Third series of interviews	September 22, 2015
• Fourth series of interviews	September 30, 2015
• Data collection and Analysis	October 2-15, 2015
• Reporting Results	October 30, 2015

Data collection

The data were drawn from interviews (See Appendix A, B, and C) with the school officials, the students, and the instructors corroborated with the hours spent observing the same participants classes engaged in classroom activities via videoconferencing. The data was collected over a six-week period. The field site was a 50-year-old high school in one of the major towns of Haiti representing a diversified sample of students of different socioeconomic backgrounds and community demographics.

During the 6-week period, a series of interviews took place between the researcher and the school administrators (a total of 3 interviews), the instructor (2 interviews) and the students (10 interviews). The lab technician's perspective was also sought via informal and formal interviews before and after the study due the fact that he was be responsible to support system that was to be implemented at the school. These interviews were scheduled occur on a weekly basis via videoconferencing and via email. The interviewees were asked to evaluate their experience with each of the activities such as attending the virtual classes, the lecture atmosphere, the student-instructor interactions, and the quality of instruction.

Data analysis plan

Data analysis was done daily on the recorded classroom sessions and the research was directed in accordance with the emerging issues as data were collected. A password protected online learning management system (LMS) was used to store the data. The instructor was asked to provide a weekly report on student engagement in and off the virtual classroom on the LMS as a means of conveying to the instructors the serious nature of their contribution to the project. The collected data was compiled and analyzed for consistency and contradictions between students' perception of the videoconferencing model of teaching before and after the six-week period.

Setting

The study will use Skype VMC as a method of delivery of higher education to HS graduates from a selected school in Haiti. The school is located at the heart of the city, which facilitated the implementation of the technology in terms of consistent access to electricity and Internet services. All that was needed is to prepare a large enough classroom for the synchronous video-mediated class sessions. The instructional model used in the trial will be developed as part of the actual project.

Being the first person to raise awareness to the possibilities being investigated in this study gives me the unique advantage of having direct access to the data. Hence, I was a participant observer. As much as I want to believe that I know what these people have been through and are going through I cannot deny the fact that I have not lived their most

recent experience. Hence, I must adhere to the rudiments of sound research and be a true observer for the purpose of generating a good research study.

Observation and Document Analysis Protocols:

- Description of the setting of project implementation;
- Identification of the participants
- Description of the content of the project;
- Documentation of the interactions between implementation staff and project participants;
- Description and assessment of the quality of the implementation of the project; and
- Documentation of unanticipated events.

Patton (2002) noted that interviews will have some limitations as some of the responses may be distorted due to personal bias, anger, anxiety, politics, and simple lack of awareness. In Haiti's particular case, after an earthquake of such magnitude and the damage that followed, the emotional state of the potential interviewees may affect the reliability of the data in an undesirable way. Caution will be used to ensure that the potential interviewees are selected from a group that was not directly affected by the earthquake though it is hard to imagine that such people would exist anywhere in the country. Three interview approaches will be used: (a) informal conversational interview, (b) general interview guide approach, and (c) standardized open-ended interview.

Issues of Trustworthiness

The nature of this qualitative study may cause a potential reader to question its trustworthiness for different contexts and cultures. However, care will be taken to provide adequate details of the context in which the study will be conducted to ensure transferability of the findings. Other situations will be considered in light of the current setting for similarity to justify the application of this study on a broader scale. Given the fact that there may be many underdeveloped cultures where access to higher education is very limited, it should not be difficult for future researchers to replicate this study in other settings.

Morse et al. (2008) argued that qualitative researchers should reclaim responsibility for reliability and validity by implementing verification strategies integral and self-correcting during the conduct of inquiry itself. The application of the current study is imminent as the motivation for conducting it stemmed from observing a dire need for change and strong desire to foster it. Therefore, self-correcting verification strategies will be implemented with the involvement of all the interested parties because the results of the study will be a determining factor in choosing an effective strategy for fostering the needed change in the life of those young high school students (See Table 1 above). Those verification strategies, among others, will help me identify when to continue, stop or modify the research process in order to achieve reliability and validity and ensure rigor.

I understand that without rigor, as Morse et al. (2008) argued, research is worthless, becomes fiction, and loses its utility. The latter is too important for the stakeholders in this study to tamper with or taken lightly. Internal validity was insured incrementally by the fact that I, the researcher, was also an observer who is very familiar with the context in which the study is being conducted. However, I also understand that allowing the informants to answer interview questions as truthfully as possible, while maintaining neutrality as the researcher, so that their answers can be compared to my own observations made it less difficult to generate credible data. As Morse et al. (2008) argued, specific methodological strategies for demonstrating qualitative rigor, such as the audit trail, member checks when coding, categorizing, or confirming results with participants, peer debriefing (See Table 1 for details), negative case analysis (what-if scenarios), structural corroboration, and referential material adequacy will be implemented.

As for external validity, this study - addressed a problem that is shared across many cultures of similar characteristics as explored in this study. Thus, transferability is assured upon publication of the results if they prove to be in favor of using the proposed learning model to provide the participants adequate access to higher education within their context. LeCompte and Goetz (1982) stated that external reliability addresses the issue of whether independent researchers would discover the same phenomena or generate the same constructs in the same or similar settings. The random selection of the participants (a random class from school site) was significant in establishing

generalizability of the results. LeCompte & Goetz (1982) stated that Ethnographers enhance the external reliability of their data by recognizing and handling five major problems: researcher status position, informant choices, social situations and conditions, analytic constructs and premises, and methods of data collection and analysis. All of the above are applicable to this study as explained in the problem statement.

Ethical Protections of the Participants

The participants were informed that their participation was voluntary, without coercion, and with their informed consent as specified in the attached invitation letter and consent form (Appendix D). The key components agreed upon in the research community have addressed; the potential participants were fully informed about the research activity and given the respect, time, and opportunity needed to make a personal decision to participate. Additional steps were taken to protect those with diminished capacity to make an informed decision, which we did not have any. There was no potential harm to the participants in this study and the potential benefits are enormous. Moreover, equal opportunity was given to participants and no restrictions on who can participate was imposed except for those that are inherent to the study.

Summary

When I first embarked on this journey with Walden University I never thought my vision would become so clear and my passion for positive social change so fueled with numerous insightful ideas on how to be an informed scholar of change. It's been an incredible journey so far and I hope that this study is only one of many of the same

category. This proposal is inspired by a prevalent problem in many underdeveloped cultures as documented in chapter one: limited or no access to higher education for the majority of high school students for whom distance education is not even an option due to extreme poverty and poor educational infrastructure. The framework proposed in this study may help to shed some light on how to better address this phenomenon in order to bring about positive and lasting social change. All things considered, an ethnographic study seemed appropriate to raise awareness about this phenomenon and inspire other researchers to explore possible solutions to similar situations.

Researcher bias: Being a native of Haiti and particularly from the same town where the study is going to be conducted, I will have a vested interest in seeing the successful implementation of this project. Thus, playing the role of participant-observer may limit my ability to get the participants to provide me with the required information thereby posing a threat to the validity of the results. Ensuring that sampling criteria are met and adhering to the rudiments of my role as a participant-observer will help validate my results, especially due to the fact there is no possibility of interpersonal relationship with the participant that can "shape behavior in a way that is extraneous to the focus of the research" (Wilson, 1977).

Many of these potential problematic issues were addressed before the first stage of implementation took place. For example, asking open-ended interview questions such as those in Appendix A allowed the participants to freely express themselves without

constraint. Also, since no incentives were offered, the participants did not feel pressed to answer the questions in a specific manner for compliance.

Chapter 4: Data Analysis and Results

Introduction

In a special report published by the United States Institute of Peace (USIP), Luzincourt and Gulbrandson (2010) argued that to deal with Haiti's many pressing challenges, it will be necessary to develop a new approach to education based on equity, inclusion, and diversity. However, they also reported that of the 123,000 students admitted to Haitian secondary schools in 2004, only 82,000, or 67%, were able to receive secondary schooling, and most of those who completed their secondary schooling were unable to find a place in the universities. The situation has only worsened after the 2010 earthquake. The report further explained that the high school dropout rate is generally not reflective of a Haitian disregard for or disinterest in education; rather, it is an unfortunate consequence of limited family resources (Luzincourt and Gulbrandson, 2010).

The purpose of this qualitative case study was to explore the feasibility of using one-to-many video conferencing technology to alleviate the problem of limited access to higher education by allowing Haitian educators living overseas and other philanthropists to volunteer their time and knowledge for the benefit of the Haitian students. In order to investigate the use of videoconferencing technology to provide access to higher education for the Haitian high school students a classroom was set up in a high school in Saint-Marc, Haiti with a ceiling-mounted projector, a large screen, and a laptop connected to high speed internet. A volunteer instructor was recruited from the United States to teach an English course via Skype videoconferencing technology. The course lasted 5 weeks

and I attended every class session as an observer. To answer the question of whether the participants perceived this method as a feasible way to obtain a college education, an in-depth interview was conducted involving 10 learners, one administrator, the instructor who taught the class, and the lab technician who was responsible for setting up the classroom prior to the class sessions. The analysis of the data collected during the interview sessions and through observing how the technology was used to deliver instruction has revealed that this study has answered the two main research questions: How does one-to-many video-conferencing learning enhance access to education in Haiti? What are the experiences of various sets of participants?

