

**Assessing the Effectiveness of Collaborations Between
U.S.-Ghanaian Public Universities**

by

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Abstract

Partnerships between United States and West African universities continue to grow and have become an important part of contemporary higher education engagement. Examples of these types of collaborations/partnerships is U.S. – Ghanaian public university collaborations. Some collaboration goals have been to increase access to quality teaching, delivery of modern instruction, advances in research, technology use, and developmental programs. Over the last decades, funding agencies, non-governmental and international organizations, governments and educational institutions have funded collaborative projects in Ghana aimed at capacity building. Most of these partnerships have been to promote faculty, staff, students, and to provide leadership development, professional training, outreach, and services. However, some collaborations have been successful in the past while others have not been successful.

A qualitative cross case study method was used for this study because it seeks to make sense of things in its natural settings leading to understanding of the issue/problem under study (Creswell, 2013). The study focused on three paired U.S. and Ghanaian public universities and their collaborative work. Data was analyzed using atlas-ti and findings were discussed based on the emerged themes from the answered research questions.

The five main findings that emerged from this study were: 1) combination of programs: capacity building programs specifically practical training and development programs focused on faculty and community practitioners, 2) benefits: technological advancement, community

development; new academic programs, and joint grant writing, 3) internal challenges: employment freeze, unrealistic expectations, mismanagement of funds, equity issue, lack of human resources and other support, 4) program sustainability: support system, program evaluation and monitoring, building of longterm relationships, and 5) level of technology use and related benefits. The findings also revealed that the collaborations/partnerships benefitted U.S. and Ghanaian public universities but internal challenges within Ghanaian public universities tended to make some partnerships and or collaborations ineffective and unsustainable.

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List of Abbreviations

APLU	Association of Public Land Grant Universities
ECOWAS	Economic Community of West African States
IIE	The Institute of International Education
KNUST	Kwame Nkrumah Science and Technology
MOU	Memorandum of Understanding
MUH	Midwestern University of Health
NUCR	National University of Central Region
OBGYN	Obstetrician/Gynecologists
PHEA	Partnership for Higher Education in Africa
PUA	Prestigious University of Accra
RUM	Renowned University of Midwestern
SEU	Southern Excellence University
UA	University of Ashanti
UCC	University of Cape Coast
UG	University of Ghana
UN	United Nation
USAID	United States Agency for International Development

CHAPTER ONE: INTRODUCTION

Partnerships between the United States and West African nations are an important part of contemporary global higher education (Altbach, Reisberg, & Rumbley, 2009). U.S.-Ghanaian university collaborations are one example of these types of collaborations. Collaboration goals have been to increase access to quality teaching, delivery of modern instruction, advances in research, and related developmental programs (Kot, 2014). The first president of Ghana, Kwame Nkrumah (1960-1966) did not initially embrace relations with the U.S. because he was skeptical of U.S. foreign policy. According to Bekoe (2012), Nkrumah was skeptical of U.S. foreign policy because of the following reasons: it was at the peak of the cold war and Eisenhower's administration had branded him as a communist. Nkrumah also saw "CIA as a dangerous beam that should be resisted" (p. 230). The former president Nkrumah eventually accepted the concept of exchanges especially with the U.S. Peace Corp's operations in Ghana and other related collaborations, particularly in the last years of his presidency (Bekoe, 2012). Since Nkrumah, subsequent presidents have recognized the value of collaboration and have entered into several international higher educational collaborations in order to boost teaching, research, and development in Ghana. Former United Nations (UN) Secretary, Kofi Annan (Africa Renewal, 2005), who is also a native of Ghana, noted, "We need to strengthen open universities and distance-learning programs and we need to ensure that African institutions have access to the latest technologies" (p. 1). And so, for this reason, most public universities in Ghana have entered into some form of educational cooperation with their U.S. counterparts.

Foreign governments, Non-Governmental Organizations (NGOs), universities, and funding agencies have initiated programs in Ghana aimed at economic development that included educational provisions. For example, in 2011, USAID (“fundsforngos”, 2011) offered 127 million dollars to Ghana to promote development activities. Of the 127 million dollars, 4.6 million dollars was targeted to Ghana’s education strategic plan. The Institute of International Education (IIE) through its Partnership for Higher Education in Africa (PHEA) with support from major U.S. foundations including Carnegie Corporation of New York, the Rockefeller Foundation, and the Andrew W. Mellon Foundation (Lewis, Friedman & Schoneboom, 2010) funded some Ghanaian public universities to provide educational capacity in the form of training and development for the next generation of scholars, public servants, and entrepreneurs. Between 2000 through 2010, a total of 440 million dollars was invested for the improvement in higher education for over four million students at 379 African colleges and universities in nine African countries (Parker & Susan, 2010).

The level of financial support for U.S.-Ghanaian university collaborations continues to grow because most funding agencies and other interested groups want to enhance public university education in Ghana. And yet, with all this support, Ghanaian universities still lag behind their global counterparts in the use of technology for instruction, research, and publications. As a result, the next question is, what is next for Ghanaian universities and their collaborations with the U.S.?

Statement of the Problem

Some Ghanaian public universities continue to face issues that impede them from achieving full educational capacity. These issues include the immigration of highly trained and skilled people from Ghana, poor financial support and compensation, limited use of technology for teaching, limited internet access, inadequate and ill-equipped classroom, and the lack of resources to support other instructional and research needs (Varghese, 2013). There is also a lack of the political will to enforce policies and development of a modern educational infrastructure to compete with other nations (Chimombo, 2005). There is little or no professional development training for faculty and staff and an unwillingness to accept and implement new ideas (Fourie, 1999). There is also a lack of encouragement and incentives by top administrators to adopt new educational approaches, curricula enhancement, and contemporary teaching methods (Hennessy, Harrison, & Wamakotoe ,2010; Zaid & Okiki, 2014; Teferra & Altbach, 2004).

It is expected that collaborations between U.S.-Ghanaian universities would have a considerable positive effect in alleviating some of these issues and improve the educational capacity of Ghanaian public universities to improve teaching, increase training, and foster research and outreach programs (Burns, Brand, & Millard, 2010). The types of collaborations, related benefits, and sustainability measures implemented in the past by U.S.-Ghanaian collaborators are serving as a baseline for the development, implementation, and maintenance of high quality educational collaborations in Ghana. Currently, there is a lack and or limited research that examines the extent to which public universities in Ghana have benefited from U.S. collaborations/partnerships and how they are utilizing collaborative initiatives in the areas of: a) technology use in teaching, learning, and research, b) faculty training, c) knowledge transfer, d) expansion of education offerings, e) outreach and the overall improvement of the quality of

education in the short to long-term. These aforementioned areas of concerns coupled with the lack and or limited research literature on the effectiveness of U.S.-Ghanaian public universities partnerships makes this topic more important to research. This study focused on examining the extent to which public universities in Ghana have benefited and how they have used U.S. collaborative initiatives in the development of Ghanaian universities.

Purpose of the Study

The purpose of this study was to examine previous educational collaborations between U.S. and Ghanaian public universities and the impact on Ghanaian universities. The goal was to assess how the paired U.S.-Ghanaian universities collaborations/partnerships, in terms of the types of collaborative programs in place, program effectiveness, and how these collaborations have benefited Ghanaian public universities.

Research Questions

The following research questions guided the study:

- RQ1. What types of U.S.-Ghanaian university collaborations are there?
- RQ2. How are U.S.-Ghanaian university collaborations established?
- RQ3. How effective are U.S.-Ghanaian university collaborations?
- RQ4. To what extent have U.S.-Ghanaian educational collaborations benefitted Ghanaian public universities?

Conceptual Framework

In recent years, institutions such as Association of Public Land-Grant University (“APLU”, 2007), a number of U.S. based and African institutions came together to form an Africa-U.S. higher Education Initiative “with the principal goal of facilitating deeper and more

effective partnerships between African and U.S. institutions of higher education with a view to contributing more effectively to key priority development areas such as education; teacher training; science and technology; agriculture; environment and natural resources; engineering; business; management and economics; and health” (p. 1). To achieve effective, sustainable initiatives, and mutual benefits, the Africa-U.S. higher education initiatives worked towards three specific goals. Three of the APLU’s Africa-U.S. initiative goals were used. Figure 1 identifies and served as the framework for this study. The conceptual framework was presented in a chronological order based on the APLU’s (2007) Africa-U.S. initiative goals.

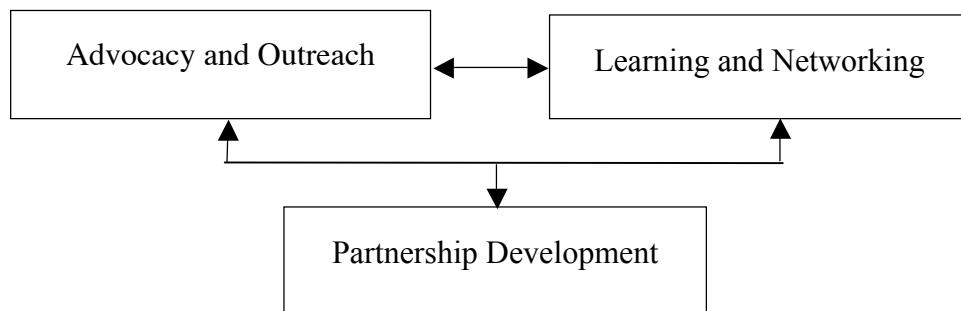


Figure 1

APLU's Africa-U.S. Higher Education Initiative Goals

Advocacy and Outreach

The first goal of the APLU’s Africa-U.S. Initiative was Advocacy and outreach (“APLU”, 2007). The goal was to promote strong and consistent advocacy to increase investment in African higher education. Unfortunately, due to economic downturns and the political climate in the U.S., financial support for African higher education engagement has declined in recent years. Altbach (2004) indicated that higher education is in an “era of power and influence where politics and ideology have taken a subordinate role to profits and market-driven policies” (p. 11) leading to considerable decline in financial support to Ghanaian

universities. Interested groups such as USAID and APLU's International Advocacy Coordinating Committee continue to champion higher education causes in their respective organizations.

Learning and Networking

The second APLU's Africa-U.S. Initiative goals was learning and networking ("APLU", 2007). The purpose of learning and networking goal was for U.S. universities to connect, coordinate, and network with their counterparts in Africa focusing on capacity building, sharing knowledge, issues, and information relevant to Africa's higher educational system ("APLU", 2007). Over the years, most U.S. universities have answered to this call and have engaged with their counterparts in Africa including universities in Ghana. In his study, Joubert (2006) asserted that partnerships between Ghana and U.S. academic universities tend to be organized to further the scholarship aspirations of students and practitioners. Scholarship aspirations have been the driving force for most U.S.-Ghanaian public universities to establish learning centers aimed at monitoring and evaluating what works and what does not in Ghanaian institutions with regards to building an "evidence-based approach to higher education capacity development" ("APLU", 2007, p. 1). The APLU Initiative established the Knowledge Center on Higher Education for African Development (KCHED) for learning and networking ("APLU", 2007) to enhance APLU's programs.

Partnership Development

Partnership development is the third APLU's Africa-U.S. partnership goals ("APLU", 2007). To ensure U.S. higher education institutions engaged with their counterparts in Africa, APLU secured 15 million dollars from the U.S. Congress in 2010 for partnerships between Africa and U.S. universities. Through this appropriation, eleven U.S. universities were able to work and collaborate with their African counterparts in the areas of building human and

institutional capacity and overall development of selected African countries (“APLU”, 2007).

Cornelius and Grief (2005) also shared that the benefits of transcontinental collaborations were to increase knowledge and the greater good for the partner institution and the country.

Ghanaian public universities have been examined in terms of their role in development (Bloom, Canning, and Chan, 2006). Cloete, Bailey, Pillay, Bunting, and Maassen (2011) found that some African universities were established to serve as an engine for development in their respective countries. And so, the idea of development universities makes the collaboration between Ghanaian universities and the U.S. even more vital.

Research Design

A qualitative cross case study method was used because it seeks to make sense of things in its natural settings leading to understanding of the issue/problem under study (Creswell, 2013). Qualitative methods also tend to answer questions about the what, why or how instead of how many or how much as found in quantitative research methods (McCusker & Gunaydin, 2015; Yin, 2013). Merriam (1988) indicated that a case study “is an intensive, holistic description and analysis of a single instance, phenomenon, or social unit” (p. 21). The study focused on three U.S. universities and their collaborative work with their Ghanaian counterparts. The three paired U.S.-Ghanaian public universities collaborators with their pseudonyms were:

1. Midwest University of Health (MUH, U.S.) and Prestigious University of Accra Medical School (PUA, Ghana),
2. Renowned University of Midwestern (RUM, U.S.) and University of Ashanti (UA, Ghana)
3. Southern Excellence University (SEU, U.S.) and National University of Central Region (NUCR), Ghana.

Table 1 presents brief information about the three paired U.S.-Ghanaian universities collaborators and their respective pseudonyms such as MUH-PUA; RUM-UA; and SEU-NUCR.

Table 1

General Information about the three paired U.S.-Ghanaian Public Universities

U.S.-Ghanaian Collaborators	History	Enrollment	Type of Collaborations
MUH (U.S.): Focus on the medical school	Founded in 1850, the medical school became pioneer in the introduction of the modern science-based curriculum, and the first school to change students from passive observer to active participant in the learning process through the lab instruction and clerkships	Over 700 students in the medical school (“MUH”, 2016)	Health: According to MUH’s Global Reach website, the university established in the 1980s “vibrant, long-standing relationship with many institutions in Ghana including PUA to develop in-country post graduate training program for OBGYN that is still going strong today” (“MUH”, 2015, p. 1).
PUA (Ghana): Focus on medical school	Established in 1962, PUA is located in Accra, capital of Ghana. It is the premier and the largest public university in Ghana.	The medical school has over 900 student population (“PUA”, 2015)	Health: PUA has an active OBGYN and other health programs with MUH since 1980s (“MUH”, 2015, p. 1).
RUM (U.S.): Emphasis on College of Agriculture	The university was founded in 1862 and it now one of the leading colleges of agricultural, food, life, and natural resource sciences institution in the U.S. (“Agriculture International Programs”, 2016, p. 1).	The college has an enrollment of 3,346 students (“RUM”, 2016).	Aqua-fisheries: The program is “one of the ten innovative labs for research that support 350 long-term degree-seeking students, more than 240 short-term training events targeting countries in Asia, Latin America, and Africa (“Medical School”, 2016, p. 1).

Table 1 (Continued)

U.S.-Ghanaian Collaborators	History	Enrollment	Type of Collaborations
UA (Ghana): Focus on College of Agriculture and Natural Resource	Founded in 1953 in Ghana, UA College of Agriculture was given mandate to provide a number of ad hoc courses in Agriculture for personnel of the then Ghana's Ministry of Agriculture. Currently, the college offers array of degree program to diverse students ("Agriculture and Natural Resource", 2014, p. 1).	The college of Agriculture has a total student population of 2000 as at 2016 ("UA", 2016).	Aqua-fisheries: "The department was given mandate to train both students and personnel for inland fisheries management, aquaculture, and watersheds management to facilitate sustainable utilization of fisheries and aquatic resources" ("Agriculture and Natural Resource", 2015, p. 1)
SEU (U.S.): Focus on College of Education	SEU is the first charted state university since 1785. The College of Education was founded in 1908 as an integral part of the university. "The college continues to be a center for innovative research, teaching and service projects for local, national and international interest" ("College of Education", 2016, p. 1)	The college has annual enrollment of 4,500 students ("College of Education", 2016, p. 1)	Study Abroad: According to the site, "the program provides an exciting opportunity for future educators to understand and experience the rich history and culture of children, families and communities in Ghana, West Africa ("College of Education", 2016, p. 1)
NUCR (Ghana): Focus on Center for International Education (CIE).	NUCR was established in 1963 and located in the central region of Ghana. It is the third largest public university in Ghana (Gyamera, 2015).	NUCR has approximately 16,000 student population as of 2012 ("NUCR", 2016)	Study Abroad: NUCR "believes that educational exchange opportunities enhance learning, build understanding amongst people of different cultures, and changes lives" ("CIE", 2016).

Significance of the Study

This study will be significant for U.S. higher education institutions and their Ghanaian counterparts interested in collaboration, funding agencies, NGOs, and governments interested in funding educational collaborative programs and/ or projects in West Africa.

Moreover, this study's findings will show how these collaborations impacted Ghanaian universities, whether positively or negatively. A special focus on institutional teaching and learning processes in Ghana are part of this study. Significant findings from this study will offer information regarding matters of curricula, teaching, and usage of technology for classroom instruction, knowledge transfer, and human development opportunities. Discovering some of these collaborative projects/programs, benefits, and sustainable measures will also be beneficial to future U.S.-Ghanaian university collaborators and other interest groups.

Limitations

The limitations to this research include the fact that this research was conducted from the point of view of the selected U.S. universities making the study a one-sided account of events. There are also limited research studies and peer reviewed literature on U.S.-Ghanaian public universities collaborations, limited access to detailed collaborative data, and limited resources to travel to all selected U.S. universities for on-site data collection.

In terms of methods of data collection, there was a limitation to the interview procedures used. Three participants opted for email interviews; unfortunately, they did not necessarily provide an in-depth information as expected thereby inhibiting detailed analysis of the results.

Furthermore, participants self-reported their experiences and it is rarely difficult to verify their accounts and so data from the interviews were presented as provided by the participants.

Definitions

The following definitions were used in this study:

Assessing: Assessing refers to activities that provide meaningful information that can be used as the basis for improving educational programs in Ghana (Astin, 1991).

Capacity building: defined as effort to help Ghanaian universities through specific training and development programs usually guided by specific parameters (Light & Hubbard, 2002).

Collaboration: refers to “mutually beneficial, and well-defined relationship entered into by two or more organizations to achieve common goals” (Mattessich & Mossley, 1992, p. 11).

Educational technology: refers to “both the study and process by which technology may be used to advance teaching and learning in Ghanaian public universities” (Jenkinson, 2009, p. 263).

Effectiveness: “the extent to which pre-established objectives are attained as a result of activity” (Deniston, Rosenstock, & Getting, 1968, p. 324).

Knowledge transfer: refers “to the ability to transfer knowledge from external knowledge sources to a recipient’s organizational boundary …that determines an organization’s competitive advantage in a fast-changing environment” (Kang, Rhee & Kang, 2010, p. 8156).

Sustainability: is defined as maintaining programs for long, perhaps even an indefinite period of time (Kuhlman & Farrington, 2010).

Technology transfer: “the movement of know-how, technical knowledge, or technology from one organizational setting to another” (Bozeman, 2000, p. 629).

Organization of the Study

This study is organized into five chapters. Chapter 1 contains the introduction of the study, statement of the problem, purpose of the study, research questions, significance of the study, limitations, definitions, and the organization of the study. Chapter 2 comprises the literature review, and the chapter summary. Chapter 3 contains the methods section: sample, instrumentation, data collection, data analysis and summary. Chapter 4 comprises the findings: demographic results, and findings summary. Lastly, Chapter 5 contains the key findings summary, implications, and recommendations for future research.

CHAPTER TWO: LITERATURE REVIEW

This chapter delve into definitions of collaboration and the similarities between collaboration and partnership. In addition, a review of international higher education agency reports which included the Partnership for Higher Education in Africa (PHEA, 2009) and the Institute of International Education (IEE, 2011) reports were conducted. There was also review of studies of U.S.-Ghanaian educational collaborations. The review focused on the types of collaborations, how collaborations were established, benefits, and whether programs/projects were sustained or not.

Partnerships between the United States and West African nations are important part of global contemporary higher education (Altbach, Reisberg, & Rumbley, 2009) and U.S.-Ghanaian university collaborations are one example of these types of collaborations.

Purpose of the Study

The purpose of this study was to examine previous educational collaborations between U.S. and Ghanaian public universities and the impact on Ghanaian universities. The goal was to assess how the paired U.S.-Ghanaian universities partnerships, in terms of the types of collaborative programs in place, program effectiveness, and how these collaborations have benefited Ghanaian public universities.

Research Questions

The following research questions guided the study:

- RQ1. What types of U.S.-Ghanaian university collaborations are there?
- RQ2. How are U.S.-Ghanaian university collaborations established?
- RQ3. How effective are U.S.-Ghanaian university collaborations?
- RQ4. To what extent have U.S.-Ghanaian educational collaborations benefitted Ghanaian public universities?

The reviewed articles identified Wood and Gray's (1991) three theoretical stages of collaboration and some collaborative factors, which were resource dependency and institutional/negotiated order. The three stages of collaboration were:

1. **Preconditions:** Conditions that were in place to allow U.S.-Ghanaian institutions to establish collaborations.
2. **Process:** A series of actions used for roles, rules, communication channels to structure the collaboration.
3. **Outcomes:** Results based on the needs and goals that were set.

Other documents reviewed were USAID reports; press releases related to U.S.-Ghanaian educational collaborations, scholarly articles, books, U.S.-Ghanaian university websites, funding and governmental agencies reports, and information retrieved from other stakeholders. There are two components to this literature review. Figure 2 shows the two phases of this literature review.

