

EXTENSION LEARNING AND ADULT EDUCATION IN JAMAICAN AGRICULTURE: A
QUALITATIVE CASE STUDY

THESIS

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Abstract

Agricultural extension learning is understood by scholars as a key adult education learning method used to educate and improve small-scale farmers' practices. This project aims to understand the impact that extension learning programs have on Jamaican small-scale farmers. This study was conducted in the rural region of Yankee District of St. Ann, Jamaica. A total of eight farmers were interviewed about their experiences of extension learning in agriculture. The findings provide evidence that there are some factors that affect small-scale farmers' growth in Jamaica, for example, low literacy rates. While extension learning can be employed to address these issues, there are limited extension learning programs to improve the skills and learning of farmers in rural communities. This thesis reports three main findings. First, there is evidence that most small-scale farmers learn to farm informally and experientially, and yet, this informal learning is not considered within the realm of extension learning programs. Second, farmers living in Yankee District have established informal cooperative groups among themselves. However, the findings reveal contradictions between practices and information sharing among members, resulting in unfortunate gaps in collective learning. Third, extension learning programs do not do enough to support women small-scale farmers, resulting in women leaving the community to support their families.

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My gratitude is infinite for all of the support I received to complete this thesis. I will start with the country in which I live: Canada. It is a place with a history entrenched in colonization. As an immigrant, I have always remembered to have an attitude of gratitude and humility, and to also understand where my opportunity and support came from, recognizing that I am not from the privileged class. Secondly, I used this opportunity to reflect on my journey from Jamaica. It is a place where, historically, my ancestors suffered because of colonialism, neoliberalism, and capitalism. This allows me to always remember to be thankful for how far we have come as a people, and to understand what reconciliation looks like in my personal and professional lives. The instructors and advisors at StFX have been an important and wonderful circle of support: Adam Perry, Leona English, Maureen Coady, Robin Neustaeter, Stephanie Mason, and Carole Roy. My learning was facilitated and inspired by each of you in your own way, and that has helped me to move ahead, even in times of uncertainty. Dr. Adam Perry, a special thank you to you, for all your input and support during this research project, but most importantly, for your constructive feedback and the important content that you provided me with. Special thanks to department examiner, Dr. Robin Neustaeter, and external examiner Dr. Al Lauzon for all of your valuable input and feedback, that have helped me to successfully complete this thesis.

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Chapter 1: Introduction

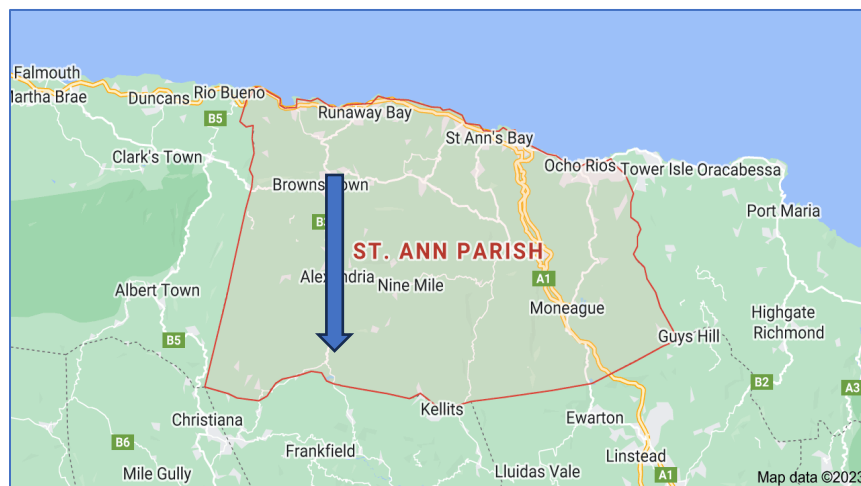
In my last 10-plus years as an agrologist and an extension agent, I have observed many different problems as they relate to the practice and learning of people in the field of agriculture. Even though I grew up in the same rural community in Jamaica where this study was completed, I could not understand why there is low literacy among most rural people, and why small-scale farmers still face the challenges they pointed out to me 10 years earlier. Additionally, I was a small-scale farmer and an extension officer for two years in rural Jamaica, and by doing my own self-reflection on my experiences, I have come to the realization that there is a practice gap in agriculture extension learning in Jamaica. For example, in my experience, the agriculture extension learning program where I worked was not data-driven, and the practices of the extension officer were not grounded in adult education principles. As a result, I thought about how I could be impactful and make a difference; therefore, I developed the idea for this thesis.

When developing this project, I reflected upon my journey, and considered how I could improve lives by aiding learning among small farmers in Jamaica. Thus, my interest in extension learning and adult education in Jamaican agriculture. This qualitative case study focuses on Jamaican agriculture, extension learning, and adult education. It does so by exploring the perspectives of people who have experience with extension learning, and who have either indirectly or directly experienced the challenges associated with small-scale farming in Jamaica. To my knowledge, there is no known research exploring extension learning in agriculture using the lens of adult education in Jamaica. According to Williams et al. (2015), the gap is obvious in the existing literature, as well as the concern expressed by farmers that there is a lack of a formal evaluation of the agriculture extension training program. This study examines and questions the

role of agricultural extension learning programs in Jamaica, the state of Jamaica's agriculture, and adult education in Jamaica.

Figure 1

Map Showing the Research Site (blue arrow shows the location for Yankee District)



This research process was carried out in Yankee District, St Ann Jamaica and involved interviewing a total of eight farmers. Interview transcripts were transcribed and then coded manually, which used the analysis of unstructured text, audio, and image data from interviews and focus groups. Data analysis began by looking to see how participants understand and discuss extension learning in agriculture, especially in response to questions about the influence of agricultural extension learning programs on their farming practices. This project presents findings from a case study that focused on the understanding of small-scale farmers' experiences with extension learning and adult education in one small Jamaican community. The cases of Pam, Roy, Kadine, Ran, Rick, John, Dave, and Paul (all pseudonyms) contribute to the literature, by providing rich examples of the state and effect of adult education and agricultural extension learning on small-scale farmers in a rural Jamaican community.

Background to the Study

The Jamaican government has funded the agriculture extension learning program since its inception in 1895, when the Jamaica Agricultural Society (JAS) was founded (Weis, 2006; Ishemo & Bushell, 2017). It was revived in 1990, when the Rural Agricultural Development Authority (RADA) was established (Williams et al., 2015). However, Jamaica's agricultural development is funded by various donor agencies, including the European Union (EU), the Inter-American Institute of Cooperation on Agriculture (IICA), and the Food and Agriculture Organization (FAO). These organizations have been providing financial and technical assistance for agricultural development. For example, over the years, funding has been provided by the FAO to support different projects for farmers in education, crop production, and hurricane relief (Smikle, 2005). The JAS is the oldest and most deeply rooted institution of rural agriculture development in the Caribbean region. Today, the JAS operates as an agency under the portfolio of the Ministry of Agriculture and Fisheries (Lindsay & Powell, 2011). RADA was established in Jamaica in the 1990s by the JAS and was mandated by the government. Currently in Jamaica, RADA is the chief agricultural extension arm of the Ministry of Agriculture and Fisheries. RADA seeks to improve the livelihood of farmers and farm families through an efficient, dynamic, and relevant extension service. Over the years, massive cuts have been made to extension services. For example, the number of extension personnel has declined from 2,000 in the 1970s to 1,000 by the year 2000 (Bin Yahya, 2000, as cited in Williams et al., 2015). Budgetary allocations were reduced from 2.3% for the 1981–82 fiscal year to 1.4% in the 2008–09 fiscal year (Campbell, 2009, as cited in Williams et al., 2015).

According to Martin (1999, as cited in Williams et al., 2015), farmers take part in training sessions chiefly for financial gain, relevance, and training needs. The extension methodologies

used by agents include the Farmers' Field School model of extension. This idea was to develop farmers with a practical skillset, and increase critical thinking and creativity. This method was developed in the Philippines and Indonesia by primary stakeholders such as the extension agent and farmers, as the center of this process. Using the monocropping system, the focus was on rice production. The Farmers' Field School model of extension focuses on participatory learning methodologies. These methods have been recently introduced by RADA in Jamaica (Anandajayasekeram et al., 2008; Williams et al., 2015). The Farmer Field School (FFS) is a participatory and interactive approach to social learning. It is an approach that puts together a set of principles and techniques meant to systematically enhance farmers' abilities to "investigate, analyse, innovate and learn improved farming practices" (Bwalya, 2007, p. 4 as cited in Williams et al., 2015). FFS concept is mostly farmer-centred to support and develop the farmer's competencies in the field as well as in perceiving agriculture as a business (Williams et al., 2015). RADA has adopted this approach on a small scale, and it has been used to encourage farmers to be more business oriented, by offering training in both social and business entrepreneurship (Williams et al., 2015). But small-scale farmers in Yankee District, St. Ann, Jamaica, had no knowledge of the FFS programs and, today in Jamaica, is one of the major constraints for small-scale farmers living in the rural community of Yankee Districts. St Ann is the marketing of their produce.

There are other types of extension learning programs in Jamaica that focus on larger-scale production, and these large farms normally produce one or two types of crops. For example, predominantly large-scale farmers that produce crops for the export market normally have commodity boards in place. The types of crops they produce are bananas, coconuts, coffee, and sugarcane. These commodity boards serve several functions. For example, they assist

farmers in marketing, and provide agricultural extension services; however, their services are only available to larger-scale farmers who are members of commodity boards (Collinder, 2012). The Food and Agriculture Organization (FAO) is a specialized agency of the United Nations that leads an international effort to prevent hunger. During the 1980s, when the Jamaican government requested assistance from the FAO to strengthen agricultural extension services, the FAO responded with the advice that Jamaica should consider adopting a pluralistic agricultural extension model that would involve both private and public extension learning programs (FAO, 2010; West-Hayles, 2010). According to the FAO (2010), because RADA was a small institution with a limited number of staff, they might not be able to reach all farmers. This proposed recommendation from the FAO to the Jamaican government was not approved by RADA or the Ministry of Agriculture in Jamaica (FAO, 2010).

Today in Jamaica, the same is true: RADA is a small organization without enough resources and support staff to efficiently cover the geographical location of rural communities, since the largest number of Jamaican farmers are without formal educational training. For example, 4% of the registered small farmers in Jamaica had no form of education, while 57% had only completed primary school. Additionally, one in every three small-scale farmers can read and understand the instructions given in training sessions on fertilizer labels, animal feed, pesticides, and pamphlets on crop growth and rotation (Williams et al., 2015). The reality on the ground in Yankee District, St. Ann, Jamaica, is that local farmers might meet with their agriculture extension officer about three to four times per year. The community of Yankee District is in the parish of St. Ann. In Jamaica, farmers normally receive support from the extension worker through an information forum, farm visit, and aid distribution. The information

shared by extension workers normally includes natural disaster readiness and the introduction of new farming skills (Rahman & Guido, 2016).

Jamaica “Wi Likkle but Wi Tallawah”

Jamaica is a Caribbean Island in the Greater Antilles that is on the northern boundary of the Caribbean Sea. Jamaica, like many Caribbean Islands, had been occupied for several centuries before the arrival of Christopher Columbus (Mordecai & Mordecai, 2000). Jamaica has a total area of 4,411 mi² (11,244 km²). The island is mountainous, which is beautiful but also contributes to part of the problem in agriculture. For example, losing nutrients from topsoil and sloping land reduces the use of farm machinery. Due to Jamaica’s geographical location, the island has been a meeting place for almost all nations and races. The country became independent in 1962 and adopted the motto, “Out of Many, One People.” Today, Jamaica has a population of 2.7 million people, with descendants who arrived after the English captured the island in 1655. By that time, the native Taino had disappeared into the African and European populations (Mordecai & Mordecai, 2000). In reality, Jamaica today is an island that is still developing. For example, Jamaica, with its colonial past, the problem of people living in poverty, and inequality is a major challenge (Williams et al., 2015). Agriculture is the profession for many Jamaicans who do not have access to formal education, and most consider themselves small-scale farmers, people who have increased their resilience over the years, and continue to provide for themselves and their families. Regardless, challenges exist, and more needs to be done to improve the lives of ordinary Jamaicans. The catalyst of this study is the compelling demand of small-scale farmers in Jamaica, and the limited available resources available over the years (Mordecai & Mordecai, 2000).

Focus of the Inquiry

There is little to no research work done on the education of farmers in Jamaica, and there is a clear gap in the existing literature about the impact of the agriculture extension learning program in Jamaica (Williams et al., 2015). There is also a considerable data gap in the history of Jamaican agriculture, and also the state of literacy over the last 10 years.

I was interested in the impact agriculture extension learning has on farmers in Jamaica currently. I was also interested in investigating the learning methods that were being used. There is not much known about adult education and agriculture in Jamaica in the 21st century, and we need to know more. For example, in Jamaica today, the literacy gap remains a major problem among adults, and influences the outcome in agriculture and other areas of the economy. Does the problem of adult literacy arise from other accumulative factors, such as neoliberal policies, colonial policies, and climate change?

Purpose of the Research

Primarily, this research highlights people's experiences with extension learning and adult education. The study identifies the nature of the impacts that extension learning had on small-scale farmers in Jamaica. It also explores the different accumulative factors and social issues that contribute to the low level of literacy, and lack of gender equity among people in the agriculture system.

Scope and Limitations of the Study

This research project included participants who lived in the same rural community in Jamaica where I grew up. I took a case study approach that provided a descriptive analysis of the bounded systems of the participants (Merriam, 2016). One limitation to my research project was that the interview portion of the research involved a total of eight small-scale farmers; therefore,

the content from this project might not provide enough information to make a complete conclusion about the state and impact of adult education and extension learning in Jamaica. Due to the impact of COVID-19, the recruitment process for this research was done through an online workshop that was not part of the methodology.

The purpose of the workshop was to share information with participants and introduce the research project to those who were interested. The workshop activity was advertised by the church in the community; therefore, some local farmers who are not associated with the church might have missed out on the opportunity to participate in the research project. Additionally, during the recruitment process, the pastors at the church seemed to have a preference as to who they would like to participate in the interview process. I did my best to mitigate any bias. For example, all participants for this research were selected based on the criteria described in the methods section. The interview portion of this research project takes place over the phone, which probably prevents the opportunity for an in-person relationship that might provide more information about individual participants.

Positionality and Assumptions

I have extensive experience as an agrologist in the field of agriculture, which provides me with the insights needed to relate to participants. The majority of my work has been supporting farmers who need expert advice on how to improve the production and profitability of their farms. I have had firsthand experience with some of the problems that small-scale farmers in Jamaica encounter. The community of Yankee District in the parish of St. Ann was chosen for this research because I grew up in this location, where both of my parents were small-scale farmers who had not completed a high school education.

I was born in rural Jamaica in 1985, in the parish of St. Ann, one of six children in a family community where my father had a vegetable and potato farm. As the son of a farmer, I had first-hand experience with the problems that small-scale farmers encountered daily, all of which had an impact on wider society. Some of the issues that they encountered daily involved a lack of resources. For example, machinery, such as a tractor, was not available, and as a result, most of the work had to be done manually. I remember clearly that there was also a lack of extension services and technical advice from the government to assist and educate farmers.

Farmers had to depend on learning from each other's experiences. As a result, production was limited due to the farmers' inability to access and use modern technology to maximize production. In the past, as an adult, I was an active member of the agricultural community, and for more than four years, I built up relationships with Jamaican farmers at the grassroots level. I have come to understand their struggle with regards to insufficient resources among the Jamaican extension services to satisfy farmers' needs. For example, technical skills to access and use machinery to reduce manual labour, and the availability and access to small farm loans.

Over the years, I have conducted informal conversations with farmers from the community about extension learning and the issues that small-scale farmers encounter. I have worked as an extension officer before and have regularly assisted with farmers' training. During my involvement, it became clear that there was still a major problem facing small-scale farmers. I have conducted this research to focus on the development of agriculture and strengthening the skills of small-scale farmers in Jamaica. I understand that some of the participants in this research might view me as a fortunate person because I was able to migrate and am pursuing graduate studies at a Canadian university. However, I continue to build and strengthen relationships with the community related to this research. Therefore, I consider myself

knowledgeable about the context within the study area, given my background, which is similar to the participants. I consider myself to be among the privileged class.

Definition of Terms

Adult education is defined as any method that allows adults to solve their problems, learn from their experiences, control their learning, and apply what they learn (Elsley & Sirichoti, 2002).

Adult education is also defined as a model of the process that combines personal and socioeconomic transformation (Elsley & Sirichoti, 2002). Adult education represents a new quality and a new dimension in education. It is held to be a lifelong activity, is non-vocational, and is concerned with no subject in teaching. Adult education also prioritizes learner experiences (Boelens et al., 2015).

Agriculture extension learning is defined by the sharing of information and technologies (ICTs) with farmers (Anandajayasekeram et al., 2008). Agriculture extension learning is defined as networked learning, which is an approach to information and communication technologies that support and facilitate learning in the agriculture business. For example, learning from human-to-human, or human resources connections (Kelly et al., 2017).

Cultural empowerment uses culture as the point of entry, and in some cases, roles and norms can be redefined (Luttrell et al., 2009).

Culture is defined as a specific group of people learning to survive, such as when one generation passes down what they have learned to the next (Gruenert & Whitaker, 2015). Culture is also defined as a social indoctrination of unwritten rules that allows people to learn that they can fit in with others; these people are communities (Groener & Whitaker 2015). For example, individuals within a population create culture using images, or encodement and meaning transfer from previous generations, groups, or individuals (Spencer-Oatey & Franklin, 2012).

Economic empowerment is defined as economic development that reduces inequality and prevents constraints on poor households (Duflo, 2012). It seeks to provide people with resources and access to sustainable income and assets (Luttrell et al., 2009).

Farmers' cooperative is defined as the type of cooperative that holds regular member meetings, and those meetings normally follow the democratic control principle. Farmers' cooperatives provide a consistent service to all their members, and their relationship is consistent, democratically held, and stable. Farmers' cooperatives normally offer training, and help provide marketing for their members (Garnevska et al., 2011).

