ABSTRACT

CANNON, EMMA CATHERINE. Agriculture Education Curriculum Adoption by Ugandan Secondary School Teachers Fostered by the INGO Field of Hope (Under the direction of Dr. Joy Fleming).

As developing nations struggle to educate their youth, relevant curriculum is often a barrier to the development of young minds, which shapes the futures of the individual students. While most developing countries rely on agriculture for survival, many youth are not interested in learning about agriculture or pursuing agriculture careers. While numerous studies have investigated how and why educational policy reforms are not effective on large scales through a countrywide adoption of new curriculum, this study sheds light on how an international non-governmental organization (INGO) can have a locally relevant impact with a small-scale curriculum adoption and implementation process through the lens of Rogan and Grayson’s (2003) Framework for Curriculum Implementation in Developing Countries. Through qualitatively interviewing eight teachers who adopted and implemented the program, the following seven themes emerged: shift from theoretical to practical applications, motivations of teachers, barriers, curriculum meets students’ needs, survival, curriculum adoption and changed teaching habits, and shift from negative to positive perceptions of agriculture. It is recommended that further research be conducted to understand if students are more likely to be interested in agriculture careers after being taught the curriculum, which engages them in critical thinking, project-based learning, and hands-on approaches. It is also recommended that Field of Hope seek continued partnership with Uganda’s Ministry of Education to explore a country-wide adoption of the curriculum.
Agriculture Education Curriculum Adoption by Ugandan Secondary School Teachers Fostered by the INGO Field of Hope

by

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A thesis submitted to the Graduate Faculty of North Carolina State University in partial fulfillment of the requirements for the degree of Master of Science

Agricultural and Extension Education

Raleigh, North Carolina 2019

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DEDICATION

This project is dedicated to my students and 4-H members at Obooho Junior High School whom I had the pleasure of teaching for six months in Ghana. May you strive for a clear Head, an open Heart, clever Hands, and good Health as you learn, earn, and go green!

This project is also dedicated to my parents who have always helped me achieve my dreams. Thank you for encouraging me and pushing me to be and do my best in everything.
BIOGRAPHY

Emma Cannon grew up in the small town of Wendell, North Carolina, surrounded by family who frequented the beach and mountains of North Carolina. Emma lettered in four varsity sports during high school and was involved in FFA and her local church. She also attended and later became a counselor at Camp Oak Hill where she developed the life motto of GO.SERVE.LOVE., which is the lens through which she decided what to do with her life. Emma went on to serve as the North Carolina FFA Association State President during her freshman year at North Carolina State University in Raleigh, North Carolina. She graduated with a Bachelor of Science in Agricultural Science with three minors in horticulture, animal science, and agricultural business management.

Upon graduating, Emma moved to Ghana, West Africa, where she was an integrated science and social studies teacher and 4-H advisor at Obooho Junior High School and was also an extension agent in the rural village of Obooho. Emma’s interest was sparked while in Ghana, and she returned to North Carolina State University to pursue her master’s degree, study curriculum adoption by ministries of education in developing countries, and receive her teaching license. Upon graduating, Emma plans to return to Uganda, where she collected her thesis data, to continue working with the non-profit Field of Hope and then she will enter the workforce in agriculture marketing.
ACKNOWLEDGMENTS

The support system I have had during this project has been more than I could have ever imagined. Momma, Daddy, and Ashton, thank you for all the meals, prayers, and most importantly the encouragement and support. Dad, I’m so glad you were able to go to Uganda with me and experience for yourself why I love this type of work.

Mema and Pop, thank you for your constant love and encouragement. Living close by is a pleasure, and I always know that I can expect to talk about my thesis when I go to see you, Pop. Your questions mean that you care. Grandma-Net, thank you for always believing in me and pushing me to pursue my dreams.

Chandler, I couldn’t have done this project or graduate school without you. It has been a blessing to have gone through this thesis while you were completing yours at the same time. Having someone understand what I’m doing and being able to bounce ideas off of you has been a bigger help than you will ever know. We pushed each other and made each other better. I look forward to what the future holds.

Dr. Morgan, thank you for believing in me two years ago and allowing me to be your first graduate student. It has truly been a blessing to work alongside of you as I watched your family grow with the birth of Westry. Personally and professionally, you have a lot of qualities we younger women look up to. Thank you for your constant generosity, smile, and warm spirit.

Dr. Park, thank you for working with me and helping me with student teaching. I appreciate the flexibility in allowing me time to work on my thesis. I have enjoyed being your colleague and learning from you over the past two years. Dr. Warner, thank you for your help in understanding qualitative research. I appreciate you loaning me textbooks and your materials from graduate school. Dr. Baker, thank you for your encouragement and advice this past year
and answering the hundreds of questions I always come up with and ask you. I am so thankful you let me sit in on your class last fall and so thankful for your friendship and guidance. Dr. Kirby, thanks for always being an encouraging colleague who asks how my thesis is coming along. It means so much to know that you care. I thoroughly enjoyed being your TA, sitting in your office while drinking a hot cup of coffee, and chatting.

Field of Hope, thank you from the bottom of my heart for welcoming me as one of your own. We have a tight bond in knowing that we are brothers and sisters in Christ before anything else. This research would not have been possible without your unfailing support. Alexa, thank you for all the phone calls, emails, texts, and laughs we have shared. Your assistance and willingness to help me understand things, give me advice, or just a friendly reminder that I can do this is greatly appreciated. Also, the doughnuts at your wedding will be divine! Mike, I am so glad to know that I am not the only one in the world who loves shiny objects and goes after them wholeheartedly. Your drive, passion, and compassion for the Ugandans and those you work with stateside amazes me through each and every conversation I have with you. You always remind me that the Lord has a bigger plan than we can see and that everything is from Him. Field of Hope will forever leave an imprint on my heart to treat thy neighbor as thy self and to go into the world and make disciples of men. I look forward to what the Lord has in store for us this summer!

Vivayic, since last March in Mexico I have been impressed. In Mexico, I was able to catch up with Leah and meet Whitney who pitched their idea of research to social scientists from all over the world. Somehow, I was blessed to be a part of that idea that became my thesis. Whitney, thank you for the phone calls, emails, and answers to all of my many questions as I sought to understand so many parts and pieces of this curriculum. Leah, thank you for your
commitment to seeing this through. You and your team have done an amazing job putting together a curriculum that is changing lives. Doug, thank you for making me laugh! More importantly, thank you for allowing your team the 2,200 plus man-hours it took to create the curriculum. Your company’s commitment to do good in the world is inspiring.

Dr. Redwine, what an adventure we had in Uganda. Thank you so much for bringing a smile to all of our faces and lighting up the room or bus at any point during the day. Your presence and pictures meant more than you know. I appreciate all of your advice and answers to my many questions about qualitative research, graduate school, and life in general as we rode in the back of the bus all over northern Uganda. My father appreciates your friendship as well!

My fellow graduate students, thank you for being so much fun this year. I have thoroughly enjoyed getting to know you first-year students: Olivia, Rachel, Susan, Daniel, and Jason. I know that all of you will accomplish so much in the next year, and we will all be better people because of our time together in Ricks Hall.

FarmLab Innovations, thank you for your patience and your presence in my life over the past year. I have thoroughly enjoyed working alongside of Eric, Kevin, Julian, and Renee as we pulled off IPPE 2019! Your patience and flexibility with me through my master’s program is very much appreciated as well as is the encouragement. I look forward to what the future holds!

To my close friends I have not named, thank you for your love and support of the biggest undertaking I have ever accomplished. If you are reading this, you hold a special place in my life, and I want to sincerely thank you for your friendship.
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CHAPTER I

INTRODUCTION

In a country where 22% of the gross domestic product (GDP) and 52% of the export value contributing to the economy comes from agriculture, few youth are interested in agriculture and agriculture careers (Food and Agriculture Organization [FAO], 2015). With a growing population estimated to reach 10 billion by the year 2050, food production is of the utmost importance and a growing concern for leaders around the world (Mukembo, 2017).

Approximately 90% of the world’s children (age 10–14) live in developing countries (United Nations Children’s Fund [UNICEF], 2012), while the median age of Sub-Saharan Africa is 19 years old (AgriCorps, 2018). In Uganda, 56% of the population is under 18 years of age, but 78% of the entire population is below the age of 30 (Ahaibwe, Mbowa, & Lwanga, 2013). While Uganda is a nation full of youth, the average age of a farmer is 54 years old (Lunghabo, 2016). Knowing the population is growing exponentially and the average age of a farmer far outweighs the median age in Sub-Saharan Africa does not allow world leaders to have a positive economic outlook due to the lack of interest in an agriculturally related career by youth (Mukembo, Edwards, Ramsey, & Henneberry, 2014).

“Obtaining a quality education is the foundation to improving people’s lives and sustainable development” (FAO, 2017, para. 1). However, the sole emphasis of education is placed on students passing the final examination in Uganda (Thurmond, Denney, & Kueker, 2018). Rather than providing students with practical knowledge and skills that would support application and self-sustainability upon leaving school (Basaza, Milman, & Wright, 2010; Lugemwa, 2014; Mukembo, 2017), only preparing students to pass the final examination urges
lower-order thinking through rote-memorization (Mukembo, 2017). Because rural youth are disinterested in agriculture, this is especially concerning regarding agricultural education (Bennell, 2007). Additionally, “support for capacity development for youth in directly productive agricultural activities (especially skills training at all levels) still receives limited support” (Bennell, 2007, p. 4).

**Rural Youth and Education**

In 2003, one third of the populations in 13 countries in Sub-Saharan Africa, including Uganda, were under 15 years of age (United Nations Educational, Scientific, and Cultural Organization [UNESCO], 2007). As of 2012 (ActionAid International Uganda [AAU], Development Research and Training [DRT], & Uganda National NGO Forum [UNNGOF]), 61.6% of Ugandan youth were unemployed and reported they did not receive skills in school that are necessary to prepare them for the real-world. However, food security in communities could potentially be increased if rural youth are interested in agriculture and equipped with agricultural skills (Bennell, 2007).

Even though developing countries often spend 15% to 35% of their national budget on education, their education is inadequate in most instances (Oliveira & Farrell, 1993). Rural youth highlighted they have limited access to knowledge, information, and education (International Movement for Catholic Agricultural and Rural Youth [MIJARC], International Fund for Agricultural Development [IFAD], & FAO, 2012). Additionally, hunger and the inability to find energy to learn at school are frequent among rural youth of developing countries (MIJARC et al., 2012). Access to school is an issue because some students travel long distances to get to school (FAO, 2009). In addition, agriculture education curriculum in developing countries is often outdated, inadequate, and lacks relevance to the rural context (FAO, 2009). Agricultural
activities are used as common practices for punishment in many parts of the world, which leads to attitudes that negatively affect the aspirations of youth toward agriculture as a career (MIJARC et al., 2012). However, when agriculture is integrated into the school curriculum by using practical activities through the school garden, youth are positively encouraged to pursue agriculture as a career (MIJARC et al., 2012).

White (2012) reported underemployment and unemployment of youth is the biggest problem of developing countries, but small-scale agriculture is the key to fixing this growing problem. Additionally, youth have the potential to become the small-scale farmers and help lower the number of unemployed people in developing countries (White, 2012). Paradoxically, it is the youth who seem to be the most uninterested in agriculture, farming, or rural futures (White, 2012). According to Mukembo, Edwards, Ramsey, and Henneberry (2014), youth engagement and retention in agriculture has declined globally due to little awareness about the vast opportunities that lie within the industry of agriculture.

Uganda, like many other developing countries, is facing a decline in youth engagement in agriculture that is affecting their ability to address the country’s economic issues, such as food security. While the Ugandan government aims to drive economic growth through agriculture, the declining youth interest in agriculture could potentially negatively affect the entire country’s economy (Ahaibwe et al., 2013).

**Problem Statement**

Teachers in a rural classroom using chalk to write on a blackboard, working tirelessly to provide their students technical content knowledge with little curriculum resources is an accurate description of many educational settings in Sub-Saharan Africa (World Bank Group, 2007).
most rural teachers and their rural students, subsistence farming is the main means of survival. In Uganda, like most poor African countries, agriculture generates more money than any other business or industrial sector (Appleton & Balihuta, 1996). The future of these rural areas lies with rural youth who are the future leaders of the country and its hope of food security (Mukembo, 2013). However, around the world, many rural youth find it difficult to see themselves involved in an agricultural pursuit (FAO, 2009).

Teachers in these rural schools are important people in the lives of youth and have the potential to positively encourage the future endeavors of their students (Mukembo, 2013). However, these teachers in rural educational settings often lack relevant agricultural education curriculum to deliver content knowledge to their students and are left to teach from their personal experiences in production agriculture (FAO, 2009). While educational reform has been attempted in many developing countries by implementing new curricula (O’Sullivan, 2002; Rogan & Aldous, 2005; Serbessa, 2006; Tabulawa, 1998) these curricula are often implemented by policy makers and the implementation process is often neglected leaving teachers unprepared to adopt pedagogies introduced by new curricula (Hennessey, Harrison, & Wamakote, 2010; Rogan & Aldous, 2005). However, INGO’s are more locally and contextually relevant to schools in developing countries than governments and are being called on to assist in educational development because of their success in the implementation process of curriculum and learner-centered teaching methods (Raval et al., 2010; Rose, 2009).

While curriculum implementation in developing countries is not new to the international development scene, scant literature exists to help INGO’s increase the effectiveness and efficiency of their operations in this sphere. Though some of the existing literature explained practices by policy makers implementing curriculum, little research has been conducted to
understand the role of INGO’s in implementing curriculum in developing countries. This context led the researcher to design and conduct a “good qualitative research” study that is “relevant, timely, significant, interesting, or evocative” (Tracy, 2010, p. 840)

**Background and Purpose: Field of Hope Secondary School Agriculture Education Curriculum**

Many non-governmental organizations (NGOs) have been created with the purpose of fighting food insecurity by empowering local people in rural villages of Sub-Saharan Africa to be educated and better prepared to provide for their families (FAO, 2014). While a multitude of challenges and issues related to education in rural areas of developing countries exist, the FAO (2014) called for ministries of education to work with NGOs to identify specific solutions to help address these challenges. Field of Hope, an American-based international NGO, works primarily with agriculture teachers, women’s groups, and smallholder farmers in northern Uganda (see Figure 1). Their official mission reads “We develop agricultural knowledge and enthusiasm among youth and smallholder farmers to sustain nutritionally food secure and economically empowered communities” (Field of Hope Organization, n.d.a., para. 1).
After establishing relationships and working with teachers in Uganda, Field of Hope discovered agriculture teachers face many barriers to gathering technical content and information to develop lessons to teach (A. M. Major, personal communication, April 2, 2018). Many agriculture teachers’ only resource was to use the little information provided in the Ugandan syllabus (see Figure 2). In order to develop enthusiasm among youth toward agriculture careers, Field of Hope aims to alleviate any barriers teachers face in providing their students meaningful classroom experiences regarding agriculture.
SECTION II
SENIOR 1 TERM I

TOPIC 1: GENERAL INTRODUCTION

DURATION: 12 PERIODS

GENERAL OBJECTIVE: The learner should be able to discuss the importance of Agriculture

<table>
<thead>
<tr>
<th>SUB TOPIC</th>
<th>SPECIFIC OBJECTIVES</th>
<th>CONTENT</th>
<th>TEACHING AND LEARNING STRATEGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Importance of agriculture.</td>
<td>• Explain the term “Agriculture” • Explain the importance of agriculture in the economy of Uganda</td>
<td>• Meaning of the term Agriculture • Importance of agriculture to a) Man b) The economy of the nation</td>
<td>• Brainstorming on the term “agriculture”. • Class discussion on the importance of agriculture.</td>
</tr>
<tr>
<td>1.2 Introduction to farm layout.</td>
<td>• Identify the components of a farm. • Explain the factors to consider when siting the different components of a farm.</td>
<td>• The components of a farm: buildings, animals, crops, water supplies, fields, roads, power supply, workers. • Factors to consider when siting the different farm components. • Map of the school farm.</td>
<td>• Field trip to the farm to identify the components and their layout. • Discussion of the factors to consider when siting farm components.</td>
</tr>
</tbody>
</table>

Figure 2. Content of Ugandan Agriculture Syllabus. This figure illustrates the contents of Topic 1 in the Ugandan Syllabus. From Ministry of Education and Sports, 2008.

Field of Hope began exploring the most appropriate way to assist teachers in the classroom. Working together, Field of Hope and Vivayic, a company that designs learning solutions,

created a model of how to equip rural Ugandan youth with practical agricultural skills and build their interest in agricultural careers. The two organizations collaborated to design, write, and pilot a year-long Senior 1 (S1) agriculture education curriculum. The design considered two frameworks:

1) the Secondary Level Teaching Syllabus of the Ugandan National Curriculum Development Center (NCDC), which outlined the content topics and objectives for the lesson plans, and

2) a project-based learning (PBL) approach that targets competency development such as problem solving, decision-making, teamwork, communication, risk-taking, and agri-entrepreneurship. (Thurmond et al., 2018, pp. 1–2)
Thus, an agriculture education curriculum for S1 was created that ensures content recognized on the national exams is covered as well as competencies needed to enter into an agriculture career or become a successful smallholder farmer (see Figure 3. Upon successful implementation of S1 curriculum in 2018, a production schedule was created to deliver S2 in 2019, S3 in 2020, and S4 in 2021 (see Table 1).

![Senior 1 Field of Hope Agriculture Education Curriculum](image)

*Figure 3. Senior 1 Field of Hope Agriculture Education Curriculum. This figure illustrates the Senior 1 Teacher’s Guide. From Field of Hope Organization, n.d.d.*

**Purpose of the Study**

The purpose of the study was to explore and derive meaning from the experiences of the instructors teaching agricultural education in secondary schools partnered with the INGO Field of Hope who were given a new Senior One (S1) agriculture education curriculum to implement through a basic qualitative approach. Additionally, the study aimed to help Field of Hope
understand the practicality and applicability of the curriculum the agriculture teachers of schools that partner with Field of Hope were using.

While research has been conducted that exemplifies how governments in developing countries such as Namibia (O’Sullivan, 2002), South Africa (Rogan & Aldous, 2005), Ethiopia (Serbessa, 2006), and Botswana (Tabulawa, 1998) implemented new curriculum, scant research exists about how INGOs can increase their effectiveness and efficiency operating in this sphere. The researcher aimed to identify connections in curriculum and activities facilitated by the INGO Field of Hope and the decision-making process of instructors to adopt curriculum to use in their classrooms. To understand how agricultural education in rural schools is integrated into the school and used by the instructors, a deeper understanding of the effectiveness of Field of Hope’s curriculum implementation was needed.

According to Merriam (2009), an investigator who conducts a basic qualitative study “should focus on understanding how people make sense of their lives and their experiences” (p. 23). Therefore, the researcher conducting a basic qualitative study aims to understand how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences. The intent of this study was to uncover and interpret the meanings of the experiences of the teachers who were using the new Field of Hope S1 agriculture education curriculum in secondary schools of Uganda. The researcher also aimed to spark further research in the area of educational reform and curriculum implementation in respect to INGOs in developing countries. The questions guiding this research were organized into four objectives:

**Objectives**

1. Determine the influences impacting teacher adoption of agricultural education curriculum.
2. Determine the internal and external motivations of using S1 through S4 agricultural education curriculum.

3. Determine the barriers that prevent teachers from adopting the curriculum.

4. Determine the teachers’ perceptions of the curriculum to meet the needs of their students.

**Definition of Terms**

**Advanced or A-Level:** Secondary school in Uganda is grades Senior 1 through Senior 6 (S1–S6). O-Level offers students S1 through S4. A-Level, which is an advanced level, offers students S5 and S6 (Ministry of Education and Sports, 2008).

**Agriculture:** “science, art, business, technology of the plants, animals, and natural resources systems” (Talbert Vaughn, Croom, & Lee, 2007, p. 509).

**Agriculture Education:** refers to a “program of instruction in and about agriculture and related subjects” (Talbert et al., p. 4).

**Compulsory Agriculture Levels:** Senior 1 (S1) & Senior 2 (S2) agriculture is a required subject Ugandan schools. When students advance to Senior 3 (S3) and Senior 4 (S4) students choose courses to continue with and agriculture becomes an option students must choose (Ministry of Education and Sports, 2008).

**Critical Thinking:** deciding what to believe or do through reasonable and reflective thinking (Ennis, 1985).

**Curriculum:** “that reconstruction of knowledge and experience, systematically developed under the auspices of the school (or university), to enable the learner to increase his or her control of knowledge and experience” (Tanner & Tanner, 1980).
**International Non-Governmental Organization (INGO):** any international non-profit, voluntary citizens' group that is organized on a local, national, or international level (Rose, 2009; USAID, 2017).

**Motivation:** an internal energy that directs all our actions including interacting with others, thinking, and feeling (Deci & Ryan, 1985).

**National Curriculum Development Center (NCDC):** housed by the Ugandan Ministry of Education, this center creates curriculum for schools in Uganda (Ministry of Education and Sports, 2008).

**Non-Governmental Organization (NGO):** any non-profit, voluntary citizens' group that is organized on a local, national, or international level (USAID, 2017).

**O-Level:** The first four years of secondary school in Uganda (S1, S2, S3, and S4) (Ministry of Education and Sports, 2008).

**Outside Agencies:** any organization that is not within the school but helps facilitate the innovation by interacting with the school (Rogan & Grayson, 2003).

**Project-based Learning:** “a comprehensive approach to classroom teaching and learning that is designed to engage students in [the] investigation of authentic problems” (Blumenfeld et al., 1991, p. 369).

**Secondary School:** After three years of nursery/kindergarten and seven years of primary school, students may take the PLE (Primary Leaving Examinations). Upon passing the PLE, students are able to progress to secondary school, which is six years. This is comparable to high school in the United States.

**Senior 1 – Senior 4 (S1–S4):** The first four of six years of secondary school in Uganda are referred to as senior one (S1) to senior four (S4) (Ministry of Education and Sports, 2008).
**Smallholder Farmer:** For home consumption, smallholder farmers raise livestock and grow crops. Income may be generated by selling what is left over from home consumption (Smalley, 2013).


**Subject Matter Experts (SME):** a key-informant identified by Field of Hope to review the content of the curriculum for correction (Thurmond, 2019).

**Work Motivation:** psychological processes that influence behavior regarding goals and tasks (Bennell, 2004).

**Young Farmer Club (YFC):** agriculture organizations for youth, typically in schools (Mukembo et al., 2014).

**Scope and Limitations**

1. The scope of this study was limited to secondary school agriculture educators in those schools operated by the INGO Field of Hope in the northern region of Uganda.
2. The findings and conclusions of this research were limited to qualitative case study analysis and interpretation of the researcher and her findings as she was the main instrument of data collection.
3. The findings of this qualitative analysis were limited to the access, availability, and willingness of the teachers who participated in the study.

4. The analysis and interpretation of the agriculture educators’ answers to the questions asked by the researcher were limited to the accuracy of the translation of the interviews if translation was needed. English is the language used for instruction in Ugandan schools; therefore, translation was not expected to be needed. However if it was needed, it was provided.

Assumptions

1. The researcher assumed all agriculture teachers participating in interviews were honest and forthcoming in response to interview questions.

2. The researcher assumed key informants who recommended interview participants were knowledgeable about the agriculture educators and the INGO Field of Hope’s projects and were honest in their recommendations of the interviewees.

3. The researcher assumed the agriculture educators were not intimidated by questions regarding their teaching methods, teaching styles, or decision-making practices in regard to what or how they operate their classrooms.

4. The researcher assumed the schools who participated in the study were similar in nature, structure, operation, and mission because they were all partnered with the same INGO, Field of Hope, and were all located in the northern region of Uganda, and therefore, the “diversity” in schools was not a limiting factor to consider during the curriculum implementation process (Rogan & Grayson, 2003).
Chapter Summary

Agricultural education in developing countries is lagging because of a number of resources that are not available to rural schools, rural teachers, or rural students. The FAO (2014) called for further focus on youth because they have the power to innovate while representing the agriculture industry much better than their elder farmers. Positive implications for the agriculture industry could occur if youth perceive agriculture as a potential profession with a vision for incorporating innovation (FAO, 2009). While agricultural education could be a great driving force for the underpinnings of the growth of developing countries’ economies, in most developing countries agricultural education lacks necessary resources to make this driving force a reality (FAO, 2009).

In response to economic crisis, many NGOs have been formed to fight major issues such as health, poverty, nutrition, and education (Raval et al., 2010). While multiple research efforts have been conducted to track and understand the process of implementing educational reform in developing countries by the governments of those countries, little research on how INGOs implement and effectively establish educational reform have been published.

It is the aim of the researcher to effectively understand practicality and applicability of using the new S1 curriculum through the eyes of the agriculture instructors themselves. The findings and conclusions of the researcher are aimed to help the INGO Field of Hope understand their current process and effectiveness in the implementation of curriculum with regard to their professional development of teachers in using the new agriculture education curriculum.
CHAPTER II

Review of Literature

Education in Sub-Saharan Africa

The diversity of schools in Sub-Saharan Africa (SSA) is quite broad across the multiple countries. In the cities or well-populated areas, schools can resemble skyscrapers with magnificent educational programs that would rank high on a global scale. However, sometimes just ten minutes outside of the cities in more rural areas, schools can be found without electricity, running water, doors or windows, and basic resources such as books (Rogan & Grayson, 2003). In developing countries, children living in poor rural villages are four times less likely to be in school than a child raised in a wealthy household (United Nations, 2015), with fewer than one third of secondary school-aged children enrolled in Sub-Saharan Africa (UNICEF, 2012).

In 40% of SSA countries, sixth grade students reach more than 20% of the desired mastery level for reading literacy, but Ugandan sixth grade students only reach 10% of desired mastery levels (UNESCO, 2007). The World Bank Group (2007) reported that rural education needs the most improvement, but vocational training in education can provide technical skills that are useful in agriculture. In rural areas, education along with the technical skills needed for agriculture can be an effective instrument in using agriculture for development by helping alleviate poverty (World Bank Group, 2007). Due to the low level of education in the labor force, constraints are placed upon prospects for international competitiveness, economic growth, and social development in many countries of Sub-Saharan Africa (Johnson, 2008).

Teachers at all levels of the educational system are important in the overall development of any nation (Fareo, 2013). However, teachers in developing countries have neither the
experience nor the expectation of collaborating with peers (Rogan & Grayson, 2003) and may even shy away from collaboration for fear of exposing their weaknesses in their teaching skills. The small number of teachers in schools is a challenge in Sub-Saharan Africa where there is a pupil/teacher ratio of 40:1 (UNESCO, 2007). In many developing countries, teacher attendance is a problem that schools face, and teachers often show up hours after school begins or not at all, disrupting routines needed for effective student environments (Rogan & Grayson, 2003).

Teacher morale and motivation are more difficult to accrue in rural areas than in urban areas because of poor working and living conditions (UNESCO, 2007). Due to the lack of resources in rural areas, schools employ fewer qualified and experienced teachers and have higher turnover and vacancy rates than in urban schools (UNESCO, 2007). However, agriculture teachers in rural areas could have a stronger local connection and application to curriculum due to the amount of smallholder farmers operating in these areas.

In Ugandan schools, there is an average of 19% unauthorized teacher absenteeism (UNESCO, 2007). Currently, there are 1,200,000 students enrolled in secondary schools in Uganda and only 20,000 secondary school teachers, meaning there is a teacher to student ratio of 60:1 (NCDC, 2019). Only 81% of secondary school teachers in Uganda meet the requirements to teach secondary school, which are the same requirements to teach primary school (UNESCO, 2007).

**School Systems in Uganda**

In the 1960s, during Uganda’s post-independence period, the country’s education system was one of the best in Central and East Africa (Altinyelken, 2010a). However, Uganda experienced devastating impacts on its educational, political, economic, and social infrastructure from the latter half of the 1960s to the 1980s (Altinyelken, 2010a). Currently, the Ugandan
Ministry of Education and Sports is using the 1992 Government White Paper on Education as the standard and system for all educational programming with some revisions in recent years (Ministry of Education and Sports, 1992). The structure of schooling in Uganda mirrors that of British society, which includes seven years of primary education, six years of secondary education (four years lower and two years upper), and three to five years of post-secondary education (Ofcansky, 1996; Otiso, 1996). According to the Ministry of Education and Sports (2017), primary and secondary students attend school for three terms and a total of 260 days with the school year starting in February and ending in December.

To increase access to education in Uganda, costs associated with education could be lowered. The school fees associated with a child’s education include uniforms, tuition, textbooks, community contributions, and exams (A. M. Major, personal communication, April 2, 2018). As of 2007 (UNESCO), the leading cost of education for students in Uganda was transportation. Because of the low rates of enrollment, many developing countries, including Uganda, retracted school fees to make education more accessible between 2002 and 2005 (UNESCO, 2007). The government of Uganda plans to transform the country’s economic status from low-income to a middle-income country by 2020 by focusing on the education sector (Uganda Bureau of Statistics, 2017). It is hoped the education sector can propel the country forward in economic growth by preparing citizens with the right knowledge and relevant skills (Uganda Bureau of Statistics, 2017).

In many developing countries, educational reform has taken place for the entire country, typically when a new governmental leader is elected or appointed. The educational reform in Uganda has centered around increasing and reforming the primary education system of the country (Rogan & Grayson, 2003). However, with the growing rates of primary education, the
demand has been created for more secondary schools in these countries. In Uganda, where the majority of education reform has taken place compared to the rest of SSA (Altinyelken 2010a), the demand for secondary school places has risen from 0.4 million to 1.0 million from 2002 to 2008 (UNESCO, 2007). Currently, there are 22,000 primary schools in Uganda and 5,843 secondary schools with only 2,082 of those secondary schools being O-Level (offers S1–S4), while the remainder are A-Level (offers S5 and S6) (NCDC, 2019). The small number of secondary schools in Uganda is not enough for the primary schools to feed into. Uganda has the lowest gross enrollment rate (GRE), 30%, in all regions of the world and only spends 2% of the gross national product (GNP) on secondary school, creating a need for additional O-Level and A-Level opportunities for youth (UNESCO, 2007). With a large number of primary schools in Uganda, there is an increased demand for secondary schools and secondary school teachers.