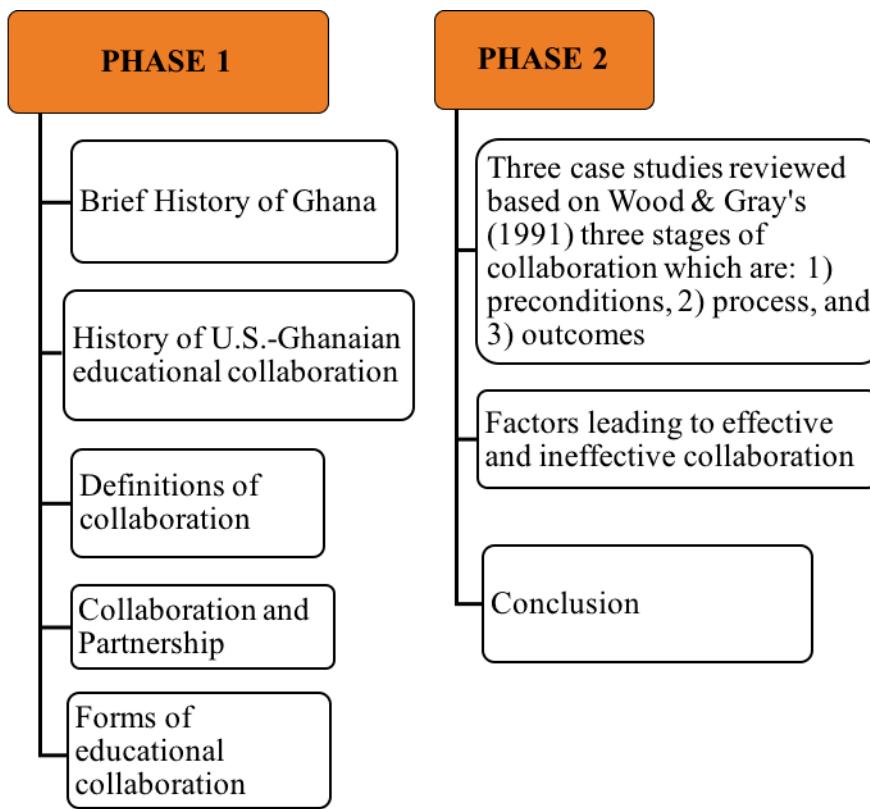


Figure 2

Review of Literature Outline

PHASE I OF THE LITERATURE REVIEW

Brief History of Ghana

Ghana, formerly known as the Gold Coast, is located on the West African coast just north of the equator (Berry & Library of Congress, 1995). The country was one of the Sub-Saharan African (SSA) countries where Europeans arrived to trade, first in gold and later in slaves. Ghana gained its independence from the British on March 6, 1957. Ghana became a republic on July 1, 1960; led by its first president Kwame Nkrumah. In April 1992, Ghana adopted a constitution, which allowed for a multi-party system leading to a period of democracy (United Nations Development Program-UNDP, 2016). The country is often seen as a model for political and

economic reform in Africa (UNDP, 2016). Ghana's population is approximately 28 million (Ghana National Population Council Secretariat, 2016). English is the official language of the country in addition to nine popular local languages such as Akan, Ga, and Ewe (Simpson, 2008).

Ghana's Education

Ghana's educational system was inherited from the British. The only university in the country at the time of independence was the then University College of Gold Coast, now known as the University of Ghana. Two additional universities were established after independence: Kwame Nkrumah Science and Technology (KNUST) and University of Cape Coast (UCC). These three public universities were given unique mandates to enhance higher education and also promote socio-economic development (Gyemara, 2015; "Library of Congress", 2014).

Pre-Colonial Education Era

Education in this era was carried out through informal activities such as apprenticeships with blacksmiths, drummers, or herbalists ...and skills were acquired from observing adults, proverbs, songs, and folktales (Berry & Library of Congress, 1995). Like other African countries, missionaries introduced western-style education to Ghana in 1975 (Cogneau & Moradi, 2014). For example, Presbyterian and Methodist missionaries established most of the elite schools including high schools in the south of the country in what became British Gold Coast Colony (Berry & Library of Congress, 1995). Missionary schools continue to spread until 1919, after World War 1, when "during his governorship (1919-1927), Sir Gordon Guggisberg introduced a ten-year landmark educational policy in various public sectors aimed at preparing industrial and social sectors for the Gold Coast to be economically self-sustained" (Yamada, 2005, p. 73). The Governor's plan was to enhance teacher training, vocational training, and

secondary education. This policy was unsuccessful and led to a low quality of education (Agyeman, Baku, & Gbadamosi, 2000).

Post-Independence Era

Ghana, after gaining independence from the British colony in March 6, 1957, reformed its educational sector again with the goal of improving education in order to solve unemployment and under-employment of its citizens (Acheampong & Furlong, 2000; Palmer, 2005). In 1987, a new educational structure became operational in the country with the initial focus on the creation and implementation of the Junior Secondary School (JSS) program similar to American junior high education system. This new education system was based on The New Structure and Content of Education (Ministry of Education, MOE, 1974). This structure mandated that students spent 6-3-3-4 in the school systems. The systems meant students were mandated to spend six (6) years in primary-school education, three (3) years in junior secondary school education, three (3) years of senior secondary-school education, and a minimum of four (4) years in the tertiary education (Agyeman et al., 2000). As part of the 1987 reform, post junior high education constituted Senior Secondary School (SSS) similar to U.S. high school system, Technical and Vocational Education and Training (TVET, similar to U.S. community college system) both formal and informal, and tertiary level education similar to U.S. higher education. The tertiary level education comprises of the universities and polytechnic institutions (Poku, Aawaar, & Worae, 2013).

In terms of tertiary level education governance, the National Council for Tertiary Education (NCTE), through ACT 454 of 1992 (“NCTE”, 2016), was established to manage the administration of tertiary education institutions in Ghana. NCTE serves as the supervisory and regulatory body that advises government through the minister for tertiary education (NCTE, Act 454, 1992). As part of the general tertiary education reform, public universities in Ghana were

also overhauled.

Public universities reforms took place in 2007. According to Varghese (2013) the reforms included “new institutional evaluation procedures, the merging of courses, the introduction of a credit system, cost recovery measures and new funding formula, the creation of new governing bodies and buffer institutions, new staff recruitment procedures, and the transition of staff from civil service to university employees” (p. 7). Furthermore, the education reform was instituted to accomplish both domestic and international goals aimed at improving Ghana’s educational status across the globe (Kuyini, 2013).

With all these reforms, Poku et al. (2013) suggested that education in Ghana could be described as being under experimentation without clear direction and focus. In contrast, Watson, Modgil, and Modgil (1997) had argued that reforms in education were the result of the pressures and changes of global economic sectors and other circumstances. Education is not static and neither are global issues, therefore; it would be normal for government and educational institutions to reform whenever there are changes. Some educational reforms are created to meet global standards (Frenk, Chen, Bhutta, Cohen, Crisp, Evans, & Kistnasamy, 2010). Generally, responsibilities are given to public universities to champion such reforms (Lancer, 2006; Rosekrans, Sherris, & Chatry-Komarek, 2012).

Public Universities in Ghana

Until recently, Ghana had three main public universities funded by the government. The three universities were introduced by the British colonial administration and modeled after the standard of education policy of the British (Yamada, 2005).

The first public university was the University of Ghana (UG). It was founded in 1948 as the first university college of the Gold Coast. In 1961, through the 1961 parliament act 79

(Similar to U.S. Congress Bill), University of Gold Coast was transitioned into University of Ghana and was allowed to award degree certificates to students. The university is located in Legon, Accra the capital of Ghana. The purpose of the university was to promote university education, learning, and research (“University of Ghana”, 2015).

The second public university in Ghana is Kwame Nkrumah University of Science and Technology (KNUST). It was originally founded as Kumasi College Technology in 1951. The college became a university in 1961 through an act of parliament and renamed KNUST. After the 1966 revolution, Kwame Nkrumah’s name was removed from the university and changed to University of Science of Technology. However, through the 1998 Parliament Act 559, the university was once again renamed Kwame Nkrumah Science and Technology (“KNUST”, 2016). The university became the second public university established after independence. KNUST is located in Kumasi, the second largest metropolitan city in Ghana. Just like UG, KNUST was established to provide higher education, research, and foster relations in and out of the country. The university was also given the responsibility to lead in the science and technology aspect of Ghana’s education and development (“KNUST”, 2016).

The third public university in Ghana is University of Cape Coast (UCC). It was founded in 1962 as a university college and maintains a special relationship with the University of Ghana, the first university of the country. UCC attained its full and independent university status in 1971 through the UCC Act, 1971 (Act 390) and subsequently UCC Law, 1992 (PNDC Law 278). The Act awarded UCC the ability to award degrees, diplomas, and other certificates to students and other practitioners in Ghana (“UCC”, 2016). The university, which is located in Cape Coast the central region of the country, was established out of the need for highly qualified and skilled manpower in education to provide leadership and instruction. The original mandate was to train

graduate professional teachers for Ghana's second cycle institutions and the Ministry of Education staff in Ghana. Currently, more diverse academic and training programs have been added to the curricula to meet the ever-increasing needs of the country ("UCC", 2016).

These three public universities were all established with unique obligations to promote higher education not only in Ghana but also in the West African sub-region (Edu-Buandoh, 2010). In recent years, seven more public universities have been added bringing the total of public universities to ten ("Ghana National Accreditation Board", 2016). This increase is a result of increasing demand for university education by the citizens. These universities like any other universities around the world strive to be competitive in the world stage by retaining relevant rankings and also contributing to the economic growth and development. Gardner (2000) shared that "tertiary education plays a vital role in supporting knowledge-driven economic growth and the construction of democratic, and socially cohesive societies" (p. 23). In order to offer and attain 21st century education, growth, and development in Ghana, most public universities have fostered educational collaborations with their counterparts in developed countries including the United States in order to improve the quality of education, training, professional development, outreach, and services.

History of U.S.-Ghanaian Educational Collaboration

U.S.-Ghanaian education collaborations were initiated when the country became independent. Government of Ghana recognized the need for public policy reform and increased participation of civil society (Irvin & Stansbury, 2004).

In the 1970s and 1980s, several Sub-Saharan African (SSA) countries including Ghana were going through struggles such as diseases (malaria and HIV), conflicts, poverty, economic hardship, and other disasters (Parker, 2010). The few existing public universities in this region

were not able to compete for financial support from both local government and international agencies. This was as a result of donors focusing attention heavily on primary and secondary education sectors and leaving behind the needs of universities (Parker, 2010).

According to Burton (2000), during the socio-economic downturned state of affairs in Africa, most universities had only 3.5 percent enrollment, the lowest in any region in the world. In addition, the majority of the continent's universities infrastructure were built in 1950s and 1960s and were now deteriorating due to poor maintenance and lack of funds to build new classroom buildings and other related infrastructure (Simmons, Mbarika, Mbarika, Thomas, Tsuma, Wade, & Wilkerson, 2011). Universities also lacked updated technological infrastructure, libraries, coupled with the severe brain drain of faculty and staff leaving Africa for better opportunities in the United States and Europe (Parker, 2010). Some international institutions particularly in the U.S. and other European countries saw the declining and deplorable state of African universities and came together to intervene (Parker, 2010).

Several U.S. organizations and universities collaborated with some public universities in Africa including Ghana with the goal of enhancing public university systems in the continent. For instance, in 2007, the APLU (“APLU”, 2007) and a number of U.S. based institutions and African universities came together to form the Africa-U.S. higher Education Initiative. The “principal goal was to facilitate deeper and more effective partnerships between African and U.S. institutions of higher education with a view to contributing more effectively to key priority development areas such as education, teacher training, science and technology; agriculture, environment and natural resources; engineering; business, management and economics; and health” (p. 1). The initiative led APLU in 2010 to work with the U.S. congress to secure a 15 million dollars appropriation for the Africa-U.S. Higher Education Initiative (“APLU”, 2017, p.

1). The purpose of the appropriation fund was to encourage and promote Africa and U.S. institutions in higher education to form partnerships (“APLU” 2017, p. 1). To achieve the initiative’s goals, eleven U.S. universities were each awarded with 1.1 million dollars grant by the United State Agency for International Development (USAID), APLU, and Higher Education for Development (HED), renewable every two years to pursue the aforementioned initiatives.

With all these efforts and support for Africa’s higher education, it was still difficult to ascertain how U.S. education collaborations and or partnerships have changed the ways African universities conduct business with regard to teaching, research, and technology use for learning and meeting global education standards. To properly understand this topic, it is important to understand the definition of collaboration and also identify some similarities that exist between educational collaborations and partnerships and why some scholars use collaboration and partnership interchangeably.

Definitions of Collaboration

Collaboration is said to be ambiguous and difficult to substantiate. Gajda (2004) acknowledged that the definition of collaboration itself is “difficult to grasp, elusive, inconsistent, and theoretical” (p. 65). Numerous definitions of collaboration with diverse perspectives have been used; however, Mattessich and Mossley (1992) definition of collaboration was deemed appropriate for this study. The authors defined collaboration as “mutually beneficial and well defined relationship entered into by two or more organizations to achieve common goals” (p. 11). The importance of mutual benefit and well established relationships were some of the key variables that needed to be implemented and accomplished when collaborators enter into collaboration. Huxham (1996) stated that “collaboration is taken to imply a very positive form of working in association with others for some form of mutual

benefit...." (p. 7). These are positive advantages associated with collaboration which serve as motivational factors for most universities and or institutions to enter into collaborative partnerships. For this reason, various universities and colleges have embraced collaboration as a form of vehicle for solving organizational and societal issues, promotion of innovation, research, learning, outreach, and service opportunities (Cook, Bell, Nugent & Smith, 2016; Wood & Gray, 1991).

Collaboration promotes a relationship that leads to institutional interdependence and may yield some benefits. Thomson and Perry (2006) have alluded that collaboration occurs over time and institutions are expected to engage with their counterparts formally and informally, consistently through meetings, negotiations, develop commitments, build trust, and implement goals to mutually benefit from collaborative programs. The authors also cautioned collaborators about the uncertainty associated with collaboration.

Collaboration and Partnership

Many terms and definitions have been used to describe inter-organizational relationships (Huxham, 1996, Crajkowski, 2007). One such term is partnership. Carnwell and Carson (2008) defined partnership as a "shared commitment where individual partners have rights and obligations to participate, benefit equally, and share disadvantages that might arise from the partnership" (p. 7). There is some form of contractual agreement that could be of a legal or non-legal context, which requires individual partners to perform certain obligations. Figure 3 presents some similarities between partnerships and collaborations. Figure 3 was originated from Carnwell & Carson (2008) table 1.1 "defining attributes of collaborations and partnership" (p.8).

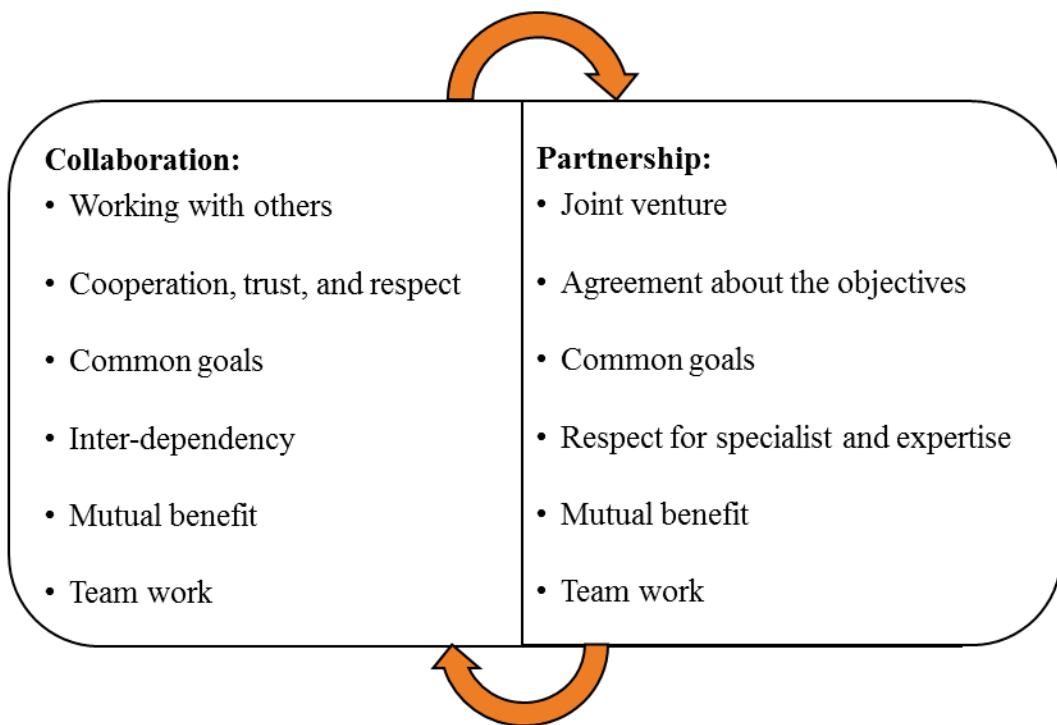


Figure 3

Similarities Between Collaboration and Partnership

In accordance with Figure 3, some scholars use collaboration and partnership interchangeably especially in university inter-relationships. In some cases, collaboration may begin as a corporation and then evolve into deliberate contractual inter-organizational relationships that distinguish one structure from another (Huxham, 1996). In the academic sector, transnational relationships usually begin at the collaboration level through a general cooperation agreement using a Memorandum of Understanding (MOU). Most U.S.-Ghanaian collaborations have these characteristics and for this reason, collaboration and partnership will be used interchangeably in this context.

Forms of Educational Collaborations

Within the higher education environment, there are different forms of collaborations. According to Klasek (1992), “Twenty years ago partnerships were almost exclusively about

student exchange” (p. 109). Today, educational collaborations have expanded from student exchanges to diverse categories. Some common forms of collaborations are as follows:

- Faculty and student exchanges
- Joint collaborative research
- Joint degrees
- Training and development programs
- Outreach and services

New trends of higher education collaborations involve “franchised provision and or offshore education” (Smith, 2010, p. 793). These new cross border academic collaborations have brought to question quality assurance issues (Knight, 2016; Smith, 2010) and some scholars like Altbach and Knight (2007) have also questioned the ultimate beneficiaries of such inter-transnational higher education collaborations.

PHASE II OF THE REVIEW

Collaborative Studies

There were five collaborative studies that were reviewed for this study. The review studies included two international organization reports on U.S.-African higher education partnerships and three studies on U.S.-Ghanaian public university collaborations included in this section. The literature was reviewed to examine the effectiveness of collaboration efforts between some U.S.-Ghanaian public universities. There have been some perceptions that these kinds of collaboration have been beneficial to Ghanaian universities and yet, there are few empirical studies that have addressed benefits from U.S. collaborations in the areas of joint research projects, technological usage in teaching and learning, updated curricula to meet global standards, outreach and service, and how knowledge and skills acquired from U.S. counterparts

have been implemented to enhance Ghana's universities and community developments. In his recent study, Kot (2016) echoed the largely unaddressed empirical research question which was, what benefits do African institutions and stakeholders derive from partnerships? The author found three benefits that African institutions gained from international collaborations which were: 1) institutional capacity, 2) academic effectiveness, and 3) internationalization. Although these findings were consistent with other scholarly findings, methods that were used may have limited the findings. A qualitative method may have been more beneficial.

The two international organizational reports were: 1) Institute of International Education (IEE, 2011) and 2) Partnership for Higher Education in Africa (PHEA, 2009) U.S.-Africa reports.

The first report was issued by IEE (2011) and is entitled *Building Sustainable U.S.-Ethiopian University Partnerships: Findings from a Higher Education Conference*. In this report, a survey was administered to Ethiopian universities that participated in the conference to share the state of affairs of U.S.-Ethiopian partnerships and the information, resources needed to bridge the gap in access to high-quality education and sustainable partnerships. The following are the summary results from the survey:

- Ethiopians universities had some level of partnerships with prestigious U.S. institutions with signed MOUs;
- Ethiopian universities shared their unsuccessful attempts to build and sustain effective partnerships with their U.S. counterparts;
- Ethiopian universities had interest in collaborations but still lacked “clear and comprehensive strategy for building and sustaining partnerships with U.S. counterparts” (p. 9). From experience, this sense of interest but lack of clarity and

strategy by most African universities when dealing with U.S. counterparts in collaboration tends to undermine such efforts from the beginning stages of collaborations.

In terms of challenges, the Ethiopian universities shared that:

- They lack information regarding how to establish partnerships with U.S. institutions;
- There was little interest on the part of U.S. institutions to collaborate with Ethiopian institutions;
- There was little support from the Ethiopian higher educational system for effective partnership; and
- Ethiopian institutions experienced difficulty meeting salary demands of U.S. scholars (IEE, 2011, p. 11).

Based on these findings, there was a lack of reviewed of the initial processes that the Ethiopian universities engaged in prior to starting collaborations with U.S. counterparts. That information would have provided additional insight on comprehensive solutions and/or strategies for improving U.S.-Africa higher education partnerships. The process could have addressed the identification of partners and interaction issues, as well as key-steps in education collaborations. The *Building Sustainable U.S.-Ethiopian University partnerships* report by IEE just like other African-U.S. higher education studies, continue to focus on challenges of collaboration in Africa (Aikins et al., 2012; Parker, 2010; Yizengaw, 2008) and did not focus on key elements that needed to be instituted before collaboration even commences. The IEE report suggested factors such as more linkages with U.S. universities, strategic planning regarding how partnerships can be mutually beneficial, raising the visibility, and the status of their country's reputation. These kinds of expectations by Ethiopians and most African universities has caused a shifting of roles,

responsibilities, and reliance on the U.S. and other advanced countries universities for international acceptance. These philosophies held by some Africans universities tend to favor the well-developed education systems and contribute to inequalities in collaborations (Altbach & Knight, 2007). In contrast, the goal for African universities should be providing quality education that meets world class standards and thereby attracts interests and engagement from U.S. institutions. The last suggestion in the IEE report was for U.S. institutions to offer more scholarships and funding. Once again, it is necessary for African universities to be financially secure, improve their academic programs, have adequate trained and skilled faculty, and staff to support collaborative programs with U.S. counterparts (Jowi et al., 2013).