Human and social empowerment is defined as the process by which people have the capacity to implement control over their own lives (Luttrell et al., 2009).

Illiteracy is defined as the process by which people cannot use reading, writing, and calculation skills to achieve their personal goals, and contribute to society (Vágvölgyi et al., 2016).

Literacy is defined as the process of understanding, reflecting on, and engaging with written text to develop one's knowledge, achieve a goal, and potentially participate in society (Börner et al., 2019).

Political empowerment is defined as the process by which people can organize collective action that results in collective change (Luttrell et al., 2009).

Small-scale farmers in Jamaica are defined as those who own 4.0 hectares or less of land (Spence, 1999).

Sustainability is defined as being bearable in terms of the environment and the economy, as well as not depleting natural resources during production (Pretty, 1995). Sustainability is a science that is recognized for development of the environment. It provides an opportunity to deal with

the challenges and the critical advancement of basic knowledge in human technological and social capacity (O’Riordan, 2012).

Theoretical Framing

I believe in a democratic approach, and as such, I carried out this research using Paulo Freire’s philosophical view (Freire, 2005). Freire believes in a democratic learning approach; he believes that people can learn from each other because of their different experiences (Freire, 2005). Therefore, during this research project, I tried to approach the situation as Freire would, considering the challenges that participants encounter in agriculture on the one hand, and their learning and experiences on the other. During this study, I learned as much as I could from the participants, including their culture, since Freire believes that culture is most relevant when learning about humans (Freire, 2005). My view on reality was important in constructing the theoretical framing and carrying out this research, and this included my ontological and epistemological stance (Merriam, 2016). My undergraduate education and working experiences over the many years in agricultural sciences were informed by the scientific method and positivist philosophy. This allows me to understand that reality is measurable, observable, and stable (Merriam 2016, p. 8). Through sense and interpretation, I was able to construct knowledge from the information gathered, and to become a competent adult educator. I have extensive experience as an agrologist in the field of agriculture, which provides me with the insights that are needed to relate to participants. Most of my work has revolved around the idea that farmers should receive expert advice on how to improve the production and profitability of their farms while maintaining agricultural sustainability. Although expert advice might not be congruent with Freire’s thinking, I believe this will add to the experiences of farmers, and also what farmers will learn from each other.

Critical theory is relevant since it seeks to confront social, historical, and ideological forces and structures that seek to constrain it. Critical theory was an excellent framework for my planned investigation into extension learning and adult education in Jamaican agriculture (Brookfield, 2014). This study was built upon a critical pedagogy tradition that draws largely on the work of Paulo Freire; his work provides a grounding for my research problem. Freire believes that the reality of culture is of the utmost importance for solving people's problems (Freire, 2005). I was concerned about the challenges farmers in Jamaica encountered as they related to their culture. Additionally, there were other factors that might impact small-scale farmers in Jamaica: neoliberalism, colonialism, and climate change (Robinson et al., 2013). My hope was to achieve a dynamic and sustainable learning environment for all small-scale farmers in Jamaica (Robinson et al., 2013). Critical theory is the basic tool that will help dismantle the structure of power in Jamaican agriculture by critiquing and pointing out the structures that kept them in place. Critical theory values the perspective transformation process that includes the structure of cultural and psychological assumption, which limits the understanding of one's self and one relationship. Additionally, this allows the opportunity for transition through self-reflection that is essential for transformation (Mezirow, 1983). Critical theory was the method I used to look at the strengths and weaknesses of the Jamaican agriculture system (Brookfield, 2014). It helped me to critique the role and impact of extension learning and adult education in Jamaica (Brookfield, 2014). I was concerned about the impact of extension learning on small-scale farmers living in rural communities. Adult illiteracy was identified as the major problem (Beckford & Barker, 2007). Therefore, one of my major challenges was to develop ways to get adults to open up to new ways of thinking and, as Paulo Freire would state, emancipate consciousness (Freire, 2005).

Thesis Overview

This thesis is comprised of six chapters. In the second chapter, I summarized the relevant literature that situates this research in the fields of adult education, agriculture extension learning, and Jamaican agriculture. In chapter three, I explained why I chose to explore my practice problem using qualitative and case study methodologies. Included in this chapter, is a detailed description of how I conducted the research, and my approach to data collection and analysis. The case takes center stage in Chapter 4, where I present the study's findings. Chapter 5 encompasses the analysis of the data. I describe how the findings contribute to the literature on adult education, extension learning, and Jamaican small-scale farmers. The final chapter includes implications and recommendations from the research that I have used to inform my practice, and that could be implemented by the government of Jamaica and other adult educators. I also detail the limitations of the study, suggest future avenues of research, and share how I plan to disseminate my findings.

Chapter 2: A Review of the Relevant Literature

This chapter is presented in three parts. To begin, I establish the scope of the problem, from the issue of literacy among Jamaican small-scale farmers, to the gaps in adult extension learning and theoretical work done in Jamaica and the Caribbean over many years. Part two includes literature on extension learning in agriculture. I conclude by looking more in depth at adult education in Jamaica and the Caribbean.

Scope of the Problem

Early Agriculture in Jamaica to Present Day: Resources and Opportunities

Jamaican agriculture and its history can be traced back to the pre-slavery period, when the original inhabitants of the island, the Tainos, or Arawaks, survived by engaging in small-scale farming (Rashford, 1994). During the period of slavery, like many other colonies, the Jamaican economy was classified as a plantation economic system, and most of the country's agriculture was large-scale crop production operated with free labour. For example, crops such as sugar cane, bananas, and coffee were a major focus. Most of what those plantations produced was exported into the European market (Beckford & Barker, 2007; van der Linden & Garcia, 2016). The plantation system was supported by slavery (Cumper, 1956). In 1831, just before slavery was abolished in 1838, a study showed that the Jamaican population was a little over 36,000, and there was one free person per 50 slaves. During the post-abolition period, there is a transitional labour force which included indentured labour, share cropping, convict labour, and debt peonage (van der Linden & Garcia, 2016). Additionally, during this period, studies show that there was some labour work available which was often less expensive (van der Linden & Garcia, 2016). As a result, small-scale farming was the major source of income for most ex-slaves. The Jamaican agriculture sector was historically characterized by structural dualism

(Beckford & Barker, 2007). This system was one in which predominantly large-scale farm production was privileged to focus on the export market, due to some agricultural policies that were in place, for example, farm size, export licence, and land ownership issues. As a result, small-scale farmers were marginalized. These farmers had limited access to resources such as land and financial capital, which reduced their capabilities. Therefore, they could only meet the needs of the domestic market (Beckford & Barker, 2007). Jackson (1992) argues that the Canadian bilateral agricultural aid program that was established by the Canadian government from 1972 to 1986 to support farmers in Jamaica was an agricultural program that was intended to be suitable for all farmers. However, the program was evaluated under the Canadian National Health and Welfare Development Program (NHRDP). The evaluation of the aid in 1987, showed that the assistance was inappropriate for small-scale farmers, and was only suitable for large and medium-scale farmers. Additionally, according to NHRDP, Jamaican political economic conditions at the time negatively affected the outcome of the program (Jackson, 1992). Therefore, any new methods or practices introduced to small-scale farmers need to be applied objectively and, most importantly, understood by the farmers through a process of action and reflection (Freire, 2005).

Farmers in Jamaica lack formal educational training in agriculture (Williams et al., 2015). Skills were transferred from local knowledge, which was acquired and developed outside of formal education. Collective and individual learning methods are necessary to improve small-scale farmers' learning, which could, consequently, increase their efficiency and productivity (Beckford & Barker, 2007). Between 1960 and 2000, agriculture on the island encountered numerous challenges, including the control of the plantations by imperial institutions, and the problem of the theft of agricultural produce (Beckford & Barker, 2007). These are some

contributing factors that have resulted in the undermining of farmers' livelihoods, and present-day agriculture is a mirror of the same condition (Ishemo & Bushell, 2017; Guido et al., 2020). Other challenges include limited access to resources, capital, and scientific research. Gamble et al. (2010) argue that farmers in Jamaica did not receive any government aid during the 2008 drought or Hurricane Ivan in 2010, and as a result, they need help adapting to climate change. Small-scale farmers in Jamaica suffer from high gross income variability. Yield and agriculture acreage are decreasing, while on the other hand, the value of the current agriculture input is being driven up by rising prices (Arias Segura, 2010; Williams et al., 2015).

Agriculture production in Jamaica has benefited more than just the rural community of Jamaica; the agriculture sector has a strong linkage with the rest of the economy, and as a result, the sector helps in nation building by aiding economic growth. For example, agriculture contributes to economic growth by absorbing input from the domestic sector (Arias Segura, 2010). Small-scale farmers in Jamaica are experiencing a negative change in their social and ecological environment, and a significant contribution to this issue is the reduction in their production output due to climate change (Guido et al., 2018). The International Monetary Fund (IMF) and the World Bank have long-standing relations as lending agents with Jamaica, and other countries such as Trinidad, Tobago, and Guyana from as early as the 1970s (Bissessar, 2014). A loan to Jamaica from the IMF is accompanied by structural adjustment measures that are put in place as prerequisites for the loan, such as reducing government spending resulting in low wages for government employees, a poor housing market, high demand for foreign goods, high unemployment, and an increase in poverty (Bissessar, 2014). As a result, Jamaica is constrained in its ability to govern itself; rather, economic decisions are dependent on the force of globalization, and the adjustments made by lending agencies such as the IMF (Bissessar,

2014). Additionally, the condition in Jamaica has been shaped by the legacy of colonialism. The country's dependence on overseas markets, unequal land distribution, and the impact of multiple hazards such as hurricanes, drought, pests, and diseases (Birthwright, 2016; Rhiney, 2015, as cited by Guido et al., 2018). A study was done in Blue Mountain Jamaica to identify production vulnerability among small-scale coffee farmers. A mixed methods of group discussion and informal interviews was used to do a household survey of 434 small-scale farmers. The findings show that farmers possess a limited stock of economic resources and information, and on farming knowledge was found to be weak. Additionally, the results from the study show that half of the farmers in the study had not participated in any informational group activity (Guido et al., 2020). Despite limited resources, farmers mainly rely on their own capacities to deal with challenges, such as drought and climate change. Therefore, to reduce the vulnerability that predominantly small-scale farmers encounter, multiple strategies of investment is required (Guido et al., 2020).

The Need for More Cooperatives

A farming cooperative is defined by regular meetings by its member, and all members follow a democratic control principle. Furthermore, its member should be able to access the cooperative financial report and should also function as guide for its members to develop in the area of marketing and financial management (Garnevaska et al., 2011). The farming cooperative approach is guided by the following principles: the farmers play the dominant role for its members; the main purpose is to its members; all decisions are made in the common interest of all members; members can join and exit voluntarily, and all members are equal (Garnevaska et al., 2011). The purpose of farmer cooperative groups in Jamaica is to empower farmers to participate in the supply chain, and strengthen their voice and representation. For example, in Jamaica,

farmer cooperative groups allow farmers to pool production, access markets, and share resources (Campbell, 2021). Farmers were able to access services that private companies would be reluctant to provide to individual farmers because of their farm size and the potential of their enterprise. Additionally, coffee farmers in Jamaica used farmers' cooperative groups to coordinate and plan to reduce climate impact, and to share information to enhance production (Campbell, 2021).

Farming cooperative groups were established by RADA in 2002. The purpose was to share information and provide aid to farmers in a group who had similar interests and needs (Ishemo & Bushell, 2017). A study that was done in Portland and Guys Hill, Jamaica in 2002, has proven that information is shared in a shorter time, and is more effective when extension agents disseminate information using the farmers' cooperative groups (Ishemo & Bushell, 2017). However, the result also proved that some aspects of the cooperative groups are not effective in their function and, in some cases, could jeopardize members' potential (Ishemo & Bushell, 2017). Farming cooperatives encounter challenges, such as membership inconsistency, limited access to financing, and farmland accessibility (Ishemo & Bushell, 2017). The findings suggest that small-scale farmers' cooperative groups in Jamaica do not fundamentally maintain viability. Thus, the building of grassroots organizations should be the focus, and assistance should be aimed at sustaining, rather than the formation of cooperative groups (Ishemo & Bushell, 2017). The root cause of the failure of the farming cooperative groups dates back as early as the 1950s because of the lack of land ownership among small-scale farmers. Most small-scale farmers occupied small plots of farmland. There was poor leadership among members, a lack of financing, and an unwillingness of some members to offer mutual support to other members (Weis, 2006, as cited in Ishemo & Bushell, 2017). Over the years, the cooperative movement in

Jamaica has operated as a type of social and economic organization that has received some attention from the government entity and the Jamaican agriculture industry. To date, none, or a small percentage, of the attempts have been noted for their success. Farming cooperatives used to share resources, and the development of some marketing networking systems. The reasons for these failures have ranged from people in poverty in rural communities with a dearth of education, communities with lower socioeconomic status having their own cultural theory of poverty that seeks to relate certain behavioral characteristics to their condition, to individualism, cynicism, hostility, and defeatist attitudes, some of which stem from colonialism and capitalism (Ishemo & Bushell, 2017). For example, Jamaica is classified as an upper-middle income country, although economically it is characterised by low growth and high public debt (De Angelis, 2023). The situation stems from decades of economic reform being determined by Jamaican economic agreement with the International Monetary Fund and the World Bank (Bissessar, 2014; De Angelis, 2023). The impacts on infrastructure such as roads, water, sewage, schools, and hospitals are persistent challenges for the country. The compelling demand and limited resources have impacted Jamaica over many years (Bissessar, 2014; De Angelis, 2023).

Adult Education Influences on Small-Scale Farmers

Farmers in Jamaica have been struggling for many years between the old and the new, individualism and cooperative tensions, from instability of the economy due to the dependence on other nations for trade, limited access to education, infrastructure limitations, and poor quality of land (Weis, 2006; De Angelis, 2023). Freire argues that learning in extension agriculture was not always successful, in some cases due to a naive view of reality by extension agent and the farmers, explaining that narrow-minded attitudes were sometimes the cause of the failure (Freire, 2005). The Commonwealth of Learning Media Empowerment (COLME) was a video training

program that was established in 1999 by the Commonwealth of Learning (COL). The project was implemented in Jamaica and Ghana, and the agriculture sector was given the spotlight. The idea was that the implementation of the project would develop a training program with a model that would allow for training to take place in a formal and non-formal educational environment. The project included a video training program, and the findings from the feasibility analysis of the program showed that most farmers have access to television and VCRs. Therefore, the use of video-based learning could improve the techniques of farmers during training, and thus improve their efficiency (Walker, 2000).

The greenhouse development project was introduced to small-scale farmers in 2004 by the United States Agency for International Development (USAID) in collaboration with the Jamaican government. The goals were to revive small businesses and increase production by using new technology. As a result, 11 demonstration greenhouses were built around the island. In 2009, the Canadian International Development Agency (CIDA) introduced its greenhouse project, aiming at productivity and improvement. This program provided 40 greenhouses to the extension services to aid in farmer training. The feasibility of the findings showed that the introduction of these types of farming did not provide for the interest of permanent traditional farmers but was only favorable for elite farmer groups (Moulton & Popke, 2017).

A pilot project was developed by the Ministry of Agriculture working under the government of Jamaica called, the “Jama Tube Design Brief.” This project was designed to use video to make positive change in agriculture. This project was necessary at the time because the Rural Agriculture Development Authority (RADA), the main government agriculture extension body, was facing challenges with a constant lack of resources to meet the needs of all farmers. Additionally, there was a lack of training in communication among extension agents, even

though they had undergone technical training in the field of agriculture. The Jama Tube Design Brief project was a database and video portal that was designed for the needs of the user, which is the farmers. It displays an interface, provides learning information to the farmers, and has navigation and instructions for uploading and downloading videos (Townsend, 2010).

A study was done in Sierra Leone to look at how climate change impacts farming in the rural community. The study was done through the modeling of climate crops and was concerned about the impact of climate change on agriculture, as well as on people's lives overall. It was revealed that 67.4% of the farmers were illiterate, and therefore lacked knowledge and understanding of climate change (Edo et al., 2023). Similar to the "Jama Tube Design Brief," the overall findings showed that there is an urgent need to provide resources related to agriculture to empower farmers in climate change and other areas. For example, farmers training to understand and learn how to adapt to climate change and making farm grants available to encourage farmers to practice farming in a sustainable way. These findings are relevant to the Jamaican context, and suggest how linkages between extension officers, researchers, and farmers in Jamaica can be facilitated by using contemporary information and communication technologies (ICTs). Simply put, this can be the medium through which information and new findings can be communicated (Nyarko & Kozári, 2021). According to Annor-Frempong et al. (2006, as cited in Nyarko & Kozári, 2021), ICTs are among the modern tools that facilitate rapid information and knowledge sharing among farmers and extension agents. For example, a study was done in Ghana to examine the use of ICTs among farmers and extension agents. The overall conclusion of the study showed that among extension agents, the use of ICT tools is higher, but in extension service delivery, it has very little application. Examples of commonly used ICT tools by extension agents are mobile phones, laptops, iPads, social media, WhatsApp, and internet radio

(Nyarko & Kozári, 2021). A study was done in Jamaica to evaluate the RADA farmers' training program. The sample size included 200 farmers and eight extension specialists. The findings showed that the increasing use of integrated learning methods would improve delivery training. Additionally, there was evidence that the inclusion of ICT is required to enhance training program value to rural farmers (Williams, 2013).