This chapter is organized so that the major events that contributed to the success of the study will be described as they are introduced. A description will be given of the setting, the study site, and the way that the videoconferencing tool was used. Also, the answers to the interview questions by the participants will be discussed as they contributed to answering the research questions. In addition, a description of the setting where the classes took place during the study will be provided along with some demographic details about the participants. The data collection process will be explained as well as the method used to analyze the data. Great care was taken to ensure that the study was not adversely impacted to the point of losing its validity, as will be explained later in this chapter. The chapter will end with a chapter summary.

Data Collection

This study turned out to be more complex than anticipated in that it required several conversations between me and the site administrator to ensure that everything was on point for the study to begin. The physical state of the school was such that every piece of technology needed for the study had to be provided by me. The starting date for the class selected to participate in the study had to be changed several times until the site was ready. The first issue discovered was that the proximity of the school to a traffic-heavy street made it unconducive for the study. There were as many motorcycles traveling back and forth as there were people, and the school windows had to remain open to allow the hot air to escape and some cool air to come in. Otherwise, the heat would be unbearable for the participants. Air conditioning it was not feasible as electricity was only available two hours a day for the entire town. After two months of trying unsuccessfully to get a room ready for the study, a decision was made to move the class to an off-site location where there was less noise and where a projector could be safely mounted on the ceiling in preparation for the two-way video-conferencing class sessions. There was the issue of obtaining an Internet signal, which needed to be strong enough to keep the participants' attention focused on learning rather than on technological failures. After several conversations with the school principal and his lab technologist, it was decided that the best solution would be to move the study to a remote location one block away from the school where an acoustically satisfactory classroom could be used for the duration of the study. I agreed to take full responsibility for the cost of renting the room, acquiring high

speed internet service, and the electric bill for 3 months, which covered 2 weeks prior to the start of the study and one month after the study, for the Skype interview sessions with the participants. In addition, I provided the school with a laptop computer and a projector which would stay at the school after the study was completed. Fortunately, all accommodations were completed in a timely fashion for the study to take place, with some minor delays. The recruitment of participants and the in-depth interviews that were conducted at the end of the study will be discussed next in this chapter.

Recruitment

The high school site where the participants were recruited was intentionally selected by me. I believed that it was appropriate to conduct the study at my alma mater. The principal was pleased when asked to offer his school as the site for a doctoral study by a school alumnus. Upon receiving the signed letter of cooperation from the school principal, I made a special trip to Haiti to begin the recruitment process. Fortunately, recruitment was completed in one visit. It was encouraging for the potential participants to hear me introduced by the principal as an alumnus. Everyone was overly excited to participate in the study; nonetheless, after the purpose of the study was explained to a group of about 30 prospective participants, the consent forms were distributed and were signed by all those who were in attendance. Those who signed the consent forms were high school seniors between the age of 18 and 25 who were made aware that participation in the study was voluntary and that they would not be compensated for participating. They were, however, excited to be chosen to participate in a college level English course

that would be taught via video by someone living outside the country. To them, that was the best gift they could have received as they repeatedly expressed during the interview process.

Demographics

The only criteria that were required of participants to be in the study were that they should be 18 years old or older and that they were juniors or seniors in high school The school administrators were responsible to ensure that those criteria were satisfied. Ten participants were to be interviewed with open-ended questions as specified in the participant interview protocol (Appendix A). Among the participants interviewed were four males and six females. In addition, the school principal, the technology expert, and the teacher who taught the class were also interviewed. All interviews were conducted via Skype video and recorded on an Android phone. The recording was done impeccably and no data was lost. All the student participants were from the same institution and aspired to attend college or university in the near future if given the opportunity.

Setting

The school setting where the study was designed to take place is a typical low-income family high school in Saint-Marc, Haiti. The school has served the community for over half a century but never has had the resources to change its infrastructure. With no operating budget due the students' inability to pay the minimal tuition fee of less than 2 US dollars a month, the school has never been able to pay its teachers on time and some even go months without getting paid. Yet, according to the principal, every year the

passing rate on the national exam is 90% or higher. Those who are fortunate enough to find an opportunity to attend some form of post-secondary education generally jump at this chance. However, such opportunities are rare which is why the prospect of having access to higher education at a low or no cost to those students seems like a utopia. To the very first open-ended question they were asked during the interview about how they felt being in class that was being taught via video-conferencing, 100% (10) of the participants described their experience as a "dream come true" though they had to move to a different location to attend the video-conferencing class sessions.

The alternate site has proven to be an added bonus for the participants who did not seem to be affected by the change but rather enjoyed the more comfortable classroom, which was equipped with technology they were not accustomed to. Thus, none of the interview questions addressed the issue of setting and the class seamlessly became a convenient extension of their own school environment. The occasional delay in establishing the video connection with the US-based instructor did not seem to affect the enthusiasm of the participants who were far too familiar with power outages and poor connections. About 50% of the participants tended to linger for at least half an hour after the class was over wishing the class could last longer than hour. Others stayed to practice speaking English with their peers. One student reported during the interviews having told her parents after the first day of the class that she felt like she had just visited the US while still in Haiti. This is exactly what she said:

> I will tell you…when I got home the first day after class …oh…I told my folks that I .., I just visited the United States of America….That's how real it was for me. …They asked me how so? ... I told them that… that… my voice reached the US and … I could see someone from the US teaching me live via videoconference. How awesome is that! ...they were very excited for me. Let me tell you! ….I do not want this course to stop.

To the question about how it felt to be in a class that was delivered via video-conferencing there was not much difference in the participants' responses. In fact, 90% of them stated explicitly that it was their first experience having a live video interaction with someone in another country. Many of the participants reported this experience was so new to them that they felt compelled to share their stories with friends and family who in turn wanted to join the class. As participant 3 explained:

> It felt good to see how interactive the class was and …how patient the instructor was even when …we made mistakes. …Those of us who came the very first day, we were able to … inspire those who were not sure about the project. So….when they heard us boast about it…they made sure they attended the following session and they enjoyed it. ….We would not like this experience to end here. …We want it to continue.

Interviews

A Skype appointment was made with each participant who met the inclusion criteria at the site for the individual interviews. There were no exclusion criteria that

could restrict any of the actual participants since they were all 18 or older and were senior high school students aspiring to attend college. The interview process was explained to each participant immediately after they introduced themselves and they were informed that the interview would be recorded. As participants were thanked for their participation in the study, they were also reminded of the purpose of the study. They were also informed that their names would not be included in the study though they did not seem to be concerned about that.

At the time of each interview session the technology expert was onsite to ensure that the Skype connection is well established and the researcher could be seen and heard properly. The researcher then verified that there was no interference on his end especially because each interview was to be recorded by him. The interviews sessions were more successful than anticipated in terms of technology and logistics. The recording device was a Samsung Galaxy phone on which a smart voice recorder was installed. The clarity of the voice was impeccable and every word from each interview was captured. The interviews went smoothly but none of them took the whole hour that was allotted to them. For example, when asked to discuss the pros and cons of using the video conferencing method none of the participants could find anything negative to say about the method and urged the researcher to find a way to implement it as a permanent solution to their current dilemma of little or no access to higher education.

As should be expected every interviewee added his or her own flavor to the interview. Thus, some notes were taken to facilitate the transcription process and the

analysis of the data. Fortunately, the interviews were done in the same manner the month long course was delivered: face-to-face via Skype technology. The interviews were uploaded all at once to a cloud space on Google drive and labeled individually awaiting transcription by the researcher

Transcription

The researcher took upon himself to transcribe the interview data for the following reasons:

1. The interviews were conducted in creole. Thus they had to be translated and finding a bilingual transcriber would have been hard.
2. The researcher knows creole fluently as he was born and raised in the Haitian culture
3. The researcher was confident that he had the skill to transcribe the data with accuracy as he is able to better interpret the body language of each participant having been immersed in that culture

The transcription was successfully completed by the researcher and the transcribed data was uploaded to a dedicated cloud space on Google Drive.

Data Analysis

The data from this qualitative field study was analyzed with the help of a popular software application called NVivo. The findings from the study were documented and coded through the software. This process was completed by importing the participants' interviews individually as participant1, participant 2, etc.…into the software and using its

coding tools to code the data. The software proved to be very useful for this type of study as it allowed the researcher to better organize the data for proper analysis. The software helped the researcher to summarize, analyze, and make inference from the data as recurring themes were identified and grouped together into specific nodes such as participant experiences (Appendix E), learning outcomes (Appendix F), technological challenges (Appendix H), and student engagement to allow the researcher to provide a clear link between data collection, analysis, and interpretation. The quest to identify recurrent themes in the data has helped the researcher to answer the main question of the study, which was to determine whether the use of one-to-many video conference learning was a feasible method of enhancing access to education in this context.

Evidence of Trustworthiness

As documented in chapter 3 of this study evidence of trustworthiness is paramount to ensure credibility, transferability, dependability, and confirmability in the study. The different methods used to uphold these principles are described in the following paragraphs.

Credibility

The fact the study was conducted in a foreign country could have been a threat to validity if the researcher's only means of communication with the participants were email or sporadic phone calls. Measures were taken to maintain to ensure a prolonged engagement with the participants including two trips to the site and constant communication via Skype prior and after each class session during the study. The fact

that the researcher was a quiet observer throughout the entire study made it easier to confirm and keep in context the responses provided by the participants during the interviews. The small size of 13 total participants including 2 administrators and the instructor did not impede saturation judging by the abundance of recurring themes gathered from the participants' responses.

There was constant unsolicited feedback reported by the principal from the participants. Some wanted to know what's next while others expressed their desire to start to repeat their experiences during the study. Their post study feedback remained consistent with the answers that provided during the interview process. For example, the principal enthusiastically declared:

> I was amazed by the flow of phone calls that I received immediately after the class ended. I mean… it was amazing! Those parents expressed regrets for…. Um… not having been invited to participate in the study along with their students…Wow! That was definitely good publicity for the school… It's like…they felt like …something good was finally happening at my school…I felt so proud… They were begging me to start over…Wow!