Lecture Method of Teaching in Developing Countries

Lecture method is a traditional style of instruction across disciplines in many institutions (Svinicki & Mckeachie, 2011). Secondary schools in Uganda have large classes that are especially popular and convenient for lecture-style teaching due to resource limitations (Mills, 2012). However, instructors are encouraged to make teaching more effective by utilizing Rosenshine and Furst’s (1971) five guidelines that include “clarity, variability, enthusiasm, task-orientation and/or businesslike behavior, and student opportunity to learn” (p. 54). Due to the large nature of classes that are more suitable for lecture method, there are inadequacies with this style of instruction delivery (Bligh, 2000). Learning experiences that lack active and engaging experiences fail to prepare the learner for behavioral skills and application to the real-world (Bligh, 2000; Nilson, 2010). Because many Ugandan classrooms are large and teachers use
lecture method, students miss the opportunity to encounter everyday challenges and real-life scenarios, which is the purpose of education (Mukembo, 2017; Whitehead, 1929).

**Critical Thinking in Education in Developing Countries**

Since the 1960s, developing countries have heavily invested in science education, mainly for the sake of economic development while improving the quality of life (Coll & Taylor, 2011). Because of the lack of desirable learning outcomes, undesirable literacy rates, and need for more science education in Sub-Saharan Africa, there has been an unprecedented interest in reforming pedagogical practices in the past two decades (Altinyelken, 2010b). However, for any new implementation of curricula to take place, it is absolutely critical for the pedagogical and technical expertise of the teacher to be relevant to the curricula (Hennessey et al., 2010). In an NGO or INGO setting, para-educators are typically the majority of the teachers, and these are usually women who are recruited from the same community, residential area, or village in which they work. Traditionally, they lack subject-matter knowledge, are underqualified to teach, and, therefore, potentially lack critical official language proficiency, which prevents students from fully grasping the concept of the topic because it is not in the native tongue of both the teacher and the student (Raval, et al., 2010).

The purpose of the secondary school curriculum created by Vivayic and Field of Hope was to create S1–S4 Ugandan agricultural curriculum that enhances competency in problem solving and critical thinking skills (Thurmond et al., 2018). Because the curriculum contains critical thinking skills, it is of high interest to the ministries of education and sports in Uganda and, more specifically, the National Curriculum Development Center in Uganda.
Project-Based Learning in Developing Countries

The project-based learning approach helps students develop interpersonal communication skills, leadership skills, and problem-solving skills in real-life situations as well as promotes higher-order thinking (Mills & Treagust, 2003). Traditional teaching methods, such as lecturing and rote memorization, may not encourage skills that project-based learning instills in students (Thomas, 2000). Additionally, students’ ability to apply the subject matter to real-world scenarios that increase their in-depth understanding of the content can be achieved through project-based learning (Blumenfeld et al., 1991). By utilizing problems students frequently face in local communities through creating projects based around these situations, students can accomplish project-based learning (Blumenfeld et al., 1991). Therefore, introducing project-based learning in agricultural education through entrepreneurial situations could be an option for teachers to initiate agriculture as a viable employment opportunity for students (Mukembo et al., 2014, 2015). The project-based learning approach could perhaps attract more young people to furthering their education in agriculture (Mukembo, 2017). However, the pedagogy of project-based learning is foreign to most educators in developing countries (Thurmond et al., 2018). Ugandan education is primarily based around theory and teaching that is classroom centered (Basaza et al., 2010; Mukembo, 2017; Thurmond et al., 2018). The school garden or farm is rarely used as a learning environment and, in the current model of education, is often used to punish student misbehavior (Mukembo 2017; Thurmond et al., 2018). Significant shifts in the educational system will have to take place to move beyond rote memorization for teachers to use project-based learning as way to incorporate school gardens for learning (Thurmond et al., 2018).
Factors Affecting Teachers’ Decision-Making Processes in Developing Countries

In developing countries, NGOs commonly provide schools with resources. Understanding why and how teachers use those resources to adapt and innovate to change leads to a deeper need of exploring their motivations. Due to psychological processes that influence behavior regarding goals and tasks, motivation toward teacher’s work is either influenced positively or negatively (Bennell, 2004). Additionally, teachers’ internal energy directs all of their actions and interactions with others including their feelings and thoughts, allowing them to be motivated (Deci & Ryan, 1985).

In most developing countries, teachers represent the largest sector of public employees and are underpaid (Oliveira & Farrell, 1993). The living and working conditions are often too low and create low self-esteem and demotivate teachers. Bennell (2004) stated that only when basic needs are met and teachers’ material income is substantial enough to meet survival needs will teachers meet the higher-order needs of true job satisfaction. Teachers in rural areas of developing countries are less motivated and must work harder than their colleagues in urban areas (Bennell, 2004). Due to various circumstances and lack of income, teachers have poor attendance and, therefore, show up to school less, are less often qualified and experienced, and strongly resist rural postings (UNESCO, 2007).

Curriculum Implementation in Developing Countries

Developing new curricula is a common event in schools across the globe (Rogan & Grayson, 2003). In Sub-Saharan Africa, over the past few decades almost all countries have been involved in educational reform and, more specifically, in developing new curriculum (Altinyelken, 2010a). Pedagogical change has been attempted through the revision and development of new curriculum in the following countries in Sub-Saharan Africa: Namibia
(O’Sullivan, 2002), South Africa (Rogan & Aldous, 2005), Botswana (Tabulawa, 1998), and Ethiopia (Serbessa, 2006). Policy makers implemented most of the curricula changes, and while they aimed to achieve success, the how and why of curriculum implementation were often neglected (Rogan & Aldous, 2005).

In reference to why a curriculum change should take place, De Feiter, Vonk, and Van Den Akker (1995) and Rogan and Grayson (2003) recommend that major curriculum reform should not take place if the need for reform is not clearly recognized first by the stakeholders. In regard to the curriculum implementation taking place in Uganda through Field of Hope, the why for a curriculum implementation has been previously addressed (Thurmond et al., 2018) (see Table 1), and this study will focus on the how.
<table>
<thead>
<tr>
<th>Date</th>
<th>Occurrence</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014–2016</td>
<td>U.S. volunteer taught agriculture at a school partnering with FOH. The volunteer was developing lesson plans to supplement bare Ugandan agriculture education curriculum.</td>
<td>Needed assistance in lesson plan writing for agriculture education curriculum.</td>
</tr>
<tr>
<td>2016</td>
<td>FOH reached out to Vivayic about partnering on a Ugandan agriculture education curriculum project.</td>
<td>Partnership was formed.</td>
</tr>
<tr>
<td>October 2016</td>
<td>Vivayic and FOH took an exploratory trip to Uganda to determine if a curriculum was plausible.</td>
<td>Uganda doesn’t have a curriculum, just a bare syllabus. Critical-thinking and problem-solving skills would be beneficial.</td>
</tr>
<tr>
<td>January 2017</td>
<td>Vivayic and FOH underwent tropical agriculture training at ECHO Global Farm &amp; Research Center in Florida while brainstorming possibilities of curriculum.</td>
<td>Three versions of the curriculum layout were created and sent to stakeholders (trainers, teachers, &amp; FOH) for review. S1 curriculum was created.</td>
</tr>
<tr>
<td>October 2017</td>
<td>Vivayic and FOH took pilot trip to Uganda to test curriculum and decide on its relevancy.</td>
<td>Project-based learning content needed to be watered down, and curriculum is relevant.</td>
</tr>
<tr>
<td>March 2018</td>
<td>Vivayic presented oral presentation at the Association for International Agricultural &amp; Extension Education in Mexico about why they began creating the Ugandan Agriculture Education Curriculum and asked for research to be conducted.</td>
<td>Researcher was introduced to project and chose this as a research study.</td>
</tr>
<tr>
<td>Year</td>
<td>Event Description</td>
<td>Event Description</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>May 2018</td>
<td>Teachers in Uganda at schools partnering with FOH received S1 curriculum during FOH visit to schools.</td>
<td>Reveal and distribution of S1 curriculum.</td>
</tr>
<tr>
<td>June 2018</td>
<td>First professional development training for teachers using curriculum in Uganda.</td>
<td>Teachers exposed to critical thinking and project-based learning.</td>
</tr>
<tr>
<td>January 2019</td>
<td>Second professional development training for teachers using curriculum in Uganda, school visits, and data collection for the study.</td>
<td>Reveal and distribution of S2 curriculum. S1 is distributed to first-time attendees. Teachers exposed to critical thinking and project-based learning.</td>
</tr>
<tr>
<td>June 2019</td>
<td>Third professional development training for teachers using curriculum in Uganda, school visits, and recruitment of new schools.</td>
<td>S1 &amp; S2 distributed to all new teachers. Teachers exposed to critical thinking and project-based learning.</td>
</tr>
<tr>
<td>(Expected)</td>
<td>Fourth professional development training for teachers using curriculum in Uganda.</td>
<td>Reveal and distribution of S3 curriculum. S1 &amp; S2 given to first-time attendees.</td>
</tr>
<tr>
<td>January 2020</td>
<td>(Expected) Fifth professional development training for teachers using curriculum in Uganda.</td>
<td>Reveal and distribution of S4 curriculum. S1, S2, &amp; S3 given to first-time attendees.</td>
</tr>
</tbody>
</table>
In most countries, the development of new curricula is implemented by the government and/or ministries of education within the government. This was the case in Namibia, South Africa, Botswana, and Ethiopia. However, in most cases when governments order an education reform, there is a lack of evaluation after the curriculum has been created and delivered. The policy makers rarely observe or oversee the implementation stage (Rogan & Aldous, 2005). Altinyelken (2010a) argued that policy makers need to begin planning for and considering the implementation processes associated with implementing new curriculum related to educational reforms during the beginning stages. Dyer (1999) argued there is a need for more research focusing on the implementation process of new curriculum in developing countries, the actual process of change, potential problems and issues, and focusing on means for addressing those issues.

Almost always in change that comes from the top down, there is an assumption that implementation is an event rather than a process and that a change proceeds on autopilot once the policy has been passed. This assumption ignores critical distinctions between the object and process of change, which is how the change is put into place by schools (Hopkins, Ainscow, & West, 1994; Rogan & Grayson, 2003). An additional factor that should be considered in any educational reform is the diversity of the schools. Most educational reform programs in Sub-Saharan Africa need to take school diversity into account (Rogan & Grayson, 2003) because there is an array of government schools, private schools, children’s home, and more.

**Private Sector Aid for Education in Developing Countries**

The private sector, including NGOs, religious institutions, for-profit entities, and community-based organizations, are prominent in providing aid to developing countries. Through the Millennium Development Goals, national governments provide greater
opportunities to NGOs in achieving education reform (Raval et al., 2010). The second goal of the Millennium Development Goals was education (United Nations, 2015). While NGOs provide both physical and non-physical resources, there is also aid provided in the form of education that worth millions of U.S. dollars. The average amount of aid dedicated to education for the 2003 and 2004 school years in Uganda was U.S. $1,700,000 per capita (UNESCO, 2007). While monetary donations are beneficial as they help purchase physical resources such as buildings or books for educational development, the donations are a small part of the reform provided by NGOs. With such great international and national focus on educational development, the designing of innovative and locally relevant curriculum has become a pressure of NGOs in developing countries (Raval et al., 2010). However, because NGOs are located in, near, or around the specific area they work in, they have more success than highly centralized government systems with contextually relevant and learner-centered teaching methods for local schools (Rose, 2009).

**Field of Hope**

Over the past 60 years, the United States increased economic, political, and national security interests in ending global hunger and malnutrition (Yeboah, Brigety, & Pittman, 2018). The INGO Field of Hope was started by Brandy Chaffer Young and Mike and Cathy Hafner to help meet the need for agricultural training in northern Uganda (Major, 2018). Their mission states “We develop agricultural knowledge and enthusiasm among youth and smallholder farmers to sustain nutritionally food secure and economically empowered communities (Field of Hope Organization, n.d.a.).”

Field of Hope is an organization which provides agricultural education and extension through its various partners in northern Uganda (A. M. Major, personal communication, April 2,
2018). There are three programs that Field of Hope conducts in Northern Uganda: 1) Youth Agricultural Education, 2) Smallholder Farmer Advancement, and 3) Leadership Development (see Figure 4). The Youth Agricultural Education pillar involves student demonstration gardens, secondary agriculture education curriculum development, and Inspiring Students in Agriculture Grant. Schools that partner with Field of Hope are able to apply for the Inspiring Students in Agriculture Grant that awards partial funding for teachers to buy resources for their agriculture program. For example, the grant could award drip irrigation in the school garden to sustain growing crops during the dry season. The largest portion of the Youth Agricultural Education pillar is the agriculture education curriculum program.
Field of Hope is a 501(c)3 Christian organization with the mission is to develop agricultural knowledge and enthusiasm among youth and smallholder farmers to sustain nutritionally food secure and economically empowered communities.

The organization is formatted as such:

Figure 4. Field of Hope Organization Description. This figure illustrates the organization of Field of Hope programs. From personal communication with A. M. Major, October 16, 2019.
Field of Hope volunteers teaching alongside Ugandan secondary school agriculture teachers discovered a gap in resources and information that the current Ugandan syllabus offers teachers (see Figure 2). Therefore, Vivayic partnered with Field of Hope to create an in depth and resourceful curriculum that is crosswalked with the Ugandan syllabus to match the learning objectives that teachers to use and teach from (see Figure 5). This curriculum is now being used across the country in 37 schools. Field of Hope provides professional development to the teachers by holding Train the Trainer workshops to coach teachers on integrating critical thinking and project-based learning into their classroom using the curriculum. Field of Hope also visits classrooms, observes teachers, and provides support to teachers through interns and hired local Ugandan staff. The aim for Field of Hope is to remove any barriers teachers may have to properly use the curriculum as it was intended.
Figure 5. Content of Senior 1 Field of Hope Curriculum. This figure illustrates one lesson from Topic 1 in the Field of Hope Teacher’s Guide. From Field of Hope Organization, n.d.d.
Field of Hope is a multi-faceted organization that offers multiple different programs to Ugandans through the work of locals and Field of Hope personnel. The Training Development of Secondary School Agriculture Education Curriculum is based around all phases of crop production, and the school gardens are used to enhance curriculum learning in the classroom. The secondary schools using the curriculum are primarily based in the northern region of Uganda with a few schools in the east, west, and south. Currently, there are 37 schools using the Field of Hope agriculture education curriculum in order to enhance problem-solving skills and critical thinking in secondary school students. In a blog written by Catherine Rutan (2018), a Field of Hope intern, she explained the new agriculture education curriculum being used by the secondary schools in Uganda as a way for “students to receive the information needed to pass their national exams, but also to get excited about agriculture so they see it as a field of work full of potential for a better life and a more productive Uganda” (para. 1).

Field of Hope is an American NGO and operates out of the United States but has volunteers, interns, and program partners in-country who operate the day-to-day activities. Field of Hope is completely supported by the members of the board of directors, Executive Director Mike Hafner, Program Director Alexa Major, and many donors. The work of these people is stateside, while there are, on average, three interns a year who spend two to three months each in Uganda (A. M. Major, personal communication, August 31, 2018). Additionally, Field of Hope employs four Ugandans to oversee, manage, and help grow their three programs: Youth Agricultural Education, Smallholder Farmer Advancement, and Leadership Development (see Figure 4). Field of Hope has access to a plethora of trainers used for agricultural and financial literacy trainings through the locally hired Ugandans, interns, members of the board of directors,
as well as the Vivayic team who authored the curriculum (Major, 2018). This entire team assists in planning and delivering the Field of Hope programs.

**Theoretical Framework**

**Framework of Curriculum Implementation in Developing Countries**

Within this study, in order to explore how secondary school teachers who partner with Field of Hope have implemented the new curriculum, a framework developed by Rogan and Grayson (2003) was used. Rogan and Grayson base their framework on three main constructs: profile of implementation, capacity to support innovation, and support from outside agencies. These constructs all share three important characteristics: a) they can be measured by indicators, b) they are broad enough to encompass a number of related factors, and c) they are narrow enough to include one main idea. A detailed description of these three constructs is provided below.

**Profile of Implementation**

The main characteristic of the *profile of implementation* is that the process of employing a new curriculum is not an all or nothing proposition and may include segmented stages for implementation (Rogan & Grayson, 2003). There are many ways to implement new curriculum just as there are many teachers teaching from new curriculum. This profile is constructed to offer a “map of the learning area and the number of possible routes that could be taken to reach a number of destinations” (Rogan & Grayson, p. 1181). The beginning level of the *profile of implementation* is orientation and preparation (Rogan & Grayson, 2003). This level addresses the time where teachers and faculty “become aware of and prepare to implement the new curriculum” (Rogan & Grayson, 2003, p. 1181). The next levels refer to the mechanical and routine use, which represent a period where the curriculum can be used with minimal
modification to the local context (Rogan & Grayson, 2003). The last stages are refinement, integration, and renewal, which represent the teacher beginning to take ownership of the curriculum while possibly enriching it to make modifications (Rogan & Grayson, 2003). In any given context, these stages are examples of what might happen in the classroom regarding each level and each dimension of this profile.

Capacity to Support Innovation

The capacity to support innovation concerns factors that are likely to support or hinder the implementation of new ideas and practices in the new curriculum (Rogan & Grayson, 2003). This capacity recognizes that schools differ in terms of their capacity to implement innovation (Rogan & Grayson, 2003). There are four indicators for the capacity to support innovation: “1) physical resources, 2) teacher factors, 3) student factors, and 4) school ecology and management” (Rogan & Grayson, 2003, p. 186).

Physical resources are critical because they impact the performance and ability of any student or teacher. In a developing country’s schools, physical resources include desks, chairs, chalkboards, chalk, latrine, water source, breakfast and/or lunch, gardens, and garden tools (Altinyelken, 2010a). Without some of these basic physical resources, teachers cannot effectively deliver content, and students’ learning, energy, and ability to attend school may be affected (Altinyelken, 2010b).

Teacher factors play a role in the output and capacity of the teacher (Rogan & Grayson, 2005). The teacher’s comfort level with the subject matter determines the level of ease with teaching the content (Rogan & Grayson, 2003). Johnson, Monk, and Hodges (2000) argued that new practices will only survive according to the environment they are applied to and that there is a strong link between a teacher’s pedagogical content knowledge and their classroom actions. In
a host of developing countries, collaboration among teacher peers is almost unheard of and could be subjected to the fact that teachers could be afraid of exposing their weakness (Rogan & Grayson, 2003).

Rogan & Grayson (2003) suggest that student factors also have a significant role in the capacity to support innovation. Students’ lives outside of school matter because they are bringing into the classroom each day their experiences in their home and with their family and friends (Altinyelken, 2010a). Students’ home environments and their parental support affects student learning as well as nutrition, proximity to school, and language of instruction (Altinyelken, 2010a). Additionally, cultural and familial experiences could mean a student misses school for a number of days (Altinyelken, 2010a).

The final indicator of the capacity to support innovation, is school ecology and management (Rogan & Grayson, 2003). The leadership of the school, the mission, their vision, and what they aim to accomplish are all part of the school ecology and management (Rogan & Grayson, 2003). While Rogan and Grayson (2003) argue that within the subconstruct *capacity to support innovations*, school ecology and management of the school are closely intertwined, in developing countries they are quite separate. Schools in developing countries are dependent upon the quality of leadership guiding the school (Rogan and Grayson, 2003). If the school’s day activities are never equivalent to each other, no innovation can be implemented (Rogan & Grayson, 2003). A shared vision as to how innovation can be implemented depends on the leadership of the principal and his or her oversight of the implementation (Rogan & Grayson, 2003).
Support from Outside Agencies

The construct *support from outside agencies* concerns itself with factors that hinder or support implementation of new ideas and practices within the given curriculum (Altinyelken, 2010a). Outside agencies are referred to as any organization that is not within the school but help facilitate the innovation by interacting with the school (Rogan & Grayson, 2003). In developing countries, outside support from agencies looks completely different than outside support in a developed world (Rogan & Grayson, 2003). In developing countries, most often the support from outside agencies comes from agencies in the United States and other developed countries who are providing aid (Rogan & Grayson, 2003). Because the support from outside agencies is typically coming from developed countries, there are people, cultures, and backgrounds from which the people managing or overseeing the implementation are coming (Rogan & Grayson, 2003). The four categories of support from outside agencies are unions, donors, educational departments, and NGOs/INGOs (Rogan & Grayson, 2003). Because of the nature of this research, the researcher focused on the INGO category of support from outside agencies.

The support from INGOs to aid in the implementation process has two subconstructs: material support and non-material support (Altinyelken, 2010a). Material support can be categorized into two areas: the provision of physical resources and direct support to students. Books, buildings, desks, chalkboards, and latrines are all examples of physical resources that could be considered support from the outside agency, whereas direct support to students could come in the form of a school lunch program (Altinyelken, 2010a).

For this framework, non-material support comes in the form of professional development, which is one of the most apparent ways in which change can be brought about in schools by outside agencies (Rogan & Grayson, 2003). There are two subthemes under the construct of non-
material support: focus and purpose of the professional development and extent and duration of the support (Rogan & Grayson, 2003). The focus and purpose of the curriculum implementation is to first provide information about the expected outcomes associated with implementing new curriculum (Rogan & Grayson, 2003). Through this subtheme there is an emphasis on the implementation of change rather than only providing information about the change (Rogan & Grayson, 2003). The goal is for teachers to start putting into practice what they are expected to learn and teach from the implementation and eventually reach a sense of teacher ownership over the process (Rogan & Grayson, 2003). Extent and duration allow teachers to learn the curriculum and to go from learning about the implementation process in one workshop to an overall school-based development of the process (Rogan & Grayson, 2003).

The Framework of Curriculum Implementation in Developing Countries by Rogan and Grayson (2003) created an outline for researchers to follow. Because the framework contains components that align so naturally to educational systems in developing countries, it has been used to understand how and why teachers adopt and implement curriculum when an educational reform takes place (Altinyelken, 2010a; Altinyelken, 2010b; Kriek & Basson, 2008; Lelliott et al., 2009; Rogan, 2007; Rogan & Aldous, 2005; Rogan & Grayson, 2003).
CHAPTER III

METHODOLOGY

Introduction

This chapter serves as an outline of the methodology used to conduct this study and includes six sections: methods, design of the study, sample selection, data collection, data analysis, pilot study, validity and reliability, and researcher bias and assumptions. Based on recommendations from Williams (1997), who suggested that graduate students should practice “good science” (p. 32) centered around seven concepts. The researcher has employed the following concepts in all aspects of planning, design, implementation, and reporting of the study: “1) correct choice of a research problem, 2) logical design, 3) sustained productivity, 4) insights based on interpretation of research results, 5) contribution of the conceptual framework of a discipline, 6) knowledge of the developing literature in a chosen field and 7) effective communication of findings in professional forums” (Williams, 1997, p.32). The following chapter is organized by sections suggested by Merriam (2009) for a qualitative research study.

Institutional Review Board

This study was conducted with approval from the Institutional Review Board (IRB), as policy of North Carolina State University, and required by federal law, for studies involving human subjects. Approval was granted December 4, 2018 and given the protocol number of 15443 (see Appendix E).

Purpose of the Study

The purpose of the study was to explore and derive meaning from the experiences of the instructors teaching agricultural education in secondary schools partnered with the INGO Field
of Hope who were given a new Senior One (S1) agricultural education curriculum to implement through a basic qualitative approach. Additionally, the study aimed to help Field of Hope understand the practicality and applicability of the curriculum the agriculture teachers of schools that partner with Field of Hope were using.

While research has been conducted that exemplifies how governments in developing countries such as Namibia (O’Sullivan, 2002), South Africa (Rogan & Aldous, 2005), Ethiopia (Serbessa, 2006), and Botswana (Tabulawa, 1998) implemented new curriculum, scant research exists about how INGOs can increase their effectiveness and efficiency operating in this sphere. The researcher aimed to identify connections in curriculum and activities facilitated by the INGO Field of Hope and the decision-making process of instructors to adopt curriculum to use in their classrooms. To understand how agricultural education in rural schools is integrated into the school and used by the instructors, a deeper understanding of the effectiveness of Field of Hope’s curriculum implementation was needed. The questions guiding this research were organized into four objectives:

**Objectives**

1. Determine the influences impacting teacher adoption of agricultural education curriculum.
2. Determine the internal and external motivations of using S1 through S4 agricultural education curriculum.
3. Determine the barriers that prevent teachers from adopting the curriculum.
4. Determine the teachers’ perceptions of the curriculum to meet the needs of their students.
Qualitative Inquiry

Qualitative inquiry was selected as the best method to understand the shared experiences of the teachers delivering the new curriculum provided by Field of Hope in the secondary schools operated by Field of Hope in the northern region of Uganda. Qualitative research is interested in how meaning is constructed (Merriam, 2009). The central characteristic of qualitative research is that “meanings are constructed by human beings as they engage with the world they are interpreting” (Crotty, 1998, pp.42–43); therefore, meanings are assembled but cannot be discovered (Merriam, 2009). Constructivism, a philosophical perspective of qualitative research, is a term often used interchangeably with interpretivism (Merriam, 2009).

Philosophical Underpinnings

Qualitative research most often lies within interpretive research, which assumes that reality is socially constructed and there is not a single observable reality, but instead multiple interpretations or realities of a single event (Merriam, 2009). Just as human beings construct meaning as they engage with the world they are interpreting, researchers do not find meaning or knowledge. Qualitative researchers are interested in understanding the meaning an occurrence or phenomenon has for those involved by constructing meaning through engaging with the world they are interpreting through multiple qualitative inquiry approaches. The goals of a qualitative researcher are to 1) understand how people interpret their experiences, 2) understand how people construct their worlds, and 3) understand what meaning they attribute to their experiences with an overall purpose of understanding how people make sense of their lives and their experiences (Merriam, 2009). Additional characteristics of qualitative research include

1) the goal of eliciting understanding and meaning,

2) the researcher serving as the primary instrument of data collection,
3) use of fieldwork,
4) inductive orientation to analysis, and
5) findings that are richly descriptive (Creswell & Poth, 2018; Merriam, 1998; Merriam, 2009).

Denzin and Lincoln (1994) stated qualitative research consists of a set of interpretative, material practices that make the world visible and transform the world by using a series of representations, field notes, interviews, conversations, photographs, recordings, and memos. Qualitative research begins with assumptions and uses interpretive theoretical frameworks that inform the study of research problems to address social or human problems in groups of people or individuals (Creswell & Poth, 2018; Merriam, 2009).

Basic Qualitative Study

There are approximately 26 approaches to qualitative research methodology and five approaches that are consistently and commonly used in educational research (Creswell & Poth, 2018; Merriam, 1998). The most common type of qualitative study found in education and applied fields of practice is the basic qualitative study (Merriam, 1998) and “it is so common that other texts on qualitative research assume this is known and do not mention this type of study, but talk about the other popular types of qualitative studies for educational research” (Merriam, 2009, p. ix). Because basic qualitative inquiry aims to describe, interpret, and understand how people interpret their experiences and what meaning they attribute to their experiences, the researcher has chosen this methodology to conduct the study.

Naturalistic Inquiry

The researcher employed the techniques brought forward by Lincoln and Guba (1985) through a naturalistic mode of inquiry. Naturalistic inquiry is an alternative mode of inquiry that
lessens the “degree of manipulation of conditions antecedent to the inquiry” (Guba, 1978, p. 3) and lessens the “degree of constraint imposed on outputs by subjects involved in the inquiry” (p. 3). Natural inquiry aims to understand and discover human perceptions, actualities, and social perceptions that are untouched by formal measurement (Wolf & Tymitz, 1976–1977). When a researcher imposes a naturalistic inquiry, they aim to uncover distinct stories told by real people in real situations in natural ways by presenting a storyline of what people feel, know, believe, perceive, and understand as closely as if the person was sharing it themselves (Wolf & Tymitz, 1976–1977). The study was conducted in a real-world setting, and observations were made by studying what was allowed to happen “naturally” (Merriam, 2009, p. 7). Lincoln and Guba (1985) addressed how the researcher should go about persuading the reader that the storyline being presented is actually more than mere observations and subjectivity, but is, in fact, the closest possible representation of the voice of those under inquiry.

**Pilot Study**

To understand the validity of the interview protocol (Merriam, 2009), a pilot study was completed in North Carolina with current agriculture teachers who have adopted and implemented a new sustainable agriculture education curriculum. Upon completing the interviews with the participants, the researcher consulted the committee chair regarding the needed alteration of the interview protocol and wording of the questions to fit the needs of the intended data collection (Merriam, 2009).

**Interviewees**

In order to “learn a great deal about issues of central importance to the purpose of the inquiry” (Patton, 2002, p. 230), the researcher chose a purposive sample of interviewees. Typical purposeful sampling was used to determine the sample of participants of the basic qualitative
study in order to obtain rich information to study in-depth (Creswell & Poth, 2018; Merriam, 2009; Patton, 2002). Typical purposeful sampling was selected because it “reflects the average person, situation, or instance of phenomenon” (Merriam, 2009, p. 78) “to therefore purposefully inform an understanding of the research problem and the central phenomenon of the study” (Creswell & Poth, 2018, p. 159).