Extension Learning in Agriculture

Extension learning in agriculture started in Ireland in 1845, and officially developed in 1850 by the University of Cambridge and Oxford University. It appeared shortly before or after movements for independence in many developing countries (Anandajayasekeram et al., 2008). For example, since the 1960s, agricultural extension has been working to support and engage farmers globally through the delivery of information inputs. Agriculture extension in developing countries has its shortcomings because technology transfer from developing nations is, in some cases, not applicable to farmers living in rural communities in these nations (Elsley & Sirichoti, 2002). However, some developing countries still depend on extension learning in agriculture as a source of knowledge (Anandajayasekeram et al., 2008). This is because many farmers in developing countries lack basic literacy, and agriculture is their main source of income. Therefore, access to education is important in improving the socio-economic status of farmers (Ishemo & Bushell, 2016). But in most parts of the world, local knowledge has played an active role in the lives of rural communities ((Beckford & Barker, 2007; Ishemo & Bushell, 2016). For example, in Jamaica, the application of traditional knowledge is adaptable, valuable, and necessary among small-scale farmers in rural communities. Most importantly for this study, the literature confirms that most small-scale farmers learn their skills from each other (Beckford & Barker, 2007; Ishemo & Bushell, 2016). Yet, the source of most small-scale farmers' struggle is

poor levels of literacy, and unavailability of resources such as capital and technical skills (Beckford & Barker, 2007; Ishemo & Bushell, 2016).

The role of the extension agents, who focus on the demonstration and teaching of new technology with the expectation that farmers will adopt innovation, has most of the time proven to be ineffective (Anandajayasekeram et al., 2008; Leeuwis, 2013). This is due to the agents' inappropriate dissemination of technology, or the farmers' fear of using new technologies. The development of agriculture in developing countries will require further investment to provide information and knowledge through workable institutional planning (Leeuwis, 2013). There are several extension learning methods that have been used around the world to enhance the learning of farmers (Leeuwis, 2013), some of which could potentially be a part of the solution in Jamaican agriculture. For example, pluralistic extension learning is the model that is being used in countries such as Brazil, India, and Ethiopia (Diesel & Dios, 2016; Norton & Alwang, 2020). This approach involves creating partnerships between various agencies, for example, farmers' groups, the government, and non-government organizations (Norton & Alwang, 2020).

The primary method used in developing countries to spread innovation, however, is the top-down approach. The ideology is that knowledge and technology will solve the problems of farmers only when they are transferred from scientists and institutions using agriculture department programs (Anandajayasekeram et al., 2008). Revenue generation was the rationale for commodity-based extension, and focus was given to production, marketing, and profit. This method was used by many of the French-speaking countries in Africa, and focuses on the education of farmers, whereby the agricultural extension officer shares learning resources directly with farmers (Anandajayasekeram et al., 2008). The private sector model of extension is one in which farmers are expected to pay for the extension services provided. This model is

practiced by New Zealand and the Netherlands, Chile, and Uganda. However, research has shown that small-scale farmers in some of these nations cannot afford to pay for extension services, since they are already lacking sufficient resources to become profitable. For example, some farmers have limited resources to invest, and therefore, paying for extension services will pose a challenge (Anandajayasekaram et al., 2008). The farmers' field school model in extension agriculture is a model that focuses on a participatory learning methodology. The idea was to develop farmers practical skills and increase critical thinking and creativity.

Agricultural Sustainability

Sustainability is defined as being supportable long-term with respect to the environment and the economy. It is also defined as not degrading natural resources while maintaining food security. For example, a sustainability approach would reject the use of organic pesticides and the prevention of environmental degradation (Pretty, 1995; Wijaya & Offermans, 2019). Farming practices that provide economic impacts, ensure food security, improve the standard of living in rural areas, and also reduce poverty while limiting degradation and the depletion of resources, are defined as sustainable agriculture (Beckford et al., 2011). Sustainable agriculture is viewed in many different ways. Different types of agriculture have promoted the belief in sustainable agriculture, and practices have shown the benefit. Organic agriculture, biodynamic agriculture, biological agriculture, and integrated agriculture are all sustainable agriculture practices (Beckford et al., 2011). A study was done in Jamaica in 2009 to look at the prospect for the widespread adoption of the minisetts technique (to increase production) and sustainable yam cultivation, and advocate that greater use be made of farmers' knowledge of the complex agroecological, socio-cultural, and economic conditions in which they operate. The finding suggests that farmers cultivate marginal land that is generally steeply sloping (Beckford, 2009).

The greatest challenge for agricultural sustainability is to achieve a balance between production and the protection of the environment (Beddington, 2009; Garnett et al., 2013, as cited in Halbleib & Jepson, 2015). When combined with education and access to new technologies, this opportunity would provide an important mechanism to enable sustainable agriculture practices (Halbleib & Jepson, 2015). Education improves awareness, and sustainable agriculture provides healthy available food, and a safer environment (Jepson et al., 2015, as cited in Halbleib & Jepson, 2015). Some environmentalists believe that for sustainable agriculture to be achieved, the government and agricultural extension agents have a crucial role to play (Wijaya & Offermans, 2019). In 2018, research was done in Indonesia to allow farmers access to tacit knowledge on sustainability that could contribute to farmers' livelihoods in a positive way, and to look at the role of public agriculture extension agents. The findings suggest that there is a need for agriculture extension agents who are highly motivated, who would be able to get the support of the government, and who also have the ability to win over the trust of farmers (Wijaya & Offermans, 2019).

Adult Education in Jamaica

During the period of 1972-1979, the government of Jamaica established a universal free education initiative to eliminate illiteracy and target social inequality. Thus, the Jamaican Movement for the Advancement of Literacy (JAMAL) was developed by the Jamaican government (Thomas-Brown, 2020). Nearly half of Jamaicans were illiterate at the time, and the plan was to use JAMAL as an educational tool to eradicate illiteracy in the shortest possible amount of time, develop human resources, and increase social, economic, and cultural development (Gray, 2023). Due to the proliferation of neoliberal policies and other structural adjustments, JAMAL has declined in the years since, resulting in a shifting of educational

policies toward neoliberal priorities, focusing primarily on human resource development (Gray, 2023; Thomas-Brown, 2020). In the face of structural adjustment policies and the entrenchment of neoliberalism, JAMAL was reinvented as the Jamaican Foundation for Lifelong Learning (JFLL) and has since focused primarily on education for labour market needs.

In Jamaica today, more education has been put in place by private institutions, colleges, and communities, along with the Jamaican Foundation of Lifelong Learning. Historically, formal education in Jamaica has been overshadowed by inequalities, as only a small elite group could access higher education. The last few decades have seen the Jamaican higher education system experience a shift from heavily depending on public-founded institutions to an influx of diverse institutions, resulting in a shift from elite institutions to a wide range of institutions that provide more opportunity for marginalized Jamaicans to access higher education (Robinson et al., 2013). However, while this expansion provides more higher education opportunities for Jamaicans in general, the overall development of Jamaica's human capital is not without problems, as the country strives to maintain a good educational standard. To ensure societal growth, access to funding and educational opportunities are needed (Thomas-Brown, 2020). In Jamaica and the Caribbean, there is a need to develop a dynamic and sustainable learning system that provides opportunities for all, and one aim should be to close the literacy gap. Furthermore, there should be a focus on global markets, competition, and the continued transfer of knowledge towards a society that is built on lifelong learning (Robinson et al., 2013). While there is an expansion of formal literacy in some corners of Jamaican society, some marginalized communities composed of small-scale farmers remain illiterate (Ishemo & Bushell, 2016). Therefore, as the Jamaican educational system today moves towards a roadmap vision of 2030, strategic guidance is needed for the development of the education system to produce competitive graduates (Thomas-Brown,

2020). Just as important is also the access to formal and nonformal educational opportunities, resources, and autonomy for low-income families living in rural communities in Jamaica (Ishemo & Bushell, 2016).

Community Development and Adult Education

Adult education shares similar objectives and tools in the development of communities by creating a practice-based learning methodology for farmers. Austerity and extreme social inequalities have been created in Jamaica due to the neoliberal political system. For example, the structural adjustment programs have reduced the government autonomy of Jamaicans. These types of government systems do not just affect the space for critical conversations that happen in everyday life and that most people value, but also affect communities, people-to-people connections, kindness, and compassion towards others (Ledwith, 2020). Today, the world is in crisis; the planet is unsustainable, and a few continue to exploit society for their own self-interest (Ledwith, 2020). To ensure community development, we need to incorporate local practices into the wider political context. This would provide the understanding we need to support changes. The root cause of oppression will not be discovered if we are not willing to look deep enough (Ledwith, 2020). Paulo Freire, throughout his work, used counternarratives to cultivate change. Freire argues that the story of people is the beginning of social change (Freire, 1970, as cited in Stephenson & Zanotti, 2020). Community development requires the development of grassroots theories that emerge from conversation with local people, that could lead to the creation of a new story as the basis of a new reality (Ledwith, 2020).

Paulo Freire's work was the catalyst in the 1960s and 1970s that allowed for citizen participation to illuminate, thus creating ways for participatory research action (Freire, 1970, as cited in Stephenson & Zanotti, 2020). In a study that was done on the grassroots initiatives

program in Haiti to encourage crop production among rural farmers, the findings suggest that learning in some of the groups depends on cultural or local preference (Stephenson & Zanotti, 2020). Power is defined as a form of causation that has effect in and through social relation (Scott, 2018). Power dynamics normally influence the result of the development of local groups (Babikwa, 2004, as cited in Stephenson & Zanotti, 2020). In most cases, power dynamics are the force that limit the raising of voices for those with less capacity (Thomas, 2015, as cited in Stephenson & Zanotti 2020). Donais (2012; Ramsey, 2011, as cited in Stephenson & Zanotti 2020), argue that both Jamaica and Haiti have been dominated by elitist representation in all formal institutions, that has contributed to the bias in the professions—linguistic, political, and educational—and therefore, prevented conversation and good governance. The low level of public trust, and the refusal to participate in community development projects in Jamaica, are a result of the high level of inequality in the economy (Stephenson & Zanotti, 2020). Support from the government could help facilitate and encourage community-based agriculture (Hanavan & Cameron, 2012). This would help to maintain a promising regional food system through sustainable agriculture and encourage farmers' participation. For example, extension officers in Zimbabwe developed the participatory extension learning approach between the farmers and the extension agents. This has promoted the development of sustainable agriculture in rural communities in Zimbabwe (Anandajayasekeram et al., 2008).

Gender Development, Education and Agriculture

When challenging these issues, a special focus should be given to developing nations that have many women living in poverty, and who do not have the relevant programs in place to raise awareness about critical issues like gender equity. As a result, the question for adult educators is: what adult education methodology is required to support gender development on a global scale,

and where should these conversations begin? (English & Irving, 2015). Social movements must be used to sustain learning (English & Irving, 2015). Adult education should be used to bring out ideological content, educate society to push back against oppression and gender disparity, and ensure equity. In the words of Leona English and Catherine Irving (2015, p. 9), “The issues are clear, and the need for continual engagement with feminist and adult learning is equally clear.”

The agricultural industry needs the contributions of both men and women to come together to promote and develop it. Extension agents must recognize the needs of men and women, by understanding their needs and implementing extension programs to serve them equally (Dayanandan, 2011, as cited in Nyarko & Kozári, 2021). Women normally receive fewer extension services than their male counterparts. Therefore, the availability of good ICT knowledge among extension officers is important to provide equal opportunities for women and men living in rural areas to access information and knowledge in agriculture (Nyarko & Kozári, 2021). Over the years, women's participation has increased in the agriculture sector in many countries, but information on new technologies is solely directed at men (Beevi et al., 2018, as cited in Nyarko & Kozári, 2021). For example, in Jamaica, women play an important role in small-scale farming, mainly in the marketing of agriculture products (Ishemo & Bushell, 2017). Additionally, women are farmers, workers, and entrepreneurs in agriculture, yet the gender gap hinders their productivity, and this reduces the agricultural market and other services (Patil & Babus, 2018). Jamaica and the Caribbean have a unique socio-economic status for women compared to other developing regions of the world. For example, over the past decades, women in Jamaica have improved their autonomy and personal freedom. As of 2010, the female literacy rate in Jamaica was 91.7% and the male literacy was 82%. While the female literacy rate is high in general, the reality is that female farmers living in Yankee District, St. Ann Jamaica who

participate in this study only have basic literacy, and they put in long hours. In general, nearly 50% of rural households are headed by women in Jamaica. Improvement of education among women farmers can lead to an improvement in the standard of living for women, and this could contribute to more sharing of agricultural and domestic tasks, and lessening the gender differences in agriculture (Ishemo & Bushell, 2016).

In modern agriculture value chains, women constitute between 20-30% of the agriculture wage (Patil & Babus, 2018). Countries across the Caribbean continue to have wage and employment disparities with regards to gender. For example, in Jamaica 52% of males are employed, while 37% of females are employed, and in Barbados 52% of the males are employed, and 46% of females are employed. Additionally, male wages are paid about 15% more in Barbados, while in Jamaica wages are equal, at least formally (Thailinger et al., 2023). Working in agriculture, women have the opportunity to be self-employed and, in some cases, gain better pay and working conditions (FAO and IUF, 2007, as cited in Oduol et al., 2017). Women's empowerment in the development of agriculture has created significant opportunities to generate income for their households, and aid in community development (Patil & Babus, 2018). A holistic approach, critical understanding, and opportunity identification are needed to integrate women in high-value agricultural markets (McClafferty, 2006, as cited in Oduol et al., 2017).

The prerequisite for the development of a gendered and equitable value chain in agriculture and other sectors, is a comprehensive analysis of the value chain. This analysis is critical to understanding the relationships and competition among individuals, as well as the main challenges that limit growth among members (Coles & Mitchell, 2011; Rubin & Manfre, 2014, as cited in Oduol et al., 2017). In most situations, the challenges and opportunities for men and women differ; therefore, men's and women's interventions that promote equitable

development are likely to be different. For example, men increasingly move into food production, while women are contested by access to productive assets and/or forced to benefit from crops previously considered to be low value products, because of the disparity and the lack of equity in the industry. These cases have shown the importance and need for interventions that allow women to access lucrative agricultural markets (Bolzahi et al., 2010; Rubin & Manfre, 2014, as cited in Oduol et al., 2017). The gender reality of marketing in the Caribbean in the late 20th century has seen multiple constellations of power which coexisted, to the continued struggle of women for identity, social mobility, and autonomy (Esnard, 2022). The development of the economy will contribute to a reduction in inequality. For example, when the constraints, such as households in poverty reduces, the excess vulnerability of women reduces, and the resources available to families increase (Duflo, 2012).

Summary of the Literature and Gaps

In 1845, the Irish potato famine was marked by the introduction of the first modern extension learning program (Anandajayasekeram et al., 2008). Extension learning was further developed in the 1850s by the University of Oxford and Cambridge University, as a non-formal adult educational tool (Anandajayasekeram et al., 2008; English, 2015). A system of non-formal adult education that seeks to help people understand the good in new technologies, emergent practices, and scientific information, with the hope of enhancing the quality of their lives, is defined as agricultural extension (Lauzon, 2013). Extension agriculture was initially structured so that information and funded programs were provided to extension officers from the Ministry of Agriculture, researchers, and universities, who then passed them on to farmers.

Several extension programs were initiated in Jamaica over the years to improve the education of farmers. However, most of these programs struggle to survive (Ishemo & Bushell,

2017). For example, in Jamaica, agricultural extension officers use farming cooperative groups to share information among farmers, give out farm aid, and assist in marketing. Yet, the farming cooperative groups encounter challenges, such as membership inconsistency, limited access to financing, and farmland access. Due to the difficulty that Jamaican small-scale farmers' cooperative groups have in maintaining viability, research suggests that building grassroots organizations should be a priority, with a focus on assistance aimed at sustaining cooperative groups (Ishemo & Bushell, 2017). Lightfoot et al., (2001, as cited in Lauzon 2013), describe capacity development as an approach where the overall philosophy is rooted in participatory practices to achieve social equity and sustainability for all. Over many years, the country has seen more formal types of cooperative groups. For example, the local cooperative credit union for farmers has different commodity groups that include the Jamaican coffee board and the sugar cane commodity board (Collinder, 2012). These commodity boards support farmers who grow a particular crop. They help farmers access the market, and aid in the sharing of information and extension learning programs in agriculture. As noted earlier, most of these commodity boards focus on large-scale farmers. Small-scale farmers do not normally have the capacity to be a part of these cooperative groups (Collinder, 2012).

Contributing factors that negatively impact Jamaican agriculture include neoliberalism, colonialism, and climate change (Robinson et al., 2013). However, challenges related to adult literacy are identified as a foremost problem (Robinson et al., 2013). Several extension learning methods that are used worldwide to aid in farmer education could potentially be part of the solution in Jamaica. Examples include pluralistic extension learning, top-down approach methods, commodity-based extension, private sector model extension, and the farmer field school model (Anandajayasekaram et al., 2008).

The main gender issue in agriculture is related to farmers' access to input, available resources, access to agriculture extension education, and the difference in the availability of these resources to male and female farmers (Quisumbing et al, 2014). Researchers fundamentally argue that farmers in Jamaica encounter formidable challenges (Beckford & Barker, 2007). From the perspective of adult learning, methods and programs are needed to allow the farmers to step over the illiteracy threshold (Beckford & Barker, 2007). Over the years, the Jamaica adult education system has seen work done to eradicate illiteracy, however some of these programs were impacted negatively by structural adjustment programs and neoliberalism (Gray, 2023). Adult education is important in Jamaica to improve life, develop skills, help people to gain employment, and serve their community. Yet, in Jamaica today, there is a major literacy gap. According to the latest literacy statistics in Jamaica from the United Nations Educational Scientific and Cultural Organization (UNESCO), overall literacy is a cause for concern. There is a deficit in child literacy, and adult literacy is at 86.4%, almost five percentage points lower than the Latin American and Caribbean Region (Coy, 2013). In this current study in Yankee District rural community of St. Ann, Jamaica, participants expressed concern about their inability to read, and talk about the negative impact it has on their career as farmers. This research invokes a critical pedagogy lens, as applied by Freire, where he explains that structural limitations and poverty damage agricultural extension learning in developing countries. An example of these structural limitations is the persistence of social economic inequalities, forced and conflicted declining in government trust (Freire, 1970, as cited in Stephenson & Zanotti, 2020). Therefore, it is important to consider both the culture of farmers and the socio-economic dynamics that shape their learning before implementing resources and methods, to aid in their learning, growth, and development (Freire, 2005). Thus, this broad understanding of the culture of small-scale

farmers in Jamaica and the social relations within which it is shaped was relevant to helping identify critical problems, and to developing an action theory to bring about social change, and ensure that learning is taking place (Kerka, 1997). This approach was also in keeping with the Black emancipation work of Jamaican philosopher, adult education, and civil rights activist Marcus Garvey (2013), who is a native of St. Ann Parish, the site of this research, who might inform extension learning, critical thinking, and social change. This research was also hoping to invoke a popular education principle, by encouraging small-scale farmers in Jamaica to critically examine their lives in the interests of ultimately changing their social condition (Kerka, 1997). With these goals in mind, I move forward to describe how the research was conducted.