Transferability

Transferability of the findings might be difficult to establish due to its limited scope: a single geographic location and small participants 'pool. However, Haiti is not the only country with a poor infrastructure and limited access to higher education. Thus, the findings from this study has potential to generalize to other underdeveloped countries

with similar circumstances and there are many. Furthermore, the striking similarities among the participants' responses seem to support the generalizability of the study results.

Dependability and confirmability

Grouping the recurring themes in the participants' responses through nodes creation in the NVivo software was key to confirmability and dependability especially when these themes resurfaced in the participants' post interview unsolicited feedback which conveniently served as audit trail and peer debriefing (Morse et al., 2008). In addition, the researcher's interpretation of the results was consistent with the participants' feedback. Those are, among others, the strategies that were used to demonstrate qualitative rigor during this study. Since dependability refers to the stability or consistency of the inquiry process I took several steps to ensure that. I was very careful about the research process. When I visited the site and tried to demonstrate the method to the administrators I quickly realized that the location was not suited for the study. I immediately shifted the venue of the research site in order to carry on the process smoothly and offered to pay for remodeling a new location including internet service, electricity, projector, large screen, and a laptop computer. In addition, I ensured that those who participated in the study really wanted to. I observed their patterns and behaviors during my visits to the school and only called on those who showed real interest. Finally, to ensure consistency of the data, all the interviews were recorded and carefully transcribed for accuracy.

Confirmability refers to the extent to which the results could be confirmed or corroborated by others. To that end, the participants' enthusiasm in expressing their views will suffice. For example, one participant thought on the first day of the class that she had just visited the USA: "when I got home the first day after class", she stated, "I told my folks that I .., I just visited the United States of America….That's how real it was for me". Even the parents, who were not in the class expressed to the principal their hope to see this method implemented everywhere in the country. The instructor refused to accept that she has given anything to the students despite their overwhelming expressions of gratitude. She stated at the end of the study: "I am the one who is grateful for such an awesome opportunity. It is a dream come true and I am ready for the next class".

Results

The NVivo software was instrumental in helping the researcher with the coding process which was needed for the analysis of the data obtained from the open-ended interview questions answered by the participants. There were only two questions that needed to be answered in this study and this section will identify the findings that provide an answer to those questions.

Findings on the Main Research Question

The main research question of this qualitative field test study is: How does one-to-many video-conferencing learning enhance access to education in Haiti? Answering this question required first to investigate whether the site was conducive to such study given the immediate economic condition of the country as a whole and the little town in

particular. A trip to the site revealed that there was no infrastructure to support the study, which prompted the researcher to invest in creating an acoustic classroom equipped with a ceiling-mounted projector and a large screen. In addition, a high-speed internet connection had to be acquired along with a reliable uninterruptible power supply to offset the constant power outage in the area. This infrastructure upgrade delayed the study by two months. However, once the work was completed the communication between the site and a potential instructor residing in the US or elsewhere became almost impeccable. Thus, among the questions that were asked of the participants, at least two addressed the issue of their comfort level with the setting and the technology used in that context. The responses provided by the participants in the open-ended interviews provided an answer to the main research question.

Classroom Setting

The purpose of this study was not to propose a shift from teacher-centered to student-centered learning as it would be a daunting pedagogical challenge in a country like Haiti (Näslund-Hadley et al., 2009). Thus, care was taken in order not to drastically depart from the class setting that those students were accustomed to: the physical presence of an instructor in front of the class delivering instruction and engaging students. As participant 2 put it “The advantage of using this method lies in the fact that as students, we were able to see our instructor and interact with her as we normally would in a face-to-face setting”.

Participant 4 exclaimed:

> Wow! If this is how distance education is done then …only those who do not want to learn will fail. Seriously! I mean…It is very unique and… exciting and it does take away anything from face-to-face education in my opinion… Look at me ...um… I can almost speak English fluently as a result of this experience.

It was crucial to ensure continuity in the way students in high school in Haiti like to interact with their instructors while offering them the option to improve on those methods through the use of technology especially in trying to benefit from the experiences of alumni's living overseas.

Participant 5 explained,

> I really love this method… To me …it is a very good one because…in Haiti, we have institutes and regular schools…um… there is a big difference between the two. So…when you attend classes at an institute… you find exactly what happened in this course. You know… it's very pragmatic and …very engaging. Regular schools have an approach far less engaging than this. I can tell you that... They mostly teach you grammar… I have to be honest with you on this… I too teach English from 9th grade to 12th grade and… I wanted to take the course and see if… you know…I could learn something new from this experience. Oh…I never want to miss out on an opportunity to learn. Wow...I can only thank God and your team for the awesome job that you have done in setting this up.

Reflecting further on this experience the participant further added:

> Now you know… I can teach English with confidence because I learned the proper pronunciation of many words that I used to struggle with… Watching the instructor's lips via the video has helped me tremendously. I mean… don't get me wrong…I have books and dictionaries but… that was not enough. I think that… as a result of this experience, I am ready to propose to my principal that we change the curriculum to utilize your method from now on.

It was also important to help the school administrators to look beyond their limitations in terms of resources and their current settings. After the study was over the school principal was able to issue a statement about the effectiveness of the method. This is what he exactly said:

> How can I say this? ...Not only this method could help improve education in Haiti but also….um… when we talk about globalization, technological divides, etc.… this would close so many gaps between us here and ….the more advanced countries. I …um…certainly hope that this study will…um… open the door to opportunities unexplored until now by students like ours who usually find themselves at a dead end after high school…Thank you for choosing our school for such a…um…such an important study and we wish you all the success in the world.

The Technology

The use of modern educational technology of any sort was totally new to the students in that school. One of the ways to assess the feasibility of using the

videoconferencing method to deliver instruction was to discover whether its use would be a distraction from or a hindrance to learning. To one of the interview questions regarding using this method the principal responded:

> Well…what I have experienced is that…um… I have come to the realization that …um…we are very far behind in education in our country and that put us at a serious disadvantage. Oh…I looked at my students participating in the study and… they were glowing… They were so excited and they could not wait for the class to begin every time…I am so happy we had a technician who was very knowledgeable. It made such a difference.

It's worth noting that having a qualified staff is essential to the success of using this videoconferencing as a permanent method of delivering instruction. Questions about technical difficulties, power outage and communication problems were asked especially of the administrators and lab technician who had this to say:

> Well …certain conditions have to be satisfied in order for that to happen:…um… reliable infrastructure which includes a…um… persistent electrical supply and a strong internet signal like… the one we had here and that… costs money…If those conditions are fulfilled… I see this method as the wave of the future for the Haitian students because ….on your side the Haitian professionals can offer a course at their own leisure and…um… on our side students can come to a central location to attend classes as they would normally do.

When asked about whether videoconferencing could be a feasible method of direct instruction for college students in Haiti with the help of Haitian professional living overseas, the lab technician replied:

> Actually…I think that using videoconferencing as a method of direct instruction would be one the best ways to…um… share elements of cultures among students around the world… Let's take the instructor for this course for example… As she was presenting her lectures she ensured that she matches her lectures with the reality in Haiti while helping her students to understand the culture differences between here and the US where she was teaching from. …Sometimes…um… she would still be at work and… she would use the opportunity to educate the students about what she does in her line of work and how it's done in America. That was…. Awesome! The students were so grateful for that experience… This is a method that many countries besides the underdeveloped countries can benefit from.

The students' perspective on the use of this method was even more crucial to the study as they are the ones who either benefit from its success or suffer from its failure. Through their candid and honest responses the participants have provided the information needed to answer the central research question on the manner in which video-conferencing learning can enhance access to education in Haiti. As they recounted their experiences during the month long study it became evident that the question of feasibility has been answered. It was found that even though their answers were not as lengthy as

those of the more experienced lab technician their input were no less valuable. It is worth noting that this group of students as many others in the underdeveloped world is no stranger to technical difficulties and delays. Participant 7 noted:

> Um…Life happens... Technical difficulties will arise with or without the use of technology… As for me… regardless of delay or any other technological issues, I love the fact that I could see and hear my instructor as if she were in the same classroom with me…There cannot be anything negative about that.

The instructor's point of view was not overlooked as she happened to be on the other side of this experience. As indicated in chapter 3, the instructor's perspective will shed light on whether the experiences on both sides are equally gratifying, that in the end those who voluntarily agree to give back to their community really feel that they have accomplished something worthy of their time and efforts. When asked about her first experience facilitating a class via videoconferencing technology the instructor in the study stated:

> It was very interesting... Initially I…, I did not expect that much interaction. I really thought that because of the distance and hmm…the mode of delivery I would have very limited interaction but…. it turned out to be a very positive experience. I mean…despite the fact that we could only see each other on video did not keep the students from raising their hands to ask question. It was just wonderful…they would approach the microphone as if it were the normal thing to

> do. Yeah …it really felt like I was in there with them in front of the class in the same room with them.

This instructor was effusive about the effectiveness of the method. She continues:

> It is very rewarding to me to be able to share my knowledge and experience with my fellow Haitians from the comfort of my own home... I have always wanted to give back….just…to find something to do that would help the younger generation. I am so grateful to have been given this opportunity… I feel like I am the one who is getting the most out of this experience… It was like … Wow! It was amazing … I could not believe that I was actually doing something that I have always wanted to do but…I did not know how to… I … I feel energized to do more… I am now ready to teach any subject within my field of experience while…um… being at home with my family… I will make room in my calendar to this anytime.

