

Running head: IMPACT OF A RESEARCH AND DEVELOPMENT PROJECT

**MULTI-DISCIPLINARY STUDY ABROAD RESEARCH AND DEVELOPMENT
PROJECT: IMPACT ON EMOTIONAL AND CIVIC ENGAGEMENT STATUS
OF KENYAN WOMEN FARMERS**

BY

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Abstract

Programs that facilitate students' learning abroad are on the increase among institutions of higher learning in the global North. International learning experiences develop students' global and intercultural competence, enabling them to work and live in a more diverse society. Research on the impact of international experiential education has focused primarily on the traveling students rather than on community members. This study evaluated the impact of an integrated research and development project on the emotional and civic engagement status of women farmers in Kenya. The project, with NGO and academic collaborators, included intervention programs in human nutrition and dairy cattle management in the Naari region of Kenya from 2015 to 2017. This mixed methods study primarily used random sampling to select participants from the nutrition (n=23) and dairy (n=20) intervention groups, and a control group (n=20) of the project. Data were collected in three phases in 2017: (1) a survey of women farmers; (2) in-depth interviews; and (3) focus group discussions. Descriptive statistics, and univariable and multivariable logistic regression models were used in the analyses. Findings revealed that some intervention group participants experienced an emotional distress in the short-term (last month) specifically feeling more worthless compared to the control group, but experienced emotional empowerment in the long-term (during the last 3 years) particularly feeling less worried than the control group, while controlling for demographic differences between groups in the final models. In addition, the overall civic engagement levels of women in the study increased in the long-term, and the intervention groups increased more than the control group, while controlling for demographic differences between groups in the final model. A significant relationship was found between women's emotional empowerment (specifically, feeling extremely hopeful over

the last 3 years) and increased overall civic engagement over the last 3 years. Lastly, age, income, income control, education levels and belonging to community groups were also found to predict various aspects of women's emotional empowerment and civic engagement levels. Our results demonstrate that despite some feelings of worthlessness over the short-term among the intervention groups, more women in the project intervention groups had high levels of emotional empowerment and improved civic engagement over the last 3 years compared to women in the control group.

Keywords: smallholder farmers; emotional empowerment; civic engagement; post-intervention evaluation

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Dedication

This piece of work is dedicated to the Shileches,
a family of nine strong women and a supportive man.

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Chapter 1: Introduction

An Overview of International Learning Programs

The world is becoming a global village; interlinked and engaged (Boateng & Thompson, 2013; Rourke & Kanuka, 2012). While higher education in general prepares individuals for professional and social responsibilities, international education in particular develops students' ability to live and work in a diverse society (Bringle, Hatcher, & Jones, 2011; McLeod, Carter, Nowicki, Tottenham, Wainwright, & Wyner, 2015). The Forum on Education Abroad (2011) classifies study abroad programs in four ways: (1) field study, which embraces practicality, such as service learning and field research; (2) integrated university study, which allows enrollment of international students in regular university courses; (3) overseas branch campus, which offer foreign students their home university education; and (4) travel tour, which combines tourism and learning.

A majority of all study abroad programs (SAP) are short-term, running eight weeks or less (Institute of International Education, 2011) with many using, service learning as a primary pedagogical approach (Hovey & Weinberg, 2009). Service learning enables student learning through community engagement, and is favored over other types of study abroad approaches for: (1) enhancing the effectiveness of short-term programs; and (2) extending benefits beyond the academic group into the host community (Crabtree, 2008; Bringle & Hatcher, 2011; Fisher & Grettenberger, 2015). International service learning is facilitated through existing strategic partnerships between providers of international education and agencies in a country of interest. Students are connected with host country service agencies and engage in tasks which

allow them to operate in the real world where they apply learned theory to practice, and reflect on the experience (Ash & Clayton, 2009).

Overwhelmingly, research on international education has focused on the impact of study abroad programs on the traveling students (e.g., Engberg & Jourian, 2015; Franklin, 2010; Jackson, 2015; Jacobone & Moro, 2015; McLeod, et al., 2015). Studies looking at the community outcomes of study abroad programs are less in number. Recent research examining the interactions between international students and local people has found conflicting results with regard to the effect on host communities (Bringle, et al., 2011; Friedman et al., 2016; Tibbetts & Leeper, 2016 & Tiessen & Heron, 2012). Moreover, the limited use of field research in international education programs has presented a gap in understanding of the impacts on host communities.