The second report from PHEA was entitled *Partnership for Higher Education in Africa. Report of Activities, 2008-2009*. In this report, the organization highlighted how the 400 dollars million obtained within the ten years of PHEA's existence was dispersed to enhance academic programs in Africa. The majority of the grants were allocated as follows: 1) Academic support: 53%, 2) Institutional Development (ID): 28%, 3) Information and Communication Technology (ICT): 14%, 4) Higher Education Research and Advocacy (HERA): 2%, and 5) Foundation Administrated Project (New York University project, IEE): 3% (PHEA, 2009). PHEA's highest priority was to improve academic support focusing on the next generation of academics and outreach. In spite of all these investments, some West African universities still lag behind the capacity that parallels institutions in advanced countries such as the U.S. (Morfit et al., 2009). This leads to the question, to what extent have institutions such as PHEA ensured that funded African universities are implementing and sustaining collaborative programs? For example, Table 2 shows the various ICT initiatives designed and supported by PHEA over a period of time. Table 2 was retrieved from PHEA (2009) activities report for 2008.

Table 2

PHEA ICT Training Program Recipients

Institutions by Country	Educational Technology Initiatives (ETI)	Bandwidth Consortium (BWC)	Bandwidth Management Training
Ghana			
Association of African Universities (AAU)		✓	✓
University of Education, Winneba (UEW)	✓	✓	✓
University of Ghana (UG)		✓	✓
Nigeria			
Ahmadu Bello University		✓	✓
Bayero University		✓	✓
Obafemi Awolowo University		✓	✓
University of Ibadan	✓	✓	✓
University of Jos	✓	✓	✓
University of Port Harcourt		✓	✓
Kenya			
KENET			✓
Kenyatta University	✓		
Mozambique			
Catholic University	✓		
Uganda			
Makerere University	✓		
Tanzania			
University of Dar es Salaam	✓	✓	✓

Legend: ✓ indicates institution participated and received training.

PHEA (2009), Report of Activities for 2008

This report does not identify how programs and projects were sustained over the ten-year period when the PHEA organization was still in operation.

The following discussion focuses on previous studies that involved U.S.-Ghanaian public universities collaborations.

Peters et al. (2013) study investigated the collaboration between Kwame Nkrumah University of Science of Technology (KNUST) and University of Michigan (UM) to determine if new dental students could learn about the knowledge and skills required for dentistry. The objectives of the training program and faculty exchanges were to prepare first year KNUST dental students for delivery of simple and practical oral health care. The findings of “the study showed that an integrated compact course delivery model might have helped new dental schools to cope with the resident faculty shortages in the dental field” (p. 1554).

Bettermann and Propero (2012) examined social partnership between Ghanaian and U.S. academic institutions that was based on a faculty exchange program. The program was instituted to explore the social partnership between the Department of Sociology and Social Welfare at KNUST in Ghana and the College of social work at the University of Utah (UUCSW) in the U.S. The study found that faculty perceptions in developing academic partnerships were significant and there was a need for strong relationships in the early phases of partnerships to enable sustainable and successful collaborations.

Obuobi et al. (2006) described collaborations between University of Cape Coast (UCC) and University of Massachusetts Amherst’s (UMass) technology innovation and application program. The article presented the challenges facing Africa as whole with regard to utilization of technology for classroom instruction and learning about innovations in education and educational technology. The authors narrowed the discussion to specific challenges in Ghana in areas such as “inadequate infrastructure, poor connectivity, inadequate funding, inadequate educational resources and staffing, persistent brain drain, and qualified instructors” (p. 22). More detailed information about the teaching and learning environment at UCC was also presented to show the understanding and needs of UCC. Conclusions of the study identified that UMass

identified the needs of UCC and adopted appropriate software for the university to assist with its educational technological issues and also meet the demands of students.

Each of the previously addressed studies were linked to Wood and Gray's (1991) three stages of collaboration, which were: 1) preconditions, 2) process, and 3) outcomes. Figure 4 was originated from Wood and Gray's (1991) three stages of collaboration.

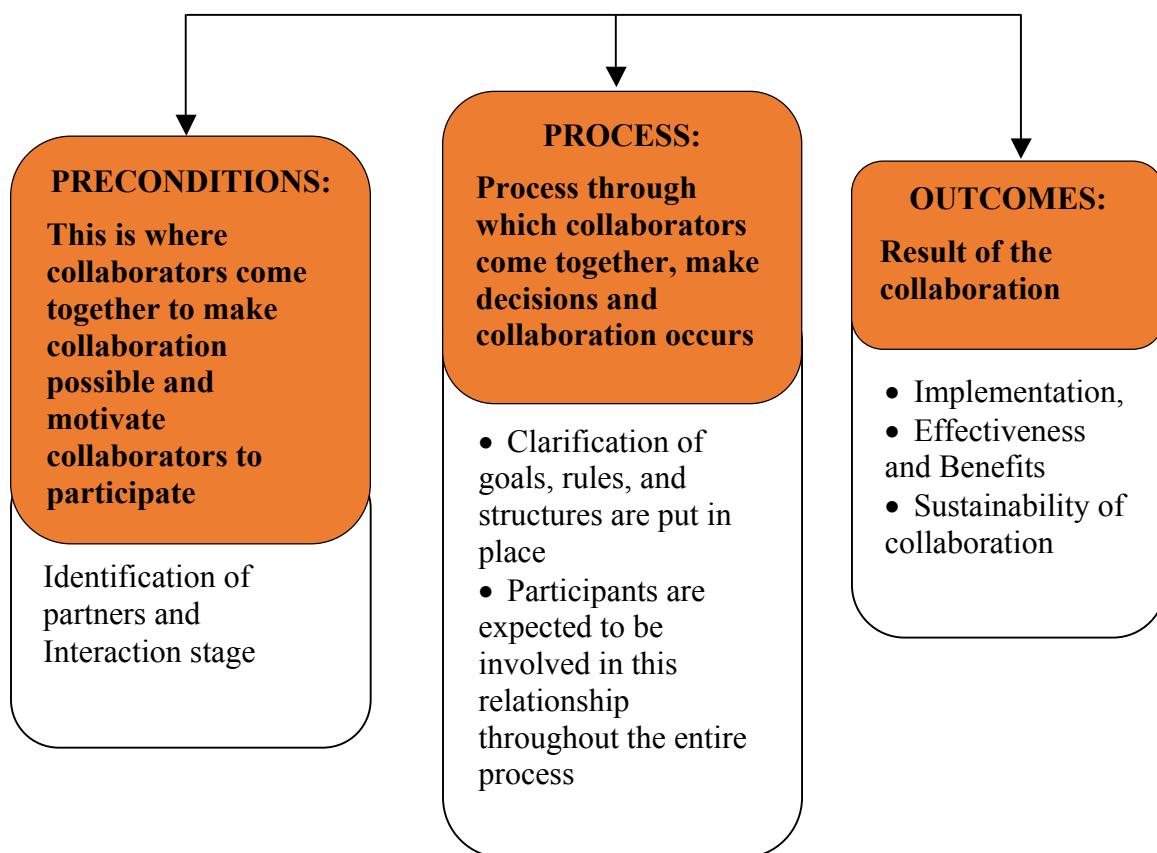


Figure 4

Linking Articles to Wood & Gray's (1991) Collaboration Theories

Preconditions

This phase includes the initial identification of partners and interaction/dialogue stage.

During the identification stage, most academic institutions look for strategic partners and initiate collaborations (Billet, Clemans & Seddon, 2007). Indiana University Purdue University (IUPU) Office International Affairs (OIA, 2006) defined “a strategic partner as a university or small set of universities within a country with strategic importance for the internationalization for a university/college and its surrounding community” (p. 1). Peter et al. (2013) revealed that the UM medical school was the institution that found a strategic partner in KNUST and made the collaboration possible and paved the way for the Ghanaian collaborators to participate. Finding collaborators that share common values and goals is one of the ways to build an efficient collaboration (Lowen, 2014). Some U.S. institutions use criteria such as rankings, reputations, benefits, costs, and challenges as selection criteria. For UM, the identification of KNUST dental school as a collaborative partner came about as result of a previous successful health educational training program both universities continue to engage in. Thurman, Hemert, Williams and Wilson (2016) advised that when universities find institutions “whose values and goals are in alignment with their programs, the next step is to adequately engage them in dialogue” (p. 22). For this specific collaboration, the dialogue was based on UM assisting KNUST to develop a new dental school program. The dialogue process is usually conducted by “entire institutions; specific departments or programs; and individual faculty, staff, and students” (ACE, 2012, p. 20). In this article, both dental schools in UM and KNUST were consistently engaged in conversations and negotiations.

Based on preconditions (Wood & Gray, 1991), UM and KNUST’s identification/interaction stage was fully executed and fit with the conditions. According to

Burns et al. (2010), the precondition stage helps to facilitate trust and solidify relationships, which is key to successful and sustainable collaborations. Fortunately, both the UM and KNUST collaborators gained trust, respect, and commitment from each other which led to a successful and sustainable collaboration.

Process

Peter et al. (2013) presented the purpose of the UM and KNUST's collaboration, which was "to prepare first year clinical dental students to be able to deliver basic practical oral health care in Ghana" (p. 1654). Some of the strategies and goals carried out throughout the collaboration were targeted educational interventions and practical instructions for skill development. There was no discussion on the roles, responsibilities, rules, and structures put in place by both universities during the early stages of the collaborative program. Upon comparing the process as identified by Peter et al. (2013) to Wood and Gray's (1991) collaborative process model, there was a limited description of the process used during the collaboration between UM-KNUST collaborators. The lack of description about the process as appeared in this study could have undermine the effectiveness of the program but in this case, UM and KNUST dentistry program was effective.

Outcomes

Peter et al. (2013) found that the first-year Ghanaian dental students gained knowledge, experience, and confidence, after using the integrated compact course delivery model. Linking it to the outcomes stage of collaboration, UM and KNUST's dental collaboration enhanced KNUST's new dental school program leading to improvement in teaching and learning.

Altbach (2004) argued that when some institutions initiate programs like training and development and faculty exchanges, some of the preconditions, process, and outcomes primarily

benefit the well-developed universities with large investments, financial, human, and world class infrastructure. Although the above assertion might be true, Peter et al. (2013) found that the KNUST dental students benefitted more from the collaborative program. One aspect to be considered was the resource dependence issue (Wood & Gray, 1991) whereby some developing countries tended to view U.S. collaboration as some form of financial umbrella and were relying solely on U.S. collaborators for everything including financial resources, human capital, data, and other related resources with little or no effort of contribution from the developing countries collaborators. Heavy reliance on the U.S. for most of the collaborative support has led to inequitable distribution of benefits. For Ghanaian collaborators to mutually benefit from collaboration, Wood and Gray (1991) advised institutions to address the resource dependence question which early in the relationship. The issue would be reducing environmental uncertainty without increasing dependence. Peter et al. (2013) revealed that the in-country training and faculty exchange programs were adequate solutions to KNUST academic needs and the university's resource availability levels. Both universities implemented the initial collaborative goals, which helped them to mutually benefit from the program.

Table 3 shows how KNUST in Ghana and UUCSW in the U.S. addressed the collaborative stages as identified by Bettermann and Propero (2012) and Obuobi et al. (2006). The table provides Betterman and Propero's (2012) and Obuobi et al. (2006) preconditions, process, and outcomes stages separately.

Table 3

Stages of Collaboration Between Kwame Nkrumah University of Science and Technology (KNUST), Ghana and University of Utah College of Social Work (UUCSW), U.S; and University of Massachusetts Amherst (UMASSS), U.S. and University of Cape Coast (UCC), Ghana

Researchers	Stages	Applications	Comments
Bettermann & Propero (2012)	<p>Precondition: Identification of KNUST as a Ghanaian partner was described.</p> <p>Process: UUCSW initiated this collaboration with KNUST.</p> <p>Outcome: Assistance was offered to KNUST new social welfare faculty members through one workshop conducted by UUCSW which KNUST faculty attended</p>	<p>Resource dependency: No discussion on interdependence of resources or whether both universities had high or low levels of resources when they entered into the collaboration.</p> <p>Institutional/Negotiated order: KNUST shared a need and a common goal was presented at the beginning of the partnership and plans were initiated to respond to academic problems.</p>	The level of resources each university had and contributed were not fully discussed making it difficult to determine the institutional level of interdependence.
Obuobi et al. (2006)	<p>Precondition: The selection of U.S.-Ghanaian partners was provided in the literature.</p>	Resource dependency: UCC had high stakes and high dependence on UMass for intervention.	The detailed knowledge of the problem and needs areas of UCC. Resource dependency was distinctly detailed.

Table 3 (Continued)

Researchers	Stages	Applications	Comments
Obuobi et al. (2006)	Process: According to the article representatives from both institutions came together to make decision with regards to finding solution to UCC technology needs. Outcome: UMass the UCC American university partner selected CD-MANIC technology with the goal of solving the technology issue in UCC. Both universities also instituted a summer program that trained UCC ICT providers.	Institutional/Negotiated order: A shared common goal was presented at the beginning of the partnership and partners tried to respond to the problem.	Two main steps comprising of the identification of a system appropriate for technology delivery and use of cost effective technologies were introduced to improve teaching and learning. The outcome section was well addressed although only one UCC faculty member seems to have benefitted from the innovative program training.

Sources: *Bettermann & Propero (2012); Obuobi et al., (2006); Wood & Gray (1991)*

In terms of program sustainability, Peter et al. (2013) reported that KNUST and UM continued to sustain the dentistry program in Ghana. Bettermann and Propero (2012) and Obuobi et al. (2006) did not mention sustainability efforts related to their respective programs creating once again a gap that needs to be explored. Indeed, many U.S. and Ghanaian institutions have expressed complexities and challenges in sustaining collaborations. Others have assessed the challenges and have embraced unique practices such as selection of partners based on needs, resources, trust, level of commitment, and benefits as good practices for sustaining and achieving successful collaborations (IUPU Office International Affairs, 2006; Sutton & Obst, 2011).

Crajkowski (2007) identified “six key collaboration success factors for measuring successful inter-institutional collaboration in higher education” (p. 4). He suggested that once these success factors are identified and implemented, higher education would be able to develop an operational and sustainable collaboration (See Table 4). Milton and Obamba (2014) suggested that transnational higher education partnerships could be achieved when institutions manage and embrace reforms that led to sustainable development.

Table 4

Crajowki's (2007) Six Key Collaboration Success Factors

Ranking	Success Factor
1	Trust and partner compatibility
2	Common and unique purpose
3	Shared governance and joint decision making
4	Clear understanding of roles and responsibilities
5	Open and frequent communication
6	Adequate financial and human resources

Applying the six success factors to studies conducted by Peter et al. (2013), Bettermann and Propero (2012) and Obuobi et al. (2006), it was deduced that during the preconditions stage, the collaborators were able to establish trust and compatibility with their respective collaborators and there was a common and distinctive purpose and rationale for collaboration at the beginning of the collaboration. However, these studies did not address the issue of resource dependency and the impact on each collaboration. The lack or insufficient and/or inequitable levels of resources on both sides could affect the continuity of collaborative programs.

Regarding the process stage, all the studies discussed the roles and responsibilities performed by each collaborator. In terms of the joint decision-making process, shared governance, channels of communication, and the overall structure of the collaborations, these issues were not clearly discussed. The insufficient discussions on the process leave a gap that needs to be examined in the U.S.-Ghanaian education collaborations to improve the outcomes.

Regarding the outcomes stage, all studies were able to identify some expected outcomes. For instance, according to the Peter et al. (2013), UM and KNUST continued to engage in the health care collaborative programs. The two universities obtained a grant from the Bill and Melinda Gates Foundation to further develop and improve dental and other health care programs in Ghana. Bettermann and Propero (2012) identified some benefits; however, no details were available as to the process leading to the collaboration outcome. One workshop was conducted but it does not guarantee a faculty development program. Therefore, such efforts cannot necessarily benefit Ghanaian collaborators in the long term. Obuobi et al. (2006) shared that UMass adapted a MANIC application software in support of technology use in the UCC classroom. UMass also trained one of the UCC professors to work with UMass faculty to install and evaluate the MANIC education technology and test how the program would work in UCC. Although the initial software test result was not positive; both universities went ahead to establish a summer school to ensure long-term collaboration between the two universities. UMass further promised to send more researchers to UCC in 2007 as a form of sustainable measures to continue with the technology innovation application program. Currently, this collaboration is not functioning (“CIE”, 2016). This pattern of failed collaborations between Ghanaian and the U.S. universities sometimes discourages other universities in both Ghana and

U.S. to enter into any sort of university collaboration. Crajkowski (2007) shared some practices that could lead to ineffective collaboration.

Ineffective Collaborative Practices

The following ineffective collaborative practices factors were based on Crajkowski (2007) six success factors. Ineffective collaboration includes:

- Selection of incompatible collaborators
- Inability to present clear objectives, roles and responsibilities
- Ineffective communication
- Lack of trust and respect
- Unfair distribution of financial resources, human resources and benefits
- Lack or no/ limited shared governance and joint decision-making process.

Even though educational collaborations have not been successful one, U.S. university, the University of Michigan (UM) departments of Obstetrics-Gynecology (OBGYN), created a Charter For Collaboration (CFC, Anderson, Donkor, de Vries, Appiah-Denkyira, Dakpallah, Rominski, & Rana, 2014) when it entered into a twenty-year tri-lateral collaboration with UG, KNUST, and the Ghana Ministry of Health. They have achieved high in-country retention of certified postgraduates program in OBGYN in Ghana. The CFC established the context in which implementing technical interventions became an opportunity for dialogue and development of a mutually beneficial partnership. To ensure that research results would be converted into policy reforms, the CFC presented clear opportunities, potential problems, and institutional barriers that needed to be overcome to accomplish sustainable collaboration. Future U.S.-Ghanaian partners to achieve sustainable academic collaboration could also replicate the CFC concept and other sustainable measures to be successful in Ghana and other African universities.

There were no definite principles for achieving a successful and sustainable collaborations. Educational collaborations entail hard work, patience, long-term commitments, and collaborators are expected to mutually engage to be able to benefit from collaboration (Burns et al., 2010). Equal commitments and achievement of mutual benefits will tend to determine whether collaborations will be either effective or ineffective. As Czajkowski (2007) suggested, higher education institutions could develop successful collaborations and witness positive outcomes when they focus on the success factors as a matrix for development and for measuring their unique collaborations.

Summary

The literature review presented the basis of this study and found that a gap existed around some of the crucial collaboration components. In this chapter, there were brief definitions of collaborations, forms of educational collaboration, two previous international agency reports, and three specific U.S.-Ghanaian collaborative studies that were reviewed. All the three specific U.S.-Ghanaian studies were examined using Wood and Gray's (1991) three theoretical stages of collaborations which were: preconditions, process, and outcomes and were also mapped against two collaborative factors: resource dependence and institutional/negotiated order to assess the effectiveness of the diverse collaborations. There were also discussions on some of the best successful collaborative practices based on Czajkowski (2007) six factors for successful collaborations and some ineffective collaborative practices.

Most of the studies discussed in this chapter affirmed some of the benefits of success that comes with higher education collaborations. Birmingham and Ryan (2013), Kreitzer and Wilson (2010) and Pierson, Myck-Wayne and Stang (2015) all echoed the importance and benefits of educational collaborations. Czajkowski (2007) urged collaborators to properly establish

collaborations in order for them to benefit and achieve long-term programs and or projects. Day et al. (2010) also found that collaborations are beneficial to academic institutions, communities, growth and sustainability of development when carried out well.

On the contrary, positive attributes of educational collaboration are generally accurate, but it is not necessarily the case in various foreign educational environments particularly in some public universities in Ghana (Altbach & Knight, 2007; Fot, 2016).

Some scholars tend to focus on the challenges of undertaking collaboration in developing countries but not necessarily address how the initial structures enforced became a stumbling block for successful and sustainable partnerships. There are gaps when it comes to issues of collaborative process, the effectiveness, and program sustainability measures especially with collaborations between U.S. and Ghanaian public universities. Discovering the process, benefits, and identifying sustainable measures is critical and valuable for future US-Ghanaian educational collaborators, funding agencies, and interested parties, not only in Ghana collaborations but other developing countries as well.

CHAPTER THREE: INTRODUCTION

This chapter focused on the design of the study, the sample size, instrumentation, data description and collection, data analysis, and the pilot study. This study examined collaborations and/ or partnerships between U.S. and Ghanaian public universities. Partnership between the United States and Ghanaian public universities continue to grow, a trend which is also an important part of contemporary global higher education (Altbach, Reisberg, & Rumbley, 2009). Collaboration goals have been to increase access to quality teaching, delivering of modern instructions, advances in research, and related developmental programs (Kot, 2014).

Purpose of the Study

The purpose of this study was to examine previous educational collaborations between U.S. and Ghanaian public universities and the impact on Ghanaian universities. The goal was to assess how the paired U.S.-Ghanaian universities partnerships, in terms of the types of collaborative programs in place, program effectiveness, and how these collaborations have benefited Ghanaian public universities

Research Questions

The following research questions guided the study:

- RQ1. What types of U.S.-Ghanaian university collaborations are there?
- RQ2. How are U.S.-Ghanaian university collaborations established?
- RQ3. How effective are U.S.-Ghanaian university collaborations?