A breath of fresh air is what would summarize the experience of these participants who could not see any opportunity to learn anything beyond high school unless they studied on their own which would still require that they have access to some kind of knowledge. With limited access to electricity, no access to the internet, and no way of attending college away from their home town higher education seemed to be completely out of reach for them. This is probably why participant 4 spoke on these terms toward the end of the interview:

> I hope this study brings a change in our educational system… This experience was so great that… I would like it to continue. So …um… what are your plans for the students of Haiti beyond this study?

To which I replied:

> Well … my goal is publicize the results of the study in order to enlist the support of fellow Haitians living overseas… and other philanthropists to help those with limited access to higher education through videoconferencing technology if it proves to be a feasible method. …Thank you so much for your participation.
>
> He fired back saying:
>
> Are you kidding me? …This is something we have been waiting for…It's a great thing… the advantage of using this method…um… lies in the fact that … as students, we are able to see our instructor as we would normally in a face-to-face setting …wherever the instructor might be located. Wow! … to me it is the same as face-to-face…what about you? …what do you think?

I concluded the interview by assuring the participant that I was more interested in what they, the participants think about the method and I appreciated their honest answers and their enthusiasm in participating in the interview sessions.

Learning Outcomes

Now the real question to be asked was whether learning did actually occur given the fact that this is a study of feasibility. Future work should provide a full study of efficacy. Thus, the feasibility of using videoconferencing method in this context relies

almost exclusively on whether the students actually learned. Otherwise, it would be pointless to do all that work. Fortunately, as shown in the interview responses below, the participants' account of their learning was overwhelmingly positive. Participant 11 reported:

> I have learned so much in this course that … I …oh my God! … I would like the whole nation to be given the opportunity to learn in such manner.

Participant 12 took it a step further in providing more details about how much she had learned:

> Oh! … It was good..... I never missed a day. I mean, why would I?,,,,, I can only thank you and my instructor for this opportunity. And….um… though I cannot remember everything that I learned during this brief period of intense learning ….I can assure you that I have retained at least ….um…85% of it and that's a lot…I like the dialogues between two students the instructor encouraged and… the way she corrected us when we made a mistake….I just like the way everything flowed together to help us learn…It was fantastic!

When asked about her overall experience, as quoted earlier participant 10 was ecstatic and emphatically requested that the course continue beyond the study:

> I will tell you…when I got home the first day after class …oh…I told my folks that I .., I just visited the United States of America….That's how real it was for me. …They asked me how so? ... I told them that… that… my voice reached the US and … I could see someone from the US teaching me live via

> videoconference. How awesome is that! ...they were very excited for me. Let me tell you! ….I do not want this course to stop.

Participant 3 expressed similar concerns about the next step beyond the study may be:

> In reality …it felt good to see how interactive the class was and how patient the instructor was even when we made mistakes. …those of us who came the very first day …um…we were able to inspire those who …um…were not sure about the project. And….when they heard us boast about it, they made sure they attended the following session and they enjoyed it. …we would not like this experience to end here. …We want it to continue.

It was evident from our observation that learning did occur not only because of the level of enthusiasm among the participants but also because what they all wish to happen beyond the study. Participant 5 summarized this concept in these terms: "I hope that all educational entities get to know about this method and use it to enhance education in Haiti. It's such an awesome way to learn."

The participants' responses reflected that the use of videoconferencing did, in fact, enhance their learning and could help provide access to higher education. This task was until now nearly impossible to achieve for this underprivileged community.

Findings on the Second and Final Research Question

The question was: What are the experiences of various sets of participants? Most of the questions in the open-ended interviews were designed to address this very

question. The participants' answers provided for the recurring themes that spoke to their unique experiences with issues like classroom interaction, collaboration, and a sense of accomplishment.

Classroom Interaction and Collaboration

One of the potential challenges to address regarding the feasibility of using videoconferencing technology to help educate the Haitian students was how to overcome the culture shock that would have resulted from the sudden shift from the known to the unknown. Thus, the participants were asked to speak of their experiences in that regard. Their responses were remarkably very similar. For example, participant 6 noted:

> To me …um…this method is just like face-to-face. I mean…if everything goes right technologically then …um…it lacks nothing that a face-to-face class can offer. That's the bottom line…
>
> Actually… at first I was a little nervous because…um… I knew that I was being watched up close by my instructor and ….um….there is something about being on camera that kinds of …you know….frightens me… but I quickly got used to it and the rest was …history.
>
> Participant 5 said of the interaction in the classroom:
>
> I will tell you this…from what I know about distance education, it's ….um…pretty dry. I mean….they send you materials and books via mail. That's it …You study on your own…. at your own pace of course but… that's about it. …you have to be disciplined….highly motivated, and very smart to stay in the

> course. This method, however ….gives a new meaning to distance education because ….you can almost remove the word "distance" from it. …I love it!

Even though the focus of my study is the participants in Haiti yet the instructor who is from a different culture played a vital role in this experiment. Therefore it is important to find out what the instructor felt. She spoke of her experience in the following statement:

> Well… I did not design the course. I mean…it was handed to me as is by the school and I followed the format all the way because I could see that it was very effective. I mean, what more could I ask for? Why change something that works? Hmm…when I assess the student learning, something I did every class by the way, I was amazed to see how much they have learned in such a short period of time. It was incredible! So, if you ask me, I like the format very much. I like the fact that my students were able to ask questions and I could see by their body language that they were very comfortable with the materials as well as the setting. When I shared my screen with them, oh my…! it was as if I were physically in the classroom projecting content on the screen for them. It was fascinating to say the least… Also, being able to see my students and be seen by them allowed me to assess my own teaching style and make adjustments as the class goes. This particular class was very enthusiastic. They spoke up when they had questions, they were always on time and the majority of them had perfect attendance. I have never seen anything like this... I would say… yeah, they liked the setting very

much. They were very excited as young people can be and …they seem to enjoy the learning experience.

The student responses were so good that the instructor felt overwhelmed about the opportunity to participate in this experience. Indeed, the participants' experience seemed to have been a positive one all around. They could not see anything negative about the method even when the question was asked more than once as can be seen in the statement from participant 10:

> Even though we could only see our instructor on a screen…well… we got to know her on a personal level as if she were next to us. I mean…she could not only lecture but …she could also demonstrate learning through gestures and props… um...I can't see anything negative in that.

The answers provided by the participants were consistent with their behaviors throughout the course. They were always punctual, enthusiastic, and eager to learn. Some even showed up about 15 minutes before the class began and waited patiently for the instructor's arrival on the screen. As an observer, I felt obligated to be there along with them while the lab technician was making sure that the technology works well on his side. Their attendance record was impeccable. They enjoyed the fact they were able to actually learn from someone who was so far away but yet felt so close to them at the same time. The instructor was even more amazed than the students as she explained:

> Basically… these students were always excited and eager to learn… As I stated before, they were always on time and motivated to participate in their own

> learning even at the very last minute of class. …They did not seem to need anyone to motivate them. It was …um…amazing! …I never expected that. …I can't wait to do it again.

If nothing else would convince someone that this study was important this participant's plea will:

> . I must tell you… that… when you came and asked us to participate in this project… I did not think it was going to happen. ...when I heard the principal announcing the date of the course I just said to myself: …"I will believe it when I see it". So …I was pleasantly surprised to see it come to fruition so successfully. …Thank you and congratulations! …I wish the course …did not have to end. Please help make this a reality for us!

It was difficult for me, the researcher, as could be expected, to contain my own enthusiasm as I observed the participants' reactions class after class. I too was faced with the same uncertainties when I finished high school. I was fortunate enough to travel to the US where I started college at the age of 25. I became very emotional as I listened to their stories and their plea to keep the project going. One participant said this: "I would like to have another experience just like this one…. I … um…I want this …to be the new norm for the whole country because it….um… it gives me hope for the future."

Another participant shared his hope and concern as he said this: "I ...um... hope this study brings a change to our educational system… This experience was so great that

I …um …would like it to continue. …What are your plans for the students of Haiti beyond this study?"

When participant 5 was asked whether he could see any disadvantages in using videoconferencing as a solution to their current crisis, he provided an answer that almost brought me to tears when he said:

> Disadvantage? …well… the only disadvantage would only be to never hear from you again and … um …for the study to just be one among many fruitless studies that we have heard about. This …..is a good thing and I would for it to continue.

One has to be there to witness the joy on the faces of the participants as they recounted their experiences and expressed their gratitude for having been chosen to participate in the study. Even the computer lab technician could not help but to commend the researcher on the initiative to conduct the study in Haiti. He said:

> You are a true scholar… You have inspired me to do more for my fellow Haitians …You are such a talented intellectual! …Thank you so much for such a wonderful experience! …You have proven that you truly care for these students … this is a project that is … um… worthy of all the praises that you have been receiving…thank you!

Having been raised in the culture I know what it means to be disappointed by well-intentioned people who simply could not deliver on their promises. What emerged in this study is that the participants came out with a glimmer of hope as they experienced something that they never thought possible: someone cared enough to do a study on how

to give them hope for a brighter future. As for the feasibility of using the video-conferencing technology to achieve that goal the data seem to indicate that there is nothing besides funding that would impede its success as a permanent solution to the problem at hand.