To conduct criterion-based selection, the researcher “created a list of the attributes essential” (Patton, 2002, pp. 69–70) to the study in order to “proceed to find or locate a unit matching the list” (p. 69-70) to guide the researcher to information-rich cases that reflected the purpose of the study Merriam, 2009). The selection criteria used to select participants included the following: the teacher must have taught the S1 curriculum provided by Field of Hope to students and the teacher must have attended the only teacher training offered by Field of Hope (June 2018) by the start of interviews (January 2019). The first selection criteria the teacher must have taught the S1 curriculum provided by Field of Hope to students was created because it reflected the purpose of the study, which was to explore and derive meaning from the experiences of the instructors teaching agricultural education in secondary schools partnered with the INGO Field of Hope who were given a new S1 agricultural education curriculum to implement through a basic qualitative approach (Merriam, 2009). The second selection criteria, the teacher must have attended the only teacher training offered by Field of Hope (June 2018) by the start of interviews (January 2019), was created because it reflected the theoretical framework through which the study was guided. The three pillars of the Framework for Curriculum Implementation in Developing Countries are profile of implementation, capacity to support innovation, and support from outside agencies.
A key informant employed by Field of Hope provided the researcher with a document containing the teachers information regarding their attendance at the training in June 2018 (Gilchrist, 1992; Rogers, 2003). In regard to Field of Hope’s youth agricultural education program, key informants included Field of Hope’s program director, board of directors’ members, and hired Ugandan staff who work with teachers implementing the program. From the key informant, the researcher was able to identify that eight teachers met the selection criteria identified for the study. These eight teachers were notified with a letter inviting them to participate in the study, and all eight teachers were willing to participate.

Figure 6. Field of Hope Project Map. From Field of Hope Organization, n.d.b, http://fieldofhope.org/map/node)

Instrumentation and Data Collection

The researcher conducted eight one-on-one semi-structured interviews to “attempt to understand the world from the subjects’ point of view, to unfold the meaning of their experience, and to uncover their lived world” in January of 2019 (Brinkmann & Klave, 2015, p. 3; see also Creswell & Poth, 2018; Rubin & Rubin, 2012; Verne, 2015). The interviews were guided by 25
open-ended questions developed by the researcher and the faculty of North Carolina State University (see Appendix A). Interviews lasted 30 minutes to one hour and were conducted during the Train the Trainer professional development held by Field of Hope for teachers using the new curriculum.

While conducting interviews, the researcher employed the use of rapport to build trust and create an environment welcoming of the participant’s feelings, opinions, and knowledge (Merriam, 2009). The researcher built rapport with the interviewees by asking “descriptive information about themselves” (Merriam, 2009, p. 106), such as asking about their holiday from school or by inquiring how the new year was treating them (Merriam, 2009). Before conducting an interview, the researcher shared that she also was a teacher in Africa, just like the participant, in a very rural village school, in an effort to create a conversation that would allow the interviewee to feel somewhat connected to the researcher and build rapport (Merriam, 2009).

While conducting interviews, the researcher took on the characteristic of neutrality. In order to allow the participant to feel completely comfortable with the interviewer, the researcher refrained from letting her personal views be known about the subject at hand (Merriam, 2009). In an effort to create a successful interview atmosphere, the researcher did not give reaffirming or disapproving facial expressions or gestures to the participants when they expressed their opinions, beliefs, or values to allow their knowledge and feelings to come forth in a safe environment for sharing personal information (Merriam, 2009).

The researcher was aware of the fine line between building rapport and upholding her stance of neutrality while conducting an interview. In an effort to build the participant’s trust and allow for an open environment welcoming of any opinion, the researcher was cognizant of trying
to build rapport before the interview and allowing for neutrality during the course of the interviews (Merriam, 2009; Patton, 2002).

One-on-one interviews with each participant in the study created the best environment to get the most out of the interviews for data collection (Creswell & Poth, 2018). Semi-structured interviews are a less formal approach and allowed flexibility in wording of the questions and the order in which the questions were asked (Leech, 2002) while allowing the researcher to “respond to the situation at hand” (Merriam, 2009, p. 90). The participants were asked open-ended questions to harvest stories and descriptive data (Creswell & Poth, 2018; Merriam, 2009). The interview protocol included six types of interview questions (see Table 2) to encourage an array of responses from the interviewees about their overall experiences, opinions, and feelings (Patton, 2002). The interview protocol was created utilizing the Framework for Curriculum Implementation in Developing Countries’ constructs and subconstructs and the four objectives of the study (see Table 3 and Table 4). The interviews were recorded with two Sony ICD-PX470 Digital Voice Recorders provided by North Carolina State University to ensure the best possible database (Creswell & Poth, 2018; Merriam, 2009). In addition, the researcher took notes during the interviews to capture any reactions, thoughts, or importance of participants’ responses (Creswell & Poth, 2018; Merriam, 2009).

The researcher conducted unstructured natural-setting observations and reflexivity to triangulate findings emerging from the interviews (Creswell & Poth, 2018; Merriam, 2009; Tracy, 2010). Observations were collected during visits to schools, during meetings with administrators, and during the professional development provided to the teachers by Field of Hope. A field notes journal was kept throughout the interviews and observations, and a written reflexive journal was kept each night to capture important memories, conversations, and
interactions that took place each day (Angen, 2000; Creswell & Poth, 2018; Lincoln & Guba, 1985; Merriam, 2009). By choosing a worthy topic and providing rich rigor to details through observations, the researcher provided meaningful environments for the researcher and the participants and was able to provide meaningful coherence to the multiple forms of data collected to triangulate findings (Tracy, 2010).

Table 2

Types of Questions Created for Interview Protocol (Patton, 2002)

<table>
<thead>
<tr>
<th>Type of Question</th>
<th>Meaning</th>
<th>Interview Protocol Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Experience and Behavior Questions</td>
<td>The behaviors, actions, and activities of the participants are of interest.</td>
<td>4, 12, 19</td>
</tr>
<tr>
<td>2. Opinion and Values Questions</td>
<td>The beliefs and opinions of the participants are of interest.</td>
<td>9, 11, 14, 16, 20, 21, 22</td>
</tr>
<tr>
<td>3. Feeling Questions</td>
<td>“Taps the affective dimension of human life. The interviewer is looking for an adjective response” (p. 350).</td>
<td>5, 7, 8, 10, 23, 24</td>
</tr>
<tr>
<td>4. Knowledge Questions</td>
<td>Seeks facts from the participants about a situation.</td>
<td>6, 13, 17, 18, 25</td>
</tr>
<tr>
<td>5. Sensory Questions</td>
<td>Similarities are shared with experience and behavior questions, but sensory tries to asks for specific data about what is experienced through the five senses.</td>
<td>15</td>
</tr>
<tr>
<td>6. Background or Demographic Questions</td>
<td>References age, education, number of years in profession, etc. as it is relevant to the study.</td>
<td>1, 2, 3, demographic questions on letter inviting participants</td>
</tr>
<tr>
<td>Construct</td>
<td>Capacity to Support Innovation</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Physical Resources</strong></td>
<td><strong>Teacher Factors</strong></td>
<td><strong>Learner Factors</strong></td>
</tr>
<tr>
<td>What kind of physical resources at your school do you have to teach the curriculum with?</td>
<td>Do you feel confident teaching this curriculum?</td>
<td>How do your students like the curriculum?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Construct</th>
<th>Profile of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nature of the Classroom Interaction</strong></td>
<td><strong>Use and Nature of Sciences Practical Work</strong></td>
</tr>
<tr>
<td>How has working with (NGO) changed your teaching, interaction with students, and overall classroom?</td>
<td>How does the curriculum meet the needs of your students and their futures?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Construct</th>
<th>Support from Outside Agencies: NGOs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Government Departments</strong></td>
<td><strong>Donors</strong></td>
</tr>
<tr>
<td>Do you receive support from private donors to fund your school or any activities you may do with your curriculum?</td>
<td>Are there any other NGOs you partner with?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Construct</th>
<th>Material Support</th>
<th>Non-Material Support</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical Resources</strong></td>
<td><strong>Direct Support to Learners</strong></td>
<td><strong>Professional Development</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tell me about your experience at the trainings for the curriculum?</td>
</tr>
<tr>
<td>Objective</td>
<td>1. Determine influences impacting teacher adoption of agricultural education curriculum.</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can you describe in what ways (NGO) helps you?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>How has your experience been working with (NGO)?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>How did you discover the (NGOs) curriculum?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objective</th>
<th>2. Determine intrinsic and extrinsic motivations of using S1–S4 agricultural education curriculum.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Do you feel you teach differently than your peers?</td>
</tr>
<tr>
<td></td>
<td>What are your overall thoughts of the curriculum?</td>
</tr>
<tr>
<td></td>
<td>Were you required to implement the curriculum, or did you choose to do so on your own?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objective</th>
<th>3. Determine the barriers that prevent teachers from adopting the curriculum.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Are there barriers preventing you from using the curriculum?</td>
</tr>
<tr>
<td></td>
<td>In what areas do you wish you had more help/education/training?</td>
</tr>
<tr>
<td></td>
<td>Do you currently have a Facebook account?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objective</th>
<th>4. Determine the teachers’ perceptions of the curriculum to meet the needs of the students.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>How does the curriculum meet the needs of your students?</td>
</tr>
<tr>
<td></td>
<td>After teaching the curriculum, do you feel any of your students view agriculture differently?</td>
</tr>
<tr>
<td></td>
<td>Do you think having an agricultural club would be beneficial to your students?</td>
</tr>
</tbody>
</table>
Data Analysis

The researcher began organizing and refining data after the first interview was conducted by revisiting the purpose and objectives of the study and reading through field notes and interview notes to make record of evolving and interesting occurrences through observations and the participants’ answers to interview questions (Merriam, 2009). The researcher organized these memorable quotes and occurrences through the use of a spreadsheet to track and start to connect recursive instances. Once all interviews were complete, observations were made, and field notes were taken, the researcher utilized the three methods of data management as set forth by Reid (1992): data preparation, data identification, and data manipulation.

To prepare the data for analysis, the researcher compiled the audio recordings of participants’ interviews and utilized a transcription service to receive an editable document of the recorded interview (Merriam, 2009). The researcher then listened to the audio recordings while reading the transcribed interviews and edited, corrected, or filled in inaudible blanks to have a verbatim transcription for analyzing data (Merriam, 2009). While reading transcribed interviews, the researcher bolded and italicized the questions asked to the participant to view the document easier when coding (Merriam, 2009). The researcher used ATLAS.ti to assist with data analysis through organization of data (Creswell & Poth, 2018). To easily identify data, verbatim interview transcriptions, memos, field notes, and any other valuable pieces of evidence, the researcher uploaded the files to ATLAS.ti (Reid, 1992). Data sets were organized and labeled to a scheme set forth by the researcher that allowed for easy access of information at any time (Merriam, 2009).

To begin the data evaluation process, the researcher read each transcript and made memos, noted key concepts, and ideas that stood out “to build a sense of the data without getting
caught up in the details of coding” (Creswell & Poth, 2018, p. 198). The researcher prioritized memoing by making notes of thoughts as soon as they occurred throughout the entirety of the process of analyzation to track the evolution of ideas in a Microsoft Word document (Miles, Huberman, & Saldaña, 2014).

First-round coding was initially conducted to understand the data by segmenting the transcripts into phrases and words of the participants to split the data into coded segments (Corbin & Strauss, 2015; Yin, 2016). During the first-round coding, the researcher utilized in vivo coding to “honor the voices of the participants and their perspectives” (Saldaña, 2013, p. 61). As Yin (2016) described, coding is using phrases and words of the interviewees to capture the meaning of the data and the overall experiences. This analytic procedure is considered open-coding (Yin, 2016), during which the researcher relates the data to “broader conceptual issues” (p. 196).

To conduct second-round coding, the researcher utilized axial coding methods to reorganize data coded in the first coding cycle to create categorical, thematic, and conceptual organization of the data (Saldaña, 2013). Axial coding organized repeating patterns that exemplified potential themes across the data (Merriam & Tisdell, 2015) Throughout this process, the researcher utilized ATLAS.ti software to complete the coding process (Saldaña, 2013). To ensure the observations of the researcher were taken into account, note-taking and memoing were conducted while coding to create a reflection on the data as a whole (Creswell & Poth, 2018; Merriam & Tisdell, 2015; Yin, 2016). To aid in the organization of note-taking and memoing, the researcher developed an excel spreadsheet with patterns that were occurring in the data and supporting statements of the participants and then used such to compare patterns found in data and emerging themes.
Theoretical schemes were constructed from axial codes that exemplified the “significance of interpretations and conclusions in relation to the literature and previous studies” (Yin, 2016, p. 199). In order to ensure the themes were “describing, classifying, and interpreting the data” (Creswell & Poth, 2018, p.189) the themes were analyzed by the researcher. The committee chair was concurrently coding and theming the same data set to evaluate the strength and relevance of the emergent themes (Lincoln & Guba, 1985). After both the researcher and the committee chair coded and themed the data sets, the researchers had a discussion to ensure an accurate representation of the participant’s voice was heard and to further construct a deep understanding and thick description of the teachers lived experiences, perceptions, thoughts, and attitudes toward the adoption and implementation of the curriculum (Lincoln & Guba, 1985).

**Validity and Reliability**

**Trustworthiness**

Historically, qualitative research has received much criticism for failing to “adhere to canons of reliability and validation” (LeComte & Goetz, 1982, p.31) when paralleled to traditional quantitative approaches of validation (Creswell & Poth, 2018). However, multiple perspectives on validation in qualitative literature have been developed and are still evolving to include quantitative elements and postmodern, interpretive, and naturalistic lenses, while highlighting the importance of a construct (Angen, 2000; Creswell & Poth, 2018; Eisner, 1991; Lather, 1991,1993; LeCompte & Goetz, 1982; Lincoln & Guba, 1985; Lincoln, Lynham, & Guba, 2011; Richardson & St. Pierre, 2005; Whittemore, Chase & Mandle, 2001; Wolcott, 1990). In order to bring the reader of the qualitative study an overall essence of validation, the researcher employed both traditional and contemporary perspectives of validation (Creswell & Poth, 2018).
Following techniques brought forward by Lincoln and Guba (1985), the researcher used a naturalistic mode of inquiry. Naturalistic inquiry is an alternative mode of inquiry that lessens the “degree of manipulation of conditions antecedent to the inquiry” (Guba, 1978, p. 3) and lessens the “degree of constraint imposed on outputs by subjects involved in the inquiry” (p. 3). To establish trustworthiness, the researcher operationalized trustworthiness through credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985).

The researcher utilized an interpretive approach brought forward by Angen (2000), who emphasized the importance of the researcher in the process of validation. The researcher aimed to provide the audience with a “generative promise” to raise new possibilities, open up new questions, and stimulate new dialogue (Angen, 2000).

The three lenses through which the research employed strategies for validating the qualitative study are 1) researcher’s lens, 2) participant’s lens, and 3) reader’s or reviewer’s lens (Creswell & Poth, 2018). The researcher employed triangulation and engaged in reflexivity through the researcher’s lens. Through the participant’s lens, the researcher employed member checking to ensure validity. Finally, through the reader’s or reviewer’s lens, the researcher employed rich and thick description to ensure validity. The methods chosen by the researcher are explained below. Overall, the researcher aimed to provide validity to the study in order to provide a relationship based around ethics with the participants to help establish themselves, encourage self-reflexivity, and exchange discourses (Creswell & Poth, 2018).

**Credibility**

“Credibility refers to the trustworthiness, verisimilitude, and plausibility of research findings” (Tracy, 2010, p. 842). To align the research findings with the study’s focus and the data presented, the research utilized tools to ensure credibility of the study (Merriam & Tisdell,
2015). Qualitative credibility can be found through the methods of thick description, triangulation or crystallization, multivocality, and member checking. The researcher provided credibility to the study by performing member checking.

Member checking is the most important part of establishing credible research (Lincoln & Guba, 1985). To conduct a member check, the researcher ensured she was able to “take data, analysis, interpretations, and conclusions back to the participants so that they can judge the accuracy and credibility of the account” (Creswell & Poth, 2018, p. 261). The participants were asked to examine rough drafts of the ongoing data analysis process to provide “alternative language, observations, and interpretations” (Stake, 1995, p. 115).

While collecting interviews, the researcher listened to the interview(s) at night, and the next day would confirm quotes and attitudes with the participants to check for accuracy. Additionally, after the researcher concluded findings of the study, she traveled back to Uganda and met with the participants to discuss the findings and ensure they were in fact accurate and credible findings. In this particular study, this step was crucial for the research to provide credibility because the participants were from another cultural background than that of the researcher. Additionally, English, the language in which the interviews were conducted, may not have been the participant’s native language, but the participant’s second language. Therefore, member checking ensured credibility of the researcher’s preliminary analysis (Creswell & Poth, 2018).

Transferability

Through the lens of the naturalist’s inquiry, validation in qualitative research is imperative for the reader or reviewer. Therefore, the naturalist researcher represented external
validity to the reader through descriptions of the time and context of what was being studied (Lincoln & Guba, 1985). An empirical issue, raised by Lincoln and Guba (1985), was based around the question of whether or not a context could be true in the same context or a different context at another time. Because naturalist cannot specify external validity through the form of statistical confidence limits as is the method in conventionalists’ approaches, this naturalistic research study provided the reader a rich and thick description (Lincoln & Guba, 1985).

By generating a rich, thick description, the researcher allowed the reader to potentially transfer an inquiry to a similar context that is being studied (Merriam, 2009). Detail of the participants or the setting in a study were provided to allow readers to make decisions regarding the transferability of an inquiry (Erlandson, Harris, Skipper, & Allen, 1993; Lincoln & Guba, 1985; Merriam & Tisdell, 2015).

To provide a thick and rich description, the researcher provided an abundance of interconnected details surrounding the context and time of the study (Creswell & Poth, 2018; Stake, 2010). In order to be able to generate strong action verbs and specify important quotes along with details of an interaction with a participant, the researcher revisited the raw data soon after it was collected to add further descriptions that could be helpful during analysis (Creswell & Poth, 2018). The researcher provided a detailed description of interactions, observations, and interviews in order to sufficiently write about a theme as well as provide readers the ability to transfer information to other settings (Creswell & Poth, 2018). By providing detailed descriptions, the researcher enabled readers to transfer information to other settings in the form of shared characteristics. (Erlandson et al., 1993).
**Dependability**

Dependability forces the naturalistic qualitative researcher to embrace the question of whether or not the findings of the study are consistent with the data collected (Merriam, 1995). Triangulation, a method to demonstrate dependability, ensures consistency through the use of multiple methods such as interviews, observations, and documents collected to determine the relevancy to the phenomenon (Merriam, 2009; Webb, Campbell, Schwartz, & Sechrest, 1966). Peer examination provides dependability by allowing the researcher to have someone else perform a check on the plausibly interpreted data to determine if that person would also appear to have emerging results consistent with the data collected. For the purpose of this study, the researcher engaged in triangulation and peer examination to ensure consistency and dependability of the data collected. The researcher conducted interviews, performed observations, and collected documents from the teachers being interviewed such as lesson plans and teaching timetables to ensure triangulation of the data.

**Confirmability**

In an aim to establish value in the data, confirmability is of sincere importance to naturalistic researchers rather than objectivity (Creswell & Poth, 2018). Trustworthiness, in the form of confirmability, was offered to the reader of this naturalistic study through different techniques (Lincoln & Guba, 1985). The researcher engaged in triangulation by participating in researcher reflexivity through keeping a reflexive diary to display trustworthiness through confirmability (Lincoln & Guba, 1985). The reflexive journal provided substantive validation by providing documentation of the entire process of data collection (Angen, 2000). The researcher’s reflexive journal contained three parts. Part one consisted of a daily schedule and logistics of the study. Part two consisted of a personal diary that provided a daily reflection of what was
happening, in general, throughout the day (Lincoln & Guba, 1985). By reflecting in this way on a daily basis, the researcher was able to understand one’s own value, interests, and potential speculation of insights from observations in the field (Lincoln & Guba, 1985). The third section of the journal contained a methodological log describing the methods operationalized by the researcher as well as the decisions and rationales of the researcher (Lincoln & Guba, 1985). It was imperative the researcher partook in this activity daily to reflect what was happening around the entire data collection process, especially because the data collection process in this study occurred in a culture different from that of the researcher (Lincoln & Guba, 1985; Reinharz, 1979; Spradley, 1979).

**Researcher Reflexivity**

The instrument collecting data was the researcher; therefore, an axiological assumption was taken to conduct this qualitative study (Creswell & Poth, 2018; Denzin & Lincoln, 1994). Axiological alludes to the angle and positioning of the researcher due to their values and social and cultural norms within the context of the study (Creswell & Poth, 2018; Denzin & Lincoln, 1994). Tracy (2010) defined self-reflexivity as a cognizant awareness of the researcher’s own bias as well as the audience of the researcher. To further engage in awareness of past experiences, the researcher often reminded herself of Tracy’s (2010) definition of self-reflexivity during the collection and analysis of data: “Self-reflexivity encourages writers to be frank about their strengths and shortcomings” (p. 842).

My social position is a 25-year-old white and female U.S. citizen. In 2016, I obtained a Bachelor of Science in Agricultural Science with minors in horticulture, animal science, and agricultural business management. Throughout my undergraduate experience, I worked, volunteered, and traveled both domestically and internationally with agricultural organizations,
mostly non-profit organizations. My family’s history, which I was never able to experience, is deeply rooted in agriculture. My maternal and paternal grandparents were dairy and row crop farmers. By never seeing the working farm but visiting its homestead and pastures, I was left with a hunger for understanding the root of what started and streamlined my family for years before I was born. Concurrently, I had a hunger to find out why the farm was no longer in existence and why no family members wanted to continue the family tradition. The Christian faith was what grounded me as an individual and framed my life as I grew into a young woman. My life motto soon became GO.SERVE.LOVE. and served as the lens through which I decided what to do with my life.

Upon graduating with my bachelor’s degree, I was hired as an AgriCorps Fellow. As a fellow, I lived in the rural Obooho Village, Ghana, where I worked as a Form 1 integrated science and social studies teacher, 4-H advisor, and extension agent from August 2016 through January 2017. From my personal experience in a rural African classroom, I experienced rote memorization by observing teachers at Obooho Junior High School (Grades 6–8). The teachers at this school would write information on the blackboard grouped in paragraphs for students to copy into their notebooks. Occasionally, there would be numbered problems on the board for the students to also copy down into their notebooks to turn into the teachers. Eventually, the teachers became frustrated because when the students were tested, the students didn’t perform well. I specifically remember the math teacher at this school caning the students because they performed poorly on a math test that he wrote for them. It was evident to me that these children could have performed better if they had perhaps been afforded a different method of learning.

From this experience, I was left with a desire to understand why a nation who relies so heavily on agriculture and whose young students know agriculture so well would disinterest their
students in agriculture by using the school farm as punishment. I saw and experienced the negativities of the educational system at play each day as teachers would show up to teach hours later than school started, if they showed up at all. The school had laptops and ceiling fans, but no electricity to charge or use the resources. I found that the more rural a school, the less attention and resources they received. The teachers relied on student labor to earn money for selling produce to keep the school running while also putting a little money in their pockets. While utilizing the *Cultivating Learning with School Gardens* curriculum, I was interested in furthering my work with agriculture education curriculum implementation and ministries of education in developing countries.

Because of my in-depth experience living and working in rural Sub-Saharan Africa, I utilized bracketing to “mitigate the potential deleterious effects of unacknowledged preconceptions related to the research and thereby to increase the rigor” (Tufford & Newman, 2012, p. 81). In order to set aside my experiences and “take a fresh perspective toward the phenomenon under examination” (Creswell & Poth, 2018, p. 78) and approach data collection and analyzation, I took on a transcendental approach, meaning “everything is perceived freshly, as if for the first time” (Moustakas, 1994, p. 34).
CHAPTER IV

FINDINGS

This chapter outlines and reports the findings of the study. Because the findings of the study are about a different culture on a different continent than the research team comes from, the findings are presented in a story-like fashion. It is the researcher’s goal to allow the reader to feel as if they were there observing the teachers, observing the school grounds, and observing the professional development training the participants attended. The findings of the study are the results of a basic qualitative inquiry regarding one INGO’s agricultural education curriculum implementation and adoption in Uganda, as guided by the study’s purpose and four research objectives.

Purpose of the Study

The purpose of the study was to explore and derive meaning from the experiences of the instructors teaching agricultural education in secondary schools partnered with the INGO Field of Hope who were given a new Senior One (S1) agricultural education curriculum to implement through a basic qualitative approach. Additionally, the study aimed to help Field of Hope understand the practicality and applicability of the curriculum the agriculture teachers of schools that partner with Field of Hope were using.

While research has been conducted that exemplifies how governments in developing countries such as Namibia (O’Sullivan, 2002), South Africa (Rogan & Aldous, 2005), Ethiopia (Serbessa, 2006), and Botswana (Tabulawa, 1998) implemented new curriculum, scant research exists about how INGOs can increase their effectiveness and efficiency operating in this sphere. The researcher aimed to identify connections in curriculum and activities facilitated by the INGO
Field of Hope and the decision-making process of instructors to adopt curriculum to use in their classrooms. To understand how agricultural education in rural schools is integrated into the school and used by the instructors, a deeper understanding of the effectiveness of Field of Hope’s curriculum implementation was needed. The questions guiding this research were organized into four objectives:

**Objectives**

1. Determine the influences impacting teacher adoption of agricultural education curriculum.
2. Determine the intrinsic and extrinsic motivations of using S1 through S4 agricultural education curriculum.
3. Determine the barriers that prevent teachers from adopting the curriculum.
4. Determine the teachers’ perceptions of the curriculum to meet the needs of their students.

**Participants**

Eight participants were purposefully selected for this study. Each participant was given a pseudonym to protect individual confidentiality (Creswell & Poth, 2018; Merriam, 2009). Participants are described in reference to the demographic information collected on the letter to prospective interviewees and the information discussed in the course of the interviews.

Rauf is a 33-year-old who has been teaching for 10 years. Rauf received his Diploma in Secondary Education. When Field of Hope began creating curriculum, Rauf worked at the school where Field of Hope was volunteering and aided in the process of idea sharing with Field of Hope to determine what kind of curriculum would be beneficial for teachers in Uganda. He invited four of the eight participants to the professional development training held in June 2018.
where they all received the S1 curriculum given to them by Field of Hope. He wrote a letter in support of the curriculum to the director of the National Curriculum Development Center in Uganda to let them know of the efforts Field of Hope has made to revolutionize agricultural education in Uganda. He has often been called a “Field of Hope Champion” for his service and dedication to the implementation and adoption of the agricultural education curriculum given by Field of Hope. Previously, Rauf taught at a children’s home in northern Uganda that partners with Field of Hope. Currently, Rauf teaches secondary school at a government boarding school in northern Uganda and has been using the curriculum since its creation.

Tuno is a 36-year-old who has been teaching for 10 years. Tuno received a Diploma in Secondary Education. Previously, he served as an extension agent for seven years. Because Tuno was an extension agent, he has a tremendous amount of crop production knowledge to share with his students in the garden. He was invited by Rauf to attend the training where he received the S1 curriculum in June 2018 and has been teaching from the curriculum since then. Tuno teaches secondary school at a children’s home in northern Uganda.

Kofi is a 27-year-old who has been teaching for four years. Kofi received his Diploma in Secondary Education. In his younger years, Kofi enjoyed discussion in high school classes most and could often be found leading the class in discussions about the topic at hand. He was invited by Rauf to attend the training where he received the S1 curriculum in June of 2018 and has been using the curriculum since then. Kofi teaches secondary school at a private boarding school in northern Uganda.

Grace is a 26-year-old who has been teaching for two years. Grace received a Diploma in Crop Production and Management and mainly focused on raising banana, citrus, and other fruits but wants to further her education by obtaining her degree in agricultural education. Because
agriculture is the backbone of the whole world, Grace loves to teach agriculture, and it is her wish to help students know agriculture deeply and practically. Grace is a secondary school teacher at a children’s home in northern Uganda that partnered with Field of Hope prior to the creation of the curriculum, and she was one of the first teachers to use and implement the curriculum.

Dowda is a 31-year-old who has been teaching for nine years. Dowda received his Diploma in Secondary Education. Dowda chose to become a teacher because nobody in his family was a teacher. He feels that if you become a teacher you can teach everywhere, not just in the classroom. His aim as a secondary school student was to become a medical doctor, but financially, he was crippled and, therefore, became a teacher. He believes if people choose to become a teacher they will never be poor because they will have both friends and knowledge. He knows that teaching is his call from God, and he strives to teach from his heart while delivering content to the best of his ability because he knows that one day his son will be taught by somebody that is now his student. Dowda teaches at a children’s home in northern Uganda that partnered with Field of Hope prior to the creation of the curriculum, and he was one of the first teachers to use and implement the curriculum.

Dakar is a 26-year-old who has been teaching for two years. Dakar received a Diploma in Secondary Education. Dakar did not have a good agriculture teacher in secondary school and was inspired to teach from his experience. He learned the material on his own and passed the exams and eventually got a government scholarship to become a teacher because he believes teaching is a gift given to him by God. He was invited by Rauf to attend the training and receive the S1 curriculum in June 2018 and has been using the curriculum since then. Dakar teaches secondary school at a government boarding school in northern Uganda.
Fred is a 33-year-old who has been teaching for nine years. Fred received a Diploma in Secondary Education. Fred had a wonderful agriculture teacher in secondary school who guided him so well that he desired to become a teacher himself. He was invited by Rauf to attend the training and receive the S1 curriculum in June 2018 and has been using the curriculum since then. Fred teaches secondary school at a private boarding school in northern Uganda.