RQ4. To what extent have U.S.-Ghanaian educational collaborations benefitted Ghanaian public universities?

Researcher's Role

This study used both post-positivist and constructivist paradigms to gain indepth understanding of the study from the participants' point of view (Teki & Kotaman, 2013) and also gain knowledge from the process. For this reason, my role was to bring to this project my philosophical beliefs, assumption about reality, and the methods that follows my beliefs related to U.S.-Ghanaian public universities collaborations. As a qualitative researcher, I am the instrument which requires that my role in this project should convey participants own point views and my biases should be avoided.

Constructivist Paradigm

Creswell and Miller (2010) asserted, "Constructivists believe in pluralistic, interpretive, open-ended, and contextualized (e.g., sensitive to place and situation) perspectives toward reality" (p. 125). To contextualize the effectiveness of U.S.-Ghanaian collaborations, data collection for this study began in 2014 with the goal of learning and understanding: 1) the types of collaborations existing between U.S.-Ghanaian universities; 2) collaborators experiences in dealing with their counterparts; 3) the benefits derived from such collaborations; and 4) the kind of sustainable measures put in place and implemented for sustainable and successful collaboration. Glaserfied (1986) also echoed that constructivists "knowledge can now be seen as fitting the constraints within which the organism's [individual's] living, operating, and thinking takes place" (p. 108) which was the model used to obtain knowledge and understanding for the participants.

In addition, the study did not begin with a theory; the goal was to address the research questions from the participants' perspectives through various interactions and observations. Creswell (2013) echoed that, "constructivist's often address the 'process' of interaction among individuals....and the context in which people work" (p. 25). In line with this, data collected from participants, together with prior knowledge, experiences, and networks with both collaborators from Ghana and U.S. were utilized to achieve some form of constructed reality on the subject of study (Kemp, 2012).

Post-Positivism Paradigm

Post-positivists argue that, "Reality cannot be fully apprehended, only estimated" (Guba 1990, p. 22). The goal in this study was to rely on multiple data sources to arrive at some form of conclusion that could be used in the future. U.S. and Ghanaian educational engagements continue to grow and yet, the reality of such collaborations/partnerships being successful has not been realized due to the lack of empirical research and relevant information that reveals how U.S. collaborations have benefited Ghanaians and even African institutions as a whole (Jowi et al., 2013; Kot, 2016). Previous collaborative strategies that U.S. and other advanced countries have used could be applicable to developing countries such as Ghana, however; that has not been the case (Altbach, 2004; Kot, 2016). Using a post-positivist lens allowed me to use several data sources and specific protocols to gain understanding of the data and address the research questions.

Methods

Research Design

A qualitative cross-case study method was used for this study. "A cross-case study enables researchers to mobilize knowledge from individual case studies, compare and contrast

cases, and in doing so produce new knowledge" (Khan & VanWynsberghe, 2008, p. 1). In order to have a valid comparison and to obtain new information, three public universities each from Ghana and the United States were selected with special emphasis given to each university during data collection. Baxter and Jack (2008) shared that "qualitative case study methodology provides tools for researchers to study complex occurrences within their contexts" (p. 544). The tools the case study method provides are an indepth understanding of a phenomenon, multiple data collection sources such as interviews, observations, artifacts, and archival records which assist in triangulation, validity of study results and to ensure the quality of the study (Baxter & Jack, 2008; Eisenhardt, 1989; Yin, 1993).

The three paired U.S.-Ghanaian public university partners selected for the study with their pseudonym names were:

- 1) Midwest University of Health (MUH, U.S.) and Prestigious University of Accra Medical School (PUA, Ghana),
- 2) Renowned University of Midwestern (RUM, U.S.) and University of Ashanti (UA, Ghana),
- 3) Southern Excellence University (SEU, U.S.) and National University of Central Region (NUCR), Ghana.

The universities were selected based on their previous and current collaborations in the U.S. and Ghana, size, and their public university status. Table 5 presents the U.S.-Ghanaian public universities and their classifications with their pseudonym names.

Table 5

Universities and Comparison

US-Ghanaian Universities	Classifications
Midwest University of Health (MUH), U.S. Medical School:	A flagship university Rankings: 11 th medical school Level: 4- year or above Control: Public Basic: Doctoral granting university: Highest research activity Enrollment Profile: Majority undergraduate Size and Setting: Four-year, large, and primarily residential
Renowned University of Midwestern (RUM), U.S. College of Agriculture,	A land-grant university Rankings: # 1 in Biological and Agricultural Engineering Level: 4- year or above Control: Public Basic: Doctoral granting University: Highest research activity Enrollment profile: High undergraduate Size and Setting: Four-year, large, and primarily residential
Southern Excellence University (SEU), U.S. College of Education:	A flagship university Rankings: #34 Best education schools Level: 4- year or above Control: Public Basic: Doctoral granting university: Highest research activity Enrollment profile: High undergraduate Size and Setting: Four-year, large, primarily and residential

Carnegie Classification (2016); U.S. News & World Report (2016).

Table 5 (continued)

US-Ghanaian Universities	Classifications
Prestigious University of Accra (PUA) Ghana medical school	Level: 4- year or above Control: Public Basic: Doctoral granting university: Some level of research activity Enrollment profile: High Undergraduate Size and Setting: Four-year, large, and residential
University of Ashanti (UA), Ghana Department of Agriculture and Natural Resource	Level: 4- year or above Control: Public Basic: Doctoral granting university: Some Level of research activity Enrollment profile: High Undergraduate Size and Setting: Four-year, large, and residential
National University of Central Region (NUCR), Ghana: Center for International Education(CIE)	Level: 4- year or above Control: Public Basic: Doctoral granting university: Some level of research activity Enrollment profile: High Undergraduate Size and Setting: Four-year, large, and residential

Sample

The sample was comprised of representatives from the each of the universities. Table 6 present U.S. – Ghanaian public universities comparisons with their pseudonym names.

Table 6

U.S.-Ghanaian Public Universities Comparison

List of School/College	U.S. Universities	Individuals	List of School/ College	Ghanaian Universities	Individuals
Midwest University of Health(MUH), U.S. working with Prestigious University of Accra(PUA), Ghana					
Medical School	Midwest University of Health (MUH)	Senior Associate Dean for clinical affairs in the medical school and OBGYN Department Chair	Department of OBGYN	Prestigious University of Accra (PUA)	Participant declined on the day of the interview
Renowned University of Midwest (RUM), U.S. working with University of Ashanti (UA), Ghana					
College of Agriculture: Agriculture Economics	Renowned University of Midwest (RUM)	Associate Professor and Principal Investigator (PI)	Department of Forestry and Natural Resources	University of Ashanti (UA)	Professor and Principal of Investigator (PI)
Southern Excellence University (SEU), U.S. working together with National University of Central Region (NUCR), Ghana					
College of Education Office of International Education (OIE)	Southern Excellence University (SEU)	International Partnerships Coordinator	Center for International Education (CIE)	National Central Region University (NUCR)	Dean of CIE and a Professor

A purposefully sampling technique was used in this study. Participants were selected based on their previous and current U.S. and Ghanaian collaborations. The sample size was small consisted of six individuals who played key roles in the previous collaborative process and programs. The small sample size is common and acceptable since generalizability of findings is not the goal of this research (Arnold, Ducate, Lomicka, & Lord 2009). Table 7 provides the participants profile and mode of interview used. Participants names were changed due to confidentiality.

Table 7

Participant Profile and Mode of Interview Used

Participant	University Position	Role	Mode of Interview
Clarke (MUH, U.S.)	Senior associate dean for the clinical affairs in the medical school and executive director of MUH, and Chair of OBGYN program	Initiator of the MUH and PUA medical schools' partnerships	Phone interviews. Both interviews were audio recorded and transcribed.
Will (MUH, U.S.)	Generalist obstetrician/gynecologist and Director of Global Health Initiatives for the department		
Edinburg (RUM, U.S.)	Aquaculture Marketing Director and Associate Professor	Principal Investigator (PI) for a USAID funded project on aquaculture and fisheries in Ghana	Face-to-face interview. Interview was audio recorded and transcribed.
Aseda (UA, Ghana)	Professor	Principal Investigator actively involved in the training of both UA and local fishermen	Email interview. Transcribed

Table 7 (Continued)

Participant	University Position	Role	Mode of Interview
Peters (SEU, U.S.)	Coordinator for the Office of International Education	Prepared MOU for SEU and NUCR exchange program and performed related administrative functions	Email interview. Transcribed
Odom (NUCR, Ghana)	Dean of Center for International Program and Associate Professor	Responsible for the preparation of MOU for SEU and student exchange program	Email interview. Transcribed

Participant Mortality

Not all participants recruited for the study agreed to participate. For instance, two U.S. universities who were recruited at the inception of the study declined after discussing their school's Memorandum of Understanding (MOU) with their Ghanaian counterparts. The withdrawal of the initial participants was disappointing but led to recruitment of additional U.S. universities for the study.

For Ghanaian participants, a faculty member who was also the PI for the PUA, Ghana, and MUH, U.S. collaboration initially agreed to be interviewed; however, was not able to participate. The dropout of key participants could have impacted the study's outcome; however, steps were taken and Dr. Will of MUH (U.S.) was recruited to replace the participant from PUA, Ghana.

Instrumentation

Interviews were used for this study. Two phone interviews were conducted with MUH (U.S.) OBGYN participants, a face-to-face interview with RUM (U.S.) College of Agriculture participant, and three email interviews were used with participants from SEU (U.S.), UA (Ghana), and NUCR (Ghana).

The structured open response interview (King, 1998) questions consisted of 24 questions with seven main constructs (See Appendix C for interview protocol / questions). A mixture of two telephone interviews, a face-to-face interview, and three email interviews were conducted. Meho (2006) indicated that the use of email to interview “was a viable alternative to face-to face, and telephone interviews” (p. 1284). Therefore, a mixture of interview types was used in this study.

Data Description and Collection

A reliable case study incorporates multiple data sources such as: documentation, interviews, archival records, observations, and artifacts (Baxter & Jack 2008; Creswell, 2013; Turner & Banks, 2014). In this study, the following data sources used included: 1) Interviews, 2) archival records, and 3) observations.

The following process were used to collect the data:

1. MOUs were collected from each selected participating university.
2. Interviews of various forms were conducted with the selected participants.
3. Information was gathered from MUH (U.S.) and PUA (Ghana) websites; RUM (U.S.) College of Agriculture Aqua-fisheries newsletters, UA(Ghana)website, SEU (U.S.) and NUCR (Ghana) websites, scholarly articles, literature from collaborative researchers, publications, USAID websites, news releases, APLU websites, stakeholders’ websites, and other internet sites.
4. Two visits were made to NUCR (Ghana) for classroom observations and other campus site use for exchange programs.

Interviews

The two phone interviews were separately conducted with the chair of the MUH OBGYN (U.S.) department and the director of the MUH (U.S.) Global Reach OBGYN department. A face-to face interview (42 minutes) was also conducted with the Director of aquaculture marketing, Associate Professor of Agricultural Economics and a Principal Investigator (PI) for RUM (U.S.) and UA (Ghana); and lastly, three email interviews were sent to the professor and PI in UA (Ghana), the coordinator of office of International Education programs at SEU (U.S.), and the Dean of Center for International programs at NUCR (Ghana).

In addition, archival records in the form of previous interviews conducted with some U.S. and Ghanaian universities faculty members, pictures from onsite visitations to the Ghanaian universities distance education classrooms, records of failed partnerships program between some U.S. and Ghanaian universities, and observations were also conducted at two separate public universities in Ghana.

Data Analysis

The data collected from all the six universities were categorized into various themes. The data for each university in the collaboration was analyzed. Finally, each collaborative program was cross analyzed with the other collaborative.

Cross-case analysis methods were used. Stake (2006) pointed out that the cross-case analysis method facilitates comparison of different cases, identification of commonalities, differences in activities, and processes involved in each case study. In line with Stake's model, the three interviews were audio recorded, transcribed verbatim, and email interviews were also coded and categorized into themes according to each selected university's profile. A cross case analysis was also conducted with each of the participating universities.

Coding

Atlas-ti software was used to code all the transcribed participant interviews: 1) MUH (U.S.) OBGYN department chair transcribed interview, 2) MUH (U.S.) Director of the OBGYN global initiative participant transcribed interviews; 3) RUM (U.S.) principal investigator of the RUM-UA project transcribed interview, 4) SEU (U.S.) international partnerships coordinator transcribed interview, 5) UA (Ghana) principal investigator transcribed interview, and 6) NUCR (Ghana) Dean of the center for international education transcribed interview. Using Huberman (1994) coding model, list of seven main codes were used prior to the coding process. These initial codes were: 1) Collaboration, 2) Programs, 3) Process, 4) Expectations, 5) Technological skills, 6) Benefits, and 7) Sustainability Infrastructure. These prior codes were narrowed into four main themes after several coding sections and were based on the research questions presented at the beginning of this section. In addition to the research questions, each interview constructs (refer to Appendix C) were specifically coded to identify unique and new themes from each university. The four new main codes were: 1) nature of collaboration, 2) benefit, 3) internal challenges, 4) sustainability infrastructure. The above main codes had their respective sub-codes.

Based on Bernard and Ryan (2010), a codebook was created for each university to show where main codes, sub-codes, and themes were identified in the text. Data were coded by words and phrases in the various interview constructs. Participants' words and quotations were also used to ensure credibility and authenticity. Coding was completed when data reached saturation stage. The thematic codes generated show the main assertion of this study, which is at the center of the chart connecting the various main codes and their corresponding sub-codes.

Handling of Outliers

In order to meet the participant goal, three new U.S. public universities were recruited to replace the initial universities that declined. An additional interview was conducted with the director of MUH, U.S. department of OBGYN to replace the PUA, Ghana PI participant who declined to be interviewed. A pool of six participants were recruited and retained for the study (Newington & Metcalfe, 2014).

Thematic Code Chart

The thematic code chart in figure 5 identifies the central theme focused on the research topic. Four main themes emerged from the study findings. All the main themes had various sub-themes that expanded more on the main themes. The themes emerged were based on how often the themes appeared and others were outliers' responses that were not included in the research questions but the new themes were relevant to this study.

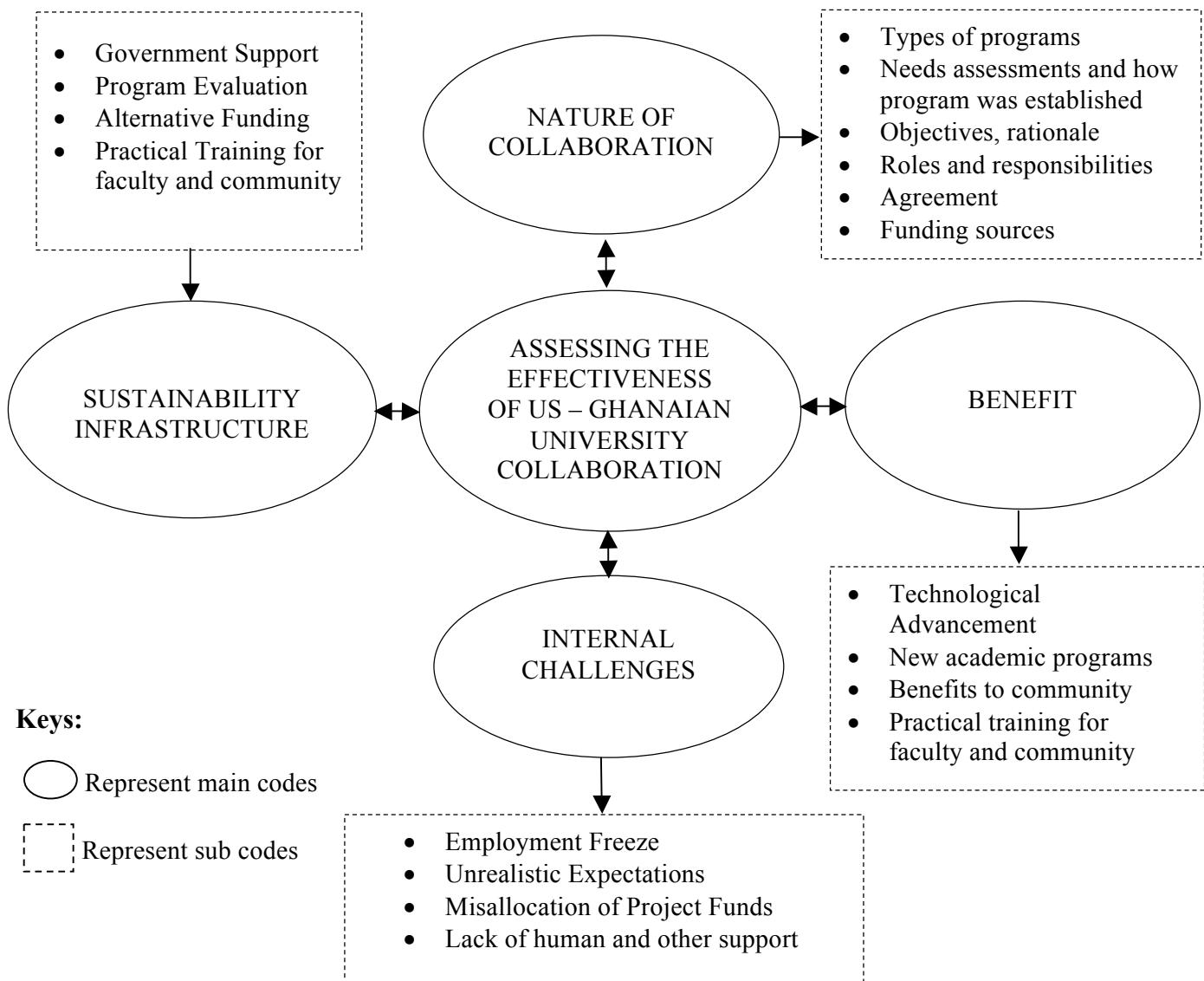


Figure 5

Thematic Codes Generated from Atlas-ti for the Paired U.S.-Ghanaian Universities

Validity and Reliability

Scholars have long questioned the validity and reliability of qualitative research

(Merriam, 1995). For instance, some qualitative scholars argued that validity is not applicable in qualitative research (Golafshani, 2003). Moreover, Stenbacka (2001) argued that reliability is

more applicable to quantitative study as it gives researchers a “purpose of explaining” (p. 551) which leads to quality research. Lincoln and Guba (1995) also questioned, “How can an inquirer persuade his or her audiences that the research findings of an inquiry are worth paying attention to?” (p. 290). These scholarly debates have encouraged some qualitative researchers to identify similar synonyms that closely correspond to the notion of “reliability” in quantitative research (Golafshani, 2003, p. 601).

Validity

For this cross-case study, the participants as well as other views related to the topic were relied upon to produce the study’s validity (Guba & Lincoln, 1994). Using constructivist and post-positivist beliefs, the goal was to “present accurate data” (Alkanat, 2011, p. 58) without biases. In addition, as Angen (2000) shared, the goal was to provide a “generative promise, … that could be fertile and raise new possibilities, open up new questions, and stimulate new dialogue” (p. 389) to enhance and sustain future U.S.-Ghanaian educational collaborations.

Internal validity specifically member checking was used to ensure credibility and trust. All the transcribed interviews were sent back to the participants for accurate interpretations of meanings, reviews, and as a form of “synthesis validation and quality of work” (Whitemore, Chase, & Middle, 2001, p. 530).

Furthermore, peer examination in the form of sharing study data with some peers was done to enable peers to examine and review “study procedures” (Merriam, 1995, p. 56) and also to ensure validity of the study findings.

Reliability

For reliability, the goal was to understand the topic from the perspective of the collaborators (Merriam, 2005). As Lincoln and Guba (1985) suggested, this study also strives for consistency especially as the literature related to the study topic is very limited.

To maintain reliability in the study, data were carefully collected to learn how collaborations were established, objectives of the collaborations, benefits, and how sustainable measures were put in place for long-term, successful, and programs and or projects.

External Validity

Two strategies from Merriam's (1995) work were adopted for this study's data analysis. The first was thick descriptions. Adequate information and descriptions of U.S.-Ghanaian university collaborations were provided to enable readers and interested groups to determine whether the research topic matched the research questions and whether the research findings could be transferred. Second, modal comparison was used to describe how typical collaborative programs, specific arrangements, funding sources, and measures put in place for effective and sustainable partnership in one university differed from another (Merriam, 2005). For this study, three separate case studies, related to diverse university collaborative programs in health, aqua fisheries, and general student exchanges, were analyzed to determine unique representations of each of the educational collaborations between Ghanaian public universities and the U.S.

The methods used for this study are auditable and can be repeatable. This study shows and explains how data were coded and analyzed. In addition, there are interview protocol/questions and thematic codebooks generated from atlas ti (see Appendix A). Lastly, the method section provides the reader the framework which structured the study. Pilot study was

also conducted prior to the main research to ensure reliability of the study (Fink & Kosecoff, 1998).

Ethical Considerations

This study was approved by Auburn University Institutional Review Board (see Appendix D). Participants received informed consent letters through their secured emails prior to individual interviews (refer to appendix B). Each participant read, understood the requirements, and was given an opportunity to ask questions before informed consents letters were signed. Confidentiality and anonymity were assured to each participant.

Data were carefully secured using password protected computers, personal laptops, and were then stored in some secure web-based locations without public sharing of the information. Furthermore, File Vault in Mac OSX was turned on to encrypt all documents, computers, laptops, and flash drives containing data for the study. Data from the study will be retained throughout the dissertation process. Upon graduation, all data will be deleted from the computers and paper copy documents will be shredded. Also, all audio recordings will be deleted from the recorders.