Summary

In spite of the difficulties encountered in setting up the study and the communication barriers between the researcher and the participants due to the geographical location of the parties involved, the content of this chapter will show that data saturation was achieved by the diverse responses from the participants and the similarities among those responses. The results of this study as presented in this chapter provide great insights as too the feasibility of using videoconferencing technology to provide access to higher education for students in underdeveloped cultures such as Haiti. As for the participants' experiences, one had to be there with them as I was to fully understand their excitement. They expressed their joy in participating in the study in so many ways that it is difficult to assess whether they knew that this experience would end someday. Their eagerness to learn coupled with their remarkable patience when on a couple of occasions they had to wait for the instructor who was caught in traffic made them the ideal beneficiaries of any positive change that the results of this study would inspire. The next and final chapter will consist of providing an interpretation of these findings as the research questions get evaluated for the possibility of fostering social change starting with the students of Haiti. It is a goal of this study, however, to encourage

future research in this area as the need for change is urgent and persistent. This is why the limitations of this study will also be addressed and efforts to circumvent those limitations will be addressed as well.

Chapter 5: Summary, Conclusions, and Recommendations

Overview of the Study

The new classroom equipped with videoconferencing technology such as a ceiling-mounted projector with a laptop connected to high speed internet has become a model classroom for College Mixte Saint-Nicolas in Saint-Marc, Haiti where the study was conducted. The school's administrators and students are now aware of a possibility for higher learning without leaving the country. They are all excited about the prospect of videoconferencing becoming the solution for the lack of facilities for higher education and an effective way to allow Haitian professionals who live overseas to contribute to the education of the younger generation. The school administrators are now looking for funding to build a larger classroom that would not only allow students to attend virtual classes but also to use as lab where they could review recorded lectures and do research. This study was conducted to determine the feasibility of the use of videoconferencing as a means of providing access to higher education to the students of Haiti who might otherwise have no hope of obtaining any formal education beyond high school.

In order to investigate the use of various educational technology tools in providing access to education or enhancing learning a literature review was conducted. Although videoconferencing has been shown in the literature as a common tool used for collaboration purposes even in education, no studies were found to address the issues of providing access to higher education for the students in underdeveloped cultures such as Haiti. The studies that came close to addressing the issue such as Simon et al.'s (2014)

study about the experiences of students in a rural First Nation in Canada claiming their right to postsecondary education from their rural regions instead of moving closer to the universities in cities. However, just like the other studies reviewed, that study was more about a group exercising their right to choose how to attend school rather than trying to overcome what seems to be an unsurmountable obstacle for students in underdeveloped cultures. This study was designed to explore the feasibility of using a medium that students in developed cultures consider an alternate option for learning as a unique solution to the lack of access to higher learning for students in underdeveloped countries. This study is also an attempt to investigate the experiences of various sets of participants with use of a one-to-many videoconferencing technology in the classroom.

When it became evident that there was a gap in the literature concerning the issues at hand, this qualitative field test case study was devised to fill the gap by looking into how the use of videoconferencing technology could enhance access to education in Haiti and in other cultures with similar contexts. After several trips to Haiti, it was determined that the College Mixte Saint-Nicolas of Saint-Marc was fit for the study and an agreement was made with the school principal to use the facility and recruit participants for the study based on the criteria listed in the letter of cooperation and consent forms. Preparing the site came at a cost to me because there was no single classroom at the school that was conducive to uninterrupted one-to-many videoconferencing sessions required for the study. In addition, there was no internet at the school. All those factors contributed to a 3-month delay in conducting the study.

However, the study eventually began with the observation of a fully interactive English class that lasted 5 weeks followed by a series of in-depth open-ended interviews involving 10 students, the school principal, the English instructor, and the computer lab technician. All interviews were conducted via Skype and recorded on a Samsung Galaxy device. The transcription of the interviews was a two-step process as the interviews were conducted in the participants' native language (Haitian Creole) and had to be translated into English as they were being transcribed. It helped that I was originally from Haiti and had spent the first 25 years of my life in my home country. Thus, I spoke the native language as fluently as those who reside there. The data collected during the observation was stored in a learning management system that I chose. The answers to the open-ended interviews were coded and organized into themes using the NVivo software.

The successful implementation of this study, which was intended to fill a gap in the literature regarding the feasibility of using videoconferencing to enhance education in Haiti, is described in this chapter. To answer the research questions of this study the analysis of the results presented in the previous chapter will be evaluated and interpreted in this chapter. The NVivo software made it easier to address the recurring themes in the participants' answers to the interview questions. The themes were then exported in the forms of codes, which helped in the discovery and summarization of the participants' experiences. The limitations of the study that may have resulted from the chosen methodology will also be addressed in this chapter.

Undoubtedly, this study is about effecting social change as emphasized in Walden University's mission statement. Therefore, the impact of the study on fostering positive social change in this poverty-stricken culture will be thoroughly documented in this chapter. However, this study does not provide all the answers to the phenomenon being studied. Thus, recommendations for future studies will also be emphasized before the closing arguments are presented.

Research Questions

The research questions of this study were:

- How does one-to-many video-conferencing learning enhance access to education in Haiti?
- What are the experiences of various sets of participants?

Interpretation of the Findings

As is common in qualitative field studies, this study sought to produce factual description of the lived experiences of the Haitians students in their natural settings. Thus, their answers to the open-ended interviews were the direct sources from which relevant statements were extracted for the purpose of answering the central research questions in this study. The findings, which are reported in chapter 4, will be interpreted in this chapter as they help determine the feasibility of using one-to-many videoconferencing learning to enhance education in Haiti. The experiences of the various participants, as they perceived them, will also be described here.

Textural Description

The main research question of the study was: How does one-to-many video-conferencing learning enhance access to education in Haiti? Thirteen participants, including 10 learners, 1 instructor, the school principal, and a computer lab technician, answered this question through the various responses they provided during the specific interview questions that aimed at obtaining individual insights into their view of one-to-many videoconference learning in their context.

Feasibility

To determine feasibility this study considered several key factors, one of which is the current infrastructure. At the onset of the study it was shown that the existing infrastructure would not support the implementation of the proposed program. However, it was also revealed that a small investment of less than $2,000 U.S. dollars could totally reverse the situation; that is exactly what it took to get the study underway. The main components needed for a successful implementation of the model proposed in the study were one good computer, a classroom acoustically prepared, a ceiling-mounted projector, and an uninterrupted high-speed Internet connection. It was crucial to get the participants' perspectives on the feasibility of using this method and their responses provided great insights into the issue. Every interview question related to possible technical issue or glitches was met with great enthusiasm as if whatever issue one might consider could not compare with that to which they were accustomed. Those behaviors were consistent among the participants regardless of their economic status, though there

were no significant differences in that regard. Above all, the study was completed without any major delay or interruption, which is worth noting in terms of determining the feasibility of the proposed method in this context. This leads to the second question of the study: What are the experiences of the various sets of participants?

The recurring theme in the participants' responses to the open-ended interview questions, as the coded data revealed, was joy and hope for the future. They were amazed at the effectiveness of the videoconferencing method, and more importantly, they were grateful for the learning experience. The instructor did a remarkable job, but gave all the credit to the learners as she thought that their enthusiasm was a source of encouragement and she felt compelled to do the same thing again. One of the hopes for a successful implementation of this method beyond the study was that Haitian professionals living overseas would welcome the opportunity to give back to their native country by volunteering an hour or two on a weekly basis to teach a class via videoconferencing without leaving the comfort of their own settings. Upon hearing about the study, many volunteers have come forward wanting to contribute to any efforts in that direction. As the experiences of the participants in their own terms are made available to the public, many more volunteers may express their desire to help. It is also worth noting that the participants' enthusiasm has already caused some of their neighbors to start looking at the school's principal as a forward thinker and are considering joining the effort by sending their own children to the school. Some even express regrets for not having participated in the study.

The experiences recounted by the participants were moving and persuasive, as they had no incentive to sound enthusiastic. All throughout the study it could be observed that there was no other place that they'd rather be than to be in their semi face-to-face classroom powered by videoconferencing technology. In the end, they begged me not to discontinue the study, which to them was more than a research experiment: It was a sign of hope for a solid education beyond high school, to learn from those who have had the opportunity to attend college, to be exposed to various cultures through their fellow Haitians sharing their own experiences with them via a big screen. Many of the participants admitted that they did not expect the experience to be so positive, that they would learn so much in such a short period of time. The principal felt that he could have provided a better experience for his students had he known about this method. However, he is encouraged by the fact that he is the first one to experience it in his own town and perhaps in the whole underdeveloped world. The lab technician stated that he was inspired to pursue his studies so that one day he may be able to come up with a project such as this study to help his fellow Haitians. The instructor is even more grateful than the learners for the opportunity to do something that she has always dreamed of doing but could not figure out how to do since she could not be in Haiti. Overall, everyone seemed to have benefited from the study one way or another. The learners stated repeatedly that they could not see any downside with using the video conferencing method to enhance access to a wealth of knowledge that they knew existed somewhere in the world. They

argued that they never knew that their fellow Haitians could find a way to bring learning to them in such a tangible way.

Structural Description

The question of the feasibility of using videoconferencing learning to enhance access to education in Haiti is the central question of the study and the following could provide an answer to it: The quality of the video interaction during the study was astonishingly good. Once the initial setup was completed everything was seamless. The video quality was almost impeccable and the sound was just like a regular landline phone conversation without static or call drops. Spending a little more money than usual for better Internet connectivity also helped tremendously as no interruption was recorded during the class sessions. The advantage of a large screen has also added to the experience in that the instructor appeared to be much closer to the students then they had imagined. They felt that they could touch her. As one participant stated: "I feel like I am in America …um…in a face-to-face conversation with my instructor!"