Isha is a 27-year-old who has been teaching for three years. Isha received his Diploma in Secondary Education. Isha believes that teaching is a call from God and that is why he decided to enter the profession. He was invited by Rauf to attend the training where he received the S1 curriculum in June 2018 and has been using the curriculum since then. Isha teaches secondary school at a private boarding school in northern Uganda.
Table 5. *Selected Personal Characteristics of the Study’s Participants*

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Gender</th>
<th>Age</th>
<th>Teaches</th>
<th>Terms Using Curriculum</th>
<th>Years of Teaching Experience</th>
<th>Highest Level of Education</th>
<th>Garden at School</th>
<th>Electricity at School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rauf</td>
<td>Male</td>
<td>33</td>
<td>S1, S2, S3, S4</td>
<td>6 terms (2 years)</td>
<td>10 years</td>
<td>Diploma Secondary Education</td>
<td>Yes</td>
<td>Electricity</td>
</tr>
<tr>
<td>Tuno</td>
<td>Male</td>
<td>36</td>
<td>S1, S2, S3, S4</td>
<td>3 terms</td>
<td>10 years</td>
<td>Diploma (focus not stated)</td>
<td>Yes</td>
<td>Electricity</td>
</tr>
<tr>
<td>Kofi</td>
<td>Male</td>
<td>27</td>
<td>S1, S2, S4, S6</td>
<td>1 term</td>
<td>4 years</td>
<td>Diploma Secondary Education</td>
<td>No</td>
<td>Electricity</td>
</tr>
<tr>
<td>Grace</td>
<td>Female</td>
<td>26</td>
<td>S1, S2, S3</td>
<td>5 terms (1 year, 2 terms)</td>
<td>2 years</td>
<td>Diploma Crop Production &amp; Mgmt</td>
<td>Yes</td>
<td>Electricity</td>
</tr>
<tr>
<td>Dowda</td>
<td>Male</td>
<td>31</td>
<td>S1, S2, S3, S4</td>
<td>2 terms</td>
<td>9 years</td>
<td>Diploma Secondary Education</td>
<td>Yes</td>
<td>Electricity</td>
</tr>
<tr>
<td>Dakar</td>
<td>Male</td>
<td>26</td>
<td>S1, S2, S3, S4</td>
<td>2 terms</td>
<td>2 years</td>
<td>Diploma (focus not stated)</td>
<td>Yes</td>
<td>Electricity</td>
</tr>
<tr>
<td>Fred</td>
<td>Male</td>
<td>33</td>
<td>S1, S3, S4</td>
<td>2 terms</td>
<td>9 years</td>
<td>Diploma (focus not stated)</td>
<td>Yes</td>
<td>Solar Power</td>
</tr>
<tr>
<td>Isha</td>
<td>Male</td>
<td>27</td>
<td>S2</td>
<td>3 terms</td>
<td>3 years</td>
<td>Diploma Secondary Education</td>
<td>No</td>
<td>Electricity</td>
</tr>
</tbody>
</table>

*Note. Only some teachers provided the subject in which they received their diploma.*
Discussion of Themes and Subthemes

To derive the findings of this study, the researcher interviewed eight teachers who have partnered with the INGO Field of Hope in Uganda and then analyzed those interview transcripts as well as information and correspondence provided by the INGO Field of Hope. This analysis produced 828 codes from which 31 subthemes and seven themes were formed (see Table 6).

The seven emergent themes were shift from theoretical to practical applications, motivations of teachers, barriers, curriculum meets student needs, survival, curriculum adoption and changed teaching habits, and shift from negative to positive perceptions of agriculture.

Table 6. Emergent Themes and Subthemes Related to the Study’s Research Objectives

<table>
<thead>
<tr>
<th>Research Objective 1: Determine the influences impacting teacher adoption of agricultural education curriculum.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theme 1</strong></td>
</tr>
<tr>
<td></td>
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</tbody>
</table>
Table 6 (continued)

**Research Objective 2:** Determine the intrinsic and extrinsic motivations of using S1–S4 agricultural education curriculum.

<table>
<thead>
<tr>
<th>Theme 2</th>
<th>Motivations of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reduced Workload</td>
</tr>
<tr>
<td></td>
<td>Confidence &amp; Courage</td>
</tr>
<tr>
<td></td>
<td>Teacher Network</td>
</tr>
<tr>
<td></td>
<td>Inadequacies of Current Curriculum</td>
</tr>
<tr>
<td></td>
<td>Desire to Further Education</td>
</tr>
<tr>
<td></td>
<td>Support from Field of Hope</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Theme 6</th>
<th>Curriculum Adoption &amp; Changed Teaching Habits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacity Building from Professional Development Training</td>
</tr>
<tr>
<td></td>
<td>Continuation of Curriculum Development</td>
</tr>
<tr>
<td></td>
<td>Country-Wide Adoption of Curriculum</td>
</tr>
<tr>
<td></td>
<td>Need for Research</td>
</tr>
<tr>
<td></td>
<td>Similarity to Ugandan Curriculum</td>
</tr>
</tbody>
</table>

**Research Objective 3:** Determine the barriers that prevent teachers from adopting the curriculum.

<table>
<thead>
<tr>
<th>Theme 3</th>
<th>Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lack of Resources</td>
</tr>
<tr>
<td></td>
<td>Additional Training Needed</td>
</tr>
<tr>
<td></td>
<td>Support from School</td>
</tr>
<tr>
<td></td>
<td>Support from Outside Agencies</td>
</tr>
</tbody>
</table>
Research Objective 4: Determine the teachers’ perceptions of the curriculum to meet the needs of their students.

<table>
<thead>
<tr>
<th>Theme 4</th>
<th>Curriculum Meets Students Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Increased Enthusiasm</td>
</tr>
<tr>
<td></td>
<td>Careers</td>
</tr>
<tr>
<td></td>
<td>Addition of Agricultural Clubs</td>
</tr>
<tr>
<td></td>
<td>Students Develop Soft Skills</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Theme 5</th>
<th>Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Curriculum Changes Lives</td>
</tr>
<tr>
<td></td>
<td>Backbone of Uganda: Agriculture</td>
</tr>
</tbody>
</table>

| Theme 7 | Shift from Negative to Positive Perceptions of Agriculture |

Research Objective 1: Determine the influences impacting teacher adoption of agricultural education curriculum.

**Theme 1: Shift from Theoretical to Practical Applications**

Historically, students come to school, sit in their desks, and listen to a teacher lecture while he or she is writing on the chalkboard. Participants explained that this type of learning is theoretical, teacher-centered, and provides students very little practical application to the subject they are learning. Participants expressed that their students were learning information in class in a completely different manner when using the curriculum provided by Field of Hope. The new curriculum provides three class periods of agriculture instruction each week, which is the same as when using Ugandan curriculum (Ministry of Education and Sports, 2008). However, when using the new curriculum, the change calls for two of those three days to be spent in the class and
one day is “practical,” where the students change environments and visit the garden, animals, nearby community, field, or the closest environment that matches what they have learned in class that week to allow for real-world application. When discussing how students learn using the new curriculum Tuno stated, “Being able to see something versus hear something makes a difference in how you learn it.”

The curriculum includes aspects of allowing students to learn through critical thinking and project-based learning. By completing projects, students have had real-world experiences to connect their learning in the classroom to an area of study in a practical way. When discussing aspects of project-based learning, Grace stated, “Okay. Like the PBL . . . It's make a student to know more of practical, and it's make a student to know more about agriculture.”

Many participants expressed that changing environments and moving around the school to various locations for learning has allowed them and their students to adapt to the new curriculum easily as well as understand the information. Dakar said, “I think if they are just moving around, they are also reflecting, they are also refreshing their mind, and they are very happy when they are getting to know what they didn’t know. They are also very happy.” Dakar also stated that “students learn from their own experiences.” Some participants were very descriptive and allowed the researcher to understand exact scenarios and teaching methods used when changing environments and how the practical nature of the curriculum allows teachers to alter their methods as explained by Dakar: “Previously, as I have said, most of the teaching was teacher-centered. But after the bringing of the curriculum, things are becoming easy because most of the work becomes now learner-centered.”

The practicality of agriculture in Uganda was mentioned several times by the participants. The new curriculum provided much correlation with the agriculture in Uganda
because of its practical nature, which allowed students to experience the practical aspects of agriculture. When asked about the curriculum Dakar said, “Theoretical teaching doesn’t become meaning, but that agriculture needs to be taught what? Practically.”

**Practical Applications**

The new curriculum provided by Field of Hope contains practical applications for the teacher to involve the learners in the learning process. All eight participants expressed that the new curriculum allowed students to be more involved in the learning through different aspects of teaching methods. When asked if students retained information better through practical applications, Rauf agreed by saying, “Yeah, it's easy, and they remember it when they do it.” Practical learning is being conducted by teachers who are utilizing project-based learning, which Dakar defines as “The way I know, is practical centered. The learning which is practical centered. All hands on.” Grace shared that project-based learning allows her students to apply situations to the real world: “But this one does the way the activity is broad in the class and then also the practical part there and also like, pbl. It's also you have to do it, let's make a student to be thinking about their home or about where thing and to know what is happening in the surrounding.”

Teachers explained that their students were comprehending lessons in a way that enabled them to envision the activities learned in class when writing their exam as explained by Grace: “But I'm teaching in a way that children can, can understand in class and when it's come to exam, a child can write it also in practical a child can do it.”

Tuno shared that his students complete a project they can learn from to see how a similar enterprise would operate in the real world:
Towards the end of the year we have a beekeeping project . . . we were to locate each of the agriculture students to a bee hive. And they would manage it, and we see now the costs and benefits at the end of the day that would motivate them to do, to do agriculture better.

Tuno realized that without completing practical aspects of agriculture, students would not understand and appreciate the industry or understand their involvement. “I came to realize that without, without doing the practical aspects of agriculture learners may not take it more seriously, but when you demonstrate to them and show to them that the things, things that done this way, they learn better then when you tell them in class.”

**Allows Students to Think Critically**

“Critical thinking is reflective and reasonable thinking that is focused on deciding what to believe or do” (Ennis, 1985, 45). Participants were able to tell the researcher what critical thinking was and how they help their students develop critical thinking using the new curriculum. Dakar said:

> Critical thinking, so that one a type of learning where you make your learners to develop some of the skills in their brain where they can what? Solve the problems on their own. By you giving them some task to what? To do.

Participants recognized that their students were thinking in a new manner due to their new behaviors. It was found that students were asking more questions in class, meaning they were considering what to do or believe based on the information presented to them and, therefore, thinking critically about the subjects at hand. Grace stated:

> They can ask some of the question that it's made me to know that there was, that it has made that thinking to, it has made them to start thinking greatly . . . Thinking critically
and also it's made a student . . . not just to be thinking shallow, it's make a student too learn, deep . . . learn deeper in that topic . . . The way a student think is to then think to be like, to be more, not narrow. It's wide . . . Made it so they learn deeper in thinking, not just shallow.

Participants reported that their students were thinking critically about topics learned in class through their class activities and assessments students completed. When asked what skills students were learning Dowda said, “Critical thinking through writing and their project and, of course, demonstrating in the garden.” Dakar agreed that students were learning critical thinking through research and presenting before the class their findings by stating:

So they have to present before the class . . . the most challenging part when that side is not gathering the information on the question which they have been . . . made to do. So they always find difficulty getting the answer and that is the research. And that is the one we are calling the critical thinking. They have to think so that they can . . . always gives them a lot of stress but at the end of the day they learn from their own experiences and that is why I like it so much.

Inclusivity of All Learning Types

The new curriculum was found to be inclusive of all learning types. Because of the project-based learning aspect of the curriculum, many participants agreed that the new methods of teaching were much more beneficial to students of all learning levels. Many participants made statements regarding their excitement of students participating that typically did not engage when using the Ugandan curriculum. Tuno agreed by saying:
Even the slow learner may participate in the groups, and the groups may assign the person to come and make presentation on board so that rather if you were only carrying out teaching with a total lecture method those slow learners may lag behind.

The new curriculum enabled students to connect with each other, allowing for teaching among themselves and student inclusivity through group work. This inherently allowed “slower learners” to be involved in the learning process. The participants responses during the study’s interviews reflected the same point of view. In accord, Dowda said, “Sometimes a fast learner can teach a slow learner even when I’m not there.”

**Learning Types are Recognized**

When using the new curriculum, participants were able to recognize that different types of learners had different learning needs. Kofi’s beliefs were similar: “The curriculum is able to cater to all students . . . so students that learn on different levels can all learn together from this curriculum.” By recognizing that there were different types of learners, participants were better able to understand their audience and how to address problems their students were facing. Kofi agreed by saying:

> Because you see students are of different categories unlike before where you could go to class and the activities are limited, but this time the activities are many and it is tried to give a better understanding even to the slow learners.

Not only did the curriculum allow students to connect to slower students, but the curriculum has allowed teachers to further recognize, connect, and become closer to students, which in turn allows them to identify who is lagging behind and offer more specialized assistance. Grace had similar beliefs and responded by saying:
I used just to know that you go to class and then you, you bring that topic, you start like giving definition. You know how to do some of the activities in class or you have not this way, you have to be close to a student and by using of this curriculum this way, it's making me too even if a student is behind, have to bring them closer I have to make them to contribute. There's way it's teaching me to be focused to make them to understand.

Teacher-Centered to Learner-Centered

Delivering information in Uganda before teachers began implementing the new curriculum was very much “teacher-centered.” When asked what teacher-centered meant, Isha said: “Whereby you give everything fully then we could also have possibly some small groups.” Through discussing with teachers their thoughts on using the curriculum, five out of the eight agreed that they used to use teacher-centered methods and now use a curriculum that is “learner-centered.” Isha also described what learner-centered meant:

Learner-centered simply means most of the things or most of the activities are done by the students themselves. As they do it, they learn it and then they master it. The teacher is just to guide them on what to do.

Participants expressed their excitement for the new curriculum because it reduced their workload, but they also seemed to like the curriculum because students seemed to have more control over the learning. Isha explained their contentment and their students with the learning-centered curriculum: “Previously, as I have said, most of the teaching was teacher-centered. But after the bringing of the curriculum, things are becoming easy because most of the work becomes now learner-centered.” Kofi agreed and stated, “The curriculum is learner-centered. The students are able to understand most of the things on their own under the guidance of the teacher.” Isha
had similar thoughts: “For students they feel it is learner-centered, and they get to understand very many concepts.” Fred also agreed and explained the richness of student involvement: “Because it is actually learner-oriented or learner based. It seeks to involve the learners more in the learning process.”

Assessment

Through observations and interviews, the researcher was able to understand that students some students, but not all were being assessed beyond tests, examinations, and written answers. Rauf showed the researcher his teaching laboratory and explained that he would take weeds out of a field and place them on a lab table for students to identify as well as explain in detail the growth stages of the plant. He explained that students would dissect a hen for poultry. These along with many other observations support interviewees’ statements that allowed the researcher to understand the practical nature of the curriculum was still reflected in assessments. Rauf stated, “I give them items to identify and explain maybe, oh, how it's grown or explain the functions.”

While Rauf used practical measures to assess students’ learning, the majority of participants used tests, exams, and discussion. Tuno explained he uses “home assignment” as a form of assessment. Tuno explained his home assignment by stating, “Each of the agriculture students . . . they would manage it, and we see now the costs and benefits at the end of the day . . . that would motivate them to do, to do agriculture better.” To assess students by discussion, tests, and exams, it was understood that teachers were using the given methods of assessments at the end of every unit in the new curriculum. Kofi explained this by stating, “Especially, the questions, the revision questions which is not wasted at the end of every topic it
helps to gauge their understating, where you have to know if they’ve understood or not and you go back and help them.”

**Community Engagement**

Communal living, working, and sharing of most parts of life is how most Ugandan’s live. Whether as orphans at a children’s home or villages of multiple families, Ugandans are used to living and working alongside their extended family members and neighbors. Participants expressed a sense of increased engagement with the surrounding communities as a result of using the curriculum. Participants reported taking their students into nearby communities to observe, learn from, and see the practical application from farmers in their fields of the lessons they were learning in class. Grace explained how she has adapted to using project-based learning and critical thinking in her classroom while connecting students’ learning to the real world in a community:

Like when a topic, it's done or when a subtopic is done. This activity that they can tell you that you have to make a student to do it or you have to go in a community and then you make a student too to see that thing practicality or to do it using the hand, which you can make a student not to forget about that topic.

Participants also expressed that students have an increased excitement for going into the communities to learn from their environments so they can easily apply and replicate what they have learned. Grace shared the excitement of her students:

When I'm to say we are going to go to the community and we are going to see that project of, let me say poultry, that’s where they can be, this way they can be yearning to know, read and to learn from that place. And it's made me to know that they, they have really coped. The idea of pbl learning also, it's, they can ask some of the question that it's made
me to know that there was, that it has made that thinking to, it has made them to start
thinking greatly. It's made me to know really.

Using such practical application through the new curriculum has also heightened
teachers’ sense of their role in not only a child’s future, but the future of the communities the
children come from because so many communities rely on the practical aspects of agriculture to
feed their families. Dakar expressed this by saying, “It has made me to know the benefit of
application. It also made me, reminded me about my role in the community.” Playing an active
role in the community is important to participants to feel as if they are contributing to the greater
society. Dakar explained how, through implementing the curriculum, teachers have been able to
involve the farmers in the community to use the practical nature of the curriculum:

Field of Hope has trained me how to associate with the community by putting a
demonstration farm because if I put a demonstration farm, many people will now come
and be asking questions on what to do. So it has already given me how to reach the
community. So if I put a demonstration farm, I will easily read the community.

Research Objective 2: Determine the intrinsic and extrinsic motivations of using S1
through S4 agricultural education curriculum.

Theme 2: Motivations of Teachers

Per Objective 2 of the study (determine the internal and external motivations of using
the Field of Hope S1 through S4 agricultural education curriculum), the researcher was able to
identify, through observations and participant interviews, an overarching theme of intrinsic and
extrinsic motivations of teacher adoption and use of the Field of Hope-provided curriculum.
While Theme 6 is titled “Curriculum adoption and changed teaching habits,” the research team
determined that based on teacher responses to the interview protocol, intrinsic and extrinsic
motivations of teachers was brought out enough organically that it deserves to stand alone as a separate theme in understanding the participants lived experiences.

Both intrinsic and extrinsic motivations were expressed from participants as to why they used the curriculum. Naturally, there were a lot of similarities throughout the intrinsic and extrinsic motivations, but there was a clear difference that enabled the research team to understand that the two benefited each other but stood alone. It was expressed as a natural desire for the participants to see their students succeed, understand, and learn from their instruction. Overall, participants expressed a deep agreement that students were motivated to learn when being taught through the new curriculum, which inadvertently motivated teachers to continue to use the curriculum. All eight participants felt they were motivated to use the curriculum.

Reduced Workload

From spending time in the field and making observations, the researcher concluded that resources for teaching in Uganda are sparse. Teachers are given a blueprint that lists objectives and units, but no curriculum or supplemental information to understand how to teach that particular topic the students will be tested on. Dakar specifically explained what he liked about the new curriculum and how it helped reduce his workload:

The curriculum is very good because it is containing what might not like the what? The one we use to have. This one has come to the extent of giving you the sample questions, the objective type, the end of the unit things like that. So it has now simplified the work of the what? The teacher. So you just go straight and do the work. It has already given you the guidelines, this method is the best for this one, so the curriculum is generally okay. I have loved the curriculum so much.
The new curriculum is written in the DO, ASK, SAY format, which allows teachers to follow the script word for word and even allows teachers to know what students should be saying in response, as Grace explained: “There's a part that a teacher has to say and there's a part that is student has to listen from us student.” There was an overwhelming response from participants of a “reduced workload” as described by Grace: “It's make it easier for a teacher,” which the researcher classified as an extrinsic motivation for teachers to use the curriculum. All participants interviewed (eight) stated that using the curriculum made their work “easier.” Teachers felt a greater sense of understanding teaching methods as well as how to deliver information effectively to students. Isha stated, “Makes it easier and the methods can easily be applied to make students understand something.” Because the curriculum is learner-centered and includes so many learner-to-learner activities, participants felt their role was majorly to supplement the students’ learning and mostly supervise instead of instructing and lecturing the entire class time. Isha agreed by saying:

After the bringing of the curriculum, things are becoming easy because most of the work becomes now learner-centered . . . Your work is just to supplement now . . . things are made easier because most of the things as I've said, as being practical, you can kind of give some work and then students do it on their own and that's not need so much. They, time being attended to by the teacher. Maybe with students because you forgive them, they work, they'll be doing it on their own. Your work will be to supervise.

Confidence and Courage

Confidence was a resounding word that was said in all the interviews that took place with participants. Participants were confident in teaching the curriculum and confident with some of the content, such as their knowledge of crop production. The subtheme of confidence ties into
the reduced workload partially because teachers have less stress and, therefore, have more confidence that they can deliver their classroom instruction well. Grace expressed confidence through the ease of using the curriculum: “not having any fear because there's, with the curriculum that the way . . . let me say that it’s designed, it's easy.” Because teachers felt they were able to perform at a higher capacity, they felt as if their job gave them a higher confidence overall.

Confident in their knowledge of crop production, participants expressed that they felt familiar enough to teach the S1 curriculum, which is mostly about crop production. Dowda expressed confidence in his crop production knowledge. “Because of my experience I have now nine years in teaching of experience . . . Sometimes even without books because I'll have content already here,” he said, pointing to his head.

Courage was demonstrated through multiple participants when speaking about their paths to becoming teachers. Money was not in abundance leading teachers to struggle while they were still students, but they talked of their perseverance to overcome affliction. What the researcher found to be most relevant to this study was teachers were able to transfer the courage they learned in the early years of their profession to the challenges they faced today. While the new curriculum has supplemented their work tremendously and made their roles “easier,” teachers still face barriers to adoption, such as lack of resources, which will be examined later. Dowda described how he deals with difficulty: “What I've learned from the training is that the, sometimes when the challenges are there you must find the best way of addressing those challenges.” Tuno expressed how he encourages his students because he too was a student at one time and can remember what it was like: “I always talk to my student when I went to see them having similar challenges that I was also having during my school time.”
Teacher Network

Through interviewing participants there was an undeniable previous connection some of the teachers had with each other that the researcher deemed as an intrinsic motivation for teachers to adopt and use the curriculum. Four of the eight participants were invited by one of the participants to the professional development training by Field of Hope in the summer of 2018 where they all received the curriculum. In their interviews, they specifically mentioned being invited by Rauf to attend the training, leading the researcher to understand there was a previous network of agriculture teachers in this area. Rauf was even called a “Field of Hope Champion” by key informants who had helped implement the curriculum from the INGO Field of Hope. However, not all teachers the researcher interviewed knew each other previously, but they felt the trainings had brought them closer together personally and professionally. Even Rauf, who invited so many colleagues to attend the training, explained how you meet so many other teachers: “Yeah, like when we meet at Field of Hope trainings we meet teachers from different high schools.” Isha expressed his interest in meeting other teachers: “It has also made me exposed . . . To very many other people and also other methods of teaching and other methods of assessments of students.”

When asked about his experience with the professional development training, Kofi said “as teacher it has made us to have other teachers who we have become friends now.” Teachers expressed their genuine thanks to Field of Hope for providing them with the resources in other teachers to continue to implement the curriculum to the best of their ability. “And now today we with people from all over different parts of the country, so we have made friendship,” shared Dakar.
Resource sharing within the previously formed and growing network was a common thread of this subtheme. All participants admitted to sharing resources with other teachers either in their agriculture department at their secondary school or sharing with other teachers at other schools. Tuno shared in the interview how he shares resources with other teachers:

There are teachers from other schools that I do make consultation with them in case of any other topics that would seemingly be very challenging or I may not be having all the resource for it. I go to them for how you, that takes books or for any other supports.

Inadequacies of Current Curriculum

“The current Ugandan Secondary School agriculture education syllabus has not been updated since the 1960s,” shared a key informant and director of the National Curriculum Development Center for Uganda. Participants’ expressed concern with the current agriculture education resources in Uganda compared to what the new curriculum offered by Field of Hope provided them. Their complaints of the outdated, but existing resources available to them were classified as an extrinsic motivation for adopting and using the curriculum. The practical nature of agriculture allowed participants’ to see that the new curriculum allowed students to learn practically. Tuno expressed his recognition of practical aspects in the new curriculum: “So I had to adapt to that because when you look at our curriculum, well the, we don't have so much practical, aspects of it, but with this new curriculum that we have got it.” In accordance, Kofi agreed by stating: “The curriculum provided by the ministry on the, that one is not all that detailed, but it is one of the Field of Hope that is detailed.”

Teachers’ dissatisfaction with the entire educational system was apparent as they noted in their interviews that the Field of Hope curriculum allowed them to introduce their students to many things in agriculture. Fred described his dissatisfaction with the educational system in
Uganda: “But the problem, the challenge is also the system of our education in Uganda here. The system is poor.” Isha agreed by saying “I've experienced that there are very many things possibly in the former curriculum if compared to the curriculum of Field of Hope that need to be modified.”

Desire to Further Education

The highest education each participant in the study received is a diploma (see Table 5), which is fairly equivalent to an associate degree in the United States. Some teachers received their diploma in education and some in various agricultural fields such as crop production (see Table 5). The next level of education up from a diploma in Uganda is called a degree, which you receive from a university. When discussing their education prior to teaching, three participants specifically mentioned that they would like to further their studies and receive a higher degree in either education or crop production to gain more knowledge and teach the subject matter to the best of their abilities.

When asked about the level of education received prior to teaching, Dakar explained his education and shared his desire to further his studies:

I always hear many people saying I don't want to be a teacher, but I tell them no. For me I still I have done diploma. I still want to go for my degree in what? Education. Yes. And still my subject is going to be what? Agriculture . . . So, I just pray that I go for the degree so that I can get more what? More knowledge. And I want to go for it shortly.

Grace did not come from an educational background, but one of heavy crop production, specifically in banana cultivation. She shared her desire to further her studies specifically in education:
For me, I've not done agriculture, you let me say education in agriculture, but I'm planning maybe with time I have to go for education because I've done a diploma in crop production and management, but when they want to go for another level, I can go, let me say a degree in education, let me say degree in education because I see like the more things that I need to, I need to know as I'm going to do education, other things that is going to be added in my knowledge and I want to add more knowledge.

Tuno shared in his interview that he had been an extension agent for seven years prior to teaching and felt as if he had extensive crop production knowledge but still felt a desire to improve himself in order to complete his job of teaching agriculture in a more formal role:

Well, I think I like to, to really get more, more further studies cause when, when I look at the level of, of educations, it would really only be very good for me to carry out more of agriculture training at the level of degree. That would also enable me to, to do that work better.

Not only did teachers express a desire to further their education, but the idea of an “improved quality of life” resounded. Teachers were learning agriculture from teaching the subject through the curriculum provided by Field of Hope. They felt as if they could perform better now at their own farming operations with the knowledge they have gained. Dakar explained what he has personally learned from teaching the curriculum and how being a part of using this curriculum will improve his quality of life overall: “If I practice agriculture, which I teach and I practice it in the fields, that one can help to lift my standard of living to another level.”

From these significant statements, the researcher observed that the participants not only wanted to use the curriculum given to them by Field of Hope, but also held an intrinsic
motivation to continue their personal journey in education to better serve their students in the
classroom.

Support from Field of Hope

Support from Field of Hope seemed to be a major subtheme of why teachers were
motivated to use the curriculum. Support from outside agencies is one of three pillars of the
Framework for Curriculum Implementation in Developing Countries applied to this study
(Rogan & Grayson, 2003). Outside agencies are referred to as any organization that is not within
the school but help facilitate the innovation by interacting with the school (Rogan & Grayson,
2003). Material and non-material support in the form of professional development is the lens
through which interview protocol questions were created to understand the extent of the
relationships that existed between participants and Field of Hope to determine if there was any
correlation between their relationships and their adoption of the curriculum. Material support
was provided to participants from Field of Hope in the form of curriculum books and teacher
guides. Dakar described the material support he received: “Field of Hope has provided me with
the curriculum which will guide me in the teaching.” This curriculum is cross-walked with the
Ugandan syllabus so that students are learning the same objectives and tested on the same
objectives; however, the new curriculum provided by Field of Hope has given meat to what was
a bare-boned skeleton of a curriculum blueprint by providing activities, ideas, and lesson plans.
Dowda had similar thoughts: “The book itself added to what we use to have as materials for
teaching.”

From the researcher’s observations and interviews with participants, Field of Hope
provided the detail to the blueprint needed by most of the teachers. Before Field of Hope began
interacting, supporting, and providing resources to the teachers and their schools, the teaching
professions of the participants seemed to be largely unguided, uninteresting, and difficult due to lack of resources. The support given by Field of Hope has given teachers a sense of awakening in their profession and allowed them to be able to do what they love, which is help students in the best way possible. Fred painted a beautiful picture of the rejuvenation Field of Hope has provided:

That training has helped me, like I said, it has helped me to use appropriate methods of teaching. It has helped me also to awaken me because actually I've realized that it is important to have some kind of trainings from time to time because when we came out from the college, yeah we were told certain things, but along the way, as time went by, those things went. But now with this training we are, we are, we are being rejuvenated. So the training is good and now I wish it comes to us from time to time.

After reviewing and analyzing the codes under the category “Support from Field of Hope,” the researcher was able to identify four different ways that participants identified support from Field of Hope: financial gain; teacher observation and feedback; encouragement to students; and professional development and effective teaching methods.

The four different ways participants feel supported by the INGO directly coincide with their intrinsic and extrinsic motivations to adopt and use the new curriculum.

Financial Gain

Lack of resources was identified as a barrier to curriculum adoption, and Field of Hope has given teachers resources to use the curriculum. The financial gain for the agriculture program at the school has been identified as a motivation for teachers to adopt and use the curriculum. Dowda identified the teaching resource provided by Field of Hope: “Field of Hope has done for me is taught me the irrigation scheme, they were bought for me some equipments like for
example, the laterals, a drip lines and then the pipes and then the, the tanks of water, water tanks. So those are the direct benefits that they have.” Tuno shared that his school had also received resources from Field of Hope: “Field of Hope has some projects there. They’ve installed irrigation unit there.”