Pilot Study

Prior to embarking on the complete dissertation research study, a pilot study was conducted to test and affirm the need and the importance of the research topic. The purpose of the pilot study was to test the assertion that most U.S. university collaborations and/or partnerships with Ghanaian public universities have resulted in both institutional and human capacity development needed by the host country's development (ACE, 2013; Kot, 2016). Furthermore, the goals of the pilot study were to explore and analyze the interview data, MOUs,

scholarly articles, literature, and other documents collected and in order to ascertain adequate results.

The pilot study focused on two main concepts: 1) the types of collaborations and perceived benefits; 2) the extent to which Ghanaian universities have implemented the knowledge and skills acquired from their U.S. counterparts. For the first stage of the pilot study, grounded survey questions were drafted and sent to three U.S. experts of International programs with expertise in U.S.-Ghanaian academic collaborations. Feedback from the experts led to changes and restructuring of the research topic, research questions, and the appropriate research design for the study. The second stage of the pilot study survey targeted six faculty members; four from Predominately White Institutions (PWIs) and two faculty members from Historically Black Universities and Colleges (HBCU) who have engaged previously with Ghanaian counterparts and other African countries universities. The selected PWIs and HBCUS's all received grants from the APLU's partnership development grants, that was the reason why this specific mix of universities were selected. The feedback from the six faculty members made it clear that the research was important and that qualitative method would be appropriate for addressing the research questions. Several edits were made to the research topic and survey research questions were restructured into structured open interview questions (King, 1998) to understand the issue from the participants' perspectives (Kvale & Brinkmann, 2009).

The significance of the pilot study was that it enabled an understanding of the issues in this study, obtained appropriate feedback, and provided an opportunity to seek advice and guidance from experts in the field. The pilot study reinforced the ability to identify the appropriate research design (Kezar, 2000).

CHAPTER FOUR: FINDINGS

This chapter examined the findings related to questions on how U.S. – Ghanaian public universities collaborations impact the development of public universities in Ghana. The findings were based on individual university case studies assessed.

Purpose of the Study

The purpose of this study was to examine previous educational collaborations between U.S. and Ghanaian public universities and the impact on Ghanaian universities. The goal was to assess how the paired U.S.-Ghanaian universities partnerships, in terms of the types of the collaborative programs in place, program effectiveness, and how these collaborations have benefited Ghanaian public universities.

Research Questions

The following research questions guided the study:

- RQ1. What types of U.S.-Ghanaian university collaborations are there?
- RQ2. How are U.S.-Ghanaian university collaborations established?
- RQ3. How effective are U.S.-Ghanaian university collaborations?
- RQ4. To what extent have U.S.-Ghanaian educational collaborations benefitted Ghanaian public universities?

Data Analysis

The goal of this study was to examine selected U.S.-Ghanaian public university collaborations for specific, unique, and commonalities that cut across various cases (Barth &

Thomas, 2012; Stake, 1995). Using Ayres, Kavangaugh and Knafl's (2003) study as a model for within case and across case analytic strategies, this study tried to ascertain and gain knowledge from each collaborative case study and to conduct a comparison. The study was organized around four research questions addressed under two main phrases.

Phase 1 contains results for research question one which was, what types of U.S.-Ghanaian university collaborations are there? The results focused on the specific types of collaborative programs in place and the program objectives. The second component of Phase 1 contains results for research question two which was how are U.S.-Ghanaian university collaborations established? The results focused on the process and general overview of the program.

Phase 2 provided the results from research questions three and four respectively. Research question three was how effective are U.S.-Ghanaian university collaborations? The results included the benefits derived from the program, internal challenges that prevented collaboration from being effective, and program sustainability. Research question four asked to what extent have U.S.-Ghanaian educational collaborations benefitted Ghanaian public universities? The results focused on the level of technology use in the classroom and labs.

Phase 1

Results

Phase one revealed results for research questions one and two. Figure 6 and 7 used within and across case findings to reveal the findings. Below are research questions one and two:

RQ1. What types of U.S.-Ghanaian university collaborations are there?

RQ2. How are U.S.-Ghanaian university collaborations established?

Results for Research Question one

Research question one asked:

What types of U.S.-Ghanaian university collaborations are there?

Results for case study 1 and 2: MUH (U.S) – PUA (Ghana)

Table 8 shows the Atlas-ti codes used for collaborators. It also shows specific collaborative programs instituted by the paired universities Midwest University of Health (MUH) in U.S. and Prestigious University of Accra (PUA), Ghana.

There was no participant from PUA, Ghana. Two participants from MUH (U.S.) OBGYN department were recruited. Both case study 1 and 2 was represented by collaborators from MUH (U.S.). Table 8 provides the description of the legend for the codes used for Midwestern University of Health (MUH), U.S. OBGYN participants.

Table 8

Codes Generated from Atlas-ti for MUH(U.S.) and PUA(Ghana)

Legends

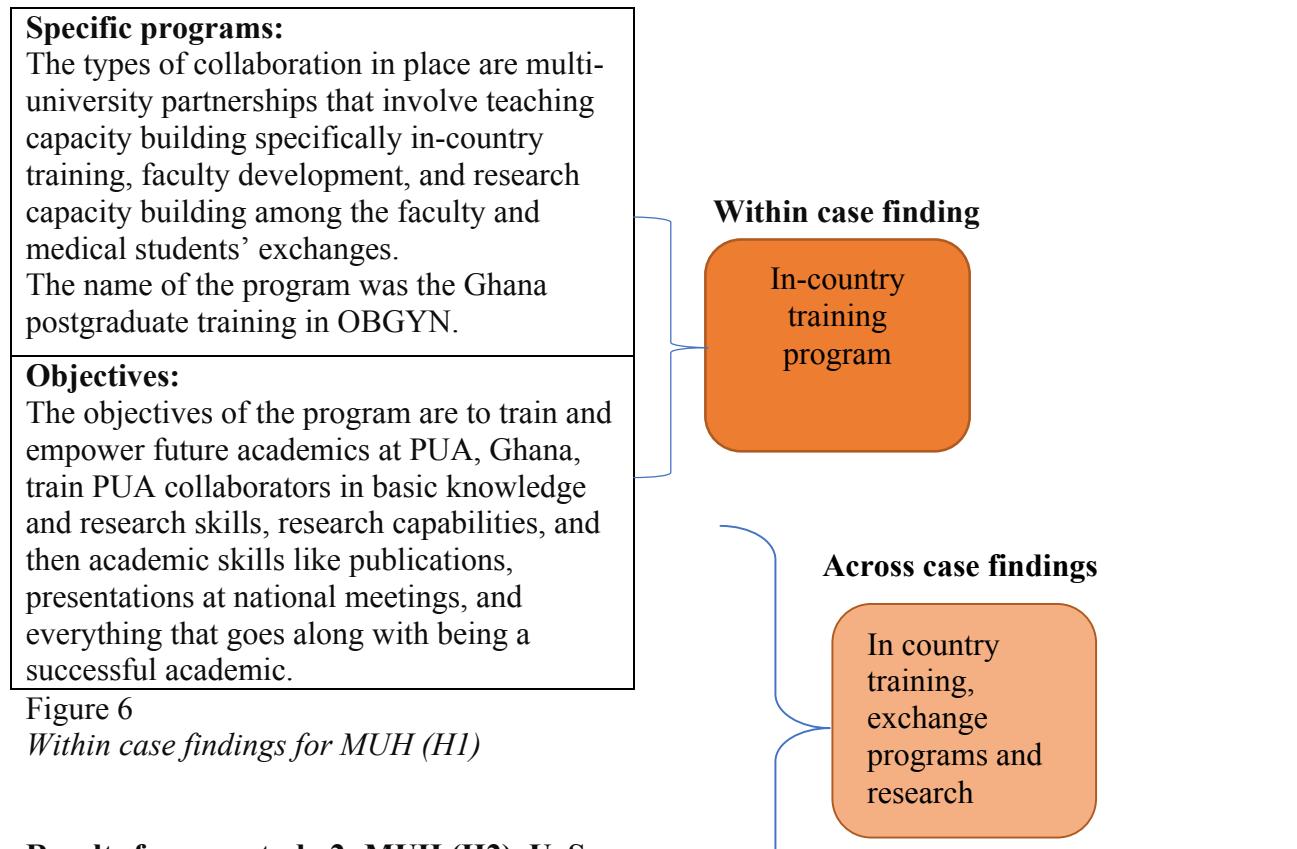
H is the specific program category. In this case, it was OBGYN and other health related programs

H1 represents the U.S. collaborator's code

H2 represents the Ghanaian collaborator's code

H1-H2 represents paired code names for both U.S. and Ghanaian universities

Results for case study 1: MUH (HI), U.S.



Results for case study 2: MUH (H2), U. S.

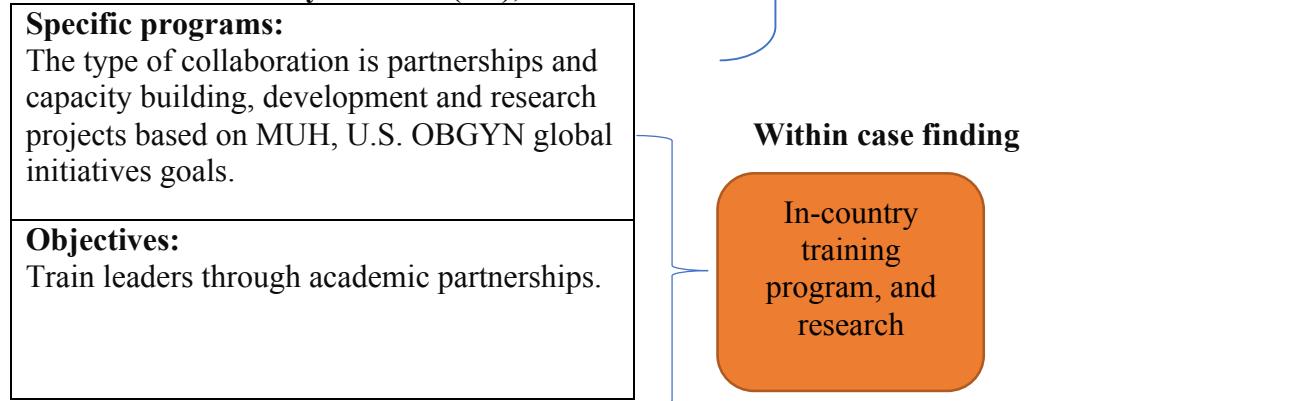


Figure 7

Within case findings for MUH (H2)

Capacity building, research, and exchange programs were specific types of programs existing between MUH (U.S.) and PUA (Ghana) OBGYN departments. One participant (MUH, H1) explained that

The broad mission of MUH(U.S.) global initiatives are enhancing opportunities for educational exchanges, growing a network of faculty associates and faculty affiliates interested in global health issues; facilitating international research collaborations; providing opportunities for scholars to benefit from expertise at MUH; and promoting diversity and health equity to produce the next generation of global health leaders. The capacity building programs, training, and exchanges were tied into the general mission of the MUH(U.S.) global health initiatives.

Another participant (MUH, H2) also echoed that

This type of program was targeted for less developed countries in an effort to decrease maternal mortality which was a major goal of the MUH-PUA OBGYN initiative. A major focus of the partnership in health research for development was ensuring that research programs answer local health problems and build local capacity while providing new knowledge that can be applied to other settings. The partnership did not only focus on PUA(Ghana) needs but the community at large.

Results for case study 3 and 4: RUM (U.S.) – UA (Ghana)

Table 9 shows the Atlas-ti codes used for collaborators. It also shows specific collaborative programs instituted by the paired universities Renowned University of Midwest (RUM) in U.S. and University of Ashanti (UA) in Ghana. Table 9 also gives the description of the legend for the codes used for RUM (U.S.) and University of Ashanti (UA) in Ghana.

Table 9

Codes Generated from Atlas-ti for RUM (U.S.)-UA (Ghana)

Legends

A is the specific program category, in this case the aquaculture program

A1 represents the U.S. collaborator's code

A2 represents the Ghanaian collaborator's code

A1-A2 represents paired code names for both U.S. and Ghanaian universities

Results for case study 3: (RUM, A1)

The results for research questions one and two, shown in Figures 8 and 9 are from collaborative partners RUM (A1) and UA (A2) respectively. Partners shared their perspectives on the specific programs and objectives of the collaboration. Using the within and across case analysis by Ayres et al. (2003) the following main findings or themes emerged.

Results for case study 3: RUM (A1), U.S.

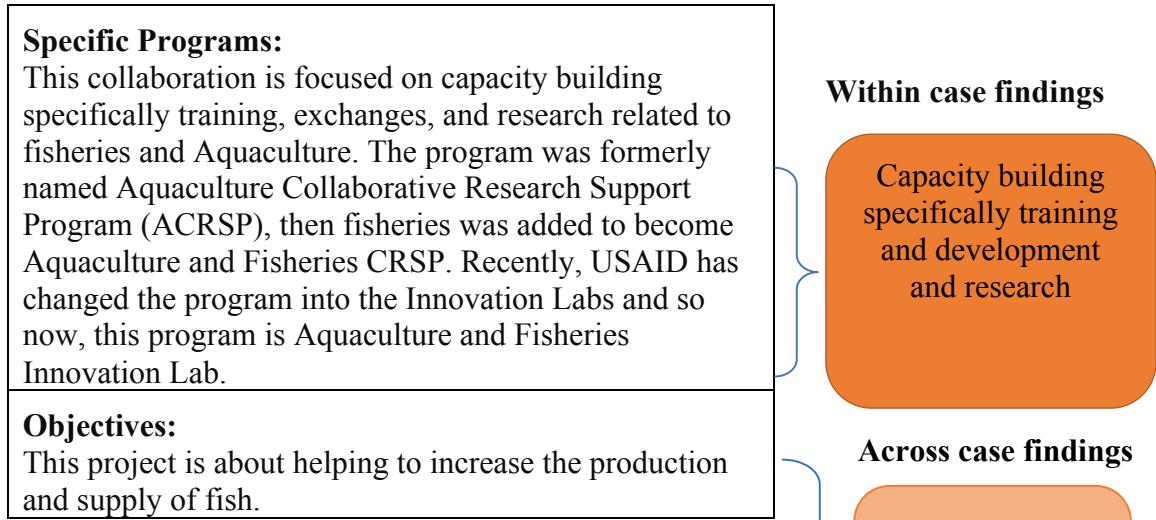


Figure 8
Within case findings for RUM (A1)

Results for case study 4: UA (A2), Ghana

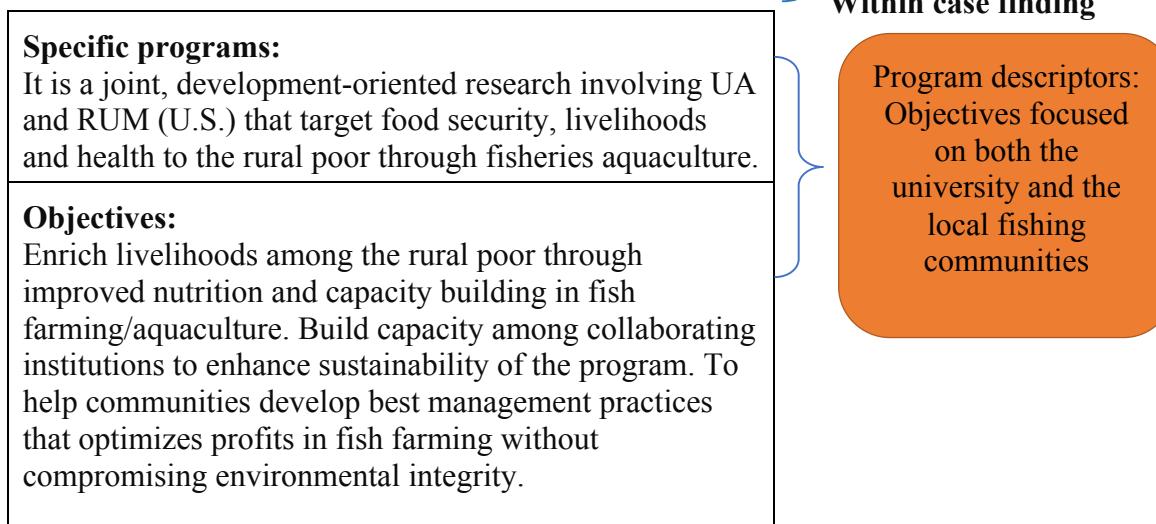


Figure 9

Within case findings for UA (A2)

Both collaborators RUM(A1) and UA(A2) had similar results for research questions one.

The consistency in the results confirmed the equal involvement of both universities during the

beginning stages of building the joint collaborative program was the key to their collaborative success.

Case study 5 and 6: SEU (U.S.) and NUCR (Ghana)

These university collaborators have general reciprocal study abroad programs. SEU-NUCR was the only paired collaborators that had no capacity building related program and no external funding. SEU-NUCR were the outliers in this study and yet, they produced consistent results as those of the other four case studies; RUM- UA and MUH-PUA. Table 10 provides the description of the legend for the Atlas-ti codes used for the Southern Excellence University (SEU), U.S. and National University of Central Region (NUCR), Ghana partners.

Table 10

Codes Generated from Atlas-ti for SEU (U.S.)-NUCR(Ghana)

Legends

GE is the specific program category. In this case, the general student exchange program

GE1 represents the U.S. collaborator's code

GE2 represents the Ghanaian collaborator's code

GE1-GE2 represents the paired code names for both U.S. and Ghanaian universities

Results for case study 5: SEU (GEI), U.S.

Figure 10 revealed the findings for SEU (U.S.) and figure 11 revealed the findings for NUCR(Ghana) respectively. Partners shared their perspectives on the specific programs and objectives of the collaboration. Using the within and across case analysis by Ayres et al. (2003) the following main findings or themes emerged.

Results for case study 5: SEU (GE1), U.S.

Specific programs:

The type of collaboration between SEU and NUCR is a reciprocal student exchange with 2/1-exchange ratio.

Objectives:

The objectives are dynamic and an immersive study abroad experience for our students, developing an additional exchange option in Africa and bringing outstanding Ghanaian students to campus.

Figure 10

Within case findings for SEU (U.S.-GE1)

Results for case study 6: NUCR (GE2), Ghana

Specific programs:

The types of collaborations are staff and student exchanges, learning and networking, academic, and research collaboration in the areas of mutual benefit.

Objectives:

To share information, ideas, and resources.

Figure 11

Within case findings for NUCR (Ghana-GE2)

The two universities had a general education student exchange program. Reinforcing the across case findings, the SEU (U.S.) participant stated that

SEU-NUCR collaboration was established based on the existing relationship between faculty and university, the partner's involvement in the African Virtual University program, geographic location, and academic profile of partner.

Across case findings

Student
exchange
program



In addition, the MOU between SEU and NUCR stated that the two universities entered into this collaboration for cooperative educational, service, and research activities, and for the mutual benefit of both institutions. The agreement identified the roles and responsibilities each university was expected to fulfill with regard to funds for implementation of the program and other related support. The SEU participants indicated,

Our students go to partner university for a semester and we host Ghanaian students for a semester here in return.

When asked whether a needs assessment was conducted prior to establishing this collaboration, he said,

No, although the committee reviewed the exchange here for viability, curriculum, academic rigor, safety, and fit in exchange portfolio.

Results for case study 6: NUCR (GEI), Ghana

The NUCR participant also acknowledged that a needs assessment was conducted. Participant said,

To find out areas of common interest and areas NUCR could tap into from the expertise in SEU and the objectives were to share information, ideas and resources.

Although there were differences between the objectives for the collaboration, there was a review process before finalizing the partnership. SEU (U.S.) was interested in viability, curriculum, academic rigor, safety, and fit in exchange portfolio and NUCR(Ghana) was interested in shared information, ideas, and resources.

Results for Research Question two

Results for case study 1 and 2: MUH (H1) – PUA (H2), Ghana

Research question is, how are U.S.-Ghanaian university collaborations established?

Table 11 provides brief overview of how MUH-PUA (H1-H2) established their collaboration. The table also provided the history related to the programs, program narratives, needs assessment, the type of agreement between the two institutions, and the nature of funding for the MUH-PUA collaborative programs. The commonality and or main case findings between H1-H2 were also presented.

Table 11

Establishment of Collaboration Between MUH(U.S.)-PUA(Ghana)

MUH (H1)	MUH (H2)
History: The collaboration actually began in 1986. MUH was part of a group of American Universities and Professional Societies (AUPS) that partnered to establish post-graduate training at the two medical schools in Ghana. So, it was a multi-university partnership and the Carnegie Foundation of New York funded them. And there was five-years of funding to train post-graduate.	History: Ghana was one of the countries that the U.S. government had on the list of priorities to provide training and this organization initially provided training only in family planning. Dr. Clarke went to Ghana and provided training in family planning through a contract with this organization.
Program Narrative: Initial contact was made through a family planning contract. The story that he (Dr. Clarke, chair of the OBGYN program at RUM) tells is that he saw a truckload of bodies of women who died in childbirth, that experience moved him that he will tell you he only works in one country and that is Ghana.	Program Narrative: The program was designed for (PUA, Ghana) students to stay in Ghana until year five and then come either to the U.S. or UK for two to three months to complete their training. To seek technology, to finish their casebooks, and to prepare for the oral exams.