The Research Setting

Study Project and Partners

This multi-disciplinary, multicultural and multi-partner project was funded primarily by the Canadian Queen Elizabeth II Diamond Jubilee Scholarships (QES). It was developed at the University of Prince Edward Island (UPEI) in collaboration with a Canadian nonprofit organization, Farmers Helping Farmers (FHF) that works in Kenya, and five Kenyan partners which included two universities, a dairy co-operative, and two women's groups, as described below.

Over the course of four years (2015-2018), the project sought to improve and sustain smallholder family nutrition, horticultural and dairy farming in Eastern Kenya through practical evidence-based best practices and to demonstrate the impact of training and provisions of critical infrastructure through research conducted in the rural

community. The project coordinated efforts of Canadian undergraduate and Kenyan graduate students across three disciplines (veterinary medicine, human nutrition and education) to implement integrated field-based training techniques and research projects.

Kenyan students conducted a baseline survey to provide understanding of livelihoods among Naari farmers. Initial research was also helpful in developing relevant training in horticultural, family nutrition and dairy health management. After completing one academic year at UPEI, Kenyan students spent eighteen months (doctoral) and 3 months (masters) in Naari teaching farmers how and why to cook healthy meals and how to feed, breed and make cows comfortable. Canadian undergraduate students were in Kenya for 90-day internships and worked with Kenyan students to educate farmers and collect data. Students assessed the impact of training and FHF interventions on cow nutrition, reproduction and comfort; human food security and diet diversity; and nutrition knowledge, attitudes and practices. In addition, one master's student from the education faculty assessed the use of traditional face-to-face training compared to integrate face-to-face and cell phone training methods. Training and research activities were implemented through workshops, farm demonstrations and cell phone technology.

UPEI faculty members from the Department of Health Management at the Atlantic Veterinary College, and the Department of Applied Human Sciences in the Faculty of Science, drew from their academic experiences and research collaborations with faculty members at two Kenyan universities to develop a cross-cultural learning abroad project that integrated veterinary medicine, human nutrition, and education studies. UPEI and Kenyan university faculty members and FHF were involved in the selection of undergraduate and graduate students for the project. UPEI faculty members

were responsible for primary supervision of the graduate student scholarly work.

Farmers Helping Farmers is a Canadian based non-profit organization with a long-standing presence working with Kenyan farmer groups. In 2014, FHF started collaborating with Naari Dairy Farmers Cooperative Society and two Women's Groups to improve their members' family income through agricultural education and resources. As well, FHF provided women's group members with equipment such as water tanks, drip irrigation and vegetable grow bags and horticultural training to improve sustainability and yields from kitchen [vegetable] gardens. Also, it partnered with a number of schools in the Naari region to build vegetable gardens to contribute to healthy lunch meals for the students. FHF and UPEI's Atlantic Veterinary College have developed a dairy health management handbook that provides important information to smallholder dairy farmers in Naari. Similarly, FHF has a horticulture handbook that provides additional guidance for sustainable vegetable growing. In this project, FHF Kenyan staff worked directly with farm women to install critical horticulture infrastructure and to conduct dairy and horticulture training. The staff assisted undergraduate and graduate students in facilitating training to farmers and collection of research data. As well, staff organized meetings, directed students to training locations or participant homes, and sometimes translated the teaching or research conversations from English into the native language and back to English. Details can be found in Appendix J.

Kenyatta University and the University of Nairobi are public institutions of higher learning in Nairobi, Kenya. Programs at these institutions served as the grounds for recruiting Kenyan graduate students, while faculty members in veterinary medicine and human nutrition disciplines are collaborators and academic supervisors.

Naari Dairy Farmers Cooperative Society (NDFCS) is a cooperative in the northern part of Meru County, Kenya. It provides livelihood opportunities to about 500 small-scale dairy farmers through the sale of their milk. The cooperative ensures that milk is collected on a daily basis from farmers, transported to the dairy facility, cooled and sold for retail sales or processing. It also provides access to credit and financing to members who sell their milk to the dairy. In 2014, NDFCS and Farmers Helping Farmers collaborated on training some members of the cooperative society on