Grace’s school was the recipient of the Inspiring Students in Agriculture Grant, which is designed for secondary agriculture teachers to supplement their students’ learning experience through projects, demonstrations, and field trips (Field of Hope Organization, n.d.c). This grant application is open to all schools using the curriculum, and if granted, an allotment of money will be given to the school for the furtherance of the agriculture program. Grace explained how her school’s agriculture program benefited from this grant:

Field of Hope, their always that they're providing us the curriculum and also the training and another one also like when shade nets, on the greenhouse, let me say the greenhouse, where we always raised our, our seedlings, they always provide those materials to us and also our [school], they provide those what is needed.

**Teacher Observation and Feedback**

Field of Hope supplements teachers by between professional development trainings and receiving classroom support by visiting the school to make teaching observations and assist with the practical applications in the garden or with the animals. Field of Hope has hired three Ugandans who are experienced in agricultural education and extension to assist with teacher development and curriculum adoption. Some teachers were introduced to the curriculum by these key informants who visited the school to meet with the teacher. Tuno explained how a key informant visited his school to introduce the curriculum: “discovered it through [key informant].” Teachers expressed deep interest in this type of support because they were able to
actively get feedback as they learned to adopt a new teaching style. Tuno expressed his thankfulness for the constructive criticism:

Well, the benefits that we have got from Field of Hope it is training that we have got from them, uh, the curriculum they have brought for us. Um, thirdly, it is when they go for supervision, they’re able to encourage you . . . Actually, if the any other points they may spot it out. Like for me, one thing that I love most is when you spot something . . . I guess this is how it should have been done.

Grace explained how Field of Hope visited her school and supported her teaching on the school visits and how they were able to effectively communicate with her about issues in the garden:

I remember one day that team of Field of Hope, they came up to [school] and they share with us a lot about the curriculum . . . Yeah, let me say like there's a communication that as that is, yeah, it's good communication. It's good. Like when there's something, it's like I want to know something I can communicate to [key informant], that's where the communication can be made. And also, when there's some problem in irrigation, what communicate to them that you're having such a problems or the shade net is, it's, let me say it spoiled. I can't communicate to make them, to do the repair and it's made me too to enjoy it.

During an observation of a class being taught using the S1 curriculum provided by Field of Hope, the teacher was struggling to get answers from the pupils, and the Ugandan [key informant] hired by Field of Hope to supplement curriculum implementation in schools was able to help walk the teacher through the lesson and assist in getting answers from the students. This
was an example of the motivation teachers receive from the support provided by Field of Hope to implement the curriculum.

Adoption of the curriculum by the teacher is important, but the adoption and support of the school leadership of the secondary schools implementing the curriculum is just as necessary. Participants noted in their interviews their appreciation of Field of Hope for coming to their defense in taking the time to sit down and speak with the leadership of the school to explain the curriculum and how it could benefit the students in the agriculture program. Dakar explained how Field of Hope spoke to the leadership of his school: “They went up to the head teacher and they talked to him. They introduced me and Field of Hope, so he knows that we are implementing it.” Dowda also expressed his knowledge of how the leadership of his school works with Field of Hope: “They have collaborated with Field of Hope.”

Encouragement to Students

Through visiting the schools to observe teachers using the curriculum and provide feedback, it became evident that students were being encouraged. During a school visit, the teacher asked the visitors with Field of Hope and Vivayic to sit under a tree and speak to the students in the class about agriculture careers. Students from the S1 class were observed and students from S1 through S4 came to sit under the tree as the Field of Hope representatives and the researcher discussed agriculture careers. Grace explained that when a Field of Hope representative came to do a school visit her students had an encouraging experience regarding careers in agriculture:

I remember one day in when those sort of [key informant from Field of Hope], they went to [school name] to supervise me. One of these two days after, after I, let me say after I've share with them the career opportunity that is that in agriculture and then one of these
students just, it was just behind and after it went there's some child called [student], he went to [key informant from Field of Hope] and said, what can I do to become agriculturists? Is what can they do and it's made me to know that he has picked the courage of doing agriculture as the career in the future. And it's made me to know that the, the aiming there was that him being to do agriculture as their future jobs there.

When asked how it has been to work with Field of Hope, Grace explained another scenario in which Field of Hope provided guidance to students in the class: “And another one that is encouraging to a student. This way when they see someone talk to a student like they have seen you do, there's where it's made them to know there are many people, I've done agriculture and even me I can also manage.”

*Professional Development and Effective Teaching Methods*

Participants mentioned very positive attributes about Field of Hope because of the professional development that Field of Hope has provided them. The teachers loved being poured into professionally. In fact, seven of the eight participants specifically mentioned their enjoyment of the trainings thus far. It helped build into them a sense of ownership over their teaching profession and reminded them that they can make a difference in the lives of their students. Not only were they encouraged and inspired to go back to their classrooms with excitement for the future of Ugandan agriculture, but they were taught methods of teaching that were new to them. Dowda described how Field of Hope has helped him:

My experience working with Field of Hope is that the at, anytime that I want something they have always given me whatever support they always give me on. Sometimes through training me, like for example, they trained me last year the fellow who trained me last year and this year again they are training me.
They were taught how to teach students through project-based learning and critical-thinking methods. Fred described his experience at the professional development training:

“Working with Field of Hope has made me be able to employ some better methods, most effective methods of teaching the subject.”

**Theme 6: Curriculum Adoption and Changed Teaching Habits**

Each of the eight participants reported to have adopted the curriculum and were currently teaching using the curriculum provided by Field of Hope. Participants were asked if they were forced to implement the curriculum or if they chose to do so. Three of the participants teach at schools that had previously partnered with Field of Hope because of the drip gardens Field of Hope had supplied their school, while four of the eight participants reported that they were invited by Rauf to attend the training and receive the curriculum. However, all eight participants expressed that they chose to implement the curriculum. Dowda said, “I chose to do on my own. I did it on my own.” Kofi, who was invited to attend the professional development training by Rauf, explained how he came to receive the curriculum: “After getting the training and when the term started, I choose to begin using it.” Many of the teachers interviewed mentioned their reasons for adopting the curriculum and how what they learned at the training helped them feel as if they should adopt it. Grace explained it this way:

Come for the workshop, there's where it can, it can mold me on how to use their curriculum and it's made me to know that I'm not like my, my past, um, using that curriculum and I'm adopting and it's made me to know that there's, where I'm doing it different from there, what I used to do in their past. It's made me to adopt it because I see like it's important.
Overall, teachers seemed to like the curriculum and were motivated to adopt the curriculum given to them at the training by Field of Hope. Isha agreed and explained that the adoption process has been fairly easy: “First of all, the way I adopted it, we were given the curriculum at hand now and because we have the curriculum at hand we apply now what is there inside. So it makes it easy. Because we have the curriculum and we just follow it now . . . It is good to use. Simple to understand and it’s interesting to use.”

Seven out of eight participants reported to have changed their teaching methods upon adopting the curriculum provided by Field of Hope, but all eight said they feel they teach differently than their peers now. Seven out of eight participants expressed that their boss or headmaster recognizes that they teach differently than their peers. When asked how he knew his boss recognized his change in teaching methods, Isha said, “Sometimes you can even hear from their speeches if maybe like if there’s a staff meeting maybe they can say like we thank so much and so forth and stuff for the hard work.” When asked why teachers changed their methods, all participants had responses similar to Kofi: “I integrated because as teacher, teaching requires you to integrate different methods and styles to fit what is needed of their students.” Participants continually mentioned they changed their teaching methods because of what they learned at the professional development trainings. They mentioned that “exposure” led them to change: “Before I used to have other methods of teaching, but when the curriculum came and I was exposed to it, surely I changed,” explained Fred. Isha mentioned the type of exposure they experienced: “It has also made me exposed . . . To very many other people and also other methods of teaching and other methods of assessments of students.”

Interviewees were asked how they have changed their teaching methods, and many reported to have incorporated practical aspects of teaching and learner-centered methods. Tuno
said, “Field of Hope has enabled me to have a change of approaches of teaching . . . you don't just go and lecture but there is also room for you to incorporate the practice aspects of it.” Dowda agreed and mentioned that he now teaches using learner-centered methods: “Yea, I changed . . . teaching method . . . I teach learn centered.”

The practical aspects of teaching that were adapted included changing students’ environments to allow them to see, touch, and feel what they were learning, such as Fred described: “It involved also changing the environment. Sometimes you take out the students from classroom to the, to the demonstration plot or the garden. That is how I was able to manage it or adapt to the new curriculum.” Rauf changed his students’ learning environment as a part of the curriculum as well: “We have developed those gardens. Made those necessary beds. Necessary beds to the level so that we can sell to the nearby community.” When asked if he did not use group projects before adopting the new curriculum, Tuno said:

Um, well we could do it, but to the lesser extent, not as not as usual, but we could do the practical’s, but not as many times as possible. And some other topics you may teach without even demonstrating or showing to the student how it is done. But with the knowledge that we have gained during the time of training, at least we cannot let it go by without demonstrating to the student.

Interviewees were also asked if their students had reactions to the teachers’ changed methods. Fred described his students’ reluctance to his previous methods and how that changed when he adopted the curriculum: “I see them, like I said, taking part in the learning process, but before they used to be reluctant somehow. But when I change strategies or methods, I see them coming on board.” Kofi described his new methods of engaging students’ minds:
In most cases, before I introduce a concept to the student. For that particular day in most cases, I begin by stimulating their understanding that is to bring them to a similar thing to that particular topic so that they have the gesture of what that particular day is going to talk about.

The level of difficulty in changing teaching methods was of interest to the researcher because it is not always easy for teachers to change how they teach. Therefore, the researcher asked how difficult it was to alter the methods of teaching. Rauf shared that his transition was not difficult: “No, not really because it was almost, Ugandan based . . . I have tried to edit my notes and even to use computer at some points. The ICT projector.” Fred described his transition this way: “I changed the teaching methods a bit and I was able to combine; I would combine this one, the other one and the other ones so that the teaching is so effective.”

Understanding why the teachers changed would help the researcher understand their motives or reasoning for adoption. When asked what led to his changing of teaching habits, Fred mentioned the professional development: “That training has helped me, like I said, it has helped me to use appropriate methods of teaching.” Tuno agreed by saying “It enabled us to change our methods of teaching.” The training has made Rauf “adjust . . . I've now got many methods of teaching.”

Overall, teachers were teaching “more than the way I was taught,” according to Dowda, and doing things “different from what I used to do in the past,” according to Grace. Changing teaching methods is very important because, according to Tuno, “when you're done changing, it may be when you stick to only one, other learners might not be picking it very well.”
Capacity Building from Professional Development Training

Thus far, there have been two professional development teacher trainings organized by Field of Hope for teachers interested in and currently using the curriculum (see Table 1). The first training was held in June 2018, and the second training was held January 2019, where the participants were interviewed. All participants of this study attended the first training in June 2018, and when asked about their experiences at the professional development training, they were speaking about the experiences they had at the June 2018 training as the 2019 training they were attending was ongoing at the time of the interviews.

Teachers love to teach and share knowledge with others, but teachers also love to learn. Teachers pour out so much of themselves to their students mentally, physically, and emotionally that when they are poured into intellectually, they feel valued. Field of Hope invites teachers to professional development trainings to coach them in the implementation process of a brand-new curriculum based around critical thinking and project-based learning. For three days, teachers are transported, trained, and taught new methods to rejuvenate their students from a previously lecture-filled classroom to a world of hands-on and practical learning. Teachers are sent back to their schools with their new toolbox of knowledge, and Field of Hope shows up to sit in on their class and observe their teaching to give feedback, answer any questions, help in the garden, or provide whatever assistance is needed. It is because of this partnership and pouring into the teachers that they feel drawn to work with Field of Hope because, for the first time since graduating with their diploma, they are being poured into and are building their capacity to become an even better teacher.

According to Fred, teachers left each professional development training with a hunger to learn more: “It has helped me also to awaken me because actually I've realized that it is
important to have some kind of trainings from time to time.” Fred also shared that he has been trained:

It has helped me also to make the teaching more attractive or to make the lesson more attractive to the learners. Because if we are able to put in action or in the place all the information that we are getting from this kind of training, I have a belief that it can make us go extra miles in handling the subject in their best way.

Teachers are adopting the curriculum and changing their teaching habits because they are building their capacity of knowledge to then share with their students. Internally, they are being pushed to developed personally and professionally, according to Isha: “The training was nice because we got to understand very many things.” Rauf recognized his growth from the training:

The experience has been good because they are made me to grow and uh, and in terms of experience in teaching and I've now got many methods of teaching . . . you learn things you didn’t know then you see it’s okay.

Grace even mentioned the training is encouraging to her: “The experience I got from that training is that it is still there. What I even said that the learning it is encouraging it’s not the learning we used to practice.”

Teachers were not just learning how to better deliver content to their students but were being exposed to global agriculture. Learning about other parts of the world was exciting to them because while learning about the world they were able to realize where their country falls on the productivity scale compared to places on the globe. Dakar shared his newfound global knowledge: “It also made me realize the gap between the U.S. and Africa. Made to realize how the resources are being utilized comparing in U.S. and Africa and Uganda. How resources and
being utilized, human and natural resources.” He also felt a sense of responsibility for teaching his students because he found out he was a rarity in Uganda:

In Uganda, the people who are educated, the percentage is very low, and I am one of them who are educated but if I see it in the way I was, then the nation is not going to realize anything from me. Therefore, there is something which I need to do because the nation is looking at what? At me.

The teachers who adopted the curriculum were inspired to do so because of the new knowledge they were learning. Grace said, “It’s making me to know how to teach . . . it’s made me to flow, not just to cut things . . . make you to have more knowledge on how to do with teaching.” Dakar stated, “So actually Field of Hope has opened my eyes to different perspectives which I will not know. So it is a very good experience.” Fred added that “the training we are undertaking . . . it’s making us to handle teaching using their curriculum very successfully.”

Continuation of Curriculum Development

There have been resounding positive aspects of the adopted curriculum from teachers that some have even requested for the continuation of the curriculum development. Dowda said, “You can go ahead with the developing the Senior 1 and 4 curriculum if you can.” Three participants particularly mentioned the need for the S3 and S4 curriculum without being asked about the future of the curriculum. Fred mentioned that not having the S3 and S4 curriculum could be a barrier to his adoption because “the school may also come out with the relocation of classes for the teachers. You may realize that you are taken from Senior 1 or Senior 2 to handle Senior 3 and Senior 4. For which the curriculum is still not there.” Therefore, teachers were requesting that curriculum be provided for all their class levels. “I wish it is prepared for all classes, right from Senior 1 through Senior 4,” said Fred.
Country-Wide Adoption of Curriculum

The INGO Field of Hope predominantly works in the northern region of Uganda, which is one of four regions in the country (see Fig. 1). The majority of the teachers that have partnered with Field of Hope thus far to use the curriculum are from this region of Uganda. At the second teacher training in January 2019, where these interviews were conducted, there were teachers from the western region of Uganda who took the curriculum back to their schools and are now implementing it. When participants recognized that the teachers from the western district who live near the Rwandan border in southern Uganda had traveled two days to attend the training and receive the S2 curriculum, they were quite impressed and realized the impact and spread this curriculum and Field of Hope was having on their country. Dakar described that he believed the curriculum could have this impact and was pleasantly surprised to see teachers from far away at the training and suggested that Field of Hope train teachers regionally:

What I was trying to see is that, oh it can reach, many agriculture teachers in Uganda and when I will came today I was very happy because I have seen that people, the teachers have come from different parts of the country. Which means they can now take this message to their what? To their regions. Yes. So, If we can, if we can organize regional training that will be okay. Because there are some people maybe who are from afar that maybe if you organize maybe for the eastern and northern like exact. It can also be okay.’’

Need for Research

Surprisingly, two of the participants brought forth the need for future research to be done and specifically said what kind of research should be done to further the curriculum implementation and adoption process. Dakar spoke a lot about how the curriculum is supposed to
be taught for application, critical thinking, and project-based learning and is shifting teaching from theoretical to practical, and because of this, research is needed:

Working with Field of Hope is trying to seem to make teaching simple just as the way I say it. It emphasizes teaching for application, critical thinking, and project-based learning. So, it has made teaching very simple then the next one is that it has made teaching meaningful, teaching is now meaningful. Then it is encouraging research. We need a lot of research to be done because in the past teachers only teach theoretical when you are talking about grafting you just say when you are going for grafting you cut this one you do so, you just know its theoretical but now you as a teacher need to do if first practically before you go and teach it for the learners so you need to carry a lot of research it has also encouraged research.

Kofi also encouraged research, but in the area of student adoption and attitudes toward the curriculum. Because S1 and S2 are compulsory and S3 and S4 are optional, he suggested doing research to study their responses to the curriculum:

So you can begin to study their response because sometimes the way the subject is presented to them and the content of the subject itself especially the way the subject is presented to them can make the majority not carry on with the subject. But usually, the majority they continue with the subject to senior three and senior four so meaning they liked.

Similarity to Ugandan Curriculum

When participants were asked what their students thought of the curriculum, they mentioned that their students really like learning when they used the curriculum. They explained that their students felt the curriculum was very similar to the Ugandan curriculum the
participants previously used. Dowda said, “Since it’s similar to your Ugandan curriculum, they get adopted very fast to it.” Dowda explained that his students felt comfortable using the curriculum because they could pass exams using this curriculum:

Especially when they pass national exams using the same curriculum. So they feel comfortable in such a way that, yeah, they are not surprised. After all day you are using the foreign curriculum while combined with the Ugandan curriculum. So help them to get the knowledge and they wrote the exams. Then they pass.

Research Objective 3: Determine the barriers that prevent teachers from adopting the curriculum.

Theme 3: Barriers

While Field of Hope provided the participants and their agriculture programs a rejuvenated sense of inspiring students for agriculture and a replenished wealth of knowledge to add to their skillset as teachers, there were still barriers that participants faced that hindered their complete and full adoption of the curriculum. Most of the barriers presented in this theme were out of the control of the participants but were barriers none the less.

The Ugandan syllabus directs teachers to teach agriculture three times a week in their timetable (Ministry of Education and Sports, 2008). Therefore, because the curriculum given to the teachers by Field of Hope was cross-walked with the Ugandan syllabus, it also includes three agriculture lessons a week. However, a few participants stated that they faced difficulty completing all three lessons in one week because the timetable at their school only allowed for two agriculture lessons a week. Kofi explained the challenge at his school:

The only challenge is the most of these secondary school in their timetable, in a week you'll find agriculture or another subject, most subjects is entered twice. But, according to
the planning of that curriculum, it is in such a way that it is three times a week, you're supposed to enter three times a week, so there's always that gap, you may not finish in time . . . It's supposed to be taught three times according to that curriculum for you to finish a term you must have entered in a week three times. But in the timetable and usually we teach twice a week, teach agriculture twice a week.

With this being said, scheduling of timetables can create barriers for teachers to complete the coursework for the students in a given amount of time.

The student-to-teacher ratio created a barrier due to the lack of space, time, and appropriate resources needed for the number of students housed in S1. One participant in particular faced challenges managing the classroom and using specific techniques such as project-based learning because of the amount of time used to “move around.” Kofi explained how many students were in his S1 class:

I used to have around 96 students at senior one . . . That one needed to two classrooms. If they were in two classes then handling them would be easier . . . If you leave them at large to form their own group at time it may be challenging. Because it may take a lot of time and you will not finish what you have designed. So at times maybe you usually what I do is I have the group which is specified now, each time there is some discussion and I now make them to be in their former group, the group which is already formed just to keep time and at times when you ask them to have their own group you will find there is a section of girls alone or boys also but you have to mix them up so they have to share the experience. . . . When it comes to taking them out and moving around there are others that which may not all comply because their population is big and controlling them becomes quite difficult.
While Uganda has a diverse agriculture industry, there are certain crops that are grown regionally in the country, such as coffee. The participants reported the need for more locally relevant examples in the curriculum to teach their students. When asked what kind of additional training, if any, was desired, Rauf described his desire to learn more about crops locally relevant to the region in which he teaches in Uganda:

Some of the crops that they'll put in the curriculum, which may not be in our region, how to grow them . . . Like if they can do that in a training . . . Like uh, we have never grown apples in our country here . . . They grow coffee in Uganda, just maybe not in this region. While discussing barriers to curriculum adoption, the use of local examples was also mentioned by Dowda:

The local examples are not there . . . if you want to study, um, how a particular crop is raised, um, it may be a little bit different from how our site here, for example, the gestation period a crop spends in the garden. Um, here, since I told you we are practicing organic farming, uh, it may be our crops may delay in the garden, but yours in the U.S. I don't know because I've not had gone to U.S.

Dowda also mentioned specific areas that he would like to see included in the curriculum that would be beneficial to helping him adopt the curriculum and fully implement practical examples with his students:

We have not yet grown watermelon here, but I hoped this year to first grow watermelon . . . I wanted to see how you people raise dairy animals, dairy farming . . . Because the learners would love to take milk. We don't want to buy milk we want to raise our dairy animals from here.
Lack of Resources

The majority of the S1 curriculum contains practical lessons learning how to grow plants in a garden setting. Without ample resources, learning how to grow plants practically can be difficult and create barriers to fully adopting the curriculum. All eight participants expressed the need for additional resources and materials to fully implement the curriculum and incorporate critical thinking and project-based learning into their classrooms. Dakar explained the consequences of teaching without any resources:

The only challenge we have is that in Uganda, or in some schools in Uganda we lack some of the apparatus for practicals and it make most of the teachers now to teach agriculture what? Theoretically which it doesn’t become meaningful. But agriculture needed to be taught what? Practical.

Three participants from two different schools reported having no school garden available to them to complete the practical lessons (see Table 5). Access to land was deemed a barrier to curriculum adoption. Kofi expressed his school’s biggest barrier to adopting the curriculum:

Yeah one is the school garden which is not there . . . So we have not yet opened a serious project within the school except that they just had some small vegetables grown within the school during the course of the term.

Dakar agreed and described the barrier of land:

No we are not yet having. Last time we talked to head teacher to at least give us some funds so that we can use the students so that we can demonstrate to them so that they can, they have to manage, at least some farm, maybe poultry or even some vegetables . . . So we have already given that one to the table of the head teacher, we are now waiting for his reply.
Tools and Equipment

While six of the eight schools reported having a garden (see Table 5), they reported lacking the necessary tools or equipment to work effectively in the garden. The lack of resources to work in the garden was affecting their agriculture program’s ability to properly conduct the practicals included in the curriculum. Fred reported the needs at his school: “Tools, garden tools, or farm tools. Workshop tools. Animal handling equipment and then some gears like gum boots, hand gloves, hoes, because when you’re in the field, those ones are needed.” Isha also described his school’s lack of resources:

We have a few resources to use. Because you see it may be there is need to carry out some demonstration which may need watering and there may be limited watering can and then some other tools to use in the garden or the field.

Kofi agreed and explained the lack of resources available in trying to use the curriculum:

Senior 1 curriculum where you majorly handle the introduction and then the soil and mostly those garden tools and some of the laboratory equipment’s which are missing, but the list is long so that you cannot acquire them at once. Because we have very many of them for different purposes . . . But we usually use the limited resources, which is there, but is challenging because at times you may need to use an apparatus so the group may not when it is not there.

Big or small, for demonstration or production, equipment is necessary to run any kind of agricultural operation. During the dry season, growing plants is very difficult due to water shortages. Three participants run agriculture programs that have drip gardens provided by a Field of Hope grant allowing them to grow plants during the dry season, but the remaining schools face a challenge when dry season comes. Kofi, who had 96 students in S1, explained the
Fred shared that land was about the only resource they have: “As teachers we try to improvise or be creative enough, but the actual physical resources are not many except land, land we have.”

Participants were asked if they felt they could teach the curriculum effectively with the current resources they have. Dakar shared his feelings on the subject:

With the resources we have now it is not yet effective, but we can do some unknowns but not to the expectation . . . if you are teaching about irrigation we cannot afford those things of the what? The irrigation. So which means at one point we may not teach to the expectation.

Dakar mentioned environmental factors that were lacking as well:

But we are having a shortage of equipments, we are having shortage of land where we can open the farm, also the problem is the climate. The climate is sometimes unfavorable. Like this time around it may rain for only month and get lost like that. So it is making operating crop production very difficult.

Participants were asked what other resources they would need in order to teach the curriculum, and the lack of textbooks was brought to the researcher’s attention. Dakar expressed his concern for textbooks in the entire country of Uganda:
So basically, we having a lot of challenges even in the textbooks. The textbooks for agriculture, it is very bare, and it is very hard for you to get one here in Uganda. So the textbooks are very limited and if you go to a school you may end up getting nothing. Like in the school where I am, we are only having what? Only one . . . which is not enough and it doesn’t give the time for you to do a lot of research, which means you as a teacher, you need to push, you need to push your learner so that you can buy if you want your student to get one to get much from it.

**Additional Training Needed**

During interviews it was apparent that participants were very appreciative of Field of Hope and loved having a partner who provided for some of their needs, empowered them, and followed up for check-ins by visiting the schools. It quickly became clear that teachers desired to be trained further on a multitude of subjects to better themselves and better their students to become practical agriculturists. Teachers seemed to be infatuated with the practical nature of the curriculum but wanted to sharpen their knowledge on certain subjects so that they could understand and deliver the curriculum to the best of their abilities.

The main two areas of additional training desired from participants was in the form of crop production and animal rearing. Dowda mentioned he wanted to learn to plant watermelon, and Grace explicitly shared what areas of crop production she would like to know more about and how she would use this knowledge: “We are preparing to start the greenhouse. I want to know more about raising some of the vegetables, like cauliflower how to raise those vegetables and how to make, let me say soil mixer.” Isha also would like to be trained further in this area: “Majorly in the field of crop production.” “A lot of fieldwork” is the area Fred wishes to be trained in. Agricultural mechanization was also a subject that teachers were longing to know
more about, and Tuno expressed his desire in this area: “The students are interested. They want to learn in our curriculum really is also part of mechanization. Agricultural mechanization. Yeah. So, if more training can be done on crop production, and mechanization.” Dowda would also like to learn about “agricultural mechanization.”

While S1 is mainly about the growing of plants, the S2 curriculum is mostly about rearing animals. When asked what additional training, if any, teachers needed to teach the curriculum, Dowda responded in this way: “In areas of animal rearing or animal production . . . Because they learners would love to take milk. We don't want to buy milk from we to raise our dairy animals from here.” Isha agreed that “animal keeping” would be the training he needed most.

Some teachers desired to be trained further on using the curriculum. Because the curriculum is built around project-based learning and critical thinking, these were also areas in which teachers desired to understand more. Grace wholly agreed by saying: “I want to know, let me say how to use the curriculum more. I want to learn deep.” Fred agreed and shared his desire to learn about teaching methods:

So the area which I had more help is about the teaching methods. So, I realized the teaching method should always be practical, scientific, practical for the learning to be more to the learners even to you as a teacher.

Teachers recognized that they hoped to see the curriculum being spread throughout the country, expressed their excitement to have teachers from different parts of the country, and offered ideas of how to conduct multiple trainings: “If we can organize regional training that will be okay. Because there are some people maybe who are from afar that maybe if you organize
maybe for the eastern and northern like exact. It can also be okay” said Rauf. Fred mentioned that Uganda had resources from which teachers could learn:

If some exposure trip may be organized . . . We have some farms that have already been established . . . by individuals or maybe established by organizations and so on or even the one which is established by the government. How I wish we have opportunity to reach those places and see.

Support from School

In Uganda, government-funded schools have free admission and private schools require tuition fees, however, all “higher-standard” schools in east Africa are boarding schools that require students to move away from home and pay fees for not only their tuition, but also their room and board. Students must also buy uniforms, supplies for school, toiletry items or other items to use in their dormitory, etc. These fees and expenses do not allow students to go to school for “free.” Private schools are sometimes tied to a religious organization such as a local church, as was one school at which the researcher toured and met with teachers. Kofi explained the support received from the private school that employs him: “My school is private, and it is challenging because they don't have support from elsewhere.” However, some private schools that employ a few of the participants are children’s homes that house orphans. Most of the children in these homes are orphans, and their fees and tuition are sponsored by donors. Some students’ parents are still living, so depending on the situation of those students, fees and/or tuition are collected. The money that is collected for student’s tuition at any school is typically used to pay teacher salaries.

The eight teachers in this study said they received support from their schools regarding use of the curriculum in the classroom, but five participants reported that they did not receive
support from the school in the form of land, materials, or supplies needed to complete lessons in the curriculum. Fred described the support from his school: “I have seen the director of studies coming behind me to support me in a number of ways.” However, Fred also felt he needed additional support in other areas by saying that his school “fails to provide what I needed for the lesson or for the curriculum.” Kofi felt his school lacked financial support from administration for teaching materials: “We are not yet getting good support from the school administration. That is also another barrier.” Fred said: “Being the first time I’m introducing the curriculum, they’re not seriously in support, but I hope with time.”

Some schools were able to support their agriculture programs when they had the necessary means to do so, but it could take a while to actually grant the teacher money for a project. Rauf explained the support received from his school: “When we need the practical materials at times, we request and if the resources are there, they give, it's not there. It just explains it to be done in a later time.” Dakar also described that he has requested resources for a garden: “So we have already given that one to the table of the head teacher, we are now waiting for his reply.”

It took a little prodding by the teachers using the curriculum to get school leadership to understand that the curriculum provided by Field of Hope matched the Ugandan syllabus and was going to keep students and teachers on track with the learning objectives. Rauf explained how he convinced his school leadership to allow him to use the curriculum provided by Field of Hope: “They thought it was something separate, but now when it’s explained. It is, it is incorporated in the syllabus of Uganda and then . . . I brought the curriculum and tried to go with the syllabus and compare to it.” Field of Hope encouraged teachers to connect the relevancy to
the school leadership. Dakar said, “They went up to the head teacher and they talked to him. They introduced me and Field of Hope, so he knows that we are implementing it.”