Table 11 (continued)

MUH (H1)	MUH (H2)
Needs Assessment: Through the needs assessment MUH collaborators found that there was a need for reorganization of clinical teaching and there was also the need for the development of graduated learning for the residence.	Needs assessment: To establish training initiatives between MUH (U.S.) and PUA (Ghana) medical school, the grant which was a learning grant assisted MUH to learn about the PUA medical school needs and so in a sense the whole process was a needs assessment.
Agreements: Charter and MOU	Agreements: Charter and MOU
Funding: The Carnegie Foundation of New York funded them... And there was five-years of funding to train post-graduates.	Funding: OBGYN project was funded with \$ 3 million from the Bill and Melinda Gates Foundation to make the program possible.
Within findings of MUH (H1)	Within case findings MUH (H2)
Main across case findings for MUH (H1) and MUH (H2)	
The programs were established through the Carnegie Foundation of New York and Gates Foundation. The needs assessments conducted by MUH (U.S.) enabled MUH-PUA to established the OBGYN and other related collaborative programs in Ghana.	

The MUH-PUA collaboration was established through the Carnegie Foundation of New York and the Bill and Melinda Gates Foundation. The two participants HI-H2 also reiterated how a needs assessment played a crucial role in the establishment of the collaboration.

MUH and PUA collaborators used equitable processes and procedures (Seifer, 2006) when they selected capacity building program focusing on faculty development, in-country training, and students and scholar exchange programs. The external funding agencies also contributed to the effectiveness of the above programs.

Results for Case Study 3 and 4: RUM (A1), U.S. and UA (A2), Ghana

With the question on how collaboration between RUM-UA was established, Dr. Edinburg (RUM, A1) responded, the project was sponsored by USAID. Dr. Odoom (UA, Ghana) also confirmed that the Aquafish Innovation Lab project was funded by USAID.

Many U.S.-Ghanaian universities used to and continue to establish student and faculty exchanges, training and development, and research opportunities. Recently, global education partnerships have evolved into franchising arrangements, offshore education, and other transnational strategies (Altbach, Reisberg, & Rumbley, 2009). With RUM (A1) and UA (A2) collaboration, capacity building specifically training and development and joint research with focus on the community was deemed appropriate in Ghana. It could also be inferred from the findings that RUM (AI) collaborators were aware of the culture and economic challenges in Ghana. RUM (U.S.) partners accepted those challenges, and embedded these challenges in the programs.

RUM-UA collaboration was established through USAID fund and according to both participants the initial goal of this project expanded and led to the establishment of the undergraduate and master's programs in aquaculture in UA, Ghana.

Results for case study 5 and 6: SEU (GE1), U.S. and NUCR (GE2), Ghana

The research question two was how are U.S.-Ghanaian university collaborations established?

In terms of how collaboration was established, SEU – NUCR participants responded it was established through MOU and program was not funded by external funding agent.

Phase 1 Summary

The paired universities MUH-PUA (H1-H2) and RUM-UA (A1-A2) confirmed their projects were established through external funding agencies. MUH (U.S.) established and relied

on the charter and MOU for their partnerships with their Ghanaian partners while RUM (U.S.) relied on MOU and contractual agreements. For SEU-NUCR, their collaborative program was established through a MOU.

Phase 2

Results for Research Questions Three and Four

Phase two revealed each institution's results for research questions three and four. The goal of this study was to examine the effectiveness of U.S.-Ghanaian public university collaborations and so a significant amount of time was spent on coding and analyses to critically examine the factors that made the collaborations effective and sustainable not only in the short term but also in the long-term. Other factors were analyzed to determine the barriers that prevented Ghanaians from fully benefiting from U.S. collaborations. This section examined collaborative effectiveness and program/project sustainability.

Results for Research Question Three

The third research question was: How effective are U.S.-Ghanaian university collaborations? Five main findings emerged and they had sub themes that related to the research questions: 1) Type of program: Combination of capacity building, research, and exchange programs, 2) Benefits: exposure, publicity, new academic programs, technological advancement, practical training with the focus on faculty and community training and development, 3) Internal challenges: employment freeze, unrealistic expectations, lack of human and other related resources on the Ghanaian side, mismanagement of funds, and equity issue, 4) Sustainability infrastructure: support system, adoption of program model that resolved culture challenges,

monitoring of programs, and development of interpersonal and longterm relations, alternative funding sources, and joint proposal writing, and 5) and the level of technology use.

Types of Program: Combination of capacity building specifically faculty development, in-country training, and student exchange programs

The first main grouped findings were combination of capacity building specifically faculty development, in-country training, and student exchange programs. The following discussion detailed how the paired cases benefited from their distinctive collaborative programs.

Results for MUH (H1), U.S. – PUA (H2), Ghana

MUH (U.S.)-PUA (Ghana) and RUM (U.S.)-UA (Ghana) had capacity building program in the form of in-country training programs, faculty development, in addition to research, and faculty and students exchange programs. From the findings, MUH-PUA established in-country training and faculty development program in Ghana with some level of exchange program in MUH (U.S.). According to both MUH (H1-H2) participants, the collaborative program with PUA (Ghana) was in this format to accomplish the following goals. First, the in-country training and faculty development program enabled PUA (Ghana) faculty members and students to identify the local needs and to ascertain that appropriate solutions that are suitable to Ghana. Secondly, to solve and improve the poor retention rate MUH (U.S.) and other partners had after the initial inception of the program. According to MUH (H1-H2) participants, since the in-country training began in 1986, 81 to 83 Ghanaian OBGYN physicians become certified in Ghana and remain in Ghana compare to pre-training program where physicians went out of the country to either U.S. or Great Britain but did not return to Ghana which led to ineffective program previously. MUH participants also reiterated that the short-term exchange program, two to three months' exchange program was designed to expose medical students to modern health

technology and its related curricula. The exchange program MUH-PUA had was incorporated into the capacity building and research program making their program effective.

Results for RUM(A1), U.S.-UA(A2), Ghana

RUM (U.S) – UA (Ghana) had similar combination of program like MUH (U.S.)-PUA(Ghana). There were training programs for the PUA collaborators in Ghana, other African countries, research projects in Ghana, and some level of exchange programs for both collaborators in U.S. and in Ghana. The goal for the exchange program was for the two partners to become abreast with what was going on in their respective campuses. The models used by MUH-PUA and RUM-UA are in consistent with APLU's 'Learning and Networking' goal which encouraged U.S. universities to learn about the Ghanaian higher education needs and offer assistance. The fact that the aforementioned paired university spent time to gather data especially on their counterparts in Ghana enabled MUH-PUA and RUM-UA to adopt and implement simultaneous collaborative programs which ended up to be effective and successful.

Results for SEU (GEI), U.S.-NUCR (GE2), Ghana

The outlier paired partners SEU (U.S.)-NUCR (U.S.) had a program that focused on only general exchange program. Although SEU-NUCR had a straightforward exchange program, their program was effective as well because of the needs assessments that were conducted prior to the establishment of the program. From the findings, adaptation of unique programs that addresses the interest of all the collaborative partners tend to be success and effective compared to one-sided program that meets and only resolve a particular partner's interest.

Results for Research Question Four

Benefits

The second main grouped findings were benefits with emphasis on technological advancement and practical training targeting both faculty members and local practitioners that led to community development. Kot (2015); Semali, Baker, and Freer (2013); Yitbarek, Belliethathan, and Fetene (2010) have revealed that collaborations in Africa including Ghana have positively impacted institutional capacity, academic, and career advancement of faculty development as well as monetary gains. For this study, the interest was on specific capacity building programs that promoted collaboration effectiveness in Ghana. Although Ghana benefited from U.S. partnerships in the areas of career advancement and monetary benefits, the findings presented here emphasized specific program advantages or benefits such as i) learning experiences, ii) publicity, iii) exposure, iv) new academic programs, v) technological advancement, and vi) practical training for both faculty and local practitioners.

Results for case study 1: MUH (H1), U.S.

Benefit: Publicity

Participant 1 from MUH (H1), U.S. did not comment on how the partnership between MUH-PUA impacted MUH publicly although the second participant (MUH, H2) shared some information on this topic.

Benefit: Exposure

In terms of exposure, MUH (H1) explained that the partnership between MUH-PUA has exposed PUA collaborators into writing publications and other academic literature leading to both personal and professional growth among partners. The participant reiterated that,

There have been over 5 textbooks that have been published by the Ghanaians, and over 150 publications, and a lot of people have gone from being junior lectures to being professors.

Benefit: New Academic Program

According to Dr. Clarke (MUH, H1), U.S. as part of the MUH-PUA collaborative program, MUH

Emergency Medical Technician (EMT) created an emergency post-graduate training program, and they were very involved in all aspect of technology and so family medicine started a training program, and as part of these programs.

The above benefits confirm how vital U.S.-Ghanaian collaborations are to not only the host university but also to the host nation as well (Huxham, 1996).

Benefit: Practical Training

In terms of practical training to use the technology in PUA, an example was provided about the training program established by the MUH emergency medicine department.

Emergency medicine created an emergency medicine training program, the department of EMT created post-graduate training programs and they were very involved in all aspects of technology and so Family medicine started a training program, and as part of these programs, surgical equipment started going to Ghana. There was a fair amount training such as an emergency development training program for both nurses and physicians and they introduced some technology like the CT scan, emergency technology and how to work with things like that. When you go to PUA, you will see research capacity in the medical school, research capacity in the public health, and research capacity in several departments. Sociology for example, maternal child health, and

women studies have all been enhanced pretty substantially. A lot of technologies have come to enhance the program. In a nutshell, technology has been a huge advantage.

These technological benefits once again reaffirmed the advantages two institutions could have when programs are implemented carefully.

Another benefit that was discussed was practical training offered to the Ghanaian collaborators.

Practical Training: Focus on PUA, Ghana

When asked whether PUA OBGYN, Ghana is fully utilizing the technological equipment, the participant (MUH, H1) stated,

I think they are utilizing them, and I don't think anybody could fully utilize such equipment not even here in the U.S. but I think the equipment and the center are well utilized. I mean, I think that it accelerated the introduction, and implementation of innovative teaching in technology. So, with respect to tele teaching, teleconferencing, and with respect to some of the advanced technology around simulation are all very effective these days. Ghanaians have jump-started faster than their colleagues in West Africa. I think Ghana is far ahead of Nigeria, they are far ahead of Liberia, far ahead of Cameroon, and they are far ahead of the other members of ECOWAS.

The MUH (H1) participant was confident that the practical training component of MUH's collaboration with PUA was one of the contributing factors to successful collaboration.

Benefit: Technological Advancement

The chair of MUH OBGYN presented how PUA (Ghana) benefited from the technology transfer and training leading to effective collaboration. The following statements support the benefits in the areas of technological advancement, practical training, and program sustainability.

Startup surgical technologies were sent over as part of OBGYN surgical training.

Equipment for hip and neck surgery was sent over, microscopes, dissecting microscopes, and equipment were sent over.

These types of institutional and social benefits from capacity building collaborative programs are consistent with Kot's (2015) findings, which acknowledged that developing countries public universities like PUA benefit from technology transfer when they enter into collaboration with their U.S counterparts.

Results for case study 2: MUH (H2), U.S

Benefit: Publicity

MUH (H2) stated that the partnership between MUH (U.S.) and PUA (Ghana) has made the MUH (U.S.) OBGYN program very competitive among its counterparts in the U.S.

The partnership makes our university (MUH) competitive because we have such a rich relationship with Ghana, it makes our medical school more competitive because people know about our international work and students in the United State want to do global work, they are very, very interested.

Benefit: Exposure, Increased Workforce

MUH (H2) stated that, for PUA, the program increased the workforce in the OBGYN department.

There were also human capacity outcomes and clinical capacity outcomes.

With regard to knowledge transfer benefit, the participants shared,

So, during the Charter project, as a matter of fact we had not only a workshop in the proposal writing but also, we had a series of grants for Ghanaian to obtain money to do research.

Benefit: New Program

MUH (H1) did not provide information with regard to this topic.

Benefit Technological Advancement: MUH (H2)

When asked whether the partnership enhanced the technology use at the PUA (Ghana) OBGYN department, MUH (H2) responded,

We (MUH, U.S.) look at these things in two ways, we look at it from the operating system and the technology so “you can’t put the cart before the horse”, you can’t have the technology unless you have the people there to implement the technology. And so, it’s very clear that the partnership between the Carnegie program that included MUH.

The fact that MUH (U.S.) collaborators took holistic approach to training individuals first and ensuring training related to technology will be implemented was a crucial approach to solving some of the technological issues faced by some Ghanaian universities.

Results for case study 3: RUM (A1), U.S.

Benefits: Exposure

RUM (U.S.) revealed that the partnership

... helped some UA(Ghana) students to visit U.S. to participant in the student exchange programs and vice versa.

Benefit: Technological Advancement

According to RUM (U.S) when the project started in Ghana,

It was a little bit of a challenge with regards to technology use but now, our partners in Ghana are all pretty much conversant with communication technologies. We do buy laptops for them, we buy water quality equipment for them, and so they are very conversant with technology.

Benefit: Practical Training

Practical training was on interest to this study. In some Ghanaian public universities, computers are available but are sometimes inaccessible and where accessible the computers are either under-utilized by both students and faculty or not used as intended. There were training programs in the form of workshops and conference aimed at helping UA (Ghana) collaborators to be effective in their practices and communication. RUM (A1), U.S participant reiterated that,

These regional conferences were held on the African continent, which enabled us (RUM collaborators) to meet with our counterparts in Ghana and assisted them to be self-dependence and not always relying on outside assistance.

Periodic RUM (U.S.) and UA (Ghana) network conferences and workshops were some of the strategies used by RUM (U.S.) to enhance technological skills and knowledge transfer.

Benefit: Ghanaian Community Benefits

For the community benefits, Dr. Edinburg shared that RUM (A1) and UA (A2) were

Partnering with an IT company in Ghana to develop a software where both fishermen, farmers, market women, and even public officials can sign on unto it for market prices and other relevant information.

RUM (U.S.) and UA (Ghana) technological advancement and programs was beneficial not only to UA but also the fishing community in Ghana as a whole.

Results for case study 4: UA (A2), Ghana

Benefit: Publicity

For UA (A2), Ghana, the partnership generated

Positive publicity to UA in Ghana and at the other regional and international conferences.

Benefit: Exposure

In relation to exposure, Dr. Aseda (UA, A2) shared that through the RUM-UA partnership,

RUM (U.S.) has offered various opportunities for UA(Ghana) collaborators opportunities to present their research findings in the international conferences in the USA, South Africa, Korea, Ghana, Kenya, Tanzania, and in South East Asia.

Benefit: New academic program

UA (Ghana) – RUM (U.S.) participants revealed,

University of Ashanti (UA, A2) were the first university that decided to establish a degree and masters program in aquaculture in Ghana.

Benefit: Technological Advancement

UA (Ghana) also confirmed the technological advancement gained by his university.

To the extent that our labs are now fully equipped with both basic and advanced scientific equipment. All of it is beneficial to the UA.

His answer was consistent with Dr. Edinburg's (RUM, U.S.) response to technology transfer benefits. Both collaborators responses were testimonies to the program and project effectiveness.

Benefit: Ghanaian Community Benefits

The practical training also focused on the Ghanaian fishing community as a whole. On the community benefit, (UA, Ghana) once again confirmed the benefit that Ghanaian fishing community gained from the RUM and UA aquaculture programs.

Jointly with RUM... we trained farmers in Hatchery propagation of fish and management... ”.

The community also benefited from technology and knowledge transfers through supplies of various technological equipment and training programs implemented.

Results for case study 5: SEU (GEI), U.S.

Benefit: Publicity

SEU (GE1), U.S. participant was one of the participant who used email interview method. As a result, responses were completed as they appeared in the interview protocol. No follow-up questions related to the benefit of SEU-NUCR partnership program was asked due to the structure of the email interview. As a result, the participant did not provide information related to the above topics.

Benefit: Exposure

Once again, no response was offered.

Benefit: New Program

No new program came out of the SEU (GE1) and NUCR (GE2) general education exchange program.

Benefit: Technological Advancement

When asked SEU (U.S.) the extent to which SEU-NUCR collaboration have enhanced the technological advancement in NUCR (Ghana) he responded,

Unknown

Mr. Peters shared that, he was not responsible for the implementation of the SEU-NUCR student exchange program, he only assisted with the administrative piece of the agreement. Therefore, the *unknown* response was his answer but not the accurate response to the question.

Results for case study 6: NUCR (GE2), Ghana**Benefit: Publicity**

NUCR (GE2), Ghana participant was one of the participant who used email interview. No answer was provided for the above topic.

Benefit: Exposure

No response was offered as there was follow up question to inquire for the above response.

Benefit: New Program

There was no new program.

Benefit: Technological Advancement

NUCR (GE2) collaborator shared how the program has helped and benefitted NUCR in the following ways:

The collaboration enabled us to know about other ICT tools that can be used in teaching, learning and other best practices in SEU. Exchanges, research collaboration, and information sharing. We benefited because we learn and share best practices in the area of teaching, research, and information.

Although the SEU-NUCR exchange program was not related to technological program, NUCR (Ghana) still benefited from some technological related programs such as information sharing and research collaboration, advantages that SEU-NUCR could not have attained if both universities decided to work alone.

Internal Challenges

The third findings under results for research question three revealed internal challenges encountered by all the six case studies. The emerged challenges themes focused on employment freeze, unrealistic expectations, equity issue faced by Ghanaians from U.S. partnership, lack of human and other related resources on the Ghanaian side that makes partnerships ineffective in the long term.

Results for case study 1: MUH (H1), U.S.

Two main findings came up from MUH-PUA case study. They were 1) Unrealistic expectations and 2) Capacity state for research in Ghana

Internal Challenges: Unrealistic expectation

MUH (H1) explained how expectations on both Ghanaian and U.S. sides could jeopardize the effectiveness of collaboration.

Well, I think the major challenge is expectations on either side. I think both sides have expectations that are sometimes unrealistic. And there have been individuals in the program, I think you know individuals expect a lot, like what is in for me? That is one issue.

It is crucial for collaborators to come to understanding at the beginning of collaboration that not all expectations could be met due to diverse constraints.

Results for case study 2 - MUH (H2)

Internal Challenges: Lack of resource to enhance programs

MUH (H2) related to the challenges that prevented Ghanaians from fully benefiting from the U.S.-Ghanaian higher education collaboration.

Number one, the Ghanaian university do not have adequate capacity in the form resources that enabled them to analyze data for research and other related work. The other problem is that the money comes to us (MUH) it doesn't go to Ghana; it comes to us and we spent it in Ghana money. You know if some Ghanaians had opportunity to write grants and have money for things in that way it will be great but it doesn't seem to work that way.

Ghanaians may be able to fully benefit due to a high level of resource dependency on U.S. collaborators for financial and other resources (Wood & Gray, 1997).

MUH (H2) also shared additional internal barriers in Ghana sides such as

Inefficient time for writing, collaborators under busy conditions, and lack of flexibility for Ghanaian scholars to focus on writing alone and nothing else.

These issues may prevent Ghanaian collaborators from fully benefiting from academic collaboration.

There are also two other things; one is the infrastructure in Ghana. In terms of administrative support and research support, they have one of the highest clinical loads than most of the people we work with. So, they are already working very, very hard and so they cannot take on additional projects, it is not like they get time off from their other work, it just becomes more work for them.... So, you see, it's easier for me because there are enough people here to absorb things than in Ghana.

Ghanaian faculty carry heavy workloads due to limited human resources which can impact project goals resulting unsuccessful collaboration.

Internal Challenges

Results for case study 3: RUM (A1), U.S.

Table 12 presents the internal challenges that may have prevented collaborations from being effective and sustainable in UA (A2), Ghana.

Table 12

Internal Constraints faced RUM (U.S.) from UA (Ghana)

Areas of Concern	Participants Comments
Employment Freeze	<i>The government of Ghana has a freeze on university employment. However, the idea was that, all the Ghanaian students who participated in the exchanges would go back and work with the university. With the freeze on employment, any person who finished his/her Ph.D. here in the U.S and goes back to Ghana, there is no employment for him/her so he has to look for employment elsewhere such as Non-Governmental Organizations (NGOs) and international organizations.</i>
Expectation of Funds	<i>That has been the challenge, ah...in the sense that, I mean I have spoken to other colleagues who have other projects in other African countries and it seems to be the same trend. So sometimes, their expectations of how fast the money should be getting to them doesn't materialize in that manner because here in the U.S., for institutions, we have to go through a lot of bureaucratic processes to get clearance before the monies are wired to those foreign countries. So, those are some of the challenges and if they had not received any money, no work gets done and that has been the challenges that we have with them</i>

Internal Challenges Employment Freeze

The employment freeze was an area of concern that was beyond the interview protocol. However, it was brought up when responding to factors of collaborative effectiveness. The Ghanaian government can assist in meeting part of the collaborative program/project goals to enhance UA(Ghanaian) aquaculture programs. Training and retaining aquaculture specialists in Ghanaian universities would ensure that graduates from the aquaculture programs would not be recruited by other industries.

Internal Challenges: Unrealistic Expectations

Unrealistic expectations regarding disbursements of funds was another area RUM (A1), U.S. expressed frustration on. According RUM (A1) –UA (A2) partnership tend to halt project progression when funds from the U.S. get delayed due to U.S. federal transnational transfer of funds issues. He alluded that this has become a trend when working with Ghanaian counterparts. He said,

That has been the challenge...in the sense that, I mean I have spoken to other colleagues who have other projects in other African countries and it seems to be the same trend. So sometimes, their expectations of how fast the money should be getting to them doesn't materialize in that manner because here in the U.S., for institutions, we have to go through a lot of bureaucratic processes to get clearance before the monies are wired to those foreign countries. So those are some of the challenges and if they had not received any money, no work gets done and that has been the challenges that we have with them.