Chapter 3: Description of the Study

Research Questions

To encourage participants to examine their lives, and think of ways that might change their social condition, the study asks the following questions:

- How can adult learning initiatives enhance capacity building among small-scale farmers in Jamaica?
- What adult education programs and methods are needed to empower consciousness raising among small-scale farmers and enhance their growth?
- What is the role of small-scale farmers in developing a better future for Jamaica?
- What role does the farmers' cooperative play in the development of local economies?

Methodological Approaches

Qualitative Approach

Using the principle of qualitative interviewing, small-scale farmers were asked about their experiences with extension learning in their community. This principle states that the individual participant's construction of reality and social worlds were most important, such as how participants themselves added meaning to and interpreted their experiences (Merriam, 2016). Additionally, this work was focused on a critical understanding of learning in relation to the cultural values and experiences that farmers in Jamaica bring to agricultural extension learning programs. Finally, this study looks in-depth at the experiences of a small sample of small-scale farmers in Jamaica, while taking social and historical context into consideration (Merriam, 2016).

This research process focused on agricultural extension learning programs in one specific community in Jamaica. The goal was to improve small-scale farmer education. The unique

political and social contexts of Jamaica and Jamaicans made it necessary to study the efficacy of these programs in practice. For example, Jamaica has issues with government corruption and classism, and these issues could affect how agricultural aid is distributed, potentially marginalizing small-scale farmers. Thus, a qualitative case study was necessary to understand farmers' perspectives. It helps to point to a concern that emerges from having conversations with local people, that may help to rewrite new stories based on reality and the farmers' true experiences (Ledwith, 2020) as Freire did in 1970 when he used a counternarrative to support social change (Freire, 1970, as cited in Stephenson & Zanotti, 2020).

Case Study

The defining characteristics of a case study are that the result is highly descriptive, and the primary instrument for collecting and analysis of data is an inductive investigative strategy (Merriam, 2016). In this case, the phenomenon was intrinsically bounded, and the data gathered was finite. For example, there was a geographic limitation/boundary, and there were also two age group requirements for the selected participants (Merriam, 2016). This qualitative case study research was not only focused on how farmers view the context and the phenomena for the solving of critical issues, but also engaged small-scale farmers at their level during the research process to develop the best practical solutions that were appropriate for their needs (Merriam, 2016). This case study was important to provide features that bring about learning, practices, teaching that is deeply reflective, and a platform that recommends practices based on research (Lim & Nguyen, 2022). This case is an intensive analysis that describes the impact of extension learning on small-scale farmers in Yankee District. The case study gains an in depth understanding of adult education and the impact of literacy on Jamaican small-scale farmers. The case provides an insight gleaned from the challenges small-scale farmers encounter, and the

policies and programs that enhance their growth and development (Hancock et al, 2023). Insight gained through relationship building in this research process will contribute to further recommendations for extension learning programs, or learning skills that aid small-scale farmers' growth and development.

Research Methods

Research Participants

Two different age groups of small-scale farmers from the same community were the focus of this study. The first set of participants was comprised of four farmers between the ages of 45 and 65, and the second set of participants involved four novice farmers between the ages of 25 and 44. The rationalization of the two age groups was to understand farmers' experiences with extension learning, and their literacy level across all age groups. A case study was used to allow for the flow of conversation and the answering of questions. The interview process and data collection for this study took place from April 2022 to June 2022. Stratified sampling methods were used to understand the dynamics of extension learning in agriculture.

Stratified Sampling

This technique reveal the points of consensus and discrepancy among farmers and the action opportunities required for future capacity building in extension agriculture learning programs. This is a qualitative research technique that is commonly used when sample variation across an independent variable is required (Troost, 1986). This method involves the division of populations into smaller sub-groups that have a shared attribute, and providing a sample population that best represents the entire studied population (Parsons, 2014). The first age group was used to determine the state of Jamaican agriculture, with little to no presence of extension learning programs. The second age group of farmers was used to provide a transparent

understanding of the state of extension learning programs in Jamaican agriculture today, based on their current experiences with such programs. Both age groups were given the same questions and were expected to discuss their experiences with agriculture extension learning programs in their communities. The age distinction, in combination with extension program knowledge, helps to provide a clearer understanding of the experiences of farmers in Jamaica as it relates to extension learning in agriculture. All of the farmers were required to be from the same community. Table 1 summarizes the demographic information.

Table 1

Data from the Information Gathering Questionnaire from the Research Site.

Pseudonym	Age group	Gender	Level of Engagement with Extension Learning
Roy	45-65	Male	Weak (No experience with the program.)
Pam	45-65	Female	Moderate (Has a reasonable understanding of the programs but will not have proficient knowledge or expression about them.)
Kadine	25-45	Female	Moderate
Ran	45-65	Male	Weak
Rick	25-45	Male	Weak
John	45-65	Male	Weak
Paul	25-45	Male	Moderate
Dave	45-65	Male	Moderate

Recruitment and Selection

Given my expertise in the field of agriculture prior to conducting the research project, a workshop was facilitated to share knowledge and skills with farmers in Yankee District. This workshop was about three hours long. The workshop was advertised via community church meetings. Each church leader within the community was contacted by phone, asking them to advertise the workshop activity. Because of safety concerns due to the pandemic, this workshop activity took the form of a webinar via Zoom. The idea was to have a conversation with the

farmers, provide them with new farming concepts, and allow them the opportunity to describe their experiences with extension learning programs in Jamaica. This was a semiformal discussion, and no data was collected. At the end of the workshop, the research project was introduced to the workshop participants. After explaining to the participants that I was conducting a research project on extension learning in the community, I asked if they were interested in participating in an interview. For those who were interested, I then collected some basic information, such as their age, experience with extension learning, and their phone number. Four participants from each age group were then chosen based on my selection criteria above. These potential participants were contacted by phone, and formally invited to participate in the project by reading from the invitation to participate script.

Research Site and Access

The study was conducted in a small rural community named Yankee District, Bohemia, in the parish of St. Ann, Jamaica. The local economy is supported by small-scale farming. Agriculture is the only source of income for most of the residents. This site was accessible because I am from this area and have worked with some of the farmers in this community over many years. Given my positionality, I am also of the belief that I understand some aspects of the farmers' struggle. St. Ann is the largest parish in Jamaica and is located on the north coast of the island, in the county of Middlesex. The capital is St. Ann's Bay, and the parish is often called the Garden Parish of Jamaica because of its natural floral beauty. According to the Statistical Institute of Jamaica (STATIN, 2011), the population count in St. Ann was 172,363 people as of 2011 (the most recent statistics available). At the time of the most recent census, the parish ranked among the top three parishes for its involvement in agricultural farming practices, with about 37,099 hectares of land under production of major crops such as potatoes, plantains, yam,

and vegetables (STATIN, 2011). Presently in Jamaica, there is no current data showing hectares under production or number of farmers in practice in the parish. The Jamaican government is currently deploying the first population census in 12 years, and these numbers are as of yet unavailable.

The parish of St. Ann is home to the Jamaican national hero Marcus Garvey, who was also a philosopher and a civil rights activist. Garvey believed in equality for all (Garvey, 2013). As a philosopher, Garvey coordinated the establishment of the local school; therefore, this research work would help to honor his legacy, as he believes in the empowerment of his people (Garvey, 2013). Garvey's actions and experiences led him to believe that organized strikes could improve the position of Black workers. He was also referred to as a Pan-African nationalist whose work and commitment undoubtedly were the full liberation from foreign rule. Garvey's philosophy and interests were to build up an economic base that was indispensable, with a focus on emancipation (Garvey, 2013). This striking idea of Garvey has been stressed in brief, but this is not a complete picture of this unique philosopher, who took on the responsibility of the assignment to use the appreciation of a cultural, economic, and political foundation to fight exploitation (Garvey, 2013). His beliefs are similar to those of Paulo Freire, a Brazilian educator and philosopher who was an advocate of critical pedagogy, who believed that education is among the catalysts for equality and life transformation (Freire, 2005). Other aspects of Garvey's work include the encouragement of people of African descent to discover their culture, history, and tradition (Garvey, 2013).

Figure 1

Map Showing the Research Site (blue arrow shows the location for Yankee District)



Data Collection Techniques

The one-on-one phone interviews with each farmer that participated in the study lasted approximately 60–90 minutes. Interviews were conducted in Jamaican Patois, the dominant language in the region. Consent was obtained verbally at the beginning of each interview. Verbal consents were recorded and stored in a password-protected folder on my computer. Only a few sample questions were prepared ahead of the meeting, so it was framed as a semi-structured and conversational interview. Interview questions focused on the farmers' experiences in agricultural extension learning. The interviews were semi-structured and conversational while allowing for documentation and logistical considerations. The interviews were recorded with participant consent, and detailed field notes were immediately recorded after each interview.

Approach to Data Analysis

Data analysis was done by looking to see how participants understood and discuss extension learning programs in agriculture, especially in response to questions about the influence of extension learning on their farming practices. The interviewees' own descriptions of extension learning programs were then taken into consideration.

Description. I accomplished the description of the data by transcribing the digitally recorded field texts myself. A set of codes was developed by reading what I saw in the data. It was generic enough to avoid multiple comments. It was used to reduce data points, and also used to capture participants' thinking and practices in relation to the experience of extension learning. The interview transcripts were then categorized based on the presence or absence of extension learning programs in Jamaican agriculture. The concept of culture was considered, and a list of all cultural system ideals was made. For example, a system of ideals could be their origin, or the existing political theory and policy.

Analysis and Interpretation

Thematic analysis was done by using important elements of the participants' experiences, problems, and solutions. For example, the farmers' experiences were coded as to whether they had weak, moderate, or strong levels of engagement with extension learning programs in their community. The diversity of experiences regarding each of the themes was captured and included in the analysis. Attention was also focused on power relations, and critical reflection on agricultural extension learning programs. Interviews were transcribed and then coded manually. Farmers involved in this study shared a similar culture and a similar educational level. Only two of the farmers who participated in the interview had graduated with a high school diploma. Of

the eight farmers who participated in the interview, all eight were Black. Note that participant quotes are presented in Jamaican Patois, but I have provided an English description for each.

Research Trustworthiness

Information resulting from having conversations with individual farmers was analyzed, checked, and used to develop findings. The selection criteria for the interview were clear, and the context of this case study was well specified, giving a clear image of the transparency of proficiency in this study. The methodology of combining step-by-step input from the group matches the context and theoretical framework, which understands knowledge to be collectively held and produced, and understands that small-scale farmers' knowledge and experience were crucial for providing information in this context. Ultimately, the data collected were verified by me for each individual participant. A method of analysis was done using thematic analysis that was standardized, and a discussion of the literature was easily reviewed. A member check was done by calling participants to ensure data accuracy, and findings were shared with participants.

Ethical Issues Provision

Most of the participants were people I have known over the years. I do not have a professional relationship with any of them, and so I believe that there was no conflict of interest. Each participant was contacted via phone prior to the study and was given a clear invitation asking for their participation in the research (Appendix A). There are low literacy levels among small-scale farmers in Jamaica, and that is one of the main issues facing farmers (Robinson et al., 2013). Therefore, it was not appropriate to offer a written invitation to participate, as they would not be able to read or understand it. A verbal script was used to do the invitation (Appendix A), along with verbal consent (Appendix B), since that was the easiest way to communicate. Both the invitation to participate and consent form were communicated using Jamaican Patois, the

language used by the participants. Written consent was not acceptable in this research process given the low level of literacy, and having a participant sign a piece of paper may be seen as suspicious or as a breach of trust. According to the Tri-Council Policy Statement (2022) a verbal agreement or oral consent may be required in a research process when a particular group or individual perceives written, signed consent as a way of formalizing the process. And, in some situations, participants may develop a lack of trust in the researcher (TCPS, 2022).

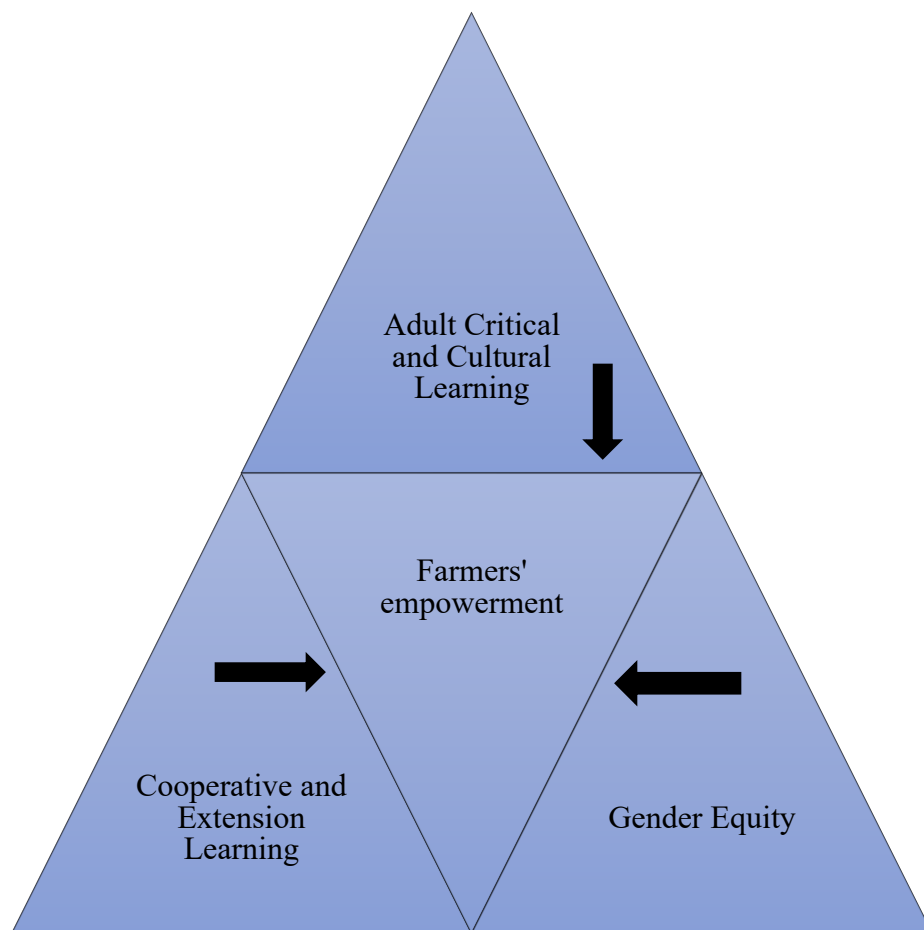
The verbal invitation was used to explain to the participant that their participation could be withdrawn, and that they could withdraw at any time since the process was voluntary. No benefit was provided to participants, except for the findings from the study that came from their collective knowledge capacity and could be used to make recommendations to aid their growth and development. I maintained a strong level of confidentiality during this research process. At this point, I do believe that there might be some risks associated with this research that could affect the participant. For example, some participants felt uncomfortable talking about their literacy level. In some cases, they were trying to hide it. However, care was taken to identify and mitigate all risks to protect the participants. This was a small community, and there could be additional risks that I had not considered, but I have maintained my commitment to confidentiality throughout the research project to mitigate any additional risks. Each participant's interview was recorded individually, and files were stored with password protection. Confidentiality was maintained during this research process, and a pseudonym was also provided to protect each participant's identity.

Chapter 4: Presentation of Findings

This research, entitled *Extension Learning and Adult Education in Jamaican Agriculture: A Qualitative Case Study*, reviews key challenges that small-scale farmers encounter in Jamaican agriculture, and points out important recommendations as to how extension agents can interpret small-scale farmers' issues and implement strategies and approaches for optimum farmer participation. Furthermore, the findings emphasize the importance of available gender equity programs in Jamaican agriculture, as well as the importance of active and functional agricultural cooperative programs in farming communities. And finally, the need for critical and culturally relevant adult education is needed in Jamaica, not just to increase production in agriculture. There is a relationship between literacy and poverty. Becoming literate is necessary, but might not be adequate to eliminate poverty. Since poverty is a complex issue, it will require both government and non government organizations to work collaboratively with vulnerable communities to combat these challenges. It can be seen clearly that all of the participants were talking about unfairness and a lack of trust in the agriculture extension officer. They also perceive the extension program as disconnected from their communities, and only supporting those with political connection.

Figure 2

The Four Important Findings Needed for Small-Scale Farmer Empowerment



Low Engagement with Extension Learning

Small-scale farmers in Yankee District, St. Ann, Jamaica, explain that they need more extension learning programs, and more frequent visits from extension agents. When asked about his overall experience with extension learning as a small-scale farmer, participant John, who is between the ages of 45 and 65, stated:

Well to mi right now, our farm here, wi try if grow everything by hand because wi no have anything like tractor if plough land, so wi do everything my hand. Wi used iron fork

if plough and put in everything. Most big farmers have tractor if plough up dem land and that easy, and mi have some animal to. But mi no have enough land, and mi so strong so me can't run up and dong like fus time, and mi a farm, plus no water if di crop and if gi di animal. A more than 30-year mi a farm and no job no in the area, only farming and everybody just do farming.