While most teachers who were interviewed reported the lack of school support, there were a few who shared their positive experiences about the support their school gives. Tuno expressed the support that he receives from his school: “If there is any need for anything, you make requests to the head teacher. It is always given granted . . . they are very supportive.”

Grace, who teaches at a children’s home, also reported having positive experiences regarding support of the school leadership:

“They love when students are going for practicals or PBL or when they are working in the school garden they encourage, the buy the produce that is the student always produced and it's made it, the students make me to know that, that they are encouraging the curriculum that we have to push on with it.”

While Tuno stated that his school is “very supportive because they want students to learn,” as a whole, the schools were deemed unable to provide for materials needed to effectively incorporate the Field of Hope curriculum. The lack of funds that schools have to share with subjects that require more materials than chalk for the blackboard are sparse. Therefore, in unison, agriculture teachers expressed that their administrations were having a hard time financially supporting their programs.

Support from Outside Agencies

One of the three pillars of the Framework for Curriculum Implementation in Developing Countries is support from outside agencies. This pillar determines what, if any, support the school implementing the curriculum is receiving from outside sources other than the funding source, the school, or the main source of support (Rogan & Grayson, 2003). The support can
come in the form of material and non-material support. Participants were asked if they received support from any other NGOs or private donors to assess the support from outside agencies. Six of the participants reported that they do not receive support from any other agency besides Field of Hope. When asked if their schools received any funds from donors Dakar responded “Not yet,” and Rauf said “We have not yet received.”

Two participants reported that their school receives support from NGOs for their school. Dakar described the support his school receives from Plan Uganda:

Yeah, we are receiving some donors. There's some people who are bringing in computers. They are called Plan Uganda. Yeah, they are bringing some computers and I think it is going to help . . . they're bringing in the solar.

Fred also taught at a school that is supported by an outside agency. His headmaster gave the researchers a tour of the school and explained their relationship with Notre Dame University. The school has received enough solar panels to provide the entire campus with electricity and Wi-Fi. So much electricity, in fact, that they are only using about one half of the electrical supply.

Out of the six schools that only received support from Field of Hope, two are children’s homes. These schools were NGOs and received support from their donors. While these schools did not fully rely on Field of Hope for support, they did not have any other supporting agencies.

Overall, four schools fully relied on Field of Hope for material and non-material support. The participants from these schools were very appreciative of their partnership and what they had received from Field of Hope and looked forward to the continuance of the opportunity to partner with Field of Hope.
Research Objective 4: Determine the teachers’ perceptions of the curriculum to meet the needs of their students.

Theme 4: Curriculum Meets Student Needs

While students were not the participants or the main audience of this study, the perceptions of the participants about the curriculum meeting their students’ needs was the fourth objective that directed this study. This objective allowed the research team to better understand teachers lived experiences using the curriculum and reasons for rejection or adoption of the curriculum. All of the eight participants reported that the curriculum met the needs of their students. When asked what the needs of their students were, they responded with inclusivity of all learners, application to the learning, interaction with other students, increased teacher awareness of student needs, and that students feel comfortable.

Inclusivity of all learning types is easier to accomplish when students are interactive and engaged in a lesson through practical application instead of theoretical application. Kofi agreed by saying: “Students that learn on different levels can all learn together from this curriculum.” He also explained his perceptions of the curriculum and how the practical nature benefits all types of students he teaches:

The curriculum is designed in such a way that it is able to meet the need of the students. I can say of all students because it cater for all the their domains . . . Where by someone is able you can teach the mind of the student and where practical is involved the student is able to handle some of the things. In that case they will be learning.

Dakar agreed and said: “It meets the needs of my student basically because it is more of what? Application.”
Interaction with other students, engagement, and communal learning were all terms derived from the participants shared experiences about how the curriculum meets the needs of their students. The teachers loved to interact with their students and see their students learning actively together throughout a unit. Grace agreed: “Their curriculum to make a student to keep it student active in the class.” Tuno shared his desire to interact with students and recognized that when students are active they are learning: “It meets the needs of students because first of all, it has some bit of interactive part of it that makes me interact with each and every learner in my class.” Furthermore, teachers found they were increasingly aware of students’ needs when using the interactive and practical approaches to teaching brought forward in the new curriculum: “You can easily identify and even sometimes maybe if you bring a test about what you have covered, you'll find their getting it correct” said Rauf.

Students felt comfortable with the curriculum because they knew it was giving them knowledge to be successful when they left the school: “Well, when I leave with [School], and when the children leave [School], they feel comfortable because they, the curriculum I was already instilled in knowledge in them. They have the knowledge” Tuno shared.

Overall, according to the participants, the curriculum was meeting the students’ needs because of the level of subject knowledge students were attaining. Grace shared what her students were becoming because of the curriculum: “It's going to, it's going to make the student understand more and it’s going to make the student like sharp in the class.” According to Grace, exams were going to be easier because of the curriculum: “Even if even if, let me say you are brought to the exam, that child can easily remember.”
Increased Enthusiasm

All eight participants excitedly shared that when they teach using the curriculum provided by Field of Hope their students are no longer bored in class and that interest in the subject at hand has shifted from being low to now very high. Historically, according to teachers, when they used theoretical teacher-centered methods, they lectured, and students would not engage or show interest in the subject. Kofi explained his students’ behavior before he changed his teaching methods to engage learners in the learning process:

You see at times they are bored in the class and where you just go and just begin to give them the knowledge without their participation, you find even when others are just doing another thing or just dozing in the class.

However, when teachers shifted their teaching methods to apply what they learned in the professional development trainings, students changed too. Fred explained how that happened: “Yeah, I see them, like I said, taking part in the learning process, but before they used to be reluctant somehow. But when I change strategies or methods, I see them coming on board.”

According to Rauf, students loved to be busy, active, guided through activities, and stimulated to keep far away from boredom: “They think it is better. It’s not boring.” Kofi shared that his students love to move around. “They like when there is especially a practical or something that requires them to move out, you find when they're excited seeing things around the environment.” The curriculum was found to “keep student active in the class,” according to Grace. When asked what she thought students felt about the curriculum, Grace said, “They have loved it, that it keeps them busy. Let me say not bored in the class.” Students loved to be guided through an activity and moved around to complete their lesson according to Rauf: “It makes the students to be a bit busy and at times it does instruct them and give them the materials they need
that it's done.” Not only did students like the changing of environment as they moved around, but participants saw students paying more attention to the lesson at hand according to Dakar: “Students are very attentive, and they are very active at the same time.”

An increased interest in their agriculture courses was reported from teachers who recognized students were no longer bored in class. From asking questions in class to willingly wanting to work in the garden during their free time, participants expressed an increased interest in learning about agriculture in their classes when their teachers started using the new curriculum. Grace shared an anecdote of a community project and shared her student’s interest:

When I'm to say we are going to go to the community and we are going to see that project of, let me say poultry, that’s where they can be, when we read this way they can be yearning to know, read and to learn from that place. And it's made me to know that they, they have really coped.

According to Isha, students raised their hands and inquired about the topic to learn, which showed an increased interest in the subject:

Most of them participate during the learning . . . maybe it is an experiment. The learner can ask, how do you do this? And then you show the student on what to do and then the student becomes interested and then they learn how to do something.

Dowda agreed by stating, “I expect them to fire me questions. That means they are curious.” Not only asking questions but answering questions the teacher asked exemplified that they are engaged. Grace shared examples from her classroom: “They're contributing in the question that I've posed to them. It's made it a great day. And also, when they're not bored in their class, it's make it like a great day.” A few participants excitedly shared that their students would approach them during their free time and ask to learn or work in the garden. Tuno share this example:
I see the willingness in some few, few learners who do come to me and they want to learn more. Um, when I look at the support that they give when we are in the drip, during free time when people are for football and are doing other activities they come and will carry out field work with them in the drip garden. Good. Then some of them go monitoring how birds are feeding them some checking the beehives. So, I see they keep telling me that they're motivated to continue with agriculture, yeah.

Kofi experienced the same kind of excitement from his students when they requested to go to class because they enjoyed having practicals:

We always have schedules. Which have been drawn when it is time for practicals, they would know, and they would tell me. Sir we need, it is time for us to go for practical. If it is time for class, they were tell me we are ready for class work because there is a lot of participation that they do.

When asked how teachers could know if their students like the curriculum, participants explained that it is seen from observing the students’ expressions on their face. “You got to read from their faces” shared Dakar. By knowing they were engaged, Isha also knew that his students would perform well on tests:

It is very simple. You can see from their faces, when they are smiling and as maybe a coming at you hear them say, ah, today the lesson was interesting. So, you can easily identify and even sometimes maybe if you bring a test about what you have covered, you'll find their getting it correct.

Overall, participants felt that their students were happier when they started using the curriculum from Field of Hope. “They feel, they always feel happy when, when you teach them
with something and then they do it with their hand,” said Grace. Kofi shared how his students felt about school now: “The students have learned to like studies.”

Careers

All eight participants identified that the curriculum was impacting their students regarding their future careers. Tuno said, “When I look at most of the students in my class, most of them are motivated to continue with agriculture.” The participants agreed that the curriculum created interest in students about careers as well made them of aware of the many career opportunities in agriculture. Fred said, “The curriculum, if handled well, can help to shape the learner for future career.” The career interest began at the beginning of each topic when the curriculum allowed time for the teacher to discuss career paths related to that topic. Tuno shared this example:

I could say that curriculum is the best because in each and every other topics when you are introducing it, you can even tell the students that in future time if you want to be an agronomists is if you want to be, it'd be omebody who will manage crop production and so forth. It spells how opportunities are for the future.

Not only does the curriculum allow students to become more aware of careers, but the curriculum prepares students. Fred said, “It helps also to prepare them for future career opportunities.” Interviewees also shared that the curriculum equips students with certain skills to be self-employed if they cannot continue their education past S4. Kofi explained it this way:

But for others who may not have the opportunity to proceed with their studies. They will have learned to involve themselves, in doing, they will have learned to practice agriculture, so in case they fail to get the job, they can be self-employed in any venture.
Practical Hands-on Skills for a Job

The practicality of the curriculum resounded once again, and it quickly became apparent that the hands-on nature of the lessons allowed students to become proficient in skills they could use for the rest of their lives and even make money using. Teachers recognized their students were acquiring the skills through the practical demonstrations students performed in the garden or when caring for animals. Isha shared this example:

In the preparation of them for their careers as I’ve said in the process of training them on how to do things. They can learn how to handle things with their hands and as they do that, with time in future they can be in to do it without problems.

This excited the teachers and furthered the teachers’ desire to groom their students for their futures. “They feel like it does groom them for their future. Yeah, even skills. Critical thinking through writing and their project and of course demonstrating in the garden,” explained Dowda. Dakar gave a concrete example of what students learned in the class and how it could be translated into a career after school: “If you teach a student how to graft they can work at an agricultural research station where they can come up with new varieties so the curriculum is having that one. In fact, the curriculum is relevant, very relevant.”

The idea of self-employment was mentioned a few times, but Dowda even raised the idea that if students could not pay for school fees past O-Level, which is S4, they could use their practical agricultural skills to grow crops. He said:

For example, if tomorrow they are going to institutions, nobody's to pay for them fees, they can grow up a cabbage crop in three months’ time. They are to harvest, they sell it off, they raise money to go to institution.
Or after leaving S4, they can just begin to farm to put their skills to work because the curriculum has prepared them for that. Dowda said, “Even some after leaving the level, the go and now, make it a business. It just makes it their business. That is after school.”

*Students Interested in Agriculture Careers*

Again, the practical nature of the curriculum draws students’ interest into learning about this particular subject. Teachers were in agreement that not only was the curriculum introducing agriculture careers, but students were interested in agriculture careers today because of the curriculum. According to Isha, “most of them they have that interest.” Teachers reported countless examples of students repeating the hands-on activities performed as a part of the class, which shaped the student’s interest in the agriculture careers related to the hands-on skills learned. Kofi shared why his students were interested in careers relating to agriculture:

> There are others who have become use to some of those activities because see when they handle certain things practically. It remains in their mind and they try to understand it for life. So meaning after school they will have developed interest in handling those things.

Rauf agreed and shared how the curriculum shaped his students’ interests in agriculture careers:

> “It's just like teaching animal husbandry. Many of them are willing to do it, start rearing animals and when you teach crops so many of them are willing to go and do that thing.”

Participants recognized their students’ aspirations for a career in agriculture. Fred said, “They are becoming ambitious. Their ambition is to become at least one a potential, uh, agricultural business person in future.” Some of the participants’ students have expressed their desires for a career in agriculture such as Isha shared: “Some of them say, I want to be somebody with a big farm and when the time comes, can produce on large scale and then maybe sell for
money.” Grace shared an anecdote from her student and his inquiry about joining the industry of agriculture and how happy this has made her:

Some child [Student], he went to [Field of Hope Trainer] and [Field Of Hope Trainer] and said, what can I do to become agriculturists is what can they do and it's made me to know that he has picked the courage of doing agriculture as the career in the future. And it's made me to know that the, the aiming there was that him being to do agriculture as their future jobs there. Aiming. What does that mean? It's mean that they are willing to take agriculture as the future job.”

Overall, students “look at agriculture as a career,” according to Dowda. Participants of this study “prepare them for when they graduate” explained Rauf. “Because now if we learn about crop production and we do it practically later on, they go out on their own and also make their own garden if it’s keeping animals they also do it from what they’ve learned.”

Curriculum Helps Identify Careers

Participants reported that their students were exposed to careers, were excited about careers, and were also able to identify careers when they teach using the curriculum. Isha shared his thoughts about his students identifying careers: “It will build and then make, make even some of them identify their careers because some of them may not know they, they have the capacity of doing something.” Dakar agreed and shared the specific careers his students were interested in: “The students, who want to go are going for studying agriculture, there are those going and who want to be instructors.”

Dakar also reported that his school advises their students about careers and specifically careers in agriculture:
Those who have opted now to go in the line of agriculture only one opportunity, now we
now handle them and we show them all the opportunities which can come from the
department in this line of agriculture, so that is how we do it when we are doing career
guidance and counsel . . . we make them to know of the opportunities which comes in the
field which they have chosen.

**Addition of Agricultural Clubs**

The engagement of students in activities outside of formal school curriculum could
positively contribute to future endeavors such as career choices (Massoni, 2011). All eight
participants agreed that the addition of agricultural clubs to their schools’ agricultural education
program would complement the learning in the classroom very well. Students would benefit
greatly by learning responsibility, being exposed to agriculture careers, shifting their mindset
from the negatives of agricultural life to a positive mindset, creating awareness for the
importance of agriculture, and aid them in the direction of their future beyond high school. Isha
shared that he thinks a club would increase interest in agriculture: “It’ll make the students
interested in agriculture generally as a subject.” Grace expressed that through a club students
would come to know agriculture better: “It's going to make them to start knowing agriculture and
to start having that, that agriculture is important.”

Career exposure was a common thread between participants when asked about the
benefits of agricultural clubs. Participants shared views that a club would help spark students’
interest of agriculture further. Isha said, “It’ll also build their careers on agricultural activities.”
Fred believed that students would develop entrepreneurial spirits from engaging in an
agricultural club:
Agriculture can prepare them to become very successful entrepreneurs because when given the field of crops to manage, there'll be subjected to managing it from that initial stage to the last stage where it may also involve looking for market for the products and so they'll be exposed.

Grace’s students currently have their own personal plots of vegetables, which are sold to the teachers and the community and the students keep the money. She explained how a club could assist in the learning efforts of projects such as these:

It's good to make them also to earn some money because in their club they can also be having that are garden that they can start like growing banana, and then after they sell it, then they can have some money in their accounts that can help them in everything that they want to do.

Participants expressed that the addition of an agricultural club would increase students’ awareness of the importance of agriculture in their lives and the lives of all Ugandans. Dakar said, “So we tell them we get that club its okay we create awareness. Awareness to what is the importance of agriculture.” Dowda shared how he aspired to change the mindset of students through an agricultural club:

Um, well I want to draw that negative setting of students. They might know somebody who is practicing agriculture and think, oh well, um, he's wasting his time. But we want to start it. Agriculture in the new setting, that, if you want it to survive on your own, please practice agriculture after school. You can practice on survive on your own because most of these learners here, they are orphans. So I want to bring that up.

Dakar also expressed a desire to connect with the community to spread awareness of the importance of agriculture using agricultural communication techniques. He mentioned the
benefits the community could contribute to the agricultural club and how the club could contribute to the community:

So if we open it you know the community is going to benefit because we are going to train. We can get some resource persons so that they can come they can talk to our students. So even our students also they go to the community also, go to the radio stations talk a bit pick a crop, today we talk about millet and tell the community about agronomic practices which is involving planting millet.

Unity was a word that participants used to describe why the addition of an agricultural club would benefit students. Unity could benefit club members well beyond their high schools. Isha shared why unity was important and how agriculture clubs could bring it: “Then also being something which makes most of them united that will make them have that unity for always doing things together.” Tuno even mentioned benefits of the club in relation to the alumni that such a club could create and the benefits the alumni would bring to current members because of the unity created in the club:

First of all, it would make them come up, come as a group, it would be a little easier for them to get support from willing bodies because at the end of the day they may, they may complete the S4, the advanced level of study. Um, they may not have all the capacity, they may get financial constraints that limit them from continuing with that study. But if their in group in the club, the club may come in to help or to give support to those kind of student, that would be having those kinds of limitations.

Dowda brought up the idea that a club could help the agriculture program fundraise and the benefits that would bring. He said, “I would name it [the club] Agriculture Learner Center Club.” He shared his ideas for fundraising:
Um, well, uh, probably if I started the club at this term, by middle of the year we'll have benefited at least because the club we love to request for a land. Then we grow our crops. Then you sell into this orphanage, then raise our money.

Overall, the idea of an agricultural club, according to Tuno, is “very important for a school to have, for us to have a club for agriculture, it will be very important.” Teachers were in favor of having a formal way to organize students and direct them toward future opportunities. Unity was important to the teachers, and they expressed that a club would bring all their students together and unite them together throughout their journey of learning agriculture.

Students Develop Soft Skills

Participants expressed that different aspects of the practical learning methods and project-based learning methods allowed their students to build soft skills. The skills included teamwork, responsibility, communication, “speaking skills, cooperation, spirit of hard work, and confidence,” according to Dakar. The group work that was built into the curriculum has allowed Dakar’s students to create roles that have expectations each team member must meet. Students also present in front of the class, which gives them confidence to speak in front of their peers:

I put them I say in a group of maybe ten, I say you have objectives and a chairperson and you'll be a secretary. So they go and discuss each group, and they go and get what? Their findings. Now when we come to class, we want each group to what? To present before the what? The class. So they will now come the group. And the groups they have names. Maybe elephant, lion like that.

Learning how to set goals and striving to achieve them was another area of soft skills that students learned about when using the curriculum. Grace’s students had personal plots of
vegetables they grew, and this allowed them to sell vegetables and keep the money in their account to buy things they wanted or needed. She shared how completing the practicals in the curriculum has allowed her students to learn about goals: “As this, as I say that the curriculum, which has some of the activity and like practical, it's made them to, to shoot at, their goal.”

**Theme 5: Survival**

For the majority of Ugandans, surviving was not a noun, but a verb. Survival was a daily array of tasks that must be completed to ensure potable drinking water, food, health, and safety. In order to survive, students must learn basic tasks such as raising vegetables or crops and rearing animals in order to repeat these skills and one day to provide for themselves. Grace agreed by saying “Agriculture is the basis for survival.”

From the interviews, participants overwhelming agreed that students need to know how to survive on their own and that through the curriculum, students were learning how to do just that. Grace agreed that young people should know agriculture: “Today they have to know more agriculture because agriculture is a backbone of, let me say the whole world, all depend on agriculture and I like the young people to know how to do agriculture.” When asked about the practicality of the curriculum provided by Field of Hope, Dakar explained what students were learning: “You plant your vegetables, you rear your poultry. You know what is supposed to be done on that. So it can be a basis for survival.” Grace believed students would not fail with this curriculum: “Not going to fail in life because with agriculture you can't, you can open a land.” Dowda pleads with his students, who are orphans, “if you want to survive on your own, please practice agriculture after school” because he has seen the need for survival in his students. He also shared his approval of the new curriculum that is helping his students survive:
Since I told you it is a practical oriented and through demonstration, it helps them in such a way that when they are out of [School], out of secondary, somebody can raise a particular crop and manage it. After managing, harvests, then gets money that will make him or her to survive on their own.

At the professional development training, teachers were exposed to surprising statistics that signified the drastic differences in agriculture in the United States versus Uganda. This difference left them with a sense of responsibility for their students’ futures. Grace said, “It's made me to know that we have to teach to students to remember things for the rest of their life, not just teaching to pass the exam.”

Curriculum Changes Lives

Continuing the theme of survival, participants felt strongly enough about the curriculum to share that they think the new curriculum provided by Field of Hope can actually change their students’ lives. Teachers felt that the curriculum could bring a sense of hope to their students because they will now know how to take care of their families to fight the troubles that the cycle of poverty can bring to many who live in developing countries. Through the curriculum, teachers felt that students learned so many life lessons that were practical and applicable to them. They felt that they had to take professional development trainings seriously because they felt a burden to teach their students how to survive the rest of their lives. When asked about his experience at the professional development training, Isha mentioned his seriousness about learning at the training in order to help him bring the best information to his students: “The training was nice . . . we got to understand very many things . . . If it is taught well . . . it can change life.” Dakar shared what kind of citizens Uganda needs: “We need more productive citizens.” Dakar believes the new curriculum was producing good citizens who will contribute to their society:
They can grow their own food and even get some what? Some money when they sell the products. That one is a good citizen which is needed, that one is a good citizen . . . It will make them not to be idle. They will not be idle, at least they will have something to do.

Backbone of Uganda: Agriculture

The Ugandan economy would not survive without agriculture and neither would the citizens of Uganda. When reflecting upon his professional development training experience, Isha recounted what he learned: “In that training we understood that in Uganda they call it the backbone of the country.” Grace recognized the importance of agriculture globally: “Agriculture is a backbone of, let me say the whole world all depend on agriculture.” She shared that her passion for teaching ties directly to the impact agriculture has globally: “That's why I've love to be a teacher for agriculture and also I love to do practical with them to make them to know agriculture deep.”

When asked what the connection between the curriculum and students is, Dowda described the practical nature of agriculture in Uganda and how that affects Ugandans even if they did not go to school: “For us, we say agriculture is the backbone. So, every home has to practice agriculture. Whether you went to school or not, you have to practice agriculture.” When asked if he thought students at children’s homes who are orphans understand the seriousness and inherent need for agriculture because they do not necessarily live in the rural area and are provided for, he explained that agriculture skills are needed no matter where you came from and where you are going: “Even after here, they go back to that rural setting and then they practice agriculture. As I’ve demonstrated it to them, how to raise a crop, they go back to the villages and they demonstrate agriculture on their own.”
Theme 7: *Shift from Negative to Positive Perceptions of Agriculture*

Participants reported that the curriculum was beginning to shift the mindset about agriculture from negative linkages connected to the industry toward positive aspirations of the industry. Participants mentioned “the old way” of agriculture and how that was slowly changing using the new curriculum. Dakar mentioned what the “old way” was: “When a student do wrong thing, they always direct them for agriculture so they build in their mind agriculture is used for punishment.” Lessons use to be theoretically based, filled with lectures while students sat solitary in their desks listening and writing. Participants mentioned that students previously knew agriculture as a means for punishment. Now, students change environments and move around to visit the places that they are learning about whether that be in the garden, with the animals, or in the community. The teachers attributed the curriculum to changing the mindsets of the students because it contained critical thinking and project-based learning components that required the students to have built-in days for practical.

Participants mentioned the mindset of students was changing from punishment and transitioning toward agriculture as a means for making money. Fred gave this explanation:

It is also helping the learners to have a better mindset. What do I mean here? Most young people know that agriculture, or, practicing farming is a form of punishment, but with this curriculum they are coming to understand that agriculture, agricultural undertaking is not a punishment as such, but it is what can be done to earn a living. So they are now having attitudinal change.

Fred also attributed the curriculum to helping make his students better citizens: “From thinking that agriculture is a punishment to agriculture making them become better, responsible citizens.”
Participants reported teachers in their schools using agriculture as a means for punishing students. Tuno shared this example:

In some other schools like when student approaches classes late the ask to then to go and dig holes and they are taken to the garden, to clear the bush, um, it makes them to look at agriculture as a way, you look at agriculture as a punishment.

According to Dakar, because of this happening in the schools, it could be hard to get students excited about agriculture: “That one is also one of the major problems that makes it hard for the students to come into your classroom. Yes it makes it very hard to implement.”

Teachers explained that they learned in the professional development training the importance of agriculture and that it should not be looked at negatively. Tuno said, “We were also able to see that agriculture should not be used as a means of punishing students.” Isha agreed and shared similar thoughts: “We learned the importance of this subject agriculture, which most people think about it negatively.”

When you teach a child that something is bad, they will always connect that particular thing to negative thoughts. Kofi explained that the curriculum allowed his students to view agriculture differently and how important it was for teachers to remind students when doing activities in the garden that what they are doing is good:

It helps students to learn that it is not a punishment when you are doing some practical things especially garden work, unlike you see at times. The problem is previously it is not all that very good to give a punishment say you give agriculture work as a punishment they will develop with the mind that when you give someone a punishment the person is not up for doing the work, so they grow up when their hating the activities themselves because at one moment they were punished with that, so it is always better not to give a
punishment of that kind. So when you are trying to involve them in the activities, you try to tell them and that it is something good to do that.

Dakar explained the nature of agriculture at his school: “Most of the teachers use agriculture as a punishment.” However, he recognized the need for the change in mindset and was determined to bring about this change in his fellow teachers and school leadership in order to make this new mindset effective. “But the teachers and even school admin need to be made aware that agriculture in not punishment they should get another thing for using as punishment for that thing is very common.”

Dakar was sure that when his school administration became aware of what the students were accomplishing, their mindset would change: “When we teach them the benefits they know that agriculture is not a punishment because we begin practicing it from home and then at school also. We practice it.

Overall, students’ mindsets were changing to become more positive about agriculture. According to Isha, “they see it not as they have been knowing it. Maybe it is just about handling the hoe and I'm going to the garden. They see it as being something that can be used to bring money also.” Not only were students’ mindsets changing, but teachers were encouraged to help change the mindsets of their students. Dowda said, “So I want to bring that up, bring more students that have negative mindsets of agriculture to be positive now.”

**Findings as Related to the Study’s Research Objectives**

The themes derived from participants’ interviews aided in achieving the study’s main research objectives. The seven themes together capture the interpreted experiences and meaning the participants attributed to their experiences (Merriam, 2009) regarding curriculum
implementation and adoption of the agricultural education curriculum provided by the INGO Field of Hope (Merriam, 2009. The study’s findings related to the research objectives follow.

**Research Objective 1: Determine the influences impacting teacher adoption of agricultural education curriculum.**

Teachers loved to teach, but they also loved to learn. All the participants were attending the second professional development training at the time of interviews. Seven of the eight individuals specifically expressed their delight in and thankfulness toward the professional development trainings they received through their partnership with Field of Hope. The teachers loved being trained because they felt it had increased their capacity to teach effectively by making them aware of their strengths and weaknesses.

Because the curriculum was centered around critical thinking and project-based learning, teachers liked being able to interact with their students through the activities and practical experiences they provided to the students. The theme *shift from theoretical to practical application* was a large reason why teachers have adopted the curriculum. They were able to see their students excited to learn and the connection in the teacher-to-student relationship was positively affected by the curriculum.

Teachers chose to adopt the curriculum because they saw positive outcomes in their students. The subtheme *teacher-centered to learner-centered* displayed that teachers were pleased the students now felt as if they had more ownership of what they were learning. Fred described how the students were reacting to the learner-centered curriculum: “Because it is actually learner oriented or learner based. It seeks to involve the learners more in the learning process.” This positively affected the teachers because they had a reduction in their workload and students were acquiring new knowledge through the discovery method. Teachers felt as if
students’ needs were being met because understanding was much stronger for the students. Isha described this concept: “Students’ benefit such that the syllabus is covered faster as they do go research which is under the discovery method. You may find they have discovered something. Your work is just to supplement now.”

Survival was not something Ugandans just think about—it was a verb, and they were actively trying to achieve survival on a daily basis. Teachers in Uganda knew this was a mindset and a reality their students will face in the future if they are not already providers for themselves or loved ones. As Dowda said, “Agriculture is the backbone . . . every home has to practice agriculture. Whether you went to school or not, you have to practice agriculture.” Teachers wanted to be able to prepare their students with the valuable skills of growing crops and rearing animals to secure their spot in the future of Uganda. Teachers recognized the practicality of the curriculum in teaching students these valuable skills. Grace explained what her students were learning: “You plant your vegetables, you rear your poultry. You know what is supposed to be done on that. So it can be a basis for survival.” The teachers adopted the curriculum because their students were living proof that the skills were being learned and repeated in the villages over the holiday. Therefore, they believed the curriculum was changing lives and has the potential to change many more lives across Uganda. Teachers adopted and were committed to using the curriculum because, according to Tuno, “if any of my student drops out of school today, he or she can survive on their own by beginning to do certain things they have learned at their home in the village where they will be living.”
Research Objective 2: Determine the intrinsic and extrinsic motivations of using S1 through S4 agricultural education curriculum.

From participant interviews both intrinsic and extrinsic motivations of teachers were identified that led to understanding why teachers chose to use the agricultural education curriculum. While these motivations were connected, they were brought up enough by teachers in interviews to stand alone.