The learners also reported that they have learned more about speaking English language in one month than they have all their lives simply because they could actually see their instructors pronouncing the words properly and repeatedly. They stated that they could only imagine what it would be like to learn other skills by watching and doing in the same way. These findings could contribute to a variety of efforts toward positive change in education in Haiti according to the learners and administrators of the school who continue to ask me, "What's next?" Whatever the answer to that question may be, it

is certain that the school principal now has the knowledge and at least one suitable classroom at his disposal. He can start reaching out to the school's alumni and soliciting their support in teaching some classes from wherever they are in the world via Skype videoconferencing.

Connection to Theoretical Foundation

This study was based on the Activity theory framework, which is presented as a system of multiple means of coordination, communication, and work that are used, perhaps differently, by multiple people (subjects) performing some activity (Georg, 2011). Any successful implementation of the new model proposed in this study will require effective coordination of activities throughout the system. The school will need a solid staff that will ensure that the necessary equipment is setup properly before every class session as was the case during the study. The instructors will have to ensure that a line of clear communication is established before they start teaching, a lab attendant will have to be available to assist in case of technological failure, and the students will have to remain focused in the midst of unpredictable distractions. Those are also contradictions within the system as supported by the activity theory that will provoke more positive change as the subjects move from a forced state of inertia to a productive state of activity.

More contradictions arise when even one defective component in the system causes learners or other stakeholders to question the feasibility of using the new method and its implications for learning. The new model has to be designed with innovative methods of engagement that will keep the activities working synchronously within the

system, which was successfully achieved in this study. Evidence of learning will help with the consolidation and the proliferation of the new model as could be observed in the final week of the study.

The framework of the study is also based on the constructivist epistemology, which is, according to Driscoll (2006), grounded on interaction, communication, and collaboration to facilitate and promote critical thinking, reasoning, retention, understanding, self-regulation, and mindful-reflection. This study has been like a light bulb that suddenly appeared in the dark tunnel where the students of that high school found themselves. They were able to constantly express themselves throughout the study. They seemed to talk more openly about their dreams and aspirations, something that, according to the principal, they have never done before. More importantly, they were able to quickly switch their focus from their own needs to embrace a promise of change for the whole country. Without communication and collaboration using videoconferencing as a learning model would simply not work. All subjects of the activity system must work in tandem for the system to function properly. Anything else would cause a disruption within the system that may hinder its performance to the detriment of the learners. Self-regulation will occur once the system has been the different phases with understanding, mindful-reflection and critical thinking as the major tenets of the activity.

Limitations of the Study

Even with the advanced progress in ICT and the ubiquitous hardware phenomenon, resistance to change and adoption of a new model of teaching and learning

is more evident than one would expect within the conventional schools. The situation is even more complicated in underdeveloped countries like Haiti where the government would more likely invest its limited financial resources in tourism than in providing adequate infrastructure for delivery of educational services. The administrators of individual schools in the private sector will have to be the first to implement the one-to-many videoconferencing learning approach before the public sector catches up.

Undoubtedly, the researcher's passion for change in his own country of birth poses a bias issue that can only increase the limitations of the study. Only the textual representations of the participants' perspectives provided validity to the research findings as the researcher's personal opinion could have easily influenced the interpretation of the results of this study. Nonetheless, care was taken to prevent the researcher from being more than a mere observer during the study and to ensure the dependability and trustworthiness of the study's results. As for transferability, the population size, which was very small, makes it very difficult to predict how applicable the findings would be to other underdeveloped cultures facing the same issues as Haiti. Every attempt was made, even with the small sample of participants, to improve generalizability and transferability including ensuring that every participant was interviewed separately with open-ended questions. Of course, this study had a limited scope in that it could not predict how motivation could be sustained for an extended period of time in the event that the model is adopted at a larger scale. However, the outcomes of this short study offer some promises that the unimaginable could happen in Haiti: providing reasonable access to

higher education at extremely reduced or no cost to the Haitian students. It will probably take years of study to demonstrate the efficacy and scalability of this model as it is used from school to school throughout the country. The use of this model was inspired by its simplicity as other more sophisticated models would not be suitable for a country with such a poor infrastructure but the possibilities are limitless and others may be able to expand this model to a more efficient one.

Recommendations for Further Study

The unexplored issue of providing access to higher education via educational technology warranted the design of this study, which is the first in its class. The door is now wide open for further studies that would expand the field and create more opportunities for Haitian natives and other philanthropic organizations to find new ways to provide access to higher education for those unfortunate high school students. Also, the mere fact that generalizability could not be ascertained is a good reason for further studies to be conducted. Perhaps, concurrent studies in different geographic locations either in the same country or elsewhere would help bring awareness to those in position of power and foster positive change in higher education in the given cultures. Other research questions may emerge as researcher attempt to compare the results between using the synchronous video-conferencing method with using a more flexible approach to provide asynchronous interactions between the volunteer instructors and the students while providing recorded video lectures for students in a large classroom similar to the one used in this study.

Future studies may also explore the possibility of using video simulation from open source databases to compensate for the lack of lab equipment essential for vocational training within higher education. For example, moving chemistry from the lab and the classroom to the computer in a virtual chemistry laboratory facilitated by volunteer expat Haitians and viewing open online educational simulations could even provide additional ways of learning chemistry without the costs and the risks associated with running a chemistry lab. Quantitative studies may be conducted to provide a more accurate assessment of learning through the use of the one-to-many videoconferencing learning method in similar contexts thereby confirming the findings of this qualitative study. Also, more data could have been collected to increase validity if the interview questions had been worded differently than they were in this study.

There is so much to learn from this Haitian phenomenon that this study could not even begin to uncover. Thus, as this study benefited from previous studies about the use of videoconferencing in providing access to education, it is recommended that other studies are done to extend this one, especially in finding in comparing different instructional models and exploring new ways to develop the courses efficiently and effectively, how to select and train instructors who do not necessarily teach for a living. Also, issues of efficacy, cost effectiveness, and scalability will need to be addressed in future studies

Implications for Positive Social Change

There is an ongoing debate among researchers over the impact of educational technology on learning. Schools and universities are very slow to adopt any educational technology tool that promises to help enhance learning. As my advisor, Dr. Rob Foshay, put it:

> Conventional education will be faced with the option of accommodating to this environment by changing their service delivery models, or contracting to provide their traditional services only to the niches where there is demand, or going out of business.

Education and positive social change seem to have worked hand in hand in the minds of educators for as long as the debate over school reform has become a hot topic for politicians as well as social activists. When society stumbles the school system is regarded with suspicion as the possible cause. Hence, the constant call to education reform through perpetual policy talks and other means. In developed countries like the United States of America, education is regarded by all as a scapegoat used by politicians and other special interest groups toward achieving their goals whether those goals serve the purposes of education or not. Thus, education reform is seen as a failure every time the imposed policies fail to be implemented to the letter by school officials and teachers.

This qualitative field test study, on the other hand, was inspired by a well-known crisis in underdeveloped cultures with regard to access to education by the masses particularly in the earthquake-stricken country of Haiti. In the words of a number of the

participants including the school's principal, a drastic change needs to take place in Haitian education from the grade level to higher learning. The current situation is alarming and this study has further motivated the administrators of the school to ask their alumni community to help them in a more concrete way than they may have in the past.

The feasibility of using one-to-many videoconference learning to enhance access to education was what this study was designed to explore and the questions asked of the participants were geared toward achieving that. The immediate social change needed in the community is better access to higher learning, which has been a luxury for the majority of high school graduates around the country. The findings of this study suggest the following potential implications for social change as more studies are conducted to support them: 1) Higher graduation rate among high school students due to the prospect of attending college even via videoconferencing 2) Higher percentage of college graduates in the next few years if this method is adopted 3) More adequately trained experts to sustain economic development. 4) Better prepared instructors to teach in grade schools.

There is a ripple effect in the current education system, which creates a cycle of persistent inadequacy. The lack of adequately trained instructors causes institutions to hire high school graduates to teach at all grade levels including high school seniors. The ability to train students in different fields via videoconferencing at a low cost will certainly have a tangible impact on education as it will reverse the ripple effect that is still prevalent in the country. The participants recounted their experiences during the study as

something that has the power to transform education for the entire country. They also lamented on their current situation, which they consider hopeless if nothing changes. They were amazed at the effectiveness of the videoconferencing sessions and wondered why nobody has thought of that before. They believe that this method will revolutionize education in the country and give hope to the hopeless.

Particularly, the horizons of the students as well as the faculty at Saint-Nicolas High have just been opened to a world of unknown, which will soon be discovered as an unlimited source of knowledge and experience. Provisional steps will have to be taken, as was done in this study, to ensure that the conditions for a successful implementation of this method are satisfied, such as reliable technology, uninterruptible internet connection, and adequately trained technicians. While the model is expected to continue to evolve with future research, if adopted with its current features, this innovation has the potential to address the educational challenges of the school as follow:

- Provide access to educational resources unbeknown to the students and faculty as of today.
- Provide high level instruction from international and experienced faculty living abroad.
- Provide training by experts with global market experience
- Provide faculty development on a consistent and continuous basis.
- Give the school a sense of purpose by expanding it to include a technical college branch.

- The school will be reintroduced to the community as a technology focused school preparing its students for the global market.

Overall, the responses to this study were overwhelmingly positive. The school administrators felt like they have taken on a ride to a future that should have been their present. The learners thought that they were fortunate to have participated in a study that could change their lives forever. The instructor in turn was grateful to find a platform where she could do what she has always dreamed of doing for her compatriots without leaving the US. This is a sign that the schools' relationship with their alumni could improve as a result of this study and a number of Haitian professional living overseas could finally fulfill their dream of helping Haiti from the comfort of their own homes or offices. The hope of every participant in this study is that this project is not meant to be another sensational event but a new paradigm shift in the way every school in the country delivers instruction.