John explains that he was a farmer for 30 years and has tried everything from planting crops to raising animals. John explains that farming has been difficult because he has to do everything by hand. For example, the ploughing of soil, crop irrigation, and field maintenance have all been done by manual labour. John argues that most larger farmers have access to tractors to till their land, so production is easier for them. When John was asked to speak about his experience with agriculture extension learning in his community, he stated in his own words that,

Here mi bout it mi no kno nothing about it, mi no mi neva com in a contact wid dem, on help or learn nothing from dem. Mi hear somebody talk bout dem, dem no present in a di community, so that why mi no see dem. But if dem com, mi would try if see dem, cause mi need help, cause sum time wi plant di crop na no get nothing out a it, and even di animal dem mi fail off a dem.

John explained that he had never had the opportunity to meet an extension agent before, and explained further that he did not learn anything or get any benefit from the extension learning program in his community. But for John, it is about building trust and relationship more broadly. John explains that if the agricultural extension agent visited more frequently, he might be able to participate in the program. When participant Paul, a vegetable farmer between the ages

of 25 and 45, was asked about the first time he learned about extension learning, and how he benefited, he stated in his own words that,

Mi no sure eno bout two year or so, we meet them wen dem visit the community. Mi hear bout di RADA people, but mi neva meet dem before sum farmer sah wen dem meet dem, meet dem gi out seeds, or su an time wi dem talk bout storm or so.

Paul explains that a farmer would meet with the extension agent about two to three times per year. He went on to say that he did not meet the extension agent, but others do. Paul explains that farmers who meet with an extension agent would receive assistance in the form of seeds and fertilizers, and in some cases, they would discuss the storm season. Paul perceives that there is an unfairness built into the agriculture extension system that sees selected farmers benefitting. And this goes back to John's comment about the lack of extension agent presence, that there is clearly a lack of trust among farmers.

Credibility in Extension Learning

When participant Pam, a yam and potato farmer, was asked when the first time was that she heard about extension learning, and how often she would meet an extension agent, she stated in her own words that,

Bout two-year kno since mi kno bout dem, and dem com two or three time a year. Sum time when no com dem musi hav meeting a ina different area it keep, so mi no get if be a part of it. Sum time it gud if be ina di program because sum people get tank, sum people get seeds an chemical to spray, and mi a tell you di truth, when sum people get help a here, mi hear bout it mi neva get non. Even if you go a di meeting and dem promise you benefit, a sum people mumo get it demo do it fear. If yo kno di member of parliament you wi get help.

Pam explains that she had learned about extension learning for the previous two years but would only see an extension agent two to three times per year, explaining that the extension officer would meet in a different parish in some cases. Pam explains that when extension agents visited her community, they would give out agricultural aid, but only some people would receive it, and as for her, she never received any. Pam claims that the extension agent has no qualms about distributing aid, because anyone with a connection to a Member of Parliament would receive it. It can be seen clearly that all of the participants are talking about unfairness and a lack of trust. They also perceive the extension program as disconnected from their communities, and only supporting those with political connections. When Kadine, a participant in the study who is between the ages of 25 and 45, spoke in her own words about the thing she would like to see change, she did not leave out the fact that the creditability of the extension agent was at stake. She said,

Wen mi ca get no seed if buy and mi call de extension agent dem sah, me if come a di office wen me do dea nothing no seed no di da. An mi would sah dem specialize in a who dem a want if help to, cause wen dem sah dem no have sum thing, sum people still get it.

Kadine explained that in the past, when she could not source planting material, such as seeds, and contacted her extension agent, she was told to visit the office, but when she visited the office, they told her they did not have any available. Kadine continued to explain that, to her surprise, some other male farmers would leave the office with seeds. Kadine said she believes that the extension agent is helping some people, but not others.

The Changes They Need

When John was asked what he would like to see change regarding the agriculture extension in his community, he explained in his own words,

Well, a nuft thing coulda change, wi woulda love if see sum one com in di community an instruct wi how if do it well. Cause a only it wi ca do, wen and how wi if put in, cause everything yu ago put in and cath hi, so if su, if somebody come in an encourage wi dem, we ca go forward more better.

John explained that there are a lot of things that he would like to see change about extension learning in his community. John explained that farming is the only available job in the community and that he is a farmer, so if the extension agent could show up and provide assistance, then they would benefit from more effective farming practices. John continued to explain that some of the time when they plant their crops, they do not grow, and they lose money from that. Therefore, if an extension agent visits and offers help, they would be encouraged to continue to work hard.

When Roy, who is a vegetable farmer between the ages of 45 and 65, was asked what he would like to see change in order to improve his life, he indicated in his own words that,

Wi put out more effort and wi need more attention from di extension agent. Sum time wi plant di crop and wi used di chemical, and it nu work like how it if work, so dai is a reason way we want more extension officer to tell wi say, change dit or use dis that woula help. I didi have a challenge wid sum hot pepper, and sum farmer help mi and mi see changes.

Roy explained that they put in a lot of effort and would like to receive more attention from extension agents. He said, for example, that sometimes he is using a chemical to spray his crop that is not effective, so that is a good reason for an extension agent to be present, so that could be discussed. Roy continues to explain that in the past, when he was having issues with his hot pepper crop, he was able to receive help from other farmers in the community. When Paul was

asked what he would like to change to improve his life, in his own words, he said that, “Mi neva get if go school, so mi woula a wan to read, an mi woula like if seeh thing a gwan in a di community.” Paul explained that he would like to read, and he also would like to see more productive things taking place in the community. Most small-scale farmers that participated in the study had only a maximum of two years of experience with agricultural extension learning programs. Many other small farming communities around the countryside of Jamaica might be suffering a similar fate as Yankee District, since the largest number of Jamaican farmers are small-scale farmers living on the countryside of the most rural communities. Most marginalized people in Jamaica’s rural communities like Yankee District would do any job that was available and applicable to them and do it with a passion. For example, when Kadine, a participant in Yankee District, was asked how long she had been farming as a job, she replied,

Mi a do dis as single mothers for more then eight years, and mi just love farming, I nava have or nuttin to do, so mi just start farming, and mi just love to see di plant grow. Mi no kno, but mi love it.

She explained that she is a single mother who had been farming for more than eight years out of necessity, but she had grown to enjoy it over time.

The Perceived Failure of Cooperatives

Over the years, the cooperative movement in Jamaica has operated as a type of socioeconomic organization. Small-scale farmers in Jamaica believe that farming cooperatives have failed in many ways. For example, farmers explain their frustration with the inconsistency of cooperative membership and the inability of more formal cooperatives to meet the needs of small-scale farmers. Although various types of farming cooperative credit unions are available in Jamaica, they were put in place to help farmers gain access to farm loans. To date, small-scale

farmers in Yankee District, St. Ann, Jamaica, explained the various challenges they encountered in accessing farm loans. When participant John, aged 45 to 65, was asked what he would like to see change to improve things, he explained in his own words that,

Mi ca get to small loan from di farming cooperative bank, because mi na grow enough, and mi wan e help to work di farm wi di farmer. A struggle right now dem have di “di Day if Day” but mi get hurt, so mi ca manage if work hard, so mi left out it.

John explains that he cannot get access to farm loans from the farming cooperative bank because his farm holding is too small to access those loans. John also explains that he needs more help from the informal farming cooperative in his community to help with labour. John stated that the farming community had a farming cooperative labour group called, “Day if Day,” but sometimes he is actively left out in some way, since he is getting older and unable to keep up with younger male farmers.

When participant Dave, who is 45 to 65 years old and had been a community church pastor and farmer for over 30 years, was asked to speak about the barriers he faces as a farmer, he described in his own words,

Sum time wen di crop dem ready if harvest no market, but if wi di farmer coulda group up, we coulda sell to di big hotel dem like di large farmer, or if wi could a link wid bigger farm dem have market, mi just ca do it by mi self. But mi a tell yu, sum time wi spen a lot and get a little, but wi neva give up; mi keep going a try again.

Dave explained that there are times when his crop is ready to harvest, but no market is available. Dave believed the solution is for farmers to group up and try to access and sell their produce in larger amounts with help from agricultural extension services which is a good idea since St. Ann parish has some tourist destinations. Dave argues that one farmer cannot do it alone.

Membership Inconsistency

Agricultural cooperative groups have played, and are expected to continue to play, an important role in Jamaica's society. However, there are many rural, marginalized communities in Jamaica, and agriculture is their major source of income. The fact remains that these farmers are still having problems today in Jamaica. For example, when Pam was asked how her overall condition could be improved, she acknowledged in her own words that,

If di farmers dem ina di community coulda com an group up wi culd and work, we woulda have more labour if work on id farm. And may wi coulda sell more crop to big hotel, mi thing wi hafi com togeader as famers, and thing wod be better because no one want to do di labour work.

Pam explained that her condition would improve if all the farmers in her community could work as a group and remain consistent, they would be able to share labour, and that would provide a more cost-effective labour force. Pam also explains that if farmers were in a group and were working with each other, they could target a larger market to sell their product.

When Roy, a 45- to 65-year-old vegetable farmer, was asked about his experiences with cooperative groups, he explained in his own words,

Sum time wi put out nuft effort in a di group, and when dem call meeting and when u go, da a fue people you see da. Sum time u have a problem an you tell dem, and everybody come look, but dem give yo different option; everybody a sah different ting.

Roy was explaining that in some cases, when they had a planned meeting, only a few members were present. He claims that most of the time, some members were either late or did not attend, which impacted the group's structure and success. Roy continues to maintain that, sometimes when he has an issue on his farm and calls the members of his group, most of the members have

a different opinion on the matter. When Paul responded to a question about his experience with extension learning and cooperatives, he said, “Wi have a group, but dem no sho up som time, and som time dem late, but the ting wi ca get money if fix farm, di farmers’ cooperative bank and, but di bigger farmer can get it.” Paul clarified that they have a local farmer’s group, but sometimes members of the group do not show up to meetings, and some are late. Paul also explained that he could not obtain a farm loan from the farming cooperative bank for farmers.

“We Need Help”

To date, small-scale farmers living in Yankee District have complained that one of their major challenges is the marketing of their products. The explanation is that small-scale farmers in rural communities believe that the reigniting of market farmers’ cooperatives with the help of an agriculture extension learning program would help in the marketing of their produce. The cry of most participants in this study is that they cannot do it alone. In the small-scale farmers’ own words, they indicate that, “The community farmers dem hafi, if com to gather and and wi cud sell to big hotel, and wi can’t do dit alone, wi need more extension agent if com help.” They claimed that small-scale farmers in the community need to work together, and that will provide them the opportunity to access a large market share.

When participant Pam, a potato and yam farmer aged 45 to 65, was asked about the barriers she encounters as a farmer, in her own words, she described,

Sum time when wi plant di crop we ca get market if it sum time dem spoil in a di field.

And sum time, wi tri to sell it to female higgler, and when dem com back di price is very low. If dem have a coola sum where and dem can store di vegetable or potota, cause sum time wi have drought or shortage, dem ca sell if back and di price woulda no high.

Pam explained that sometimes when her crop is ready for harvest, there is no available market, and as a result, the produce would spoil in the field. She clarifies that in their community, they have access to female higglers who buy farm produce and resell it, but in most cases the price is low. Pam also suggests that if the government would purchase farm produce from small-scale farmers, then they would not have to lose so much in the field, and that the produce would also be available when there is a drought or shortage.

When Roy was asked to talk about the issues he encounters as a farmer, he indicated in his own words that,

Sum time di extension agent will call yuh, and ask yuh if yuh have sum type a produce, and if yuh will sah yes and tell dem di date wen it ago ready, but wen it ready yuh na get back a call.

Roy explained that occasionally he would receive a call from the extension agent or someone in his cooperative, asking about specific produce and promising marketing. Roy continued to uphold that at this point, they would get the produce ready and then try to contact the extension agent, but, in most cases, they could not reach the extension agent. “Di big a farmer dem get loan and di market if dem crop and dem have dem own group, but wi di small man can’t get in.” Paul explained that large farm holdings have their own cooperative and extension service, and they advance the opportunity to access marketing and farm loans, which in most cases, are difficult for small-scale farm holdings. When Dave was asked what needed to be done to improve his and other farmers’ lives, he said, “Well dem need if open up di market more market wi wan to open up, if us di a di main ting, wi wan sell to hotel like di bigger farm dem.” Dave explained that marketing is a major problem he thinks small-scale farmers like him have, explaining that

farmers in his community need more access to marketing, and that small-scale farmers would like to have access to these larger markets.

The Question of Gender Equity

The female participants in this research project explained that in Yankee District, there are a lot of female farmers who are standing alone with their children and completing all their farming tasks by themselves. When female farmers in Yankee District were asked about their experiences with extension learning in their community, their response was more focused on the issues they have with getting help from labourers. The female farmers discussed the reality of being single mothers in need of help to do the manual labour work necessary for agricultural production. This was because all of the work done on their farm was done by them alone.

Kadine, a participant who is a single parent with three children, is between the ages of 25 and 45, and has been a mixed vegetable farmer for the past eight years. When she was asked to speak about her background and her experience with extension learning, she explained in her own words that,

Mi education level is secondary level, an mi a farm if bout eight or 10 year now, a dis me do if support my family as single mother. A nuf female farmer in adis community, all a di young lardy dem do farming or dem married to di farmers, a su wi survive in a dis community. Mi start learning bout farmer from mi father, him a farmer to, mi start learning bout extension program bout a year ago.

Kadine described that there are a lot of female farmers like herself in her community. She indicated that some female farmers are single parents, and others are married to farmers.

Concerning herself, Kadine said that farming is what she has been doing for the last eight years to provide for herself and her children. Pam, another female participant, is 45 to 65 years old, a

wife and mother of five, and has been a farmer for more than 30 years. She stated that when an extension agent visited her community and distributed aid to small-scale farmers, they had never received any aid in the previous two years, but she had heard that they had distributed aid to other, more connected male farmers. In her own words, she states that, “Mi here sah dem give out seeds, tank, and fertilizer, but mi neva get non. A here mi her bout it, a one set a people dem a gie.” Pam explained that she heard that some farmers received aid in the form of seeds, water tanks, and fertilizer. Pam also explains that she believes the aid from the extension service was only benefiting one group of people, namely men.

Why Gender Equity

When Kadine was asked about what was preventing her from participating in an agricultural extension learning program, she explained in her own words that,

Mi a single parent; it hard if me. Sum time mi ca make it to di meeting or sum time me no bout it. It hard right no di high prices if thing if used if di crop sum time, mi ca hardly afford it, and wen dem com dem sah the seeds short, and next tme, wen dem have it dem double di price if it, and stuff like dit right, no if a bag of fertilizer mi a pay almost 20,000 Jamaican doller, and those a di thing mi face wid.

Kadine explained that she is a single parent, and sometimes it is difficult for her to be at all of the meetings. Sometimes she does not know when the meeting is going on. Kadine continued that things are difficult now, because one bag of plant fertilizer costs her \$20,000 in Jamaican dollars.

When Kadine was asked about the barriers that prevent her from doing better as a small-scale farmer, indicated in her own words that,

Mi as young lady now, mi ca do everything like di man by be self, and yo kno, you hafi get help. Sum time mi ask if help, try if get sum young man if help me and stuff like dit.

Now a day, di one of di hardes ting if mi to do or get, an even when you get somebody, if help yu dem nu wan stay if di hold day for example dem com seven o'clock, an by 12 o'clock, dem wan if don work. Su mi don't get di work done, and dem at the same time, dem want a full day pay; an den mi haffi provide dem lunch an breakfast, and when dem eat lunch, dem done. Sum male farmer have dem group weh do di "day if day" wen dem work if one another, but mi no connect wid dem su mi, no get di help dem work if only member in dem group, dem special wed who dem help.

Kadine was describing that she is a female farmer who is standing alone, and that there are a lot of female farmers in Jamaica who are standing alone with their children and completing all of their farming tasks by themselves. Kadine went on to say that when she seeks assistance from a young male farmer, they begin working at seven in the morning, finish work as soon as lunch is over at 12 p.m. and would need to be provided with lunch and breakfast. She complained that some former male employees would still want a full day's pay. Kadine continued to explain that female farmers like herself are not always involved in day-to-day labour activity, because most female farmers lack the social capital that more established small-scale male farmers have. The networks of relationships among farmers who live and work in a rural area would help farmers like Kadine to get labour help on her farm, perhaps share resources, and learn new ideas from other farmers.

Without Option

Jamaican women play an important role in small-scale farming, especially in the marketing of farm produce. Most small-scale farms are located in the rural countryside of Jamaica. It is normally the woman in the home that has the responsibility to ensure that the farm produce is taken to the market in urban areas. This has been the reality up to this day, for numerous

communities in Jamaica. Women farmers in Yankee District are largely self-sufficient. They are independent farmers, and they do all of the work on their farm. Based on the conversations with women farmers during this study, they do not have the socio-economic backing of the informal cooperative groups in their community.

When Kadine was asked what motivated her to have an interest in farming, and also to want to learn more from the extension learning program, she said in her own words that,

Wi no have no other job in dis community but farming. Mi would hafi move go town area or so, as a single mother it hard if do that. A nuff female move go to di town area to do domestic work, but dem get bad treatment an low pay. So mi ca do dit, nuf a di female farmer dem go to Canada and USA if work to, but sum time dem say it hard and coo, and member sah mi have kids and a mi alone, and a nuff female like mi a do it. A nuff man wah married wid dem family wah a farmer work over sea to, but sum a dem wife can tek care a di farm; it hard on dem family but sum farmer make it. And if tell you di truth wen di crop com good and it a sell sum time, it motivated mi if wan plant more and stuff like dit, mi no like if give up; me always a try.

Kadine explained that there are no jobs available in the community except for farming. She stated that some women from the community would move from the rural community to an urban area to look for work, but most of the time the available work would be as domestic helpers.

Kadine argued that domestic helper work is hard because they are underpaid, without benefits, and in some cases, abused. Kadine explained that many female farmers in her community participate in seasonal farm work programs in the United States and Canada, stating that while travelling for work is difficult for families, farmers benefit. Kadine said that sometime when her

crop reaches the harvest stage, she is most motivated, especially if she can sell it for a good price.