Regarding internal motivations, teachers experienced a significant reduction in their workload when using the new curriculum as well as increased levels of confidence and courage. Historically, teachers were provided a skeleton of a blueprint that gave them the objective and subject to be taught (see Figure 2). It lacked instructional support for teachers to understand how to teach topics and they, therefore, relied on the textbook. However, because the new curriculum was in the “ASK, SAY, DO” format, teachers were guided in what to ask their students, what to say to teach their students, and what to do with their students for activities. Appropriate student responses were even included, prompting the teacher to know if the student answered a question correctly. Teachers were afforded more time for other tasks and thus were intrinsically motivated to use the curriculum.

Confidence and courage were addressed by the participants as an intrinsic motivation. The participants felt as if they were easygoing in the classroom and felt an overall sense of ownership in the classroom because they now had materials to get them through a lesson as it guided them through each lecture, group activity, or practical. This assistance from the new curriculum allowed teachers to have an overall increased sense of confidence about their profession. Courage was addressed when speaking of their past. Most of the teachers had to overcome affliction to become a teacher and mentioned that the professional development helped
them understand how to be creative when they faced challenges. In turn, teachers shared that they now take time to speak to their students when they see their students struggling because they remember doing so as a student. This allowed courage to shine through in the findings.

The findings produced multiple subthemes pertaining to why teachers were extrinsically motivated to use the curriculum. It became apparent that there was an existing teacher network at the start of interviews because four of the participants were invited by Rauf to attend the training in June 2018 to receive the curriculum. At the January 2019 training, where the participants were interviewed, they shared that they met many new teachers who became their friends. This network of teachers enjoyed being able to come together at Field of Hope trainings because they were able to meet new colleagues with whom they could shares resources and communicate about the implementation and adoption of the new curriculum.

*Support from Field of Hope* in both material and non-material support was a major reason why teachers felt motivated extrinsically to use the curriculum. The material support was given in the form of curriculum books, and the non-material support was given in the form of teacher observations made by Field of Hope staff to give feedback and offer advice. This support provided by Field of Hope also increased teachers’ confidence in themselves as well as courage to face the difficulties of teaching agriculture because of negative perceptions, lack of resources, and lack of support, in some cases from school leadership.

The *inadequacies of the current curriculum* were very apparent because the syllabus for secondary schools in Uganda has not been updated since the 1970s. Therefore, teachers were using archaic content that did not provide how to teach about the subjects, only what objectives to teach. The textbooks were hard to find and expensive, leaving teachers with little to no support
on teaching methods or materials. This resulted in an extrinsic motivation to use the curriculum provided by Field of Hope.

**Research Objective 3: Determine the barriers that prevent teachers from adopting the curriculum.**

It was overwhelmingly apparent that the largest barrier to participants fully adopting the curriculum was lack of resources available for the teacher and or students to use, as well as the incorporation of critical thinking and project-based learning into their lessons. All eight participants expressed that additional equipment was needed to be able to use the curriculum appropriately inside and outside of the classroom during practicals. Tools and equipment for both the laboratory and garden or animals were the largest request for resources coming from the participants.

Lack of support from school and the leadership of the school was the second largest barrier that participants faced. All eight of the participants expressed that their school leadership supported them using the curriculum, but five participants explained that their school did not financially support them with land, materials, or tools for the laboratory or the practical days in the curriculum where they work in the garden or with animals. The participants described in detail that they felt additional training is needed to be able to fully adopt and teach the curriculum to the best of their abilities. Teachers felt they needed additional training mostly in the subjects of crop production and animal rearing. Teachers enjoyed the capacity building, but also felt a responsibility to teach the curriculum to the best of their ability. Therefore, they identified crop production and animal rearing as the two areas to be improved in.

The negative mindset that Ugandans have about agriculture and more specifically, teachers, school administrators, and students was a barrier preventing teachers from being able to
fully adopt the curriculum. Teachers described that the students’ mindset was changing, but the mindset of the other teachers and some school leadership was that agriculture was a form of punishment. This negative mindset made it difficult for teachers to get students interested in and to believe that agriculture could be more than simply a form of punishment.

**Research Objective 4: Determine the teachers’ perceptions of the curriculum to meet the needs of their students.**

There was an overwhelmingly positive response from teachers that affirmed participants believed the *curriculum meets the needs of their students*. All eight participants believed the needs of their students were being met by the curriculum used in their classrooms. Teachers believed that because of the new learner-centered curriculum they were now able to recognize and cater to all learning types within their classroom, leaving no one to lag behind.

Participants believed that because students exhibited an *increased enthusiasm* to the lessons being taught and were no longer bored that their needs were being met as students. All eight participants said their students’ interests were sparked in agriculture and that their students were interested in the exploration of possible *careers*. Teachers were impressed that students sought them out during their free time to work in the garden or learn more about agriculture. Teachers also felt a sense of encouragement because their students would go back to their village over holiday and practice what they learned in the school garden and report back to teachers what they learned.

To further meet students’ needs, teachers believed that the *addition of agricultural clubs* would be beneficial for the agriculture program. All eight of the participants agreed that the addition of an agricultural club would help students learn responsibility, become exposed to agriculture careers, and shift their mindset about agriculture from negative to positive.
CHAPTER V

SUMMARY OF THE STUDY, CONCLUSIONS, DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

This chapter is a comprehensive summary of the study, including its problem statement, purpose, research objectives, supporting literature, participants, theoretical perspective, data collection, and data analysis procedures. Further, the chapter details conclusions, discussion, and implications derived from the study’s findings as well as related recommendations for research and practice going forward.

Summary of Study

Problem Statement

While curriculum implementation in developing countries is not new to the international development scene, scant literature exists to help INGO’s increase the effectiveness and efficiency of their operations in this sphere. Though some of the existing literature explained practices by policy makers implementing curriculum, little research has been conducted to understand the role of INGO’s in implementing curriculum in developing countries. This context led the researcher to design and conduct a “good qualitative research” study that is “relevant, timely, significant, interesting, or evocative” (Tracy, 2010, p. 840)

Study’s Purpose and Research Objectives

The purpose of the study was to explore and derive meaning from the experiences of the instructors teaching agricultural education in secondary schools partnered with the INGO Field of Hope who were given a new Senior One (S1) agricultural education curriculum to implement through a basic qualitative approach. Additionally, the study aimed to help Field of Hope
understand the practicality and applicability of the curriculum the agriculture teachers of schools that partner with Field of Hope were using.

While research has been conducted that exemplifies how governments in developing countries such as Namibia (O’Sullivan, 2002), South Africa (Rogan & Aldous, 2005), Ethiopia (Serbessa, 2006), and Botswana (Tabulawa, 1998) implemented new curriculum, scant research exists as to how INGOs can increase their effectiveness and efficiency operating in this sphere. The researcher aimed to identify connections in curriculum and activities facilitated by the INGO Field of Hope and the decision-making process of instructors to adopt curriculum to use in their classrooms. To understand how agricultural education in rural schools is integrated into the school and used by the instructors, a deeper understanding of the effectiveness of Field of Hope’s curriculum implementation was needed. The questions guiding this research are organized into four objectives:

Objectives

1. Determine the influences impacting teacher adoption of agricultural education curriculum.

2. Determine the intrinsic and extrinsic motivations of using S1 through S4 agricultural education curriculum.

3. Determine the barriers that prevent teachers from adopting the curriculum.

4. Determine the teachers’ perceptions of the curriculum to meet the needs of their students.

Review of Literature

The researcher studied relevant literature to gain understanding of the topics that make up the qualitative inquiry. The major sections included in the literature review were education in
Sub-Saharan Africa (Rogan & Grayson, 2003; UNESCO, 2007; United Nations, 2015; Yeboah et al., 2018), education in Uganda (Altinyelken, 2010a; Ministry of Education and Sports, 2017; Ofcansky, 1996; Otiso, 1996; Uganda Bureau of Statistics, 2017; UNESCO, 2007), teachers in Africa (Fareo, 2013; Rogan & Grayson, 2003; UNESCO, 2007), teachers in Uganda (Otiso, 1996; UNESCO, 2007), demand for more secondary schools in Uganda (Altinyelken, 2010a; Rogan & Grayson, 2003; UNESCO, 2007), critical thinking in education in developing countries (Altinyelken, 2010b; Coll & Taylor, 2011; Ennis, 1985; Hennessey et al., 2010; Raval et al., 2010; Thurmond et al., 2018; Van der Silk & Wiedeman, 2009), factors affecting teaching decision making processes in developing countries (Bennell, 2004; Deci & Ryan, 1985; Oliveira & Farrell, 1993; UNESCO, 2007), curriculum implementation (Altinyelken 2010a; Dyer, 1999; O’Sullivan, 2002; Rogan & Aldous, 2005; Rogan & Grayson, 2003; Serbessa, 2006; Tabulawa, 1998), private sector aid for education in developing countries (Raval et al., 2010; Rose, 2009; United Nations, 2015; UNESCO, 2007), and Field of Hope, INGO under study (Field of Hope Organization, n.d.a.; Major, 2018; Rutan, 2018; Yeboah et al., 2018). The literature was also referenced to aid in the development of this study’s theoretical perspective.

**Theoretical Perspective**

The Framework for Curriculum Implementation in Developing Countries, by Rogan and Grayson (2003), guided the underpinnings of this study. They based their framework (2003) on three main constructs: profile of implementation, capacity to support innovation, and support from outside agencies. These three constructs all share three important characteristics: a) they can be measured by indicators, b) they are broad enough to encompass a number of related factors, and c) they are narrow enough to include one main idea.
The profile of implementation recognizes that there could be just as many ways to implement the new curriculum as there are teachers teaching from the new curriculum. This profile is designed to offer a “map” of the learning area and to offer a number of possible routes that could be taken to multiple destinations.

The capacity to support innovation is concerned with factors that are likely to support or hinder the implementation of new ideas and practices in the new curriculum. This capacity recognizes that schools differ in terms of their capacity to implement innovation. There are four indicators for the capacity to support innovation: 1) physical resources, 2) teacher factors, 3) student factors, and 4) school ethos and management.

The construct support from outside agencies concerns itself with factors that hinder or support implementation of new ideas and practices within the given curriculum (Altinyelken, 2010a). Outside agencies are referred to as any organization that is not within the school but helps facilitate innovation by interacting with the school. The four categories of support from outside agencies are unions, donors, educational departments, and NGOs/INGOs. Because of the nature of this research, the researcher focused on the INGO category of support from outside agencies (Rogan & Grayson, 2003). The support from INGOs to aid in the implementation process has two subconstructs: material support and non-material support. Material support can be categorized into two areas: the provision of physical resources and direct support to students.

Participants

Typical purposeful sampling was used to determine the sample of eight participants of the basic qualitative study in order to obtain rich information to study in-depth (Creswell & Poth, 2018; Merriam, 2009; Patton, 2002). The selection criteria used to select participants included 1) the teacher must have taught the S1 curriculum provided by Field of Hope to students and 2) the
teacher must have attended the only teacher training offered by Field of Hope (June 2018) by the start of interviews (January 2019).

Data Collection

The researcher conducted eight one-on-one semi-structured interviews that lasted 30 minutes to one hour in an “attempt to understand the world from the subjects’ point of view, to unfold the meaning of their experience, and to uncover their lived world” in January of 2019 (Brinkmann & Klave, 2015, p. 3; see also Creswell & Poth, 2018; Rubin & Rubin, 2012; Verne, 2015). The interviews were guided by 25 open-ended questions developed by the researcher and the faculty of North Carolina State University (see Appendix A).

The participants were asked open-ended questions to harvest stories and descriptive data (Creswell & Poth, 2018; Merriam, 2009). The interview protocol included six types of interview questions (see Table 2) to encourage an array of responses from interviewees about their overall experiences, opinions, and feelings (Patton, 2002). The interview protocol was created utilizing the Framework for Curriculum Implementation in Developing Countries constructs and subconstructs and the four objectives of the study (see Table 3 and Table 4).

Observations that were taken in a naturally occurring setting and reflexivity were conducted by the researcher to triangulate findings emerging from the interviews (Creswell & Poth, 2018; Merriam, 2009; Tracy, 2010). A field notes journal was kept by the researcher throughout the interviews, and a written reflexive journal was kept by the researcher each night to capture important memories, conversations, and interactions that took place each day (Angen, 2000; Creswell & Poth, 2018; Lincoln & Guba, 1985; Merriam, 2009).
Data Analysis

The researcher utilized ATLAS.ti in preparation for the review of the data (Reid, 1992). Data sets were organized and labeled to a scheme set forth by the researcher that allowed for easy access of information at any time (Merriam, 2009). First-round coding was initially conducted to understand the data by segmenting the transcripts into phrases and words of the participants to split the data into coded segments (Corbin & Strauss, 2015; Yin, 2016). During the first-round coding, the researcher utilized in vivo coding to “honor the voices of the participants and their perspectives” (Saldaña, 2013, p. 61).

To conduct second-round coding, the researcher utilized axial coding methods to reorganize data coded in the first coding cycle to create categorical, thematic, and conceptual organization of the data (Saldaña, 2013). Axial coding organized repeating patterns that exemplified potential themes across the data (Merriam & Tisdell, 2015) Theoretical schemes were constructed from axial codes that exemplified the “significance of interpretations and conclusions in relation to the literature and previous studies” (Yin, 2016, p. 199). In order to ensure that the themes were “describing, classifying, and interpreting the data” the themes were analyzed by the researcher (Creswell & Poth, 2016, p.189).

Conclusions and Implications

From the analysis of interviews with eight teachers, seven themes and multiple subthemes emerged. The seven themes were shift from theoretical to practical applications, motivations of teachers, curriculum meets students’ needs, survival, barriers, curriculum adoption and changed teaching habits, and shift from negative to positive perceptions of agriculture. The first theme, shift from theoretical to practical applications, included six subthemes: practical applications, allows students to think critically, inclusivity of slow learners and
all learning types, teacher-centered to learner-centered, assessment, and community engagement.

The second theme, motivations of teachers, included six subthemes: reduced workload, confidence and courage, teacher network, inadequacies of current curriculum, desire to further education; and support from Field of Hope. The third theme, barriers, included four subthemes: lack of resource, additional training needed, support from schools, and support from outside agencies. The fourth theme, curriculum meets students’ needs, included four subthemes: increased enthusiasm, careers, addition of agricultural clubs, and students developing soft skills.

The fifth theme, survival, included two subthemes: curriculum changes lives and backbone of Uganda: agriculture. The sixth theme, curriculum adoption and changed teaching habits, includes five subthemes: capacity building from professional development training, continuation of curriculum development, country-wide adoption of curriculum, need for research, and similarity to Ugandan curriculum. The seventh theme, shift from negative to positive perceptions of agriculture, revealed no subthemes.

Theme 1, shift from theoretical to practical applications, concluded that the practical application provided by the new curriculum allows students to experience learning in an entirely new way. Previously, students attained new knowledge in the classroom through teaching that was theoretically based or lecture. Learning and understanding the subjects was difficult for students as well as connecting students to what they were learning in the real world. This conclusion supports Chiasson (2008) who argued that to increase understanding of a subject and to increase the potential solutions the subject could have to problems, real-world and practical experience is needed.
The subtheme *practical applications* refers to the applicability to the real world the new agriculture education curriculum provides to the students. Participants were provided with ample teaching materials and lessons to provide students with a real-world experience and perspective regarding the various subjects of agriculture in the new curriculum. Students are now able to comprehend what they are learning enough to construct questions to further their understanding and then go home over the holidays to repeat what they have learned with family or friends. This study aligns with multiple aspects of the Experiential Learning Model, and one aspect that has been exemplified through the practical applications of the new curriculum is abstract conceptualizations, which is the active process of “creating concepts that integrate observations into logically sound theories” (Kolb, 2015, p. 42). Furthermore, the conclusions of this study align with Mukembo’s (2017) recommendation that educational reforms should integrate practical applications of subject matter through agriculture to introduce careers because Sebudde et al. (2013) estimates by 2020 that the number of unemployed Ugandan youth will reach 10 million. Additionally, the practicality of the new curriculum is far more reaching than the new methods used by teachers. The practical nature of the curriculum was brought forward in three themes: 1: shift from theoretical to practical applications, 4: meets students’ needs, and 5: survival.

The subtheme *allows students to critically think* refers to participants who realized that by using the new curriculum their students were thinking about topics in class in a completely new manner. Students seemed to be intrigued about what they were learning and were asking clarifying questions to lead to better understanding of the topics at hand. The students were experiencing learning about the same topic multiple times and in multiple ways, which increased their ability to think critically, according to the participants. From learning about the topic in
class to experiencing the topic through hands-on application in the garden to completing research on a topic and presenting it to the class, students are being exposed to the subject at hand in different formats, allowing them to understand the topic from different angles. Because of this practical application, students were able to better retain the information presented to them on their assessments. This conclusion coincides with FAO (2010), who argued that when school garden programming is integrated into curriculum educational benefits are increased.

The subtheme *inclusivity of slow learners and all learning types* refers to participants’ abilities to now recognize the different levels of learners easily and make a conscious effort to be inclusive of learners who would otherwise lag behind. Because of the practical nature of the new curriculum, teachers said slow learners could participate in the group activities and learn from their peers. This is positive because when using the Ugandan curriculum, teachers would use a theoretical lecture-type method and the slow learners would lag behind. The interaction with their peers allowed for learning to take place even when the teacher is not present, and the students are completing a group assignment on their own. Additionally, because the teacher is interacting with the students more during the practical pieces of the lessons, the teacher can easily identify who needs more specialized assistance. The new curriculum provides diversity in learning through different instruction styles, which aids in student understanding because participants realized not all students learn best from lectures.

The subtheme *teacher-centered to learner-centered* refers to children learning more from practical applications supplemented with classroom instruction instead of full lecture from the teacher. Previously, when using Ugandan curriculum, the classroom instruction was teacher-centered and mostly lecture filled with some group work. However, now the learners are able to take control of their knowledge by applying themselves to the subject through hands-on work.
during practical days. Learner-centered teaching seeks to involve the learners in the learning process, allowing them to enjoy the process of learning.

The assessment subtheme refers to the use of assessment tools at the end of every unit in the new curriculum. The teachers are not only using practical methods of teaching but are also using practical methods of assessing students. The materials provided in the curriculum are utilized to assess students of their newfound knowledge. Some of the practical assessments reported by participants are dissecting a hen, identification of a plant and its functions, and home assignments or projects.

The subtheme community engagement refers to the increased amount of learning taking place in the community as well as the heightened sense of responsibility of the teacher’s role in any community. Because the new curriculum has shifted teachers and students toward increased practical learning, the teachers encourage students to go into their communities and test out their new knowledge learned in the garden or with livestock. Students are excited to return home over break from their children’s homes and use their new knowledge on their families or neighbors’ farms. Because students are going into the communities and using this knowledge and reporting it back to teachers, this means students are grasping concepts and their ability to apply what they have learned.

Through using the curriculum, teachers have become increasingly connected to community members. Because communities throughout Uganda rely solely on agriculture, teachers have been reminded of their role in building the future citizens of the communities that these children come from. Further, teachers visit farms in the community to further connect the knowledge, children, and communities.
Theme 2, motivations of teachers, refers to the intrinsic and extrinsic motivations of teachers that emerged from the study. Objective 2 of the study is to determine the internal and external motivations of using the Field of Hope S1 agricultural education curriculum. This theme exemplified that teachers have adopted the curriculum and are currently using it in their classrooms.

The subtheme reduced workload indicates that teachers feel their work and preparation for teaching classes was significantly reduced by utilizing the new curriculum provided by Field of Hope. The Ugandan curriculum only contained a blueprint that provided teachers with a topic, subtopic(s), objectives, content (in the form of a few bullet points), and teaching and learning strategies (in the form of a few bullet points). As shown in Figure 2, a topic with two subtopics is supposed to be taught over 12 class periods. The teachers were provided a total of five bullet points related to the content they are required to teach. The bare bones of the Ugandan syllabus leaves teachers with a tremendous amount of work to do in preparing for classes. Textbooks are a scarce resource in Uganda, leaving teachers with even less resources to pull information from.

The new curriculum is in the DO, ASK, SAY format, allowing teachers to follow a script for teaching that even includes responses students should be giving as answers to teachers’ questions. Please see Figure 5 to view the format in which the new curriculum is written and the amount of information provided to the teachers. The new curriculum provided by Field of Hope has decreased the workload of participants drastically, allowing for more time to be devoted to teacher-student interaction and connection while extrinsically motivating teachers to adopt the new curriculum. This conclusion supports Mukembo’s (2017) recommendation that S1 through S4 curriculum integration could warrant additional time for the mentoring and engagement of students by teachers, which could potentially increase pupil’s self-efficacy regarding the
connection with the practical aspects of the curriculum and their futures (Bandura, 1977).

Additionally, because of the abundance of information provided by the new curriculum, teachers felt a greater understanding of how to effectively deliver instructional information to students.

From the comparison of Figure 2 and Figure 5, noticeable differences are found in the information provided to teachers for teaching. Whereas Figure 2 gives teachers two bulleted points of content for subtopic 1.1, the new curriculum gives teachers five lessons to teach subtopic 1.1, and the first lesson (shown in Figure 5) is four pages long. Therefore, the teacher workload was drastically reduced by adopting the new curriculum provided by Field of Hope.

The subtheme confidence and courage refers to the newfound certainty that participants have in teaching and their mental tenacity. Because teachers have been provided an abundance of teaching materials, they feel confident in the content being delivered to students. Less time is spent on searching for materials to teach from and wondering if their resources are what they should be teaching. Therefore, teachers feel confident that information delivered to students is accurate information. Some teachers expressed that their longevity in the profession or related professions allows them to know the subject taught very well and, therefore, feel confident teaching them. Additionally, because the participants feel more confidence in their teaching capability and their teaching methods, their focus has shifted to the delivery of the information instead of the content accuracy.

In sharing about their past, teachers expressed overcoming affliction and navigating hard times that arose in their early years, sometimes when they themselves were a student. These afflictions produced a sense of courage that participants now use to face difficult times in their teaching careers. The new curriculum supplemented their resources tremendously; however, teachers still face difficulties, such as lack of teaching resources. This creates a difficulty for
teachers to be creative in their teaching style. Participants also shared they are able to recognize when their students are facing hard times and use their past experiences to mentor their students.

The subtheme *teacher network* refers to the already existing network of teachers, and the desire to further strengthen the network of teachers was expressed by the participants of the study. Rauf, one of the participants, invited four of the eight participants of the study to the professional development training in June 2018 where they received the curriculum and thus began using it. Therefore, it is concluded that a network of teachers existed who are using the curriculum. However, not all the participants of the study knew each other, nor did they know the other attendees of the training where the interviews were conducted. Participants expressed their interest in widening the network of teachers to increase the amount of shared resources and to discuss the curriculum. The teachers expressed that friendships were made with other teachers because of the professional development trainings, and they would love to see the network of teachers using the curriculum grow to benefit them both personally and professionally.

Mukembo, Edwards, Ramsey, and Henneberry (2015) recommended that agriculture teachers form professional organizations to support the sharing of resources and potentially spur professional networking in Uganda. This study supported this recommendation because all the participants shared a desire to continue their friendship with their new colleagues. It is implied that a professional association for teachers would further the implementation process by resources being shared.

The subtheme *inadequacies of current curriculum* refers to the dissatisfaction participants had with the current agriculture education resources provided by the Ugandan government. Because of their dissatisfaction in the current curriculum, participants were extrinsically motivated to adopt the new curriculum provided by Field of Hope. The current Ugandan
Secondary School agriculture curriculum’s last update took place in the 1970s (Ministry of Education and Sports, 2008) and leads to questioning “Is that curriculum up-to-date on agricultural practices that reflect the country’s agriculture economy that students should be learning about?” Additionally, practical aspects of teaching and learning in the Ugandan curriculum are missing, leaving teachers ill-prepared to teach the subject unless they are a veteran in the agriculture industry with multiple years of knowledge to lend (see Figure 2 and Figure 5). Overall, participants felt that the educational system in Uganda is poor and instructional offerings given by the Ugandan government need modification.

The subtheme desire to further education refers to teachers’ eagerness to complete their degree in agriculture or education to further strengthen their commitment to their students. The highest education obtained by all participants in the study was a diploma. While some participants received a diploma in education, they felt they were lacking in agriculture knowledge. Those participants who received a diploma in agriculture felt they were lacking in educational techniques. Using the practical curriculum provided by Field of Hope has allowed teachers to feel extrinsically motivated to adopt the curriculum while furthering their personal journey in education to be of best service to their learners.

The subtheme support from Field of Hope refers to the financial gain, teacher observations and feedback, encouragement to students, and the professional development teachers received through their partnership with the INGO Field of Hope. These four different types of support from Field of Hope are categorized as both extrinsic and intrinsic motivations of teachers to adopt the curriculum. Because of the Inspiring Students in Agriculture Grant, available for schools that partner with Field of Hope, participants felt that the lack of resources
they face in their schools could be negated by the financial support Field of Hope was offering to provide for the purchase of teaching resources (Field of Hope Organization, n.d.c).

Field of Hope has hired three Ugandans experienced in agricultural education and extension to offer support to teachers implementing the curriculum. This support has been well received as they visit schools to observe teachers and offer feedback on teaching styles, further strengthening the implementation process and professional relationships between the schools, teachers, and Field of Hope. The Ugandans hired by Field of Hope have been a positive force of change in the schools partnering with Field of Hope because they have been able to form relationships with the leadership of the schools and recruit new schools to adopt the curriculum. During the school visits, the Ugandans hired by Field of Hope have also been able to encourage students to continue their studies in agriculture past S2, where agriculture education is not compulsory, but becomes an option of coursework for students to continue. longer compulsory in Uganda.

The professional development trainings have shown teachers how to use the new curriculum, which incorporates teaching methods that are mostly unfamiliar to them. The trainings have given teachers a toolbox of new methods to employ in their classroom while reminding teachers that they can make a difference in the lives of their students and their futures. These conclusions are supported by Rogan and Grayson (2003) who named “support from outside agencies” (p. 1,192) as one of three pillars of the Framework for Curriculum Implementation in Developing Countries and that the support coming from outside agencies should be viewed through a “material and non-materialistic lens” where “non-material is most commonly provided in the form of professional development” (p. 1,192).
Theme 3, barriers, refers to the hindrances participants are faced with regarding scheduling, class size, classroom management, and local examples. Teachers have been supported greatly by Field of Hope and the curriculum they have received but still face barriers that prevent them from being able to fully use the curriculum in the way it is intended to be used. Teachers are subject to scheduling changes in their schools where headmasters will change what level they are teaching. Because teachers only have curriculum from Field of Hope for Senior 1 and Senior 2, if teachers are placed in Senior 3 or Senior 4, they will have to revert back to using the Ugandan syllabus, which is bare in teaching instruction. Class sizes in some schools are unmanageable and overcrowded with one participant stating he had 96 students in class at one time. Due to the high student-to-teacher ratio in some schools partnering with Field of Hope, this creates a barrier to adopting certain teaching methods and lessons that require students to move around from their seats to work due to shortages of time and resources. Additionally, the need for more locally relevant examples of crop production practices created a barrier in teachers transferring knowledge to their students.

The subtheme lack of resources refers to the materials that schools or teachers do not have in order for them to use the curriculum as it is intended. One of the three days of curriculum instruction provided by Field of Hope is a “practical day” where students complete an activity about what they learned in the previous two lessons in class. Two schools do not have a garden, making it difficult for students to complete their lesson on the practical day. However, all eight schools reported that they lack the necessary materials to fully incorporate the critical thinking and project-based learning methods included in the new curriculum. This conclusion is critical to the success of implementing the curriculum because the FAO (2004) argues that school gardens
are encouraged in developing countries as experiential learning tools to improve the quality of education.

The subtheme *additional training needed* refers to the guidance participants feel they still need in order to fully implement the curriculum. The participants were thrilled at the practical aspects of the curriculum but admitted that there is room for improvement in their teaching skills and agricultural knowledge to feel certain they are delivering information to their students as intended by the curriculum. Incorporating project-based learning and critical thinking into lessons is new to the participants, and they desire to be trained more in these areas. Furthermore, crop production and animal rearing are areas that teachers feel they need more hands-on training. Additionally, a continuation of the current professional development trainings conducted by Field of Hope and an expansion of them to areas of Uganda where new teachers are being recruited would benefit the teachers. This conclusion is supported by Hennessey, Harrison, and Wamakote (2010), who argued that the technical expertise of the teacher is critical for any new implementation to take place.

The subtheme *support from school* refers to the barrier created by the lack of support schools are giving participants to implement the curriculum. All participants in the study reported to have support from the leadership of their school, but five of the eight reported that they lack resources such as land, materials, or supplies necessary to complete lessons accordingly. Rogan and Grayson (2003) argue that in more rural areas, schools can be found without electricity, running water, no doors or windows, and lacking basic resources such as textbooks. This study supported that research because the majority of schools that participated in the study were private schools that lacked the necessary materials or land to supplement the implementation of the new curriculum.
The subtheme **support from outside agencies** refers to the support, if any, the school implementing the curriculum receives from outside sources other than the funding source, the school, or the main source of support (Rogan & Grayson, 2003). The main source of support in the study is the INGO Field of Hope. Therefore, this subtheme refers to any other organizations that provide support to the school. Two schools are children’s homes and receive funds and support from their respective organizations. Two different schools that are private receive funds from NGOs in the form of solar electricity and computers. Four of the eight schools fully rely on the main source of support, Field of Hope, for material and non-material support.