The results of this study have demonstrated that this model has the potential to significantly drive down the cost of delivery of educational services to the point where students may obtain their education at no cost even within the context of Haiti where resources are scarce. In addition, while the infrastructure of Haiti is not strong enough to support any sophisticated educational model, the videoconferencing model is simple enough to allow expat Haitian volunteers to serve as volunteer instructors with minimal or no change to the infrastructure. Future studies of scalability may demonstrate the advantage of using this model over conventional post-secondary technical school or

college to deliver education at reduced or no cost to students in underdeveloped countries such as Haiti.

These findings promote change in multiple ways:

- Promoting literacy. When access to higher education ceases to be a luxury with the implementation of Skype-enabled classrooms across the country, literacy will increase considerably. The impact of this change will trickle down to high school and elementary school as teachers will be better prepared to do their job.
- Personal empowerment. Personal empowerment will be evident through students' confidence in seeking jobs upon graduation. Also, individuals who have always desired to contribute to the cause of education in Haiti will feel empowered to do so remotely and effectively
- Community building. An increase in community capacity will be observed by employment rate and roles played by graduates in their community's economic development projects.

Researcher's Reflections

This study was inspired by a request by my former high school principal during a visit to my home town to find a grant that would provide the funding necessary to help achieve what I propose as a possible solution to a well-known crisis in the country. I suggested that, if I could find the funding, he could create a state-of-the-art facility with

acoustic classrooms that would be equipped with the hardware and software required for Skype enabled instruction in his high school.

I chose Walden University as the ideal place to pursue my doctoral study because of the school's strong commitment to produce scholars of change and I was determined to become one so that I could foster the needed change in my own town.

The "College-Mixte Saint-Nicolas" k-12 school was founded in 1958 and has prepared several generations of scholars. Unfortunately, most of them have wandered away from the maternal land in quest of a better future and have forgotten about the little school that gave them the head start. With all the natural disasters that have plagued the country including the 2010 deadly earthquake that took the lives of approximately 300,000 people and destroyed the already weak infrastructure, many find it difficult to send their children to school. According to Saint-Marc's board of education, of the 67,000 people in the town, an alarming 65% cannot afford to pay for any tuition. In addition, there is no college anywhere for them to attend even if they manage to make it through high school. 25% of those who were fortunate enough to graduate from high school are forced to flee to the neighboring country (the Dominican Republic) to try to get a college education under, sometimes, very degrading conditions. About 35% of those high school graduates spend a few years trying to be accepted at one the 4 state universities serving the entire population of nearly 8 million people. The remaining graduates just do nothing but try and get low paying jobs that cannot even feed a family of one.

It became a passion for me to investigate whether a Skype-enabled classroom innovation would represent paradigm shift that would change the lives of many in the town from helpless individuals who simply go through life without any substantial skills, although full of the capacity to learn to become highly skilled professionals ready for the global market.

With the school's mission, the basis for the purpose of my study in mind, I began to review the literature in quest for studies that addressed the feasibility of using one-to-many videoconferencing learning to provide access to higher education. A gap was discovered as a result of the literature review and my study became relevant and necessary to close that gap thereby proposing a solution for positive social change. The school has developed a new vision that is "a new generation of students ready for the global market". But it is its mission statement that caught my attention: "The mission of the school is to provide equal access to quality education to all students through sound and relevant educational technology." A very ambitious yet attainable mission if the findings of my study could support the implementation of the new learning model.

This study gave me a sense of purpose as I listened to the participants recounting their experiences during the study and expressing their faith in the new model to foster the change necessary to repair their broken educational system. This approach will accomplish two things: it would provide the students with quality education at a very low cost and will get them exposed to technological possibilities they would probably never know existed.

I understood throughout the whole process that the success of this approach would depend as much on the performance of a technical team that must be trained to that end as the rapport between the principal and the remote instructors who are only bound to the school by their word. In addition, the coordination of a well-trained team is crucial to the sustainability of the use of this innovation. As Bolman and Deal (2008) argue, even when "multiple roles are clearly defined, team members must also have the ability to cross role boundaries to do what needs to be done" (p. 100).

I also understood that, in many instances, as Bolman & Deal (2008) explain, getting things done in an organization involves getting through a complex network of individuals and groups. From experience, I do know that "Friends and allies make things a lot easier" (Bolman & Deal, 2008, p. 204). Thus, it was important for me from the start to get some allies before separate anti-change committees got formed to boycott the innovation plan. I did so by reminding everyone that, while the innovation will involve instructors from overseas, it will not negatively impact their position but rather will help them secure their jobs if they take advantage of the faculty development program that would be offered through the innovation.

I believe that a change agent does have the delicate burden of getting everyone aboard a ship that they may barely recognize as their own, let alone trusting its captain to take them where they need to go. That is why it is important to know the rules of diffusion and adoption of innovation before engaging in changing the culture or the future of an organization.

From an ethical stand point, soul and spirit will characterize the tone of administrators as well as facilitators of change as they are constantly reminded through mutual accountability buzz words, such as “We” and “students”, and “next generation”. Bolman and Deal (2008) render this best in comparing Merck’s success to Enron’s failure: “For an organization, group, or family, soul can be viewed as a resolute sense of character, a deep confidence about who we are, what we care about, and what we deeply believe in. Merck had it. Enron did not.” (p. 400). All of that was achieved in this study and the findings seem to promote the positive social change that it sought to inspire.

Concluding Statement

The purpose of this case study was to investigate the use of one-to-many video conferencing as an education access tool for high school seniors seeking higher education in the most devastated area of Haiti. The lived experiences and perceptions of the participants were to be the key factors in determining the feasibility of such method. To help with the investigation two research questions were developed:

- How does one-to-many video-conferencing learning enhance access to education in Haiti?
- What are the experiences of various sets of participants?

The lack of access to educational resources and its consequences were documented throughout the study. The findings in this study contributed to a better understanding of the need for change and confirmed the feasibility of using one-to-many conferencing learning as an innovative and effective method to enact the change. It must

be pointed out, however, that change is not the sole focus of the study and that every method used in education should be used with a purpose. Dewey (1938/1997) defines the formation of purposes as a "rather complex intellectual operation" and as such it has to be stimulated by intelligent activities such as those that took place in this study. Dewey advocates an adequate conception of educative experiences and the application of the experimental method as the proper path toward the change in the educational system desired by both conservatives and radicals within the given system. Dewey's progressive concept of education reform through meaningful experiences facilitated by the instructors, in this case both on site and off site, is shared by Tyack and Cuban in "Tinkering Toward Utopia" as summarized in the following statement: "Instead of being ready-made plans, reform policies could be stated as principles, general aims, to be modified in the light of experience, and embodied in practices that vary by school or even by classroom. The study does not pretend to be a one-size-fits-all solution to the restricted access to education phenomenon in cultures like Haiti.

By no means is this study conclusive. However, one can be encouraged by the fact that no reform can take place by a mere instinct or replication of past experiences but by a progressive mechanism of knowledge transmission fueled with better experiences each time around. Thus, the possibilities to expand on this study are enormous and it is a step in the right direction toward positive social change in a country that has seen enough catastrophes to remain in the dark when it comes to educating its youth. In Dewey (1038/1997)'s approach to the relationship between education reform and social change

the latter seems to be implied. Individual successes through the right educative experiences such as those reported by the participants of this study assumedly will lend themselves into societal changes that others will ultimately benefit from. Change is then automatic as long as the educative experience learners are allowed to have remains progressive and wisely monitored. As Dewey (1938/1997) argued, experience does not occur in a vacuum but the type of change that results from all those experiences dictates positive social change. That's what this study aimed to accomplish and the findings seem to support that promise.

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Appendix A

Interview Protocol for the Teacher

Before conducting the interview, I will ask the interviewees for permission to tape-record the interview and assure them that the interview is confidential, as the consent form says.

1. Please tell me what it is like to use Video conferencing to deliver live instruction?
2. How do you think that Video conferencing plays a role in helping you to contribute to the Haitians adults' education?
3. How do you design your class with Videoconference as a mode of delivery in mind and how do your students like the setting?
4. How does the Videoconference interaction promote learning in your class?
5. With Videoconference, how do you cope with the issues of learning styles, diversified groups, motivation, and personal preferences?
6. How do you use other tools along with Video conferencing to enrich interaction, such as listserv, email, interactive video, correspondence, or telephone?
7. What are the main problems associated with the learning format shift in your classes and how do you cope with these problems?

Appendix B

Interview Protocol for School Administrators

Before conducting the interview, I will ask the interviewees for permission to tape-record the interview and assure them that the interview is confidential, as the consent form says.

1. Please tell me about your experiences managing Video Conference as your main classroom environment for this group and what are your usual responsibilities?
2. Were there any outage or network problems during the first quarter of using this method?
3. How do you support the students who are new to this type of classroom environment?
4. What are the students' attitudes toward technical support from you and/or your lab assistants?
5. How do you cooperate with the teachers and students while performing your job given the geographic locations of the teachers?
6. What is your opinion about Video conferencing as a mode of direct instruction?
7. What are your expectations and suggestions for the improvement of this method of education?

Appendix C

Interview Protocol for Students

Before conducting the interview, I will ask the interviewees for permission to tape-record the interview and assure them that the interview is confidential, as the consent form says.

1. Please tell me what it is like to be in a Videoconference class and how this environment affects your learning and attitude toward peers?