The Need for Critical and Culturally Relevant Adult Education

In Jamaica today, advancement programs have been put in place by private institutions, colleges, and community-based programs, along with the Jamaica Foundation for Lifelong Learning, and agriculture extension learning programs such as, the Farmer Field School Learning Program. However, to date, some marginalized communities, such as Yankee District, St. Ann, Jamaica, have been denied access to these programs. For example, small-scale farmers explain that when an extension worker visits the community, most of the time they give out aid, and sometimes they talk about hurricane damages. Therefore, to ensure the growth of society, communities with small-scale farmers who are marginalized and most in need of support, should have access to these learning programs that are applicable to meet their needs. Secondly, cultural reality must be considered. This would ensure that the programs developed by the public agriculture board are applicable and will meet the needs of small-scale farms.

When asked about his level of education, participant John, who is between the ages of 45 and 65, expressed in his own words,

Mi neva go high school and dit a one a mi main problem because mi neva learn if read.

Truth is, my mother die when mi was a small boy when mi was about nine years old, and

it was whole bunch a wi 10 boy and four girl, so mi neva get any schooling because my

father neva read to and mi dida the big. So, me teck care a dem other one and so, me did

ha if work on di farm and teck care a me brother and mi sista dem until now mi no read.

John described how he did not have the opportunity to attend school, which is one of his major problems, because he did not learn to read. John explained that his mom died when he was a

small child, and his dad could not read, so he did not get the opportunity to learn to read. John explained that he was the oldest of 14 siblings, and he had to work on the farm as a child and help to take care of his siblings. The challenge is evident from overworking on the farm, and not having an adult in the home who can help with homework, or someone who can relate to schooling. This was the lot of many small-scale farmers' children like John. As a result, the colonial cycle of illiteracy has continued, and so help is needed for small-scale farmers who are undereducated, and for their children. In most cases, the children of small-scale farmers needed help with their homework after school. Again, this is most relevant to assist in ending the cycle of people who are illiterate in Jamaican rural communities, and replacing them with a bright future of educated small-scale farmers.

John did not stop there; in his own words, he further elaborated that, "Wi want more extension agent, and wi need fi kno more bout what agone. For example, wi want more meeting an more help." John suggested that they need extension agents to get involved in community agricultural programs, and that he would like to learn more about what extension service has to offer. When John was asked where he learned the farming skills that he used on his farm, in his own words, he said that, "Mi no go no way go learn it. Wi learn from di own and fro mi farther, and sum a di farmer in di community, and just try any little thing."

John explained that he learned his farming methods from his father, and other members of the community, and in some cases, he tries new things. Small-scale farmers like John, who have gained his farming skills through informal learning, must be taken into consideration. Participant John explains in his own words, "Mi can't read, but mi kno bout farming because mi learn di skill from mi parent." John said that he cannot read, but does have farming skills learned from his father through informal learning.

When asked about his background and experiences with extension agriculture, participant Dave, who is between the ages of 45 and 65, and has been a community church pastor and farmer for over 30 years, said that his response was similar to that of other participants; describing in his own words,

Mi neva go high school, and the thing mi learn from mi parent and other farmer mi kno, and mi experience develop over di time. When di extension agent visits di community, sum time dem give out seed's fertilizer, dem also tack bout storm season, an also di extension agent start com to dis community about two years ago.

Dave explained that he did not attend school like most of the other small-scale farmers in his community, and that most of his farming skills were learned from his parents and other farmers in his community. Dave continued to explain that when extension agents visit the community, they would normally give out aid, for example, seeds and fertilizers. Dave also stressed the fact that extension agents only started visiting their communities about two years ago. When Kadine was asked what she thinks is needed to be changed to improve her life, her response was similar to that of some other participants. "Mi never think bout dit, like dit," suggesting that she never thought about it like that before.

Low Literacy Levels

In the farming community of Yankee District, participants understand that their parents before them faced many challenges and hardships, yet they were able to provide for them as children. These small-scale farmers also understand the limitations that prevent them from being sent to school by their parents. The participant stated that they were aware that their parents could not afford a better quality of life for them. In addition, they were also mindful of the fact that their parents were not able to send them to school or afford learning materials as children. In

this current study, of the eight farmers that were interviewed, only two had a high school education.

When Pam was asked to describe her background, including her educational level, she did so in her own words.

Mi parent neva have it to send mi a school, so mi neva go school. Mi parent a farmer so, mi do farming too. After when mi get married, mi do ti wed mi husband, and mi a di if bout 30 years and wi plant potota, yam, and su nuff ting me learn from mi husband.

Pam explained that her parents could not afford to pay for her schooling, stating that her parents were farmers, so she became one herself, and she also learned about farming from her husband.

When Roy, who is a vegetable farmer between the ages of 45 and 65, was asked where he learned his farming skills, his answer was similar to all of the other farmers that participated in the project. In his own words, he indicates that, "Mi learn from mi parent and sum a di farmer ina di community. Mi stops so school fo bout when mi 15." Roy explained that he learns all his farming skills from his parents and other farmers in his community, and that his time at school was limited. He believes that he finished school at the age of 15.

Applicable Programs

When Roy, a vegetable farmer between the ages of 45 and 65, was asked what needed to be done overall to change his life, he explained in his own words that,

Okay, well what I ca say eno, if de extension agent coulda developed dem a program wi di farmer dem were in when wi plant di crop. Sum time wi end udp lose or we sell if low price, cause wi no relly have a market some like dit yah wi kno. Sah when wi ripe it, we have som yah if go sell it, sum time we sell if little or nothing, so base pan it we need

ahelp wereing we cah go to the bank and barrow sum fun, to help back ourself as fast as possible.

Roy explained that if the extension agent helped to develop a program that allowed farmers to sell their produce to them, he would have a fixed market. Most of the time, small-scale farmers like himself are unsure where they will sell their produce, resulting in low prices. Roy stated that if they develop such a marketing program, that will allow him to obtain farm credit from a farming cooperative bank.

When Kadine was asked what she would like to see change to improve her life, in her own words, she said,

Mi woula like if see more thing a gawn in a di community, nuff more program an help if di young people dem wi need assistance wed farm product, dem nust make thing available. You ko dat a lot a di young people, dem drop out a school and dem no do nothing only farming dem ca do, so more program in di farming.

Kadine suggested that she would like to see more learning programs that are community-based. In addition to that, she would like to see special attention given to adults. Kadine noted that a lot of young people from the community dropped out of school, and there is nothing for them to do except farm. She indicated that, for example, she would like to see an expanded apprenticeship learning program and an outreach worker in the community. Kadine continued to say that she would like to see more seeds and farming materials available and be affordable.

Chapter 5: Analysis and Interpretation of the Findings

This case study was designed to understand the experiences of small-scale agriculture extension learning in Jamaica. The main findings provide a glimpse into the challenges small-scale farmers encounter when living in rural areas of Jamaica. The research asks the following questions:

- How can adult learning initiatives enhance capacity building among small-scale farmers in Jamaica?
- What adult education programs and methods are needed to emancipate consciousness among small-scale farmers and enhance their growth?
- What is the role of small-scale farmers in developing a better future for Jamaica?
- What roles do farmers' cooperative play in the development of local economies?

The findings in this research led to the following conclusions.

Agricultural Extension Learning Program

What are the Participants' Experiences with Agricultural Extension Learning Programs?

Farmers in Jamaica have been struggling for many years between the old and the new, individualism and cooperation, and the unevenness of the landscape. Limited access to education, infrastructure limitations, and poor land quality have all been issues with the free exchange of goods between nations (Weis, 2006). Freire argues that learning in extension agriculture did not achieve a permanent result, in some cases due to how people's attitudes were shaped by different structures of oppression (Freire, 2005). Agriculture extension in developing countries suffers from a lack of technology transfer from developed countries, which is not always applicable to farmers living in rural communities in these countries. For instance, those

technologies that would normally fit within the structure of farming that is considered large scale production (Elsley & Sirichoti, 2002).

Today, the same is true in Yankee District, St. Ann, Jamaica, where, when small-scale farmers were asked about their experiences with extension learning, their first response was to talk about the availability of farm aid. The understanding is that because of the hardship that small-scale farmers encounter, they would prefer to receive aid than learn new agricultural skills that may be applicable to their practices (Williams et al., 2015). The farmers themselves explained that sometimes, when they meet with agricultural extension agents, they receive aid in the form of seeds and fertilizer. Regardless, small-scale farmers in St. Ann, Jamaica, were not reluctant to articulate the issues that they encounter daily. For example, the participants spoke about manual labour, explaining that they do all their farm work manually, and suggested that farm machines, such as a tractor, would make a big difference and result in an increase in production.

When asked about their experiences with agricultural extension learning programs and how long they had known about them, farmers in Yankee District said that they had two years or less of experience with the program, and that they learned about the programs when an agriculture extension agent visited their community. Some participants said that they heard about the program but did not meet an extension agent. Agricultural extension has been around in Jamaica since the institution's inception in 1895 and formal recognition in 1990 (Weis, 2006; Ishemo & Bushell, 2017). However, a small-scale farmer in Yankee District, who is close to 60 years old and has been farming for over 30 years, has only recently learned about the program. None of the small-scale farmers that participated in this study have a clear understanding of agricultural extension learning. Collective and individual learning methods are necessary for

improving small-scale farmers' learning. This would, consequently, increase their efficiency and production (Beckford & Barker, 2007). To improve extension agriculture in developing countries, a system of innovation is required. This arrangement must be collaborative, combining several stakeholders, including private and public organizations. While extension learning is not necessarily congruent with an emancipatory approach to adult education, stronger small-scale farmer engagement in the development and facilitation of extension programs could lead to a redistribution of power, in such a way as to increase small farmers' control over their own learning. The redistribution of power will allow citizens who are excluded to be included. For example, the distribution of power will help to determine how information is shared, develop objectives and policies, understand needs and resources, and finally, develop programs and support social reforms with shared benefits (Arnstein, 1969).

Available Learning Programs

Agriculture extension learning programs use information and communication technologies (ICTs) to aid the learning of farmers (Ganpat et al., 2010). This involves the use of radio and television to share information. For example, there is a specific radio program that is referred to as "Calling Farmers." This program provides farmers with information about the safe usage of chemicals, outbreaks of disease, and how to approach them. It is important to have programs like these in place to aid small-scale farmers. However, it is equally important to provide farmers with information about the existence of these programs. When small-scale farmers in St. Ann, were asked about the "Calling Farmers" radio program, this was their response: "Mi neva her bout it before." The participants explained that they did not know about programs like the "Calling Farmers" radio program.

A variety of ICT software can be used to provide agricultural extension staff and organizations with the resources they need to communicate information to farmers much more effectively (Ganpat et al., 2010). For example, the use of internet-based community-based telecentres, SMS texting, video mobile learning units, and other ICT would depend on the literacy level of the farmers, since some small-scale farmers' level of education would not allow them to take advantage of some of the newer ICT technologies (Ganpat et al., 2010).

Some of the participants in the study were developing their own theories about what they thought the solution was to the marketing problem in their community. In their own words, the farmers stated that sometimes they harvested a lot of one type of produce and based on the demand and supply of the produce, the price would decrease. Some of the produce would spoil in the field, but once the produce was out of season, the price would increase. The recommendation from the farmers was that the government should buy the extra produce from them and store it to maintain equilibrium in the prices. The distribution and marketing of agriculture domestic food was identified as a major concern to production in multiple studies in Jamaica. This is a result of the non-regulated system that is in place, which left most small-scale farmers on their own to market their produce locally (Beckford et al., 2011).

Cooperatives

Participant Experiences with Farming Cooperatives

Farming cooperative groups were revived in 2002 in Jamaica. Working under the Office of the Extension Service, cooperative groups were used to disseminate information. A study that was done in 2002 in Portland and Guys Hill, Jamaica, has proven that information is shared more, and is more effective when extension agents disseminate information using farmers' cooperative groups (Ishemo & Bushell, 2017). However, the result also proves that some aspects

of the cooperative groups are not effective in their functions and, in some cases, could jeopardize members' potential (Weis, 2006; Ishemo & Bushell, 2017). Farming cooperatives encounter challenges, such as membership inconsistency, limited access to financing, and farmland accessibility. This study suggests that small-scale farmer cooperative groups in Jamaica do not fundamentally maintain viability. Thus, the building of grassroots organizations should be focused on and given support, rather than creating new cooperative groups (Ishemo & Bushell, 2017). When participants in Yankee District were asked about their experiences with farming cooperatives in their community, their responses were similar to earlier studies' findings, that farmers' cooperatives in Jamaica experience challenges among their members. The new critical optimism requires a challenge, a strong sense of social responsibility, and engagement in the task of transforming society. It cannot mean "simply letting things run on" (Freire 2005, p. 10). For example, farmers must think about their experiences and understand their problems in terms of farmers' capacity to respond to those problem and push for social change. To date, only a small percentage of these measures have been noted for their success. Amid the reasons for these failures is a dearth of education among farmers. Communities with lower socioeconomic status may have their own cultural theory of poverty that seeks to relate certain behavioural characteristics to poor conditions, such as individualism, cynicism, hostility, and defeatist attitudes (Ishemo & Bushell, 2017). Moving forward, farmers in Yankee District will need adult education programs that will help to change attitudes and beliefs that lead to radical social transformation among their farming group, provide them with purpose, and interrupt the idea of defeatism to catalyze progress.

The formation and operation of Jamaica's farmer cooperative groups are inconsistent with the term "cooperative." The term "cooperative" refers to an association of persons, usually

of limited resources, who have voluntarily joined together to achieve a common economic end, through the formation of a democratically controlled business organization, making an equitable contribution to capital (Njoku et al., 2003, p. 97, as cited in Ishemo & Bushell, 2017). Members of Jamaican cooperative groups may have limited time commitments. In most cases, the life cycle of a project will determine the period to which members are required to commit. For example, some small-scale farmers in Yankee District work together on projects such as the share labour project. Farmers in this study point to the fact that their farm holding size did not allow them to be a part of any financial or loans association.

The post-war era has given rise to the cooperative movement in Jamaica, and its growth and development can be traced back to emancipation. The issue at the time was the acquisition of agricultural inputs such as seeds, fertilizer, and machinery. The second problem during that period was the marketing of agricultural products (Ishemo & Bushell, 2017). According to the project participants, if extension agents supported cooperative groups, a group of farmers could pool their products to gain a larger market share. The participants continue to maintain that they cannot do it alone and will need help from their extension agent. For example, Jamaica has a highly competitive tourism industry that requires the commitment of farmers for a continuous supply of vegetables. However, small-scale farmers do not have the information on how to access this market, and even if some small-scale farmers have knowledge of this market, it would still be difficult for a single small-scale farmer to produce the required amount of produce to provide to this market. However, a cooperative group could pool their produce.

How Did the Participant Refer to an Agricultural Cooperative?

There are two types of cooperative groups in Jamaica: informal and formal. An example of an informal cooperative are groups that form among small-scale farmers for the purpose of

sharing resources and labour. Over many years, the country has seen more formal types of cooperative groups. For example, the local cooperative credit union for farmers has different commodity groups, that include the Jamaican coffee board and the sugar cane commodity board (Collinder, 2012). These commodity boards support farmers who grow a particular crop. They help farmers access the market, and aid in the sharing of information and extension learning programs in agriculture. As noted earlier, most of these commodity boards focus on large-scale farmers. Small-scale farmers do not normally have the capacity to be a part of these cooperative groups (Collinder, 2012). These small-scale farmers are normally at a disadvantage due to the size of their operations and their literacy level. Additionally, classism and other colonial factors contributed to the marginalization of these small-scale farmers. Examples of systemic barriers include poor land access, lending agency policy, and the political economic system in Jamaica (Stephenson & Zanotti, 2020).

For agriculture cooperative groups to be effective and applicable to small-scale farmers, political leaders and government operated offices must ensure that the necessary business environment, infrastructure framework, and workable legislation are put in place to allow for the success of these cooperative groups. The important consideration is that small-scale farmers make up 78% of Jamaica's agriculture sector, and the largest number of people living in the rural communities of Jamaica are small-scale farmers and their families (Beckford & Barker, 2007). As a result, this is where the focus of the mass of formal and informal agricultural cooperative groups should go. It is recommended that cooperative groups, whether formal or informal, be based in the community they serve. A farming cooperative group must speak the language of the people (Freire, 2005). It is most useful when established to serve a specific community, and

small-scale farmers must be given a seat at the discussion table, in order to understand what they need to move forward.

It is understood that the survival of small-scale farming cooperatives is reliant on government support. Today, the reality in Jamaica is that the system supported by the government is ineffectual for people from lower social classes. An agricultural cooperative is structured for small-scale farmers in Jamaica, but it is not equally shared, and as a result, this suggests that the system is weak. To improve this system, a paradigm shift is recommended. The farming cooperative cannot just be providing capital that farmers living in poverty would not qualify for, or large green house projects that are not applicable to the average Jamaican farmer, who is normally operating on one to five acres of land. The planning and implementation of any project must include small-scale farmers, men and women, to be able to support sustainable agriculture and growth at every level.

Gender Equity

Gender Equity Impacted the Participant

In Jamaica, agriculture is important for sustainable development. Over the years, women's roles in agriculture have been documented. However, attention has not been given to women, but to male farmers, who are normally a part of large-scale production (Giroud & Huaman, 2019). In countries such as India, Guatemala, South Africa, Kenya, Chile, and Ecuador, more than half of the agricultural employees are women in the agriculture sector, for example, these women work in all aspects of agriculture, from the management team to being a part of the labour worker team (Giroud & Huaman, 2019). In Jamaica, most female employment in agriculture is said to be seasonal. For example, over 200 female farm workers leave their homes annually to do seasonal work in Nova Scotia, Canada. The female farmers explain in their own

words, that for decades, they have left the community for seasonal work to provide a better future for their children. This may be a result of the insufficient income earned by these small-scale female farmers in their own country. Female agricultural employees are paid lower wages for the same work as males (Webster, 2006). Therefore, the public agricultural extension learning programs in Jamaica should include policies to support aid, and agricultural grants to level the playing field for female farmers to be able to do better in their home country. This may reduce the number of female small-scale farmers who travel to do seasonal work. In Jamaica, women own less agricultural land compared to men. Most female small-scale farmers have average-sized holdings, and agriculture limitations impact women much more than men, due to holding size and limited social capital (Webster, 2006).