Theme 4, curriculum meets students’ needs, refers to the perceptions teachers have regarding the curriculum and how it is affecting their students and their students’ futures, which was the fourth objective of this study. Participants resounded with praise for the curriculum because it meets the needs of their students both on a personal level and an academic level. Students need to be learning practically to make sense of why they are learning, and the new curriculum allows them to do so. Teachers named the needs of their students as inclusivity, application to the learning, interaction with other students, increased teacher awareness of student needs, and that students feel comfortable. The practical nature of the curriculum allowed for increased interactions between teacher and student and for an increased understanding of the subject at hand.

The subtheme **increased enthusiasm** refers to the reduction of boredom in class experienced by students and the sparked interest students now have about learning agriculture. Previously, class used to include theoretical lectures that led to boredom among students. Now, class is discussion, activity, group work, and practically based, leaving students with a desire for more knowledge about agriculture. When participants started using the new curriculum, students
began participating in class and asking questions, which exemplified their newfound interest. There is an increase in student attentiveness, overall happiness, and willingness to take part in class activities, such as the garden, when participants use the new curriculum.

The subtheme careers refers to the exposure, interest, and identification of careers in agriculture fields that students are able to explore due to the hands-on nature of the curriculum coupled with the abundance of career-related information in the new curriculum. This research coincides with Mukembo et al. (2015), who argued that by showing students the practical application of the formal learning process, exposure to careers and preparation for careers could take place. Because participants are implementing the new curriculum, students are becoming ambitious and are learning skills that will equip them to grow things to sell even if they are unable to secure a job in the future. This conclusion brings significance to the research base because Mukembo et al. (2014) concluded that the number of youths interested in an agriculturally related career is declining. Mukembo et al. (2015) argued more research was needed in order to understand why students have less interest in agriculturally related careers such as extension, farming, food processing, and animal breeding. This study gives insight into why students were not interested in agriculture careers. When using theoretical lecture-style teaching, students could not visualize what they were learning and how it would be applied to agriculture as a career. However, when students plant in the garden and sell their produce to make money, they can now see the fruits of their labor and strive to yield more fruit to yield more profit. This study brings significant findings to the research supporting the positive ramifications for the agriculture industry that could occur if youth perceive agriculture as a potential profession with scope for innovation (FAO, 2009).
The subtheme *addition of agricultural clubs* refers to the participants unified voice that agriculture clubs would supplement student learning in the classroom. Agricultural clubs would build unity between students, expose students to careers, increase overall interest in agriculture, help direct their futures, and shift their mindsets toward the positives of agriculture. This conclusion is supported by Massoni (2011), who argued that the engagement of students in activities outside of formal school curriculum could positively contribute to future endeavors such as career choices. This conclusion also coincides with Mukembo et al. (2015), who argued that to supplement the learning and formal teaching practical application of content would reverberate through the implementation of club activities.

The subtheme *students develop soft skills* refers to the character traits students are learning through participants’ implementing the curriculum. Students are exposed to and, therefore, are developing soft skills such as teamwork, responsibility, communication, speaking skills, cooperation, work ethic, and confidence through the new curriculum. Additionally, students are learning how to make and set goals needed for their given plot in the garden. This conclusion reinforces a recommendation made by Mukembo (2017) who argued that through project-based learning the potential is great for students to acquire life skills such as communication, teamwork, problem-solving, and leadership.

Theme 5, survival, refers to what the students will be able to achieve because of the implementation of the new curriculum. Participants are now teaching their students practical hands-on skills that they can repeat to grow food or rear animals for themselves and their future families in order to survive, which is critical because the majority of Ugandans live on less than one dollar a day (Ministry of Education and Sports, 2008). An interview of a Ugandan farmer showed that “When you have food in your house and your neighbor doesn’t have anything to eat,
you’re in trouble. It may mean you’re inviting thieves to come to you” (Field of Hope, 2012, 0:13). The participants of this study agreed with that farmer because they believe whether students are raised in a children’s home in Uganda or their parents could pay for them to attend secondary school, agriculture will be the basis of survival for their students and that is because of the knowledge learned in the new curriculum. Students now possess the skills necessary to survive. This research supports previous findings that indicate 70% of the population that is 10 years and older works in agriculture and more than 66% of the labor force works in agriculture, but production is still mainly subsistence. Students in rural areas must learn how to grow crops and rear animals through their adolescent years (FAO, 2015; Ministry of Education and Sports, 2008, Uganda Bureau of Statistics, 2010).

The subtheme curriculum changes lives refers to the participants’ perceived hope that the curriculum is giving students. There is a need for productive citizens in Uganda, and teachers feel burdened with the task of helping their students achieve the skills needed to fight the cycle of poverty. Teachers feel that the new curriculum will produce good citizens who will contribute to their society. This conclusion supports the views of the Ugandan first lady and minister of education and sports who stated, “As a continent, our synergies should be geared towards producing holistic curriculum that produces responsible citizens with relevant skills” (Kiva, 2014).

The subtheme backbone of Uganda: agriculture indicates that all Ugandan citizens, whether formally educated or not, rely on agriculture because it is the heart of their country and what keeps Uganda going. This research supports the Ministry of Education and Sports (2008) who shared with teachers in the most recent printing of the educational syllabus that “Agriculture is the backbone of the Uganda Economy” (p. vi). Additionally, teachers feel they need to prepare
students to enter into the nation’s largest industry, which coincides with results from a study conducted by the FAO (2015) that reported 22% of the total GDP is collected from the agriculture industry in Uganda while the total export value of the agriculture industry contributing to the economy is 52%.

Theme 6, curriculum adoption and changed teaching habits, indicates that all participants who have chosen to adopt the curriculum are currently teaching using the curriculum. Participants have changed their teaching methods since adopting the curriculum by incorporating practical aspects of teaching. The teachers also teach differently than their peers, and school administrations have recognized that this is happening. According to participants, students were reluctant with previous teaching methods, such as lecture, when using the Ugandan curriculum. Now students are active and attentive in class. Teachers attested the professional development training hosted by Field of Hope is what allowed them to change teaching methods in the classroom.

The subtheme capacity building from professional development training refers to the education participants are gaining from attending the Field of Hope training sessions. The participants are drawn to working with Field of Hope because of the treatment they receive as professionals. Teachers are transported, fed, trained for three days, while being able to fellowship with other people in their profession all while learning how to improve their teaching methods. Participants have adopted and implemented the curriculum because of the attention and education they have received from Field of Hope. Through the professional development, teachers realize how wide the gap is between American agriculture and Ugandan agriculture as well as the best way to deliver such content to students. This conclusion supports Mukembo’s (2017) recommendation that opportunities for professional development ought to be ensured to
teachers in order to address the benefits and challenges of integrating new curriculum (Mukembo & Edwards, 2015; Pearson et al., 2010).

The subtheme *continuation of curriculum development* refers to the desire of the participants that new curriculum be developed for S3 and S4. Because teachers have adopted and implemented S1 curriculum, have experienced its benefits, and were given S2 curriculum at the time of interviews, they are confident that the curriculum should be continued to cover S3 and S4 to enhance their students’ educational experience with agriculture. The second of the Millennium Development Goals is education (United Nations, 2015) and Rose (2009) argued that due to a global spotlight on educational development NGOs are burdened with the creation of curriculum innovation, which typically yields more successes because of its contextual and local relevancy to the learner (Raval et al., 2010). This study supported these findings because all participants expressed their satisfaction with current curriculum of S1 and saw a dire need for the creation of S3 and S4.

The subtheme *country-wide adoption of curriculum* indicates that participants deem the new curriculum a necessity for all secondary school agriculture teachers across Uganda. At the second training held by Field of Hope in January 2019, a few teachers traveled three days to attend the training and receive the new curriculum, leading participants to believe that it in fact is ready to be utilized across the nation of Uganda. In Ugandan secondary schools, teaching agriculture in S1 and S2 is compulsory, but NCDC (2019) reported that only 36% of O-Level secondary schools in Uganda are teaching agriculture.

The subtheme *need for research* refers to the participants asking for research to be completed on aspects of the curriculum implementation and adoption. The shift from theoretical to practical applications has ignited in participants a desire to see additional research be
conducted. Because of the way the new curriculum is presented to students, it will make them want to continue agriculture into S3 and S4, where it is no longer compulsory (Ministry of Education and Sports, 2008). The participants’ desire for more research supports Dyer (1999), who argued there is a need for more research focusing on the implementation process of new curriculum in developing countries.

The subtheme similarity to Ugandan curriculum indicated that the new curriculum matches the objectives of the Ugandan syllabus and students will be tested on the same material (see Figure 2). This conclusion is supported by the curriculum creators, Vivayic, who cross-walked the new curriculum to the Ugandan syllabus to ensure the content aligns (Thurmond, 2019). Vivayic then sent the created curriculum to subject-matter experts (SMEs) in Uganda to clarify the accuracy and local relevancy of the proposed curriculum (Thurmond, 2019). This step in the curriculum development process supports Mukembo’s (2017) recommendation that stakeholders be involved to provide input throughout a new curriculum development process.

Theme 7, shift from negative to positive perceptions of agriculture, indicates that agriculture use to be viewed by students negatively as a punishment, but now agriculture is being used for learning. MIJARC, IFAD, and FAO (2012) concluded that in Sub-Saharan Africa, agriculture is often used a means of punishment, which discourages youth participation in agriculture. This study supported these results because historically, when students were punished, they were sent to do agricultural activities such as work in the garden.

During observations, a participant was teaching the first lesson, introduction to agriculture. The participant wrote on the board the Bible verse for the lesson, which was Genesis 2:15: “The Lord God took the man and put him in the garden of Eden to work it and take care of it” (New International Version Thinline Bible, 2005). When the participant asked her students
what their thoughts were on the passage, a student raised her hand and said, “For women, we were punished by having labor pains. For men, they were punished by having to work in the field. Women here in Uganda, agriculture is a punishment. We work and the men make all the money.” As an observer, this was a clear indication of gender affecting students’ negative opinion of agriculture, but it gave the researcher a sense of what other students may believe because of what they have read in the Bible. However, regarding punishment in schools that are using the curriculum, there are still some teachers and headmasters who partner with Field of Hope that believe agriculture should be used as a means of punishment, which makes it difficult for the agriculture teacher to excite students about agriculture and completing practical’s.

Role of INGO in Educational Reform in Developing Countries

While multiple research articles have been published that exemplify how governments in developing countries such as Namibia (O’Sullivan, 2002), South Africa (Rogan & Aldous, 2005), Ethiopia (Serbessa, 2006), and Botswana (Tabulawa, 1998) implemented new educational reform, scant research exists about how INGOs can increase their effectiveness and efficiency operating in this sphere. Furthermore, the second goal of Millennium Development Goals is education (United Nations, 2015) and the Millennium Development Declaration calls for national governments to increase opportunities for NGOs to achieve education reform (Raval et al., 2010), because in developing countries, NGOs act similarly in sharing roles of the governments, such as creating systems and strategies of educational reform (Rose, 2009).

Subsequently, the Ugandan first lady and minister of education and sports has also supported the idea that “relevant curriculum is necessary for relevant education and development” and is working with multiple groups across the continent of Africa to “handle challenges of the African family and to achieve quality education in Africa” (Kiva, 2014).
study fills a void in research and adds to research knowledge by exemplifying the processes and positive aspects of an INGO spearheading a curriculum implementation in a locally relevant situation of a developing country (Raval et al., 2010).

Framework for Curriculum Implementation in Developing Countries

What makes this curriculum implementation unique as well as what makes the type of support received from Field of Hope stand out from other studies completed using the Framework for Curriculum Implementation in Developing Countries is the constant connection to a supporting agency with ongoing support versus curriculum being distributed and teachers being left to fend for themselves in the classroom while learning to adapt. Studies conducted using the Framework for Curriculum Implementation in Developing Countries (Altinyelken, 2010a; Altinyelken, 2010b; Kriek & Basson, 2008; Lelliott et al., 2009; Rogan, 2007; Rogan & Aldous, 2005; Rogan & Grayson, 2003) have investigated educational policy reforms spearheaded by governmental agencies that have shown to leave teachers needing additional support while also indicating the curriculum implementation process is slowing down the expected outcomes on student success. This study sheds light on how INGOs or NGOs could involve themselves in the positives of the educational reform sphere while achieving local relevancy and forging working relationships with ministries of education in developing countries.
Table 7. Recommendations Based on Themes and Subthemes

<table>
<thead>
<tr>
<th>Theme No.</th>
<th>Theme and Subthemes</th>
<th>Research</th>
<th>Recommendations</th>
<th>Practice</th>
</tr>
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| **Theme 1** | *Shift from Theoretical to Practical Applications*  
Practical Applications  
Allows Students to Think Critically  
Inclusivity of Slow Learners  
Learning Types are Recognized  
Teacher-Centered to Learner-Centered  
Assessment  
Community Engagement | • Investigate transfer of knowledge onto family members using Rogers (2003) Diffusion of Innovations  
• Investigate students shift in learning using Kolb’s (2015) Experiential Learning Model. | • Field of Hope should incorporate projects into S3 and S4 curriculum to increase experiential learning. |
| **Theme 2** | *Motivations of Teachers*  
Reduced Workload  
Confidence & Courage  
Teacher Network  
Inadequacies of Current Curriculum  
Desire to Further Education  
Support from Field of Hope | | • INGO’s should form virtual networking opportunities such as Facebook and WhatsApp. |
| **Theme 3** | *Barriers*  
Lack of Resources  
Additional Training Needed  
Support from School  
Support from Outside Agencies | Conduct a needs assessment for students and teachers to further understand identified barriers of curriculum adoption. | • INGO’s should involve school administration in curriculum implementation. |
| **Theme 4** | *Curriculum Meets Students’ Needs*  
Increased Enthusiasm  
Careers  
Addition of Agricultural Clubs  
Students Develop Soft Skills | | • INGO’s should explore the addition of agricultural clubs to increase awareness and interest in agriculture careers. |
| **Theme 5** | *Survival*  
Curriculum Changes Lives  
Backbone of Uganda: Agriculture | Investigate S1-S4 student use of practical skills in relation to their ability to survive. | |
Table 7 (continued)

<table>
<thead>
<tr>
<th>Theme 6</th>
<th>Curriculum Adoption &amp; Changed Teaching Habits</th>
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<tbody>
<tr>
<td></td>
<td>Capacity Building from Professional Development Training</td>
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<td>Continuation of Curriculum Development</td>
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<td>Country-Wide Adoption of Curriculum</td>
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<td>Need for Research</td>
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<td>Similarity to Ugandan Curriculum</td>
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<td>• Investigate teacher capacity shifts after exposure to NGO-sponsored professional development trainings.</td>
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<td></td>
<td>• Investigate the implementation of Field of Hope curriculum in all regions of Uganda during S2-S4 implementation.</td>
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<td>• INGO’s should develop formal training processes for teachers and acquire native trainers to enable sustainability.</td>
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<td>• INGO’s should utilize national research centers to technically train teachers.</td>
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<td>• Field of Hope should develop S1-S4 agriculture curriculum.</td>
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<td>• Field of Hope should consider electronic distribution of curriculum</td>
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<td>• Field of Hope should engage governmental agencies to explore nationwide curriculum adoption.</td>
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<tr>
<th>Theme 7</th>
<th>Shift from Negative to Positive Perceptions of Agriculture</th>
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<td>• Investigate students attitude’s toward agriculture as a career.</td>
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<td></td>
<td>• Field of Hope should encourage Parent-Teacher Associations.</td>
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</tbody>
</table>
Recommendations for Future Research

1. Due to participants reporting that their students go home over holiday and practice what they have learned in class in the village, investigate whether children’s new agriculture knowledge transfers over to their parents or relatives (Okikor, Oonyu, Mastiko, & Kibwika, 2011) using Rogers (2003) Diffusion of Innovations.


3. To further understand the needs of the students and teachers utilizing the new curriculum, a needs assessment should be conducted to understand barriers identified in the study.

4. Research should be conducted to follow students who complete S1 through S4 using Field of Hope curriculum to understand if they are using practical skills learned to survive. To further understand the impact the curriculum is having on students using the curriculum, a capacity instrument should be created and used to understand if students’ capacities increase. The instrument should be administered both before and after students are taught the curriculum. The instrument should contain themes of technical aspects of agriculture, agriculture careers, soft skills, and overall attitudes toward agriculture.

5. To further understand the impact the NGO-sponsored teacher training and professional development sessions are having on participants, a formal evaluation of the trainings should be conducted to know of their effectiveness and to better plan trainings as the participant pool grows and S3 and S4 are adopted.

6. To further understand the impact and adoption of the curriculum and the impact an NGO can have while working with a ministry of education in a developing country (Dyer,
1999), the current study should be widened to include other regions of Uganda and should span over multiple years as the teachers implement S2, S3, and S4 curriculum.

7. Investigate S1-S4 student use of practical skills in relation to their ability to survive.

**Recommendations for Future Practice**

1. To ensure that teachers implementing the curriculum understand project-based learning and critical thinking, a formal process for training teachers should be developed, and the acquisition of local Ugandan trainers would enable sustainability and potentially elongate the training process well past when the non-Ugandan Field of Hope trainers and volunteers return home from Uganda.

2. Field of Hope should further involve the administrations of schools adopting and implementing the curriculum to ensure full awareness of the NGOs intentions, involvements, and teacher professional development goals as this could spur additional support from school administrations.

3. The addition of agricultural clubs to schools that have previously adopted and implemented the curriculum should be considered and explored as an avenue to increase awareness and interest in agriculture careers as well as extend opportunities for personal growth in students and club advisors (Mukembo et al., 2014, 2015).

4. A formal network of teachers should be formed to expand the networking possibilities and resource sharing of teachers. Facebook and WhatsApp should be explored as a potential means of hosting the network of teachers virtually to connect them across the country. The Facebook groups Ag Education Discussion Lab and NC Owls Who Give a Hoot can be used for comparison in creating a similar environment.
5. Continue, but increase, the hands-on technical knowledge of the professional development sessions for teachers adopting and implementing the curriculum. Utilize Zonal Agriculture Research and Development Institutes (ZARDI) (National Agricultural Research Act, 2005) and other national or regional research centers to conduct crop production and/or animal rearing trainings (Hennessey et al., 2010; Okior, Hayward, & Winterbottom, 2017). Utilize findings from Raval et al. (2010) to create effective professional development trainings for teachers delivered through an NGO in a developing country setting.

6. Continue developing S3 and S4 curriculum to further enhance the richness of the agriculture programs at schools that have already adopted and implemented S1 and S2 curriculum (Raval et al., 2010; Rose, 2009).

7. Further engage with National Curriculum Development Center (NCDC) and the Ministry of Education and Sports to involve them in the process of administering a nationwide adoption of the curriculum.

8. Field of Hope should apply for a federal grant that would enable them to continue training teachers at a much larger scale as well as facilitate a nationwide curriculum adoption in partnership with NCDC because grants from international NGOs and donors are the lifeblood of Ugandan NGOs (Barr, Fafchamps & Owen, 2005).

9. Consider if an electronic distribution of curriculum would be a cheaper, but more feasible, option for teachers because printing bound curriculum books is costly.

10. Incorporate more projects into the S3 and S4 curriculum to help students learn about the subject at hand and experience and problem solve challenges they are likely to face in the future (Blumenfeld et al., 1991; Mukembo, 2017)
11. Every five years from the year of the curriculum being distributed, if possible, Field of Hope should revise and edit the curriculum to include any new and relevant environmental, climatic, and technological changes that would correlate with current day Ugandan agriculture to sustain the relevancy of the curriculum.

12. Encourage teachers to incorporate a Parent-Teacher Association that meets at least once a school year to emphasize to parents the importance of their child learning about agriculture and to spur the parents to inquire throughout the year about their student’s education.
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APPENDICES
APPENDIX A: Interview Protocol

Teacher Participant Interview Protocol

1. Tell me a little about why you decided to become a teacher.
2. To understand your background, how would you describe your experiences as a student?
   a. Do you teach the same way you were taught?
3. So you are currently teaching this curriculum. How did you discover the (NGO's) curriculum?
   a. Did a friend lead you to (NGO)? A family member? Someone else?
   b. Did (NGO) contact you first?
4. Were you required to implement the curriculum, or did you choose to do so on your own?
5. What are your overall thoughts about the curriculum?
   a. Do you feel it meets the needs of the students?
6. What kind of physical resources at your school do you have to teach the curriculum with?
   a. Do you feel like you have the appropriate physical resources to teach with?
   b. What other resources would help you teach the curriculum?
7. Do you feel confident teaching this curriculum?
   a. Because the curriculum is about project-based learning and critical thinking, do you feel confident in your knowledge of project-based learning and critical thinking to teach the curriculum?
   b. Because the curriculum is about project-based learning and critical thinking, do you feel confident in your knowledge of crop production to teach this curriculum?
   c. Because the curriculum is about project-based learning and critical thinking, how have you adapted to using project-based learning and critical thinking in your teaching?
   d. Did you have to adapt your teaching style for this curriculum?
     1. Wow, that’s really great. What are some examples of project-based learning you used before?
8. How do your students like the curriculum?
   a. How do your students like learning about project-based learning and critical thinking?
   b. Describe what makes a great day in your classroom.
9. What is the leadership of your school like?
   a. How does the leadership of your school support you using the new curriculum?
10. Do you feel that you teach differently than your peers?
    a. Do you feel your boss recognizes that you teach differently than your peers?
11. How does the curriculum meet the needs of your students and their futures?
12. What is your method of assessing students about their knowledge?
13. Do you receive support from private donors to fund your school or any activities you may do with your curriculum?
14. How has your experience been working with (NGO)?
15. Can you describe in what ways (NGO) helps you?
16. How has working with (NGO) changed your teaching, interaction with students, and overall classroom?
17. Are there any other NGOs besides (NGO) you partner with?
18. Are there any other teachers you work with or share resources with?
19. Tell me about your experience with the professional development trainings (train the trainers/teacher trainings) for the curriculum?
20. In what areas do you wish you had more help/education/training?
21. Are there barriers preventing you from using the curriculum?
   a. If so, please tell me a little about the barriers.
22. How does the curriculum meet the needs of your students?
   a. Does the curriculum allow your students to prepare for a career in agriculture?
23. After teaching this curriculum, do you feel any of your students view agriculture differently?
   a. Are any of your students planning for a career in agriculture?
24. Do you think having an agricultural club would be beneficial to your students?
25. Do you currently have a Facebook account?
   a. If so, do you think having a Facebook group for teachers using the curriculum to share resources would be a good idea?
APPENDIX B: Letter to Prospective Interviewees

Dear Potential Research Participant,

My name is Emma Cannon and I am a master’s student at North Carolina State University in the College of Agriculture and Life Sciences. In my department, Agricultural and Human Sciences, I am obtaining my Master of Science in Agricultural and Extension Education. As a part of the current research project I am participating in I am looking to explore and derive meaning from the experiences of instructors teaching agricultural education in the secondary schools partnered with the INGO Field of Hope. Additionally, this study aims to help Field of Hope understand the practicality and applicability of the curriculum the agriculture teachers of schools that partner with Field of Hope are using to teach S1.

If you choose to participate in this study, one face-to-face interview will be performed. If needed, a follow-up interview will be performed. Additionally, observations will be made by the researcher to understand the facilities available to students, such as the school garden, animals, and the classroom. The teacher will not be observed, but the facilities will be observed during the visit to the teacher’s school arranged by Field of Hope. Participation in this interview and the observation portion of data collection is entirely voluntary and will only take about an hour for the initial interview. Your input will provide insight into your experience as a teacher using brand new agricultural education curriculum. All responses to this interview will remain confidential.

If you choose to participate in this study, please take a few minutes to fill out the information on the back of this form. It will help us understand a little bit more about your demographics and background.

Thank you for your time, and I look forward to speaking with you about your experiences as a teacher!

Sincerely,

Emma Cannon
Principal Investigator
NCSU AHS Graduate Student
eccannon@ncsu.edu
919.219.0286
Dear teacher,

You have received this survey because you agreed to help with this research study on teachers’ experiences adopting new agricultural education curriculum. This survey collects information about you as a part of data collection. Please respond to each question as instructed. Your responses will be kept confidential and will only be presented in grouped form and for research papers. Thank you for your participation.

1. Participant # ______________________ Pseudonym __________________________

2. What is your gender?
   - Female
   - Male

3. What grade level are you teaching? ____________________________________________

4. How many years of experience in teaching do you have? __________________________

5. If the researcher would like to and you are willing to participate in the follow-up interview, please provide your contact information below:
   - Email address (if applicable): _________________________________
   - Phone Number: _________________________________
   - WhatsApp: _________________________________

6. Highest level of education: ________________________________________________

7. Degree of Agricultural Education: __________________________________________

8. Age ____________________________________________

9. Do you have electricity at your school? _________________________________________

10. Do you have a garden at your school? _________________________________________
APPENDIX D: Informed Consent Form

North Carolina State University
INFORMED CONSENT FORM for RESEARCH

Title of Study: Curriculum Adoption by Ugandan Secondary School Teachers
Principal Investigator: Emma Cannon
Faculty Sponsor (if applicable): Dr. Joy Morgan

What are some general things you should know about research studies?
You are being asked to take part in a research study at North Carolina State University which will explore your experience in teaching the S1 curriculum given to you through your partnership with Field of Hope. You were selected for participation in this study because you taught S1 curriculum and you attended the June 2017 & January 2018 professional development training.

Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time without penalty. The purpose of this research study is to gain a better understanding of your experience utilizing the S1 curriculum given to you by Field of Hope.

You are not guaranteed any personal benefits from being in a study. Research studies also may pose risks to those who participate. In this consent form, you will find specific details about the research in which you are being asked to participate. If you do not understand something in this form it is your right to ask the researcher for clarification or more information. A copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researcher(s) named above or the NC State IRB office as noted below.

What is the purpose of this study?
The purpose of the study is to explore and derive meaning from the experiences of the instructors teaching agriculture education in the secondary schools partnered with the INGO Field of Hope. Additionally, this study aims to help Field of Hope understand the practicality and applicability of the curriculum the agriculture teachers of schools that partner with Field of Hope are using to teach S1.

Am I eligible to be a participant in this study?
In order to be a participant in this study, you must be a secondary agriculture teacher at a school who partners with Field of Hope and used the agriculture S1 curriculum given to you by Field of Hope.

What will happen if you take part in the study?
If you agree to participate in this study, you will be asked to complete a demographic questionnaire, participate in an initial interview with a member of the research team which will be audio-recorded, participate in observations that will allow the researcher to observe the school facilities, the school garden and animal, if any. The observations will take place when the researcher visits the school of the teacher being interviewed and the observations will last the duration of the time visit to the school. The researcher will not be observing the teacher, but the facilities of the school and its surroundings. You may also be asked to participate in follow-up interviews with the researchers at a later date which will be determined together (participation in the follow-up interview is optional). The interviews will be audio recorded so that the researcher can have an accurate record of your statements. The audio recording will not be publicized and will only be accessible to the research team. The interviews will last approximately 30-60 minutes.

The total amount of time required for participation in the study is only the amount of time spent during the initial interview - about 30-60 minutes and potentially a follow-up interview, about 30-60 minutes. The researcher will ask you questions about the school you teach in, the S1 curriculum given to you by Field of Hope, your students, and the support received from outside organizations. Interviews will take place at the Field of Hope and Vivayic Professional Development training in January of 2018.

Risks
There are minimal associated with participation in this research. Participants are not required to answer any question with which they feel uncomfortable. Participants do not have to participate in the observations if they choose not to. The observations that the researcher will conduct will be of the facilities at the school the teacher teaches at. The researcher will be observing the classroom, school garden, and animals if any. The teacher will not be observed, and the teacher may choose to opt out of their school being observed.

Benefits
While there are no direct benefits to participating in the study, the knowledge gained from this study may assist in developing future curriculum for use in your classrooms.
Confidentiality
The information in the study records will be kept strictly confidential. Data will be stored securely in measures taken to protect the security of the data. No reference will be made in oral or written reports which could link you to the study. All data and records collected from participants will be kept confidential and stored in locked file drawers. Participants will be identified in the data only by an anonymous identification number. The interviews will be audio recorded with participants consent. No names will be used to identify the participants; a pseudonym will be assigned to each interview participants.

What if you have questions about this study?
If you have questions at any time about the study itself or the procedures implemented in this study, you may contact the researcher, Emma Cannon, at ecannon@ncsu.edu or 1-919-219-0286.

What if you have questions about your rights as a research participant?
If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact the NC State IRB Office via email at irb-director@ncsu.edu or via phone at 1.919.515.4514. You can also find out more information about research, why you would or would not want to be in research, questions to ask as a research participant, and more information about your rights by going to this website: http://gpo.ncsu.edu/research-participant

Consent To Participate
“I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled.”

Participant's signature_________________________ Date ________________
Investigator's signature______________________ Date ________________
Dear Emma Cannon:

Date: December 4, 2018
IRB Protocol 15443 has been assigned Exempt status
Title: Ugandan Secondary School Curriculum Adoption Teacher Interviews
PI: Marshall, Joy Morgan

The research proposal named above has received administrative review and has been approved as exempt from the policy as outlined in the Code of Federal Regulations (Exemption: 46.101. Exempt b.2). Provided that the only participation of the subjects is as described in the proposal narrative, this project is exempt from further review. This approval does not expire, but any changes must be approved by the IRB prior to implementation.

1. This committee complies with requirements found in Title 45 part 46 of The Code of Federal Regulations. For NCSU projects, the Assurance Number is: FWA00003429.
2. Any changes to the protocol and supporting documents must be submitted and approved by the IRB prior to implementation.
3. If any unanticipated problems or adverse events occur, they must be reported to the IRB office within 5 business days by completing and submitting the unanticipated problem form on the IRB website: http://research.ncsu.edu/sparcs/compliance/irb/submission-guidance/.
4. Any unapproved departure from your approved IRB protocol results in non-compliance.

Please let us know if you have any questions.

**************************************************************

Jennie Ofstein
NC State IRB Office
919.515.8754 (email is best)