In contrast, UA (A2) Ghana, saw the delay funds of not meeting UA expectations of project funds as a challenge.

Internal Challenges: Mismanagement of Funds

The mismanagement of funds was another area of concern that was discussed in the RUM (A1) findings. The RUM participant shared that,

My biggest problem is the management of the project funds. They have a different system from what we have in the US. So, the funds go and then it becomes part of the university's pool of project funds so you have to go through a lot of process if the PIs need money for something in Ghana, you have to go through the whole system and it is quite a bureaucratic. It's been a challenge trying to manage funds as this is the funds for the

project and runs the financial process smoothly but because the funds become part of the university pool, and one has to go through bureaucratic process to retrieve funds for projects, somethings it becomes a big challenge.

These comments reinforce that some Ghanaian public universities benefit from U.S. collaboration in the short and midterm but not as much in the long-term. Some of these internal factors such as university employment freeze by the government, unrealistic of expectations, and mismanagement of funds prevent Ghanaians from benefiting in the long run.

Internal Challenges

Results for case study 4: UA (A2), U.S.

Table 13

UA (Ghana) Internal Concern with RUM (U.S.)

Areas of Concern	Participant Comments
Equity	<i>They are not necessarily equal but appropriately assigned and these are enshrined in the MOU between RUM and UA. I would rather talk about <u>equity</u> rather than <u>equality</u>.</i>
Other issues	<i>The main challenges during the collaboration has been timely release of funds and also power /energy problems in Ghana which sometimes delays our activities.</i>

Internal Challenges

Results for case study 5: SEU (GEI), U.S.

SEU(GEI) stated,

Our exchanges generally operate on 1:1 ratio (i.e. - we send one student to our UCC partner, bank the tuition and fees and use it to cover one incoming student from partner;

partner does likewise). However, there was a concern that Ghanaian students might not be able to afford cost of living in U.S., specifically room and board. So instead, we went with a 2:1 ratio. We believe that 2:1 ratio has mitigated cost of living issues. However, we cannot be certain if some students still cannot afford to come, without feedback from partner.

Insufficient financial support and inadequate feedback about concerns by most Ghanaian universities tends to undermine them from gaining equal or mutually benefiting from student and faculty exchanges.

Internal Challenges

Result for case study 6: NUCR (GE2), U.S.

The Ghanaian collaborator explained that,

Transfer of grades and the sustainability of the project after its completion was one of the challenges NUCR(GE2) Ghana had with its U.S. collaborators.

Sustainability Infrastructure

Sustainability infrastructure was the fourth and last findings that emerged under results for research question three. This section discussed the following specific areas of sustainability infrastructure put in place by all the case studies for continuity of their respective programs. The infrastructure included support system, alternative funding sources, joint grant writing, program evaluation and monitoring.

Results for case study 1: MUH (H1), U.S-PUA (H2), Ghana

Sustainability Infrastructure: Government Support

The MUH-PUA health program was a multi-university partnerships with the support of Ghana education and health ministries. The role of Ghanaian ministries helped to sustain this program.

The Ministry of Health, and Ministry of Education, Ghana were both involved, so they made commitments.

Sustainability Infrastructure: Adoption of program model that resolved culture challenges

When the MUH-PUA began, a program model was used to address culture issues. MUH sustained its collaborative program with PUA (Ghana) in specific ways.

We decided that the most appropriate training would be in-country training because the retention prior to the program had been zero. And so, we felt the high quality-training program in country was the best way to train people appropriately, and potentially have the highest possibility for retention. And as we know that proved to be true because the retention is now 100%. Currently, 140 of the 142 graduates of the program still practice or hold leadership position in Ghana.

For MUH, the in-country training program paid off with regard to program retention. The in-country training model turned poor retention rate to a growth rate. He further explained that because

The program was based on human resource capacity building for health it helped them to address the local collaborator's needs leading to program sustainability.

Sustainability Infrastructure: Evaluation of Program and Development of Interpersonal Relations

For MUH(U.S.), measures were put in place to promote program sustainability.

We have an ongoing evaluation; we usually will go in and do a qualitative study, and we do that every five or six years. The charter really helped us to achieve certain aspects. I think the program was dependent upon mutual respect, mutual trust, transparency, and the development of individual relationships that have lasted long time.

Sustainability Infrastructure: Management of Expectations

The findings from MUH (H1) revealed that the U.S. collaborators had anticipated and acknowledged the unrealistic expectations and adopted ways to manage those expectations on both sides.

We understood from the very beginning that Ghana did not have the kind of financial resources we had, but they also understood that we didn't have infinite resources. So, we were very transparent in the discussion around finances.

MUH's understanding of financial constraints in Ghana and its ability to communicate MUH's financial constraints to PUA was an exemplary way of managing expectations.

Program Sustainability

Results for case study 2: MUH (H2), U.S.

MUH (H2) shared that the collaboration

Is active, our partnership is active and it isn't dependent on upon funding.

Program Sustainability: Government Support

In 2003, the government of Ghana created the Ghana College of Physicians and Surgeons to certify Obstetricians in Ghana instead of sending them to Nigeria and Liberia West African locations. MUH (H2) indicated,

That was the critical component of sustainability because now you have a national institution and graduates largely guiding that institution of the OBGYN program.

He continued,

Having a national institution in place for graduates is critical. Having the government of Ghana continue to support and have a policy to place Obstetricians and Gynecologist at every district hospital is key because it has been driving the training program.

These kinds of government supported initiatives provide a framework that incorporates local government in its overall sustainable plans and does not solely rely on external grants to sustain its program with PUA, Ghana. The director also shared how the MUH-PUA OBGYN program has impacted the Ghanaian community and other African countries.

Accra program has sparked a similar program in Ethiopia and they are now trying to create Ethiopian college. This program has sparked a program in Malawi, they want to create a Malawian college, so this whole thing will lead to sustainability. Anecdotally, 40 young men and women just became certified OBGYN and that you know, is incredible to western Africa or Southern Africa.

MUH (H2) also linked the sustainable measures to addressing the issue of ‘brain drain’ that has affected several African countries.

If a young person can become a professional in his or her own country they will stay there, and so retention is another measure of sustainability and if they stay in their

country, they be working as professionals. Long-term commitment and that is what the Charter was about. You can't base your partnership only on funding.

Program Sustainability: Evaluation and Monitoring

In terms of evaluation, the director of OBGYN (MUH, H2) expressed frustration on not being able to fully measure program outcomes.

The clinical outcome has been difficult to measure. I am especially interested in maternal mortality but a data collection system but doesn't exist. That is probably why I was interested in the community-based survey. Even at the hospital, it has been difficult to adequately assess the clinical aspect of the project because of the difficulty in collecting all these data on a regular basis. It really depends on who is collecting the data, it always a difficult question to answer.

In summary, the effectiveness of MUH (U.S.) collaboration was dependent on the type of collaboration adopted. In this case, in country training program which was aimed at addressing the local partner's needs. The program was also established to focus on both PUA OBGYN departmental needs as well as the local community. The findings also showed that the effectiveness of partnership involves proper implementation of program and adequate support.

Sustainability Infrastructure

Results for case study 3: RUM (A1), U.S.

To ensure continuity of the aquaculture project, RUM collaborators have put in place support measures to facilitate sustainability of projects even after completion. Dr. Edinburg indicated that the project was "still ongoing" (RUM, A1).

To ensure financial constraints do not prevent Ghanaian counterparts from continuing implementation of collaborative programs, measures were put in place to support sustainability of programs. The following statements from Dr. Edinburgh (RUM, A1) indicate the measures that have been put in place to ensure continuity.

Sustainability Infrastructure, support system: Joint Grant Writing and Alternative Funding Source

We write grants together; the idea is that even if we complete this project, and there are no funds coming from the U.S. University or USAID, at least they have the skills to write other proposals, get the grants from other sources and continue with the work that we are doing. The idea of writing proposals for grants together in a sense was to equip Ghanaian counterparts to seek grants themselves and also search for alternative funding support. Furthermore, there was an ongoing negotiation with cell phone companies in Ghana, where collaborators could generate revenue through pay-per-use of the fishing software. This proposed business venture aimed at maintaining the program once the funds from the U.S. system ‘dries up’. In addition, in terms of distribution of grants, at least 50% of the funds was spent in the host country, Ghana.

Sustainability Infrastructure: Government Support

RUM (U.S.) and UA (Ghana) collaborators also had support from the Ghanaian government, which in itself is a sustainable measure. This was what RUM(A1) participant said about government support.

So, we (RUM) were working with the Ghanaian university as well as the Ministry of Fisheries and Development (MFD) to achieve the above goal.

Sustainability Infrastructure: Monitoring and Evaluation of Program

For monitoring and evaluation,

There is a system in place for us (RUM, A1) to travel back and forth to Ghana to follow up on projects.

Traveling back and forth to Ghana was one of the monitoring systems used by RUM (U.S.) to ensure the sustainability of collaborative program with UA (Ghana).

Sustainability Infrastructure: Development of Long-term Relations

According to Dr. Edinburg, RUM (U.S.) has been working with UA(Ghana) for a number of years now and so building a long-term relationship was another factor for sustaining U.S.-Ghanaian collaboration. As some scholars have alluded to, collaboration requires patience and consistency and that was the case in RUM-UA collaboration.

Results for Case Study 4: UA (A2), Ghana

Sustainability Infrastructure, support system: Joint Grant Writing and Alternative Funding Source

On the contrary, when asked about the same grants question to the Ghanaian counterpart (RUM, A1) he responded,

I do not have an answer to how grants are distributed from RUM(A1), but I do know our budgets are taken into consideration... We kept an open mind but hoped that it would be beneficial to both of us in terms of research, training, and teaching.

The lack of full disclosure and dialogue about grants with partnering universities could leave other partners, especially those in Ghana, feeling exploited (Gyemara, 2015).

Sustainability Infrastructure

Results for case study 5: SEU (GEI), U.S

Sustainability Infrastructure: Evaluation and Monitoring

For SEU,

Student mobility numbers and student feedback, potential faculty site visits, assessing student feedback, and potential faculty site visits are some of the continuity measures relied upon by SEU (U.S.).

Results for case study 6: NUCR (GE2), Ghana

Sustainability Infrastructure: Evaluation and Monitoring

When asked if the collaboration was active the participant said, “YES” and in response to whether or not a system was in place to assess the effectiveness of this collaboration, NUCR(GE2) said,

YES, because it is normally embedded in the project monitoring and evaluation process.

Summary of research question three for all the six collaborators: MUH (H1)- PUA (H2);

RUM (A1)-UA(A2); and SEU(GE1)-NUCR (GE2)

MUH (U.S.): Participants shared that the collaboration benefited both the Ghanaian and U.S. public universities mutually. For MUH (U.S.), the collaboration was beneficial to the institution. Departmentally, the OBGYN unit benefited in the areas of student and faculty exchanges, publicity, and being competitive among peer universities around the globe. Just like UA, PUA in Ghana also benefited in the technological advancement, technology transfer, and practical training and development. The Ghanaian community benefitted from the knowledge transfer related to OBGYN practices.

RUM(U.S.): From the participants' own views, the collaboration benefited both the Ghanaian public university and the U.S. partner mutually. For U.S. collaborators, the collaboration was beneficial both at the institutional and on personal levels.

UA (Ghana): For UA, not only did the collaborators benefit on the personal level, but the university also benefited from technology and knowledge transfers but the fishing community in Ghana also benefited from practical training and technological advancement.

SEU (U.S.): From the participant, the simple reciprocal student exchange program benefited SEU (U.S.) students to learn about the Ghanaian culture and education.

NUCR (Ghana): the participant shared that the collaboration helped in sharing of information with SEU(U.S.) as well as other technological benefits.

Results for Research Question Four

The fourth research question asked was, to what extent have these collaborations helped increase the transfer of technologies in classrooms in Ghanaian public universities? The results emphasized the levels of technology use in the classroom.

Level of Technology Use

Result for case study 1: Results for MUH (H1), U.S.

The technology use there in the PUA medical school has improved tele-medical teaching not telemedicine... I think some of it is as a result of the targeted program. So, some of the surgical equipment over there, some of the teaching equipment, simulation devices, there is a simulation center in Accra, all those have happened as part of the program. I think they are utilizing them. Through this collaboration, Ghanaians have jump-started faster in technology use than their colleagues in West Africa.

Result for case study 2: MUH (H2), U.S.

MUH (H2) on the other hand spoke about the pre-collaboration era where little technology was utilized at the OBGYN department in Ghana.

I will say that the technological use in Obstetrics and Gynecology is low when I started working with them. It was extremely low. Certainly, I am thinking of medical technology in terms of even availability of medication which was very low, the availability of monitoring equipment very low, the availability of operating room technology was very low, there is a limit and their limit was quite a liability in technologies. And then for the research, it's also very difficult since all the records are on paper and I will say that the organization of those also, was quite antiquated. In terms of surgery they are highly skilled but I think with the availability of the internet, I suspect they will be kind of a technology quantum-leap from nothing to quite a bit.

This sense of integration of technology in the OBGYN classroom shows the impact the collaboration has had on PUA.

Result for case study 3: RUM (A1), U.S.

The use of technologies in UA's classroom are not necessarily at par with U.S. public universities.

Class sizes are very large and the classrooms are small. Instruction is still old method, lecturing with now some online addition).

This large class size but limited classroom space seems to be the impediment for using technology effectively in UA(Ghana).

Result for case study 4: UA (A2), Ghana

UA(A2) also shared that,

He deploys some of my practical experience from research in teaching and that comes easy to students; and my research is development-oriented. The collaboration has brought UA free standard textbooks and journals, which are very helpful in research and teaching.

As to whether teaching involves technology, the findings revealed textbooks were used more than digital resources.

Technology Use

Results for case study 5 and 6: SEU (U.S.)-NUCR (Ghana)

SEU (U.S.) and NUCR (Ghana) collaboration did not necessarily involve technology use in the classroom so this question was not applicable to them.

Summary of research question four for all the six collaborators: MUH (H1)- PUA (H2); RUM (A1)-UA (A2); and SEU (GE1)- NUCR (GE2)

In the MUH and PUA collaboration, there was an increase in technology use in the PUA (Ghana) medical school labs and other areas where technology is being utilized

Between RUM and UA, technology use in the classroom was still minimal. According to RUM (U.S.), the minimal use of technology in the UA (Ghana) classroom was as a result of large class size and small classrooms leading to a lack of progress in technology use in the classroom but did incorporate the Internet for research purposes.

Key Research Findings

Figure 12 identifies the within case and across –case findings for the six case studies.

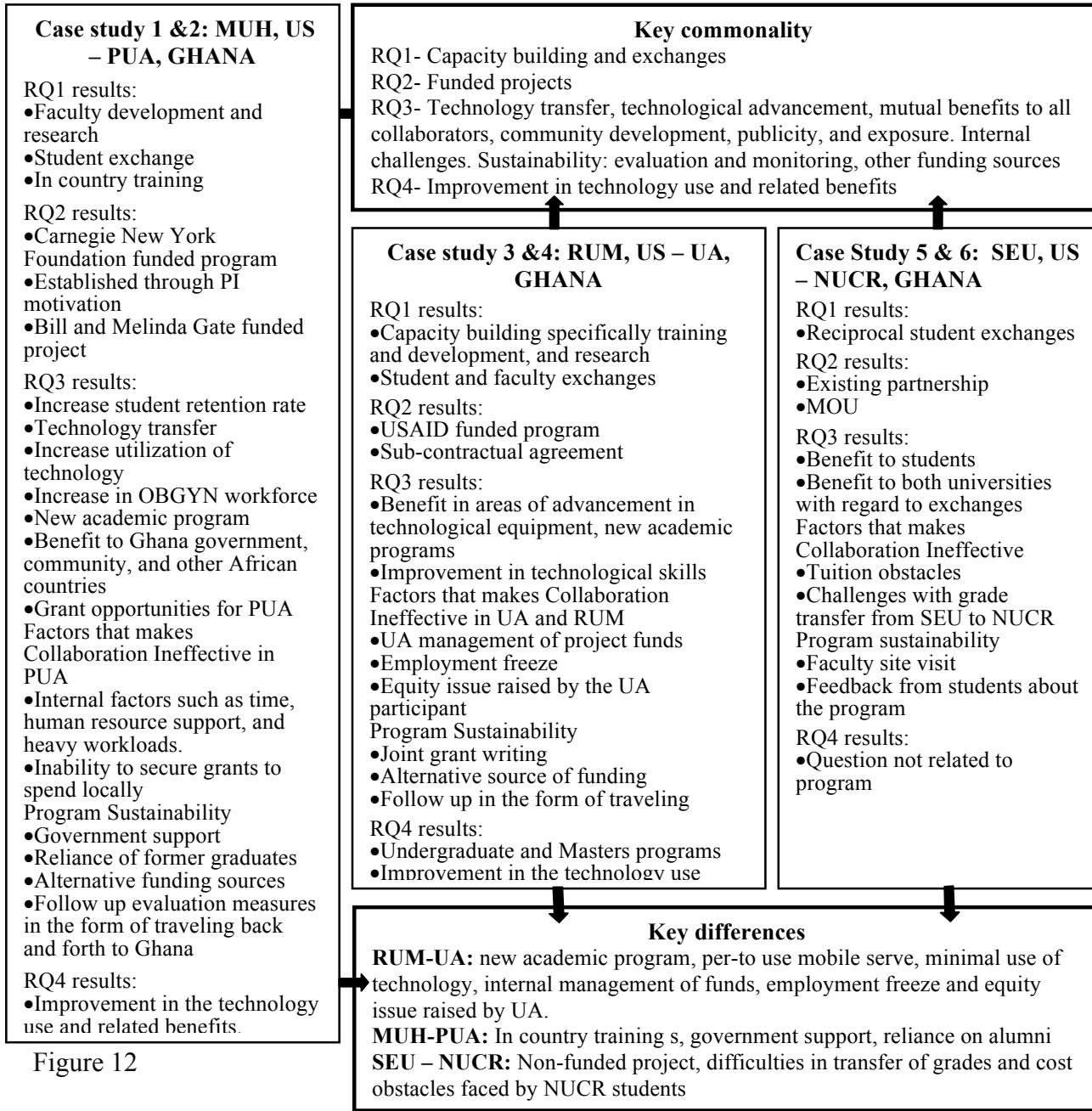


Figure 12

Key Findings

Summary

In summary, five main findings emerged from this study which were: 1) combination of programs 2) benefits: technological advancement, practical training with focus on both faculty and community development; new academic programs, and joint grant writing, 3) internal challenges include employment freeze, unrealistic expectations, mismanagement of funds, equity issue, and lack of human resources and other support, 4) program sustainability: program evaluation and monitoring, building longterm relationship, support system and 5) improvement in the technology use and related benefits.

In conclusion, as Smith, Mackenzie, and Meyers (2014) suggested, the impact and necessity of collaboration varies across disciplines, making it difficult to assess the successfulness of a collaboration. For this reason, it was difficult to adequately assess all paired partners because they had diverse disciplines.

CHAPTER 5: SUMMARY, IMPLICATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

This chapter summarizes the main findings, implications of this study, and recommendations for future research.

Purpose of the Study

The purpose of this study was to examine previous educational collaborations between U.S. and Ghanaian public universities and the impact on Ghanaian universities. The goal was to assess how the paired U.S.-Ghanaian universities partnerships, in terms of the types of the collaborative programs in place, program effectiveness, and how these collaborations have benefited Ghanaian public universities.

Research Questions

The following research questions guided the study:

- RQ1. What types of U.S.-Ghanaian university collaborations are there?
- RQ2. How are U.S.-Ghanaian university collaborations established?
- RQ3. How effective are U.S.-Ghanaian university collaborations?
- RQ4. To what extent have U.S.-Ghanaian educational collaborations benefitted Ghanaian public universities?

Data was analyzed using the within and across case analysis model. This model enabled comparison and contrasts of the cases selected for this study. The findings of this study were not intended for generalization but rather to gain in-depth understanding regarding the effectiveness

of US-Ghanaian public university collaborations. Summary of Key Findings

Five main findings emerged from this study, they were: 1) combination of programs; capacity building programs specifically practical training and development programs for faculty and community practitioners, 2) benefits: technological advancement, community development; new academic programs, and joint grant writing, 3) internal challenges: employment freeze, unrealistic expectations, equity issue, lack of human resources and other related support on the Ghanaian side makes some collaborations ineffective in the long-term, 4) program sustainability: program evaluation and monitoring, building longterm relationship, support system and 5) level of technology use and related benefits.

Benefits

Many scholars have revealed in the past how collaboration in Africa including Ghana have impacted institutional capacity, academic and career advancement of faculty in this region as well as monetary gains. For this study, the interest was on specific capacity building programs that promoted collaboration effectiveness in Ghana. Although the data revealed that Ghanaian benefited from U.S. partnerships in the areas of career advancement and monetary benefits, the findings presented here emphasized specific program advantages such as unique programs instituted that were instituted, technological advancement, practical training, and community benefits.