Although females have outperformed males in education, the employment participation rate of females in Jamaica is significantly lower compared to that of males. The female unemployment rate in Jamaica is 16.9%, while the male unemployment rate is 7.9% (Webster, 2006). In Jamaica today, 52% of males are employed, while 37% of females are employed (Thailinger. et al., 2023). When small-scale female farmers in St. Ann, Jamaica, were asked about their experiences with respect to the challenges they face as farmers, and also about their experiences with agricultural extension learning, unexpectedly, their response was not around gender equity in the programs. They were more concerned with the availability of manual labour and marketing their product. When small-scale female farmers in Jamaica talk about cooperative groups in their community, they refer to a program called, “Day if Day.” They explain that this means that all of the farmers in the group would work at the same farm location as one another. The next day, they would work at a different farm for a second member of the group. They would continue until all of the members in that group of farmers were satisfied, and then the

cycle would be repeated, if there was a second agreement within that group. The female farmers' concern was that they are not always involved in "Day if Day" labour activity, because most female farmers lack the social capital that more established small-scale male farmers have. The additional challenge mentioned by female farmers, was that sometimes they could not get access to farming materials for purchase, for example, potato seeds and fertilizer. They continued to suggest that in other cases, the retailer would double the price of these farming materials.

Jamaican Society sees the Impact of Related Gender Issues

There are gender-related issues in Jamaican society. For example, domestic violence in the home is sometimes unreported in rural areas (Smith, 2016) in addition to the patriarchal concept that a woman is the keeper of the home. It is possible that this type of violence against women has a negative impact on Jamaica's agricultural growth (Webster, 2006). The resilience and determination of women in small-scale farming in Jamaica is evident. They buy and sell products from small-scale farmers. Kadine, who is a single parent and participant in the study, explained that she has family members who travel to work over the season every year, and though difficult for their family, seasonal jobs provide work. She explains that some women who are not farmers, and who do not leave the rural area for domestic work are the "higglers." These are women who would buy farm produce from small-scale farmers and resell it in the urban town market. The environment in which female higglers function is economically inefficient, which subjects them to unsatisfactory and poor working conditions (Webster, 2006). The bulk of the market trade was constituted by woman during slavery, and also today in Jamaica, marketing of agriculture produce is full-time employment for many woman (Mathurin Mair, 1986, as cited in Tantam, 2019). The demonstration of the failure of the Jamaican state, is the emergence and continue viability of higglers, however, at the same time, this demonstrates the creativity and

resilience of the oppressed (Tantam, 2019). Some of these small-scale food vendors are forced to operate more self-reliant since the state is under a neoliberal economy, and imported food that they have to compete with is non-regulated (Kinlocke & Thomas-Hope, 2019).

Jamaican women's limited access to education has the greatest impact on them. There are hundreds of women in Jamaica who did not get the opportunity to access educational training for similar reasons as some small-scale farmers. These women were left without a choice, and as a result, they had to work as domestic helpers. Domestic services in Jamaica in the 20th century involve privileged families employing lower-status women (MacCormack & Draper, 2013). The Jamaican institution and its system have failed women who have not had the opportunity to access educational training. These women work within a system that is unfair to them. They do not have a contract, and they are not protected by any union groups. If these domestic workers become ill and are unable to work, they are not paid sick leave or holiday pay. In the farmers' own words, they report that some females who find farming difficult leave the rural area to look for domestic work, but these people complain about the unfair treatment in that system.

To reduce illiteracy among people living in poverty, the educational system in Jamaica would need to implement a system that includes a holistic approach. For example, with regard to teaching small-scale farmers, any discussion must involve all of the stakeholders, use of best practices and key initiatives. From an educational standpoint, the primary action must be the development of human resources. Improvement in adult literacy in Jamaica must include targeted learning programs that cater to students, small-scale farmers, provide professional training in higher institutions with secure funding, that encourage farmers, youth, and women to participate in all aspects of agriculture, food, and the food system. This study found that there are no policies or programs in extension agriculture to promote gender equality. Even though women

in Jamaica's rural communities are willing to work as hard as men, there are no additional benefits or incentives to support small-scale female farmers.

Critical and Culturally Relevant Adult Education

Over the last four decades, agriculture in Jamaica has encountered numerous challenges: the control of the agricultural sector by imperial institutions, the problem of marginalization of small-scale farmers in rural areas, the limited access to resources, such as capital and scientific research, and the limited access to basic literacy (Beckford & Barker, 2007). These are some of the contributing factors that have resulted in the undermining of the farmers' livelihoods, (Ishemo & Bushell, 2017). Freire believed that "authentic thinking, thinking that is concerned about reality, does not take place in an ivory tower of isolation, but only in communication" (Freire 1970, p. 77, as cited in Cuffy, 2019). Vaught (2015, as cited in Cuffy, 2019), describes Freire's role in getting uneducated farmers to participate in answering questions about the work that they have done; questions that they could not answer. This undertaking was done to demonstrate that some people always know something that others do not. Most of the farmers in Jamaica were without formal educational training, and skills were transferred from local knowledge (Beckford & Barker, 2007). Jamaica and the Caribbean were hit by the global historic juncture in the context of neoliberal policies, in terms of competition, human capital, technology, and knowledge base, for example, a structural adjustment program (Robinson et al., 2013

In What Areas did the Participants Need More Adult Learning Resources?

In Jamaica today, more resources are needed to focus on small-scale farmers' literacy. This finding is similar to that of Robinson et al., (2013), who argue that there are low literacy levels among small-scale farmers in Jamaica, one of the main issues facing farmers (Robinson et al., 2013). What was common among all of the participants in this study, was that literacy

problems were identified, and some of the participants themselves said that not being able to read was difficult. Adult illiteracy was identified as a major problem in this study. Thus, research is critical to achieving a dynamic and sustainable learning system that provides opportunities for all (Robinson et al., 2013).

Currently, most small-scale farmers in Yankee District, are reportedly illiterate. This is not because they do not believe they have potential, but rather, they could not, and still cannot access basic resources when they need them. As a result, an adult literacy and social learning program is needed to empower smallholder farmers in Yankee District. Two-thirds of adults in Jamaica, aged 34 or older, have no academic qualifications, and there is a link between aging and adult illiteracy. Eighty percent of Jamaicans who are working or unemployed, lack professional, vocational, or technical education (Robinson et al., 2013). The same is true for small-scale farmers living in St. Ann, Jamaica. All small-scale farmers who participated in this study, and were between the ages of 45 and 60, had no formal educational training. Farmers expressed that they were not given the opportunity to attend school. Work done to analyze the participation of older adults in social activity in Jamaica, suggests that social participation does not depend on age. This finding also showed that there is a relationship between an individual's literacy level and their willingness to participate socially (Willie-Tyndale et al., 2016). Therefore, even with the availability of extension learning programs, some small-scale farmers might not want to participate in such programs. Wilson et al. (2007, as cited in Willie-Tyndale et al., 2016) argue that impaired cognitive function is a condition that is associated with poor social participation and integration, which socially prevents memory loss and cognitive impairment. Therefore, to improve literacy among small-scale farmers in Yankee District, more social programs would need to be funded by public and private organizations. Paulo Freire's philosophical conviction

was to remake the world, to alter what the mainstream referred to as reality, as well as his critical understanding of education and general interest in adult literacy (Freire, 2005). Freire was motivated in the 1970s to define adult learning as a process that combines personal and socioeconomic transformation (Freire, 1970 as cited in Elsey & Sirichoti, 2002). The findings of this current study in St. Ann, Jamaica have demonstrated once again, that agriculture education in Jamaica must consider the inclusion of farmer culture, since most farmers learn from each other, as stated earlier. This is parallel to what Freire believes: the reality of culture is of greatest importance for solving the problems of peasants, from the point of view of implementing technical and scientific methods to aid in their growth and development (Freire, 2005).

Summary of Significant Findings

This chapter concludes with a summary of the following key findings.

- The limited applicable agriculture extension learning program impacted participants' ability to be productive, and thus affected their quality of life.
- For learning to be effective, culture must be considered. Additionally, learning has to be collective.
- Agriculture extension learning has not achieved favourable results, due to the lack of equity in the program.
- Some extension learning programs are not applicable to participants living in rural communities.
- Literacy and marketing opportunities stand out as some of the main concerns participants have.

- Farming cooperatives continue to function in agriculture in Jamaica, however, some aspects of cooperatives are not effective in their function for participants. For example, inconsistency among members.
- Participants learn from each other.
- A unique finding was the negative impact gender equity has on participants living in rural communities.
- A barrier to participant success is the imperial institutions' control of the agriculture sector.
- Marginalization of small-scale farmers living in rural areas.
- Limited access to resources, i.e., capital, and scientific research.
- Most of the participants lack access to basic literacy.

Chapter Six: Significance of the Research and Recommendations

Significance of the Research

This research contributes to the literature on people's experiences with agricultural extension learning. The study evokes consciousness among small-scale farmers in Jamaican programs and highlights the lived experiences of those who are small-scale farmers, and are from rural communities in Jamaica. It identifies methods that are needed to develop and strengthen skills for individuals or collective groups in Jamaican agriculture. This project helps to ignite and improve my own capacity to contribute to collective learning in Jamaican agriculture. The completion of this research allows me to develop a better understanding of adult education and adult learning in agriculture in Jamaica. The findings from this study will also contribute to the theoretical literature in theory development in adult education in Jamaica and the Caribbean. This research will help participants change their narratives by exploring new pathways, recognizing their strengths, but, more importantly, embracing their flaws and even failures, and not allowing those to hinder them.

Participants

The participants in this study were all small-scale farmers that live in one rural community of Jamaica. The supporting literature and results indicate that the largest number of Jamaican farmers are small-scale farmers that normally learn from each other. In most cases, programs that are funded by large organizations do not apply to those smaller establishments. Additionally, most of the participants in this project were affected by literacy barriers that may have prevented them from having knowledge of the availability of agricultural extension learning programs in their country. The marketing of agricultural produce and a lack of adult literacy have emerged as the two major challenges confronting small-scale farmers. To enhance capacity

building among small-scale farmers, a critical and culturally-relevant literacy drive program is recommended for those living in rural communities, liberating their awareness of their abilities, of available opportunities that might benefit them. Secondly, it is recommended that a marketing agriculture produce program be established to target groups of people from rural communities across Jamaica. Such a learning program would follow the principle of adult education by allowing the farmers to learn in their area of interest.

Implications of Agriculture Extension Learning in Jamaica

The result of this research and other supporting literature has proven that there is a limited agriculture extension learning program in Jamaica. The evidence reiterates the need for more applicable learning programs. To execute agricultural extension learning programs effectively, extension agents and adult educators in Jamaica must come to the realization that social and cultural issues could contribute to, or cause constraints on economic growth.

Agricultural extension learning programs are available, but not applicable to most participants. The agricultural industry, under the government of Jamaica, has received sufficient funding from private and international organizations to support the industry. This includes supports for both the farmers and the agricultural extension learning programs. Currently, agriculture extension learning programs are not accessible to most participants in this study, and in some cases, there is limited awareness of extension officers.

Building Trust

Participants explained their lack of trust with the agriculture extension worker. Trust can build with more applicable agriculture extension learning programs, but extension worker accountability is also necessary to ensure that this learning program is achieving its objectives.

The building of relationships with extension workers and farmers also requires understanding the needs of the farmers, and providing learning resources where they are needed the most.

Implications for Adult Education

The results of this research revealed a lack of learning programs in Jamaica, that is not just related to agriculture, but across all sectors. This study points out that people in Jamaica are historically negatively affected by the effects of colonialism, neoliberalism, and capitalism. Therefore, adult education programs are presently needed to raise the consciousness of people. Participants in the research indicate that they are living in a farming community with no other available jobs that they can do to gain employment. An adult education learning program is required to engage with people, understand their areas of interest, provide training, and ultimately provide a better standard of living. Adult education must take into consideration social and cultural issues, which are some contributing factors to economic constraint in Jamaica. Adult education is a major part of the solution.

Moving forward, I am committed to being an adult educator and seeking to engage with people. I understand that teaching any person must first start with raising their consciousness about the importance of improving their lives and providing applicable solutions. As an adult educator, I have come to realize that social and cultural issues are a contributing factor to economic constraint. Adult education and the educators must provide the tools to help solve these problems.

Marketing and Literacy

The marketing of agricultural produce and a lack of adult literacy have emerged as the two major challenges confronting participants in this study. To enhance capacity building among

small-scale farmers, a literacy drive program is recommended for participants living in rural communities.

Equity in Agriculture

Equity in agriculture in Jamaica is important, since most Jamaican farmers are small-scale farmers who live in rural areas. Participants identified challenges in accessing agriculture loans and explained that most of them were not applicable to their farms' size. Therefore, setting up specific and applicable loan requirements for farmers with small-scale farms, would allow growth in their production, and possibly increase the standard of living for participants.

Gender Equity and Agriculture

The research uncovered gender equity issues in extension learning in agriculture. Female participants, for example, explain that while they could sometimes get material to purchase for their farm, their male counterparts could access the material and support that they could not. Support from the literature also provides evidence that other sectors in Jamaica are negatively affected by issues related to gender inequity. Although female attendance rates at all educational levels are higher than male attendance rates, and female literacy levels are higher, this has not been the case in Jamaica over the last decade. Female-headed households' consumption has decreased by up to 14%, while male-headed households' consumption has decreased by only 1.7% (Webster, 2006). In Jamaica today, women are more susceptible to poverty, and as a result, gender equity awareness is necessary to provide the platform required to limit these barriers that prevent success among females. Gender equity allows for peace, it increases any economic growth, and improves the standard of living for children. For example, in situations where females are not given equitable opportunity, this could have an impact on the country's economy, since more females have higher education and are considered more literate when

compared to their male counterparts. Furthermore, female labour force participation has consistently been lower than male labour force participation (Webster, 2006). The lack of gender equity in Jamaica has an impact, not only on the economy, but also on women's health. For example, women are more vulnerable to HIV/AIDS than men (Webster, 2006). Additionally, women are important in all aspects of Jamaica and Jamaican economic life, especially in education and agriculture, and there is a lack of gender equity for women in the rural communities of Jamaica, who see small-scale farming as their only source of income. Therefore, more gender awareness programs need to be funded in Jamaica, and economic focus should be given to women who are undereducated or considered less privileged. The next section examines how these findings have impacted my practice.

Implications for My Practice

My view of adult education has been completely different from what I thought it would be before the start of this research. In 2019, for example, my understanding of adult education was that adults can teach in a classroom, and it is a way to improve literacy among adults. However, engaging with participants in this study helps me to understand that adult education is much wider and more impactful than this. Adult education is the voice for social change. Adult education is the catalyst for my total life transformation and economic growth, so I am moving forward with these findings to guide my practice.

During this project, I had the opportunity to look at the life experiences of participants from different angles. Learning does not always have to happen inside a classroom, participants learn from each other, and the difference between equity and equality was made visible. I have also come to understand that adult education is lifelong learning, and one is always learning by adding experience. Through this lens of the participants' perspective, it gives me the

understanding that they will not value any form of learning, without putting their experience into perspective.

During this research, I reflected on my practice as an adult educator, and understood that adult learning takes place when people's cultures are considered. I am ready to use adult learning theories to guide my practice. The findings from this study point out the role of adult education and extension learning in Jamaican agriculture. The outcomes focus specifically on the challenges small-scale farmers encounter, and also provide workable recommendations. The following sections describe my takeaways from this result, which I hope to incorporate into my practice.

Maintain Trust

Study participants did not trust extension agents. I will not make promises where I cannot deliver, propose solutions, or stop communicating if I do not have a solution. Transparency is required to maintain trust. But I can communicate, explain the condition, and work together to provide an alternative solution. There is a low level of public trust in Jamaican society (Stephenson & Zanotti, 2020). Jamaica is said to be one of the most unequal societies in its hemisphere (Stephenson & Zanotti, 2020).

Understand Students' Social Issues

Study participants have their own social problems that prevent them from accessing education and as a result, tie them to the condition that they consider to be the norm. This allows me to understand that social issues are always a contributing factor and must be considered when providing applicable solutions. Freire (2005) explains in his work, that the new outcome required social responsibility and engagement from both the learner and the educator to change society.

Consciousness-raising of the Learner

Some study participants did not believe being illiterate was the major factor that impacted their standard of living. This finding could mean that asking people about their experiences and challenges will make them think differently. I am prepared to use my practice in the future, to have conversations with learners, and ask consciousness-raising questions that may allow learners to think differently, and ultimately improve their standard of living. Changing one's understanding about reality only happens through social communication and, most importantly, by asking critically relevant questions (Freire, 1970, as cited in Elsey & Sirichoti, 2002). I am also prepared to be an active listener, and not only ask questions to others, but also asking questions to myself, and listening to myself for my own learning and reflecting.

Supporting Learning Where it is Needed

Participants were able to integrate knowledge in a practical way. These are like some adult learning methods used by Brazilian adult education theorist Paulo Freire (Elsy & Sirichoti, 2002). Freire believed in student-centred learning. He also believed that “responsibility cannot be acquired intellectually, but only through experience” (Freire 2005, p. 13). Through their experiences, participants were able to learn what they would like to learn. Study participants maintained that their major issue was accessing marketing for their produce. In the future, I am prepared to inform my practice by identifying specific skills and attitudes that will help the learner understand their needs, allow learning to be self-directed, and provide training where it is needed most, for example, asking the learner what they want to know and guide their interest.

Supporting Learning Using a Gender Aware Approach

I am prepared to inform my practices by recognizing and responding to the vulnerabilities and risks of women and girls. I am prepared to hold discussions that support and maintain gender

inequity awareness, and to also seek out ways to transform unequal gender relations between women and men. For example, I am prepared to engage in research work that focuses on gender relations issues, workshops, and conferences to review gender relations policy and raise concerns about unequal gender relations.

Future Research Considerations

This research is the beginning. I interviewed eight small-scale farmers who were from rural Jamaica, were practicing on their farm without formal education, and had limited experiences with the agriculture extension learning program in their community. The following suggestions for further research could help improve the lives of participants.

- Gender seems to play a part in small-scale farming in Jamaica.
- How do gender-related issues affect Jamaica's agriculture and economy?
- What geographical location is the minimum for one agriculture extension agent to cover and be effective?
- What extension program is needed to hold agriculture extension officers accountable, and build trust between farmers and agents?

Most of the implications and recommendations presented focus on the fact that additional adult learning programs are required in agriculture to meet the needs of participants, but also in other sectors of Jamaica's economy to improve life, especially in rural communities. Findings from this study showed that, now more than ever, underdeveloped nations like Jamaica are reaping the results of past actions such as colonialism, neoliberalism, and corrupt government, which have resulted in a high level of unemployment, poor literacy among adults, and classism. All of this points to the importance of adult education and the adult learning program, that are needed to resolve these issues, and improve people's living conditions.

Final Thoughts

The rise in social and cultural issues is one of the contributing factors that affect participants in this research, resulting in economic constraints in their country that affect their livelihood. An adult education learning program is needed to continue to help participants learn and develop a more critical attitude, that will help to empower them to overcome the different social force (Freire, 2005). Adult illiteracy, an insufficient agriculture extension learning program, and gender equity in agriculture stand out as the major concerns for participants in this study. Therefore, an adult learning program and agriculture extension program must be made available and applicable to help participants improve their lives. Adult education should concern everyone; it should be the tool that equips society to educate people to be free and creative (Bergevin, 1967).

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Appendix A: Invitation to Participate in the Research Study (English)

Title of Research: Extension Learning and Adult Education in Jamaican Agriculture: A Qualitative Case Study

Name of Researcher: Niran Foster

Invitation to Participate

I am inviting you to participate in a research project to further the understanding of the history and role of extension learning in Jamaica, and to look in depth at the impact of extension learning in agriculture in your community. This research is also aims to find solutions to reduce small-scale farmers' struggle and increase agricultural productivity. This study is part of my Masters in Adult Education at St. Francis Xavier University in Antigonish, Nova Scotia, Canada.

What is the study about?

The purpose of this study is to explore how, when, and where farmers have learned about extension learning in agriculture in Jamaica. This research has an action focus, and I'm primarily interested in the way farmers learning has changed their actions in Jamaica agriculture, and to find solutions to improve the skills of small-scale farmers.

What you will be expected to do?

You will be asked to participate in a conversational interview to discuss your learning in extension agriculture. The focus will be about your experiences with extension agricultural learning programs in your community.

How much time will it take?

The interview will be approximately 60-90 minutes. I may have a follow up phone call meeting with you later in the project to discuss about what I found.

What happens if you change your mind and wish to withdraw?

Participation in this study is voluntary and you can choose to withdraw at any time. You can tell me in person, by email, or by phone using the contact information below if you wish to withdraw. There will be no consequences if you decide not to continue, and all data collected from you will be destroyed.

What are the potential benefits and hazards associated with participation in this study?

You may benefit from reflection on your personal experience with extension learning in agriculture. You may also benefit from knowing that you have contributed to a collective reflection and the learning within your community, The findings of this research may be of direct benefit to improve the skills and learning of small-scale farmers in your community.

Be aware that you might not be feeling comfortable talking to me about your literacy level or educational background. However, you may decide not to answer any questions, without consequence. I will also not use your name in any reports or articles that I write, and all of the project information will be securely stored in a password-protected folder on my home computer.

Confidentiality

Participation or non-participation will be kept in confidence. I will not use your real name, and no identifying information will be included in any document resulting from this study. The researcher is solely responsible for the security of all transcriptions, daily activity logs, and research notes related to the study.

Contact Information

If you have any questions about this research project, please contact:

Researcher
Niran Foster
Department of Adult Education
St. Francis Xavier University
Telephone: (902) 957-5345
Email: x2020csv@stfx.ca

Supervisor
Dr. Adam Perry
Department of Adult Education
St. Francis Xavier University
Antigonish, NS B2G 2W5
Email: aperry@stfx.ca

Appendix B: Invitation to Participate in the Research Study (Jamaican Patois)

Title of Research Extension Learning and Adult Education in Jamaican Agriculture: A Qualitative Case Study (Jamaican Patois)

Name of Researcher Niran Foster

Invitation to Participate

WAH A GWAN MAN

Mi a do a research project in a extension learning, a di same thing like di RADA program. This thing wud help yuh get betta in a yuh farming work. Mi a do this fi mi Masters in Adult Education wid a school in a Canada name St. Francis Xavier University in Antigonish, Nova Scotia, Canada. Dis research weh mi a do anno wid RADA.

Wah di study about?

Me and yuh just ago talk bout di extension agricultural service mi wah kno if yuh bout dem, and if dem help yuh wid anything. Me just wa know if when dem com a yuh field thing get betta, if me can hear from yuh, den may be wi can find out wah cay help and may be tings cud be betta in a di time to come for farma like yuh self.

Wah would expect of yuh?

Yuh an mi just going to talk bout wa yuh know bout the extension agricultural learning programs inna yuh community: as mi seh dis a di same ting like di extension learning in agriculture program, we wah know wah experience yuh ave wid dem and if dem help yuh wid anything.

How long dis ago tek?

Dis thing na tack long, just 90 minutes or less and mi might call yuh back a second time just to check up pan yuh and tell yuh wa mi find out.

What if yuh change yuh mine and no wa bada do this thing?

If yuh change yuh mind, just gi mi a call and everything gud, and mi wi just trow out the thing dem weh mi write done. And memba seh dis a voluntary, dat mean seh yuh na go get no pay, so yuh cah change yuh mine if yuh wa anytime, me no ave no problem wid that.

Wah yuh might get out a dis research and how cay dis study hurt yuh?

This project might help find out the problem dat di if farma dem have, and this cud used fi yuh get dem some help. I think talking to mi bout dis cud hurt u inna sumway, yuh might nuh feel gud talking wed mi bout yuh literacy level but as mi sah I will keep everything wi talk bout between secure and saf, to prevent any hurt dit cud com from dis research this thing will be between mi and yuh and it will be done over di phone, so I think it saf. However, yuh nuh hav to anwwer any question that yuh nuh wah if answer without consequence.

Confidentiality

Everything wa yu seh a between mi an yu, and mi na used no body name in the study paper and anybody weh read this paper na go no a who seh wat. A mi ago keep everything weh we talk bout saf.

Contact Information

If you have any questions about this research project, please contact:

Researcher

Niran Foster

Department of Adult Education

St. Francis Xavier University

Telephone: (902) 957-5345

Email: x2020csv@stfx.ca

Supervisor

Dr. Adam Perry

Department of Adult Education

St. Francis Xavier University

Antigonish, NS B2G 2W5

Email: aperry@stfx.ca

Appendix C: Participant Consent Form (English)

Verbal Script

My research project entitled, “Extension Learning and Adult Education in Agriculture in Jamaica.” requires your participation as a farmer in your community, to understand how learning can increase growth among small-scale farmers. This is a case study, and I have had an opportunity to read, explain the information to you, and answer all of the questions that you may have.

Do you agree to participate in this research project, understanding that you are doing so voluntarily, that confidentiality will be maintained, and that you have the right to withdraw from the study at any point, using the means outlined in the invitation to participate?

Appendix D: Participant Consent Form (Jamaican Patois)**Verbal Script**

Wi talk bout mi research project that ago tek place in a di community, in extension learning: the same thing like when the RADA people dem com a yuh field. So yuh wa fi tek part inna di study, understanding dat yuh doing suh voluntarily, dat confidentiality ago be maintained, an yuh ave di right tuh withdraw from di study using the means outlined innna di invitation tuh participate?

As mi sey yuh doing this for free, so yuh nah go get pay and an if yuh change yuh mind yuh cah stop when you want, no problem wid dat, and everything dat wi tek is safe. Nobody will know what u seh or yuh name? As mi sah before mi nah do dis research in extension learning if the Rada government program. Dem no hav noting if do wid dis.

Appendix E: Research Questions (English)

1. Please provide a brief overview of your background, please include your education level and your years of practice as a farmer in your community.
2. Please explain in detail what you know about agriculture extension learning programs in your community, starting with when you first learned about the program.
3. Where did you learn the farming skills that you used to practice on your farm?
4. Can you remember a time when you benefited from an extension learning program in your community?
5. What are some things that might prevent you from participating in the agricultural extension learning programs in your community?
6. What are some factors that motivated you to participate in extension learning in agriculture in your community?
7. What are some barriers you have encountered as a farmer?
8. What would you like to see change about how extension learning programs in agriculture operate in your community?
9. What do you think needs to happen to improve your condition?

Appendix F: Sample Questions (Jamaica Patois)

1. Please provide a brief overview of yuh background. Please include yuh education level an yuh years of practice as a farma inna yuh community.
2. Please explain inna detail wah yuh kno bout agriculture extension learning programs inna yuh community, starting wid wen yuh fos learn bout di program.
3. Weh yuh learn di farming skills yuh used tuh practice pan yuh farm?
4. Yuh cya memba a time wen yuh benefited from extension learning programs inna yuh community?
5. Wah sum things dat prevent yuh from participating inna di agricultural extension learning programs inna yuh community?
6. Wah sum factas dat motivated yuh tuh participate inna extension learning inna agriculture inna yuh community?
7. Wah sum barria yuh ave encountered as a farma? On how yuh ova com dem?
8. Wah yuh wudda like if si change bout ow extension learning programs inna agriculture operated inna yuh community?
9. Wah yuh think need if happen to improve yuh condition?

Appendix G: Document Summarizing Changes to the Invitation to Participate for both the English and Jamaican Patois

I have made changes to the following sections:

Name of researcher: I have indicated my position and affiliation.

What is the study about?: I have added information about what the data of the study will be used for, and the expected start and end date of the study.

What you will be expected to do: I have made it clear that the research will not be in person. I have explained that the interview will be an over the phone interview. I have made it clear that the interview will be recorded, but the participant will have the option to stop the recording at any time, if they become uncomfortable and do not want to continue.

What happens if you change your mind and wish to withdraw?: I have edited sentences.

What are the potential benefits and hazards associated with participation in this study?: I made corrections to sentence construction, and added more information about hazards associated with participation in the study.

Confidentiality: I have added missing words.

Contact information: I have added contact information for my supervisor including his phone number.

Changes to the Invitation to Participate Specific for Jamaican Patois

Invitation to Participate: I have rewritten the Jamaican patois version to make it directly translated from the English versions.

What are the potential benefits and hazards associated with participation in this study?: I have explained and provided more information about the risk that could associate with participating in this study.

Participant consent form: I have rewritten the Jamaican patois version to make it directly translated from the English versions.

Concern about travelling for research in COVID: I have spoken to Richard Isnor, VP of Research about research COVID protocol, and I was told that I can conduct research in Jamaica if I follow Jamaican COVID protocol.

Address whether I need in-country approvals, either administrative or ethical, for going to Jamaica: I do not required permission from any governmental or non-governmental bodies in Jamaica to conduct this research.

Will digital literacy be an issued if I must use Zoom?: The online workshop will be organized by community church leaders and myself. The church has an online platform that they used during the pandemic. Participants will only be required to showed up at the workshop location, and communication to farmers during the workshop will be done using Jamaican patois. I believe

that I can conduct an online workshop with the farmers, with help from the local community church leader. Additionally, the workshop is not a part of the research. The main purpose of the workshop is to catalyze the recruitment process for the research. However, I will use the opportunity to share my agricultural knowledge with participants during the process, but no data will be collected during the workshop activity.

Appendix H: REB Approval



March 07, 2022

Mr. Niran Foster (Principal Investigator)
 Dr. J. Adam Perry (Supervisor)
 Faculty of Education\Adult Education
 St. Francis Xavier University

ROMEO File #: 25693

Project Title: Extension Learning and Adult Education in Jamaican Agriculture: A Qualitative Case Study

Dear Niran Foster,

The Research Ethics Board (REB) has cleared the above cited proposed research project for ethics compliance with the Tri-Council Guidelines (TCPS) and St. Francis Xavier University's ethics policies. In accordance with the Tri-Council Guidelines, your project has been cleared for one year. At the end of each year, the REB will ask if your project has been completed and, if not, what changes have occurred or will occur in the next year.

Renewal Due-2023/03/07

You are reminded of your obligation to advise the REB of any adverse event(s) that occur during this one-year period. An adverse event includes, but is not limited to, a complaint, a change or unexpected event that alters the level of risk for the researcher or participants or situation that requires a substantial change in approach to a participant(s).

You are also reminded that all changes that might affect human participants must be cleared by the REB. For example, you must report changes in study procedures or implementations of new aspects in the study procedures. These changes must be sent to the undersigned prior to implementation.

On behalf of the Research Ethics Board, I wish you continued success in your research.

Sincerely,

Dr. Leona English
 Professor and Chair
 STFX Research Ethics Board

Appendix I: Resources to Support my Practice

Professional Organizations that Support the Learning of Small-scale Farmers in Jamaica

- The Jamaica Agricultural Society also has established parish offices island wide:
 1. To foster domestic agricultural production for Jamaican farmers.
 2. Support the research and development of new methodologies and farming techniques for agricultural production and output.
 3. To encourage “best practices” in agricultural development.
 4. To foster efficiency and effectiveness in agricultural production, output, and distribution.
 5. Support ventures in agribusiness as a means of increasing value added within the agricultural sector.

Contact:

7 Church Street,

Kingston

TEL: 1876 922-0610-2

FAX: 1876 967-7419

EMAIL: adminjas112@gmail.com

- **FAO Regional Office for Latin America and the Caribbean.**
As the intensifying impacts of climate change continue to threaten water and food security in Jamaica, the Food and Agriculture Organisation of the United Nations (FAO), together with the governments of Mexico and Jamaica, are taking steps to ensure farmers have the tools and expertise to be climate resilient.
- **Communications Consultant Project: GCP/SLC/MEX/018 CARICOM-FAO-Mexico Initiative “Cooperation for Climate Change Adaptation and Resilience in the Caribbean.”**
The FAO Cassava Project is an initiative aimed at boosting the cassava industry. It was designed to demonstrate improved technology to produce cassava.
- **The Rural Agricultural Development Authority (RADA) is committed to promoting the development of agriculture in Jamaica as the main engine of economic growth in rural communities through an efficient, modern, and sustainable extension service that will enhance the national economy and improve the quality of life of rural farm families.**
 1. To supplement information to rural development agencies, thereby assisting in the advancement of improvements in rural infrastructure.

2. To provide the supplemental social services required for the improvement of the quality of life of farm families.
3. To provide technical advice to farmers of any size. To provide a reliable agricultural marketing information service.
4. To assist in the implementation of specified rural development projects.
5. Development and implementation of a programme of continuous training for farmers and rural women, to improve and increase their knowledge and capability levels.
6. Mobilization of agricultural credit and other input opportunities for small farmers.
7. Stimulating the formation of production marketing groups and providing marketing intelligence to farmers and intermediaries.
8. Cooperation with agencies involved in the development of rural infrastructure to improve the quality of life in rural communities.
9. Development and operation of rural agricultural service centres at strategic locations to bring the service closer to farmers.
10. Implementation of selected projects that impact farming and biological environments (watershed development, hillside agriculture) to stem environmental degradation and promote the use of natural resources.

Adult Learning Program

- The Jamaica Plain Community Centers Adult Learning Program (JPCCALP) is the ideal way to develop your skills in English, math, reading, and writing, and make progress towards your goals. We offer free day, evening, and online classes that are convenient for busy adults. ALP is a full-service program where students can begin at any level and advance through the highest levels.
- Life-long learners gain the basic skills they need to receive their General Educational Development (GED), enter job training programs, and apply for higher education and employment opportunities. You can contact the:

Adult Learning Program
Boston English High
Rm 117
144 McBride St.
Jamaica Plain, MA
(617)635-5201
jpccalp@gmail.com

Mailing Address:
 Jamaica Plain Community Centers ALP
 20 South Street
 Jamaica Plain, MA 02130

- The Jamaican Foundation for Lifelong Learning (JFLL) is an agency of the Ministry of Education, Youth, and Information of Jamaica and is charged with the execution of adult and youth learning and lifelong learning interventions from basic literacy to the secondary level.

Contact:
 47B South Camp Road
 Kingston 4
 Jamaica
 Tel :1-876-928-5182-6
 Fax :1-876-928-5392
 E-mail: jfll@jfll.gov.jm

Project

- The Agrilinkages Exchange (ALEX) is Jamaica's first e-commerce initiative tasked with connecting farmers with marketing opportunities (tourism, gastronomy, exports, processing, etc.).
- The agrotourism farmers market is an initiative of the Tourism Linkages Network's Agriculture Working Group. It is a joint initiative between the Tourism Enhancement Fund (TEF) of the Ministry of Tourism, and the Rural Agricultural Development Authority (RADA) of the Ministry of Industry, Commerce, Agriculture, and Fisheries.
- The National Irish Potato Production Programme is part of the government's overall strategy to enhance Jamaica's food and nutrition capacity, with the aim of reducing imports, becoming self-sufficient, and providing more income for the farmers.
- The project, A Jamaican Path from Hills to Ocean, is designed to increase Jamaica's resilience to the impact of climate change and reduce poverty by protecting livelihoods.

Online Learning Resources

- SRC, <http://src.gov.jm/>
- MSME Alliance, <https://themsmealliance.org/>
- PSOJ, <https://www.psoj.org/>
- JEA, <https://www.exportjamaica.org/>
- ABIS, <https://jacra.org/link/agricultural-business-information-systems-abis/>
- <https://uil.unesco.org/partner/library/jamaican-foundation-lifelong-learning-jfll-jamaica>