2. Do you think the interaction via Videoconference has helped you with learning the way that it is used by your instructor?

3. What are the positive and negative sides of this distance class interaction according to your experience?

4. If you were a teacher, how would you like to use Video conferencing to assist instruction?

5. What are the advantages and disadvantages of Video conferencing in providing education?

10. What are your expectations for future classroom interactions via Video conferencing?

Appendix D

Letter of Support from a Research Partner

College Mixte Saint-Nicolas, Saint-Marc, Haiti
Max Gaspard
Owner/Director

Date: 06/15/2015
Dear Jean J Medastin,

Based on my review of your research proposal, I give permission for you to conduct the study entitled "Bridging the gap: Case Study of Access to Higher Education Through Technology in a Resource-Poor Country like Haiti." within my institution: College Mixte Saint-Nicolas. As part of this study, I authorize you to be a guest teacher in my English class via Video Conferencing technology for my graduating seniors, to collect performance data, to survey the students, and share the results as determined by your qualifying entity. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include: Having a facilitator and a technology specialist onsite during scheduled skype calls, ensuring that the internet works on all computers as well as the projectors in the designated classrooms. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

Sincerely,

Max Gaspard, Director
max.gaspard@yahoo.fr

Appendix E

Participants' Experiences Nodes

Internals\\interviews\\Interview 1 - § 4 references coded [9.79% Coverage]

Reference 1 - 1.06% Coverage

I felt good being in there

Reference 2 - 4.19% Coverage

I started attending from the second session after hearing my peers talking about their experience

Reference 3 - 3.28% Coverage

The setting was right and the instructor was very patient and understanding.

Reference 4 - 1.26% Coverage

It was an awesome experience.

Internals\\interviews\\Interview 10 - § 1 reference coded [5.65% Coverage]

Reference 1 - 5.65% Coverage

To me that was a wonderful opportunity to enrich my brain. I felt very good interacting with my peers in a brand new language.

Internals\\interviews\\Interview 12 - § 3 references coded [9.21% Coverage]

Reference 1 - 1.40% Coverage

Oh! It was good. I never missed a day

Reference 2 - 5.88% Coverage

I will tell you: when I got home the first day after class I told my folks that I just visited the United States of America. That's how real it was for me

Reference 3 - 1.93% Coverage

Let me tell you! I don't want this course to stop.

Internals\\interviews\\Interview 13 - § 2 references coded [5.48% Coverage]

Reference 1 - 3.36% Coverage

Initially I did not expect that much interaction. I thought that because of the distance and the mode of delivery I would have very limited interaction but it turned out to be a very positive experience.

Reference 2 - 2.12% Coverage

Wow! It was amazing! I could not believe that I was actually doing something that I have always wanted to do but did not know how to

Internals\\interviews\\Interview 2 - § 2 references coded [3.61% Coverage]

Reference 1 - 1.27% Coverage

It was a wonderful experience

Reference 2 - 2.34% Coverage

Oh my God! What an experience! To me it was all positive.

Internals\\interviews\\Interview 3 - § 2 references coded [5.30% Coverage]

Reference 1 - 2.75% Coverage

I should thank you for thinking of us for such an awesome experience

Reference 2 - 2.55% Coverage

We would not this experience to end here. We want it to continue

Internals\\interviews\\Interview 4 - § 3 references coded [15.01% Coverage]

Reference 1 - 3.36% Coverage

This is something we have been waiting for. It's a great thing and I am super excited about it

Reference 2 - 9.45% Coverage

If this is how distance education is done then only those who do not want to learn will fail. It is very unique and exciting and it does take away anything from face-to-face education. Look at me! I can almost speak English fluently as a result of this experience.

Reference 3 - 2.21% Coverage

This experience was so great that I would like it to continue

Internals\\interviews\\Interview 5 - § 3 references coded [7.44% Coverage]

Reference 1 - 3.11% Coverage

It was excellent for lack of a better word. This was my distance learning course and I could not have asked for a better experience.

Reference 2 - 3.14% Coverage

This method, however, gives a new meaning to distance education because you can almost remove the word distance from it. I love it!

Reference 3 - 1.18% Coverage

This is a good thing and I would for it to continue.

Internals\\interviews\\Interview 6 - § 1 reference coded [3.88% Coverage]

Reference 1 - 3.88% Coverage

If everything goes right technologically then It lacks nothing that a face-to-face class can

offer.

Internals\\interviews\\Interview 7 - § 1 reference coded [3.65% Coverage]

Reference 1 - 3.65% Coverage

I felt very comfortable and I liked the way the class was facilitated.

Internals\\interviews\\Interview 8 - § 1 reference coded [1.51% Coverage]

Reference 1 - 1.51% Coverage

That made the program go a lot smoother than I had anticipated.

Internals\\interviews\\Interview 9 - § 1 reference coded [4.40% Coverage]

Reference 1 - 4.40% Coverage

What I have experienced is that I have come to the realization that we are very far behind in education in our country and that put us at a serious disadvantage.

Appendix F

Learning Outcomes Nodes

Internals\\interviews\\Interview 11 - § 2 references coded [6.86% Coverage]

Reference 1 - 2.25% Coverage

I felt very comfortable in the class and I learned a lot.

Reference 2 - 4.61% Coverage

And I learned a great deal during for the past few weeks as the English language was brought to life before my eyes.

Internals\\interviews\\Interview 12 - § 2 references coded [14.61% Coverage]

Reference 1 - 4.87% Coverage

Though I cannot remember everything that I learned I can assure you that I have retained at least 85% of it and that’s a lot.

Reference 2 - 9.74% Coverage

I would go home every night after class and have English conversations with myself reviewing in my head how I saw my instructor demonstrate how to pronounce certain words. I often caught myself speaking English to my folks at home out of habit.

Internals\\interviews\\Interview 13 - § 1 reference coded [2.28% Coverage]

Reference 1 - 2.28% Coverage

When I assess the student learning, something I did every class, I was amazed to see how much they have earned in such a short period of time

Internals\\interviews\\Interview 2 - § 1 reference coded [7.06% Coverage]

Reference 1 - 7.06% Coverage

there were so many English words that I did not know and seeing the instructor pronouncing those words so patiently helped me out a lot. Now I know their meaning as well.

Internals\\interviews\\Interview 3 - § 2 references coded [8.15% Coverage]

Reference 1 - 4.91% Coverage

I learned a lot and it didn’t feel like the instructor was that far away from us even though she was in a different country.

Reference 2 - 3.24% Coverage

I thoroughly enjoyed it and I learned as well as I would in a face-to-face setting.

Internals\\interviews\\Interview 7 - § 1 reference coded [8.82% Coverage]

Reference 1 - 8.82% Coverage

I had a great time learning with my fellow classmates. We had fun going over the materials after class: having dialogues and practicing what we have learned for the day.

Appendix G

Technological Challenges Nodes

Internals\\interviews\\Interview 8 - § 3 references coded [9.15% Coverage]

Reference 1 - 3.69% Coverage

Well, at the beginning when we were trying to keep a steady connection with our then current internet service it appeared that this was not going to work.

Reference 2 - 2.29% Coverage

Lesson learned: unless we have a strong signal this method would not work to its full potential

Reference 3 - 3.17% Coverage

The first time it happened I could see some impatience in their attitude because they were so excited to participate in the project

Internals\\interviews\\Interview 9 - § 2 references coded [7.19% Coverage]

Reference 1 - 4.10% Coverage

Fortunately our lab technician was an experienced one who knew how to circumvent some of the issues that are inherent to our poor infrastructure.

Reference 2 - 3.09% Coverage

They were motivated enough to be very patient when a problem occurred which was not very often or for very long.

Appendix H

Class Setting Nodes

Internals\\interviews\\Interview 1 - § 2 references coded [7.47% Coverage]

Reference 1 - 4.19% Coverage

It’s awesome to be able to see my instructor from a distance and be able to communicate with her live.

Reference 2 - 3.28% Coverage

The setting was right and the instructor was very patient and understanding.

Internals\\interviews\\Interview 10 - § 1 reference coded [6.26% Coverage]

Reference 1 - 6.26% Coverage

It really helped identify with my peers and also realize their potential in a different environment where engagement was more evident.

Appendix I

Collaboration Nodes

Internals\\interviews\\Interview 10 - § 1 reference coded [5.27% Coverage]

Reference 1 - 5.27% Coverage

Even though we could only see our instructor on a screen we got to know her on a personal level as if she were next to us.

Internals\\interviews\\Interview 11 - § 1 reference coded [4.07% Coverage]

Reference 1 - 4.07% Coverage

I thought it was pretty cool that I could see and communicate live with an instructor form overseas.

Internals\\interviews\\Interview 2 - § 1 reference coded [7.92% Coverage]

Reference 1 - 7.92% Coverage

The advantage of using this method lies in the fact that as students, we are able to see our instructor as we would normally in a face-to-face setting wherever the instructor might be located

Internals\\interviews\\Interview 3 - § 1 reference coded [5.15% Coverage]

Reference 1 - 5.15% Coverage

As I said before, I felt very comfortable seeing my instructor and communicate with her as if she were physically here with me.

Internals\\interviews\\Interview 4 - § 1 reference coded [6.93% Coverage]

Reference 1 - 6.93% Coverage

The advantage of using this method lies in the fact that as students, we are able to see our instructor as we would normally in a face-to-face setting wherever the instructor might be located.

Internals\\interviews\\Interview 7 - § 1 reference coded [5.04% Coverage]

Reference 1 - 5.04% Coverage

I love the fact that I could see and hear my instructor as if she were in the same classroom as I was.