Combination of Collaborative Programs

From the two paired case studies: MUH (H1) – PUA (H2) and RUM (A1) –RUM (A2), both U.S. and Ghanaian public universities benefited from their respective capacity building programs in addition to the faculty exchange programs, and research. The lessons learned here were that the type of the programs instituted in Ghana determined whether that collaboration

would be effective or not and whether or not it could be sustained. The two universities in this study MUH (H1), U.S. and RUM(A1) U.S. through their respective needs assessment in the early part of the partnership determined that in-country training and faculty development, as well as faculty and student exchange programs were more beneficial than collaborating for research purposes only. In other words, the participants integrated training and faculty development, exchanges, and some component of research to address the needs of their counterparts in Ghana as well as the community as a whole. The establishment of the in-country training accomplished two main goals: 1) It ensured that faculty and students were retained after the completion of the program and 2) It reduced costs for the U.S. collaborators and other travel constraints brought on by traveling to the U.S. for training. MUH (U.S.) had made this in-country training decision primarily because of past experiences with a program in Ghana.

All three selected universities had conducted needs assessments prior to the establishment of their respective programs in Ghana. For instance, RUM (A1) through its initial assessment decided on the university to collaborate, and the type of program that enhanced their counterpart's academic programs. And so, RUM (A1) and UA (A2), instituted a practical training and development program, and the faculty and students exchange was the best program for Ghana. For this reason, these two collaborators (RUM-UA) were able to establish undergraduate and master's degree programs after realizing that it was one of UA's priority needs. In addition, through the fisheries and aquaculture innovation lab's overall goals, the two partners also focused on Ghanaian fishing and the fish market community was led to economic growth and development. MUH (U.S) established and implemented in-country training, faculty development, and exchange programs in Ghana due to the poor retention rate that MUH had experienced when the program started in 1986. For MUH (U.S.), the collaborators established

and implemented in-country training, faculty development, research and exchange programs in Ghana. The assessment also helped MUH (U.S.) to establish programs that assisted PUA (Ghana) medical school to resolve the retention issues that hindered the health faculty development program in Ghana and also to train PUA collaborators to be leaders and carry on with the health development program locally after completion of the projects.

Just like RUM (A1), MUH's (H1, H2) health program also focused on community development. The SEU-NUCR collaborative pair did not have capacity building program and yet, a needs assessment had been conducted to identify the appropriate ratio for the student exchange program that had also addressed some of the NUCR's financial constraints. The data and archival documents utilized for this study revealed that Ghanaian participants may need additional training when it comes to identifying programs that are needed or addressing their needs or gaps. Some Ghanaian public universities tend to address their overall institutional and academic needs as needs an assessment instead of focusing on specific needs that could be addressed by U.S. collaborators and be implemented and sustained in Ghana for the long-term. Therefore, most U.S.-Ghanaian collaboration may not persist in the long run due to misidentified institutional needs. Future Ghanaian collaborators, it would be beneficial to determine programs that will be suitable to the local university and not what some U.S. institutions assumes to be important programs or projects for Ghana.

Technological Advancement

Findings revealed that Ghanaian public universities benefited from technology transfer through acquisition of technological equipment like computers and scientific equipment. Classrooms and scientific labs in PUA (H2) and UA (A2) were furnished with modern technological equipment.

Practical Training with Focus on the Community

In addition to the provision of the technological equipment, MUH (U.S.) and RUM (U.S.) provided practical training related to specific collaborative programs for the end users such as emergency medical technicians, extension officers, local fishermen and fish traders, and government officials in Ghana benefited from the various practical training. RUM (A1), U.S. stated that for the

Local Ghanaian counterparts, the whole idea was not for them to be solely dependent on outside technology transfer, or outside expertise but also to develop local expertise.

This kind of strategy motivated MUH (U.S.) and RUM (U.S.) to institute in-country training and development programs aimed at preparing Ghanaian local experts in using and modeling their own unique technological needs and development. For MUH's (H2) community maternal program, there was one principal project in addressing the maternal mortality rate in Ghana. All these projects are ongoing; they have enhanced the knowledge and awareness of the values of incorporating technology use in local faculty and communities' development.

Projects and programs that involved community were beneficial not only to universities implementing the projects but to the local government and its citizens.

With all these benefits discussed above, the participants did express frustrations with some internal challenges that prevented Ghanaian collaborations from being effective and sustainable.

Internal Challenges faced by Collaborators

Internal challenges like an employment freeze by the local government, unrealistic expectations, mismanagement of funds, equity issue, and lack of human resources and other support according to the participants hindered some success of collaboration in Ghana and prevented other U.S. collaborators from prospering and sustaining programs in Ghana.

Sustainability Infrastructure

Collaboration cannot be sustained if measures such as follow-ups, evaluation, and monitoring systems are not incorporated into the overall strategic plan of that program. All the six universities had sustainability infrastructure in the form of program evaluation and monitoring, support system, and building of longterm relationships with each partner. For all the participants in this study, their institutions saw the importance of incorporation of sustainable measures that supported long-term and successful collaborations.

Implications

The findings showed that U.S.- Ghanaian public universities positively benefited from the capacity building programs, faculty and student exchange programs, technology transfer, practical training, and community development programs. However, the findings also revealed that internal challenges such as employee freeze, unrealistic expectations, mismanagement of funds, equity issue, lack of human resources and other related support system tended to prevent Ghanaians from benefiting and sustaining collaborative programs and projects in the long-term.

There were some implications for future U.S.-Ghanaian collaborators. The research revealed some successes, challenges, and complexities involved in U.S.-Ghanaian institutional collaborations. From the research findings, the selected U.S. universities had some prior knowledge about the Ghanaian counterparts before they engaged with them in collaborations, and this ensured the success and effectiveness of the projects. However, there are still improvements that U.S. collaborators have to make to further enhance successful program implementation with their Ghanaian colleagues. Ghanaian collaborators could strengthen abilities in adopting well-developed strategies or plans in dealing with their U.S. counterparts.

Specific implications for U.S. institutions are to establish local collaborative training programs in Ghana to help alleviate costs associated with Ghanaians accessing training and development in the U.S. This kind of training will assist in the reduction of excessive brain drain within the Ghanaian workforce and also help the local collaborators to find solutions to local problems.

U.S. universities could incorporate stringent checks and balances to require Ghanaian universities, which receive grants from U.S. institutions to periodically report progress on collaborative projects before additional fund are disbursed. This could be done through periodic on-site visitations to Ghanaian universities to evaluate how programs are being implemented.

There should also be indepth-discussions and agreements with Ghanaian universities on U.S. collaborator's expectations for project implementation, outcomes, and deliverables. This is especially important, as research findings showed that Ghanaian collaborators had limited knowledge about what their U.S. counterparts had expected of them. Such pre-implementation agreements can rectify equality and equity issues which was one concern raised by a Ghanaian collaborator with respect to their work with U.S. institutions. As UA (A2) shared,

The issue is not about equality but equity.

So, to prevent partners from feeling exploited during collaborative project implementation, all expectations, roles and responsibilities and benefits need to be clearly defined.

There are implications for Ghanaian public universities. It is recommended that Ghanaian public universities could begin setting up funds and resources specifically for international collaborations. Ghanaian universities are encouraged to have well laid out strategic goals for every international collaboration with U.S. universities. Universities in Ghana could carry out thorough self needs assessments and extensive research and checks on potential U.S.

collaborators to avoid situations where top ranked and large Ghanaian universities get into partnerships with low ranked and incompatible U.S. universities. Where feasible, Ghanaian universities could make exploratory visits to potential U.S. collaborator's universities to ensure that the collaboration is appropriate for the particular objective and fits into the overall university's strategic plans. Another important issue is for Ghanaian universities to set realistic expectations for any collaborative partnerships, especially with respect to resources from U.S. institutions, as resources are limited in most U.S. universities. Finally, based on the research findings, it is recommended that Ghanaian collaborators ensure the maintenance and sustainability of implemented collaborative projects and or programs.

Recommendations for Future Research

In the future, further research could be done to examine collaboration across disciplines, to assess the successfulness of interdisciplinary programs between U.S-Ghanaian public universities. This research could also be expanded to focus more on Ghanaian perspective with regards to their experiences with U.S. collaborators, programs and or projects effectiveness.

In conclusion, the study examined the effectiveness of U.S.-Ghanaian public university collaborations. The findings revealed that the collaborations were beneficial and sustainable especially programs that focused on practical faculty training and community development programs and those that attracted support from the local government. In addition, student exchange programs were effective when guided by an agreement that spelled out clear roles and responsibilities as well as expectations. In contrast, the findings once again showed that some internal challenges on the Ghanaian side tended to make collaborations with the U.S. ineffective and unsustainable. These findings were relevant to the on-going and future U.S.-Ghanaian collaborators who seek to establish long-term partnerships. Future research could pair

universities engaging in the same programs or across disciplines and the number of case studies could be increase for more comparison and contrasts.

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APPENDICES

Appendix A

CODEBOOKS FOR THE THREE PAIRED U.S.-GHANAIAN PUBLIC UNIVERSITIES

The Codebooks were organized according to the generated atlas-ti thematic /family codes. The main themes and sub codes presented in the following codebooks were based on the three broad themes: 1) program effectiveness, 2) constraints that make U.S.-Ghanaian collaboration ineffective, and 3) program sustainability.

Codebook was not presented in the chronological order generated in the atlas ti but rather in the form that makes sense to the reader. Figure 1.0 present the legend for the codebooks.

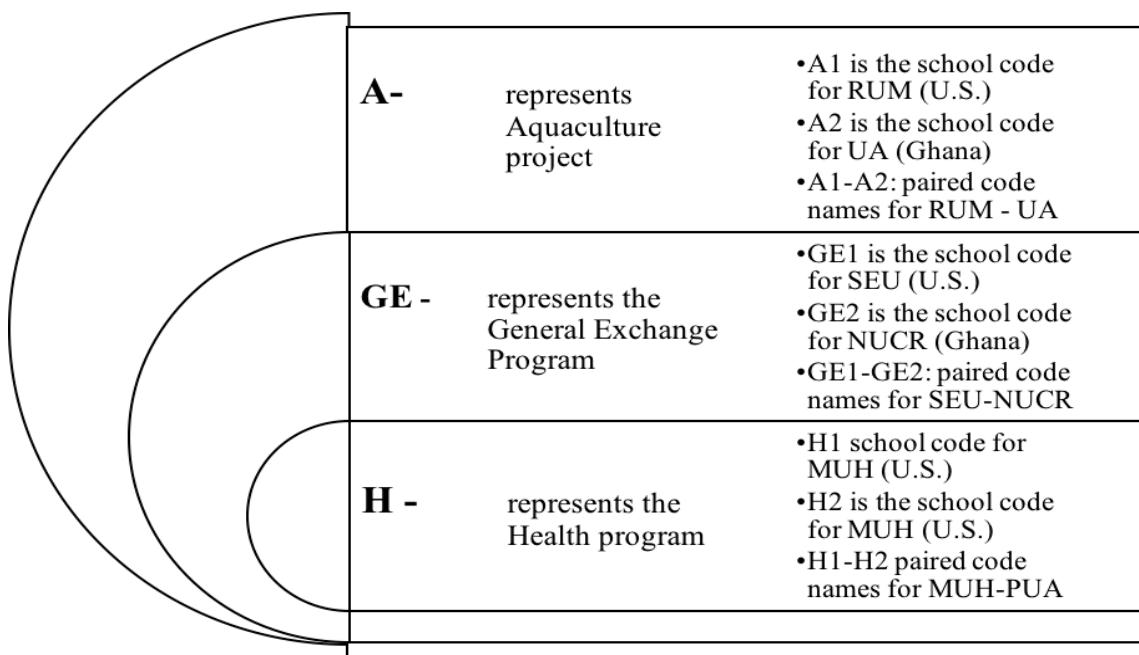


Figure 12

Legend for all the six-case studies codebook

TYPES OF COLLABORATION

Table 14

Codebook for the types of Collaborations Funding for all the paired U.S.-Ghanaian Universities

Main Codes: Capacity Building, Faculty and Student Exchange Program

Codes	Themes	Memo
A1	<ul style="list-style-type: none"> • Specific program: Capacity building • Name of program: Tri-lateral Aquaculture and Fisheries Innovation Lab • Agreement: Subcontractor and MOU 	A1-A2
A2	<ul style="list-style-type: none"> • Capacity building • Inter-institutional collaborative research 	Described similarly
GE1	<ul style="list-style-type: none"> • Reciprocal student exchange with 2/1 exchange ratio 	GE1-GE2
GE2	<ul style="list-style-type: none"> • Specific program: Exchange of staff and students, academic and scholarly information • Name of program: N/A • Agreement: MOU 	Level of discrepancy in description

H1	<ul style="list-style-type: none"> • Specific program: In-country faculty development, faculty and student exchange program • Name of program: Multi-partnership • Agreement: Charter and MOU • Specific program: In-country faculty development, faculty and student exchange program 	H1-H2 Consistency in description
H2	<ul style="list-style-type: none"> • Name of program: Multi-partnership • Agreement: Charter and MOU 	

HOW COLLABORATIONS WERE ESTABLISHED BETWEEN U.S.-GHANAIAN PUBLIC UNIVERSITIES

Table 15

Codebook on how Collaboration are Established for all the paired U.S.-Ghanaian Universities

Main Codes: Funded program/project and non-external funded program

Codes	Themes	Memo
A1-A2	Funding: USAID	Consistency in discrepancy
GEI-		
GE2	No external funding	
H1	Funding:	
	<ul style="list-style-type: none"> • Carnegie funding • The medical education grant • NIH 	Similarity in description
H2	<ul style="list-style-type: none"> • Carnegie funding • Bill and Melinda Gates 	

PROGRAM EFFECTIVENES

Table 16

Codebook on the Effectiveness of Collaborations for all the paired U.S.-Ghanaian Universities

Main Code: Benefits

Codes	Themes	Memo
A1-A2	<ul style="list-style-type: none"> • Technological Advancement • Practical Training • Community Development 	Consistency in discrepancy
GEI-		Similarity in description
GE2	Personal and Academic benefits	
H1-H2	<ul style="list-style-type: none"> • Technological Advancement • Practical Training • Community Development 	Consistency in description

INTERNAL CHALLENGES

Table 17

Codebook for internal challenges for all the paired U.S.-Ghanaian Universities

Codes	Themes	Memo
A1	<ul style="list-style-type: none"> • Employment freeze by Ghanaian government • Funds Disbursement by UA • Mismanagement of Funds by UA 	A1-A2: Differential challenges
A2	<ul style="list-style-type: none"> • Equity issue raised by UA 	
GE1	<ul style="list-style-type: none"> • Financial Constraints of NUCR side 	Similarity in description
GE2	<ul style="list-style-type: none"> • Transfer of grades and the sustainability of the project after its completion 	
H1-H2	<ul style="list-style-type: none"> • Unrealistic expectations • Lack of human support and other related resources by PUA, Ghana 	Consistency in description

SUSTAINABILITY INFRASTRUCTURE

Table 18

Codebook for Program Sustainability for all the paired U.S.-Ghanaian Universities

Main Code: Sustainability Infrastructure

Codes	Themes	Memo
A1	<p>Support</p> <ul style="list-style-type: none"> • Joint Grant writing • Alternative funds outside USAID grant • Pay-per-service cell phone use and database for additional revenue • Provision of funds and logistics • Evaluation and Monitoring: Traveling back and forth to Ghana to access progress of programs • Grants distribution • Government support • Status of program: Active <p>Evaluation</p> <ul style="list-style-type: none"> • A1 served as oversight and monitoring 	Similarities in description
A2		
GEI	<ul style="list-style-type: none"> • Feedback from participated SEU student • Faculty onsite visit to NUCR, Ghana 	Outlier
GE2	<ul style="list-style-type: none"> • MOU renewal by SEU 	
H1-H2	<ul style="list-style-type: none"> • Evaluation and Monitoring: Travelling back and forth to Ghana • OBYN program success in Ghana • Retention rate • Alternative funds outside Carnegie, NIH, and Gates Foundation • Model and expansion of OBGYN in other African Countries • Government support • Joint publication and research 	Described similarly like RUM

APPENDIX B:
Recruitment Script (Email)

Dear prospective participant,

I am Elizabeth I. Essamuah-Quansah, originally from Ghana and a Ph. D candidate in higher education administration program at Auburn University in Alabama. I am in the process of collecting data for my dissertation. The topic of my research is *Assessing the Effectiveness of Collaboration between US-Ghana Universities: A Cross-Case Study*. I would like to request access to University of Michigan MOUs or some partnership information with University of Ghana medical school.

Please know that, the information you share with me will remain private and confidential. I am also ready to provide you with a letter of support from my main academic advisor; Dr. David DiRamio upon your request.

If you have other concerns or questions, you can contact me on my cell phones: 334-703-0556 or 334-444-3435 or email me.

Thank you for your consideration and looking forward to your response.
Elizabeth E-Quansah

APPENDIX C

INTERVIEW PROTOCOL

General Information:

1. What was the rationale for selection of US-Ghanaian collaborator?
2. What is the name of collaboration/partnership and when did this collaboration begin?
3. What type of collaborative project/program is in place between the two universities? That is, is it a partnership development program, learning and networking, advocacy and outreach, and sustainable development agreement?
4. What are the objectives for the collaboration?

Questions about the program(s)/project(s)

5. Could you briefly describe the collaborative program between the two institutions?
6. Did both partner universities conducted needs assessment prior to the project commencement? If yes, what were the main needs?
7. If there were training and exchanges related to this collaboration, could you describe the training methods and the duration of the training programs?
8. Is the collaboration still active or inactive?

Questions related to Roles/Responsibilities

9. What were the distinctive roles, and responsibilities for both universities?
10. Were roles and or responsibilities equally shared and made clear at the inception of the program(s)/project(s)?
11. What were the goals/objectives assigned to the Ghanaian collaborators?

Questions related to level of technological knowledge and skills used by Ghanaian collaborator and technology transfer by U.S. collaborator

11. What was the level of knowledge with regards to usage of technology in the Ghanaian collaborator's classroom?
12. Could you describe the level of technological use and skill set by the Ghanaian collaborator (i.e. How faculty and students used technology for teaching, research and learning) prior to the program implementation?
13. To what extent has this collaboration help to changed or enhanced the technological issue, if any, with your Ghanaian counterpart?

Questions related to Expectations:

14. What was U.S. collaborator's expectations when it entered into collaboration with the Ghanaian collaborator?
15. What was the Ghanaian collaborator's expectations with regard to collaborative program(s)/project(s)?
16. Was the U.S. collaborator able to manage the Ghanaian collaborator's expectations? If so, how? If not, how did you share your institutional limitations with respect to not meeting their expectations?

Questions related to Outcomes:

17. What part of the program/project would you consider beneficial to your counterpart in Ghana?
18. In your opinion, did both universities mutually benefited from the program(s)/project(s)? If yes, please explain.
19. How were project grants and other resources distributed and who owns the research products, and rights?
20. How has this collaboration enhanced research, teaching, and learning in both Universities?

Questions about program sustainability:

21. Is there a system in place to assess the effectiveness of this collaboration? What metrics will you use for the assessment?
22. Were there follow-ups after completion of programs/projects to ensure successful long-term collaboration?
23. What are some of the key challenges you encountered during and after the collaborative project/program?
 - a. Did the above challenges impact the overall achievement of project goals?
24. Please add any comment (s) that will enhance this research study.

THANK YOU!

APPENDIX D: PARTICIPANT INFORMED CONSENT



EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT)

INFORMED CONSENT

For a Research Study entitled:

"Assessing the Effectiveness of Collaboration Between US-Ghana Universities: A Cross-Case Study"

You are invited to participate in a research study to examine if past educational capacity building collaborations between US-Ghana public universities have been effective. Elizabeth I. Essamuah-Quansah is conducting a study under the direction of Dr. David DiRamio, Associate Professor in the Auburn University Department of Education Foundations, Leadership, and Technology. You were selected as a possible participant because you are at global division of your university and are age 19 or older.

If you decide to participate in this research study, you will be asked to provide Memorandum of Understandings (MOUs) and describe details of your institution partnerships with your respective Ghanaian university counterpart through interview. Your total time commitment will be approximately 30-45 minutes.

There is no risk associate with this study. You may decide to withdraw your participation any time during the interview. Any data collected will remain confidential. You will be responsible for any costs associated with your internet services and equipment.

The results from this study will be significant to US-Ghana public universities relations, funding and governmental agencies. It will also be beneficial because it will show how US-Ghana public universities educational capacity building has influence (positive/negative) in terms of knowledge transfer, technology transfer as well as human development opportunities in areas such as education (teacher training and classroom instruction). There are no cost or compensation for your participation.

If you change your mind about participating, you can withdraw at any time during the study. Your participation is completely voluntary. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, the Department of Education Foundations, Leadership, and Technology.

Thank you for your time and contribution to my study.

Participant's initials _____

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Protocol # 16-134 EP 1607

Your privacy will be protected. Any information obtained in connection with this study will remain confidential. Interviews will be recorded and transcribe for dissertation. Interview transcripts, audio recordings and other documentation will be deleted and shredded after my graduation. Information obtained through your participation may be for dissertation, publication and professional presentation.

If you have questions about this study, please contact Elizabeth I. Essamuah-Quansah at eid0001@auburn.edu, phone (334)-844-5716 or Dr. David DiRamio at diramdc@auburn.edu, or by phone (334)-844-3062. A copy of this document will be given to you to keep.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334)-844-5966 or e-mail at IRBadmin@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.”

Participant's signature _____ Date _____ Investigator obtaining consent _____ Date _____

Printed Name _____

Printed Name _____

Co-Investigator _____ Date _____

Printed Name _____

4036 Haley Center, Auburn, AL 36849-5221; Telephone: 334-844-4460; Fax: 334-844-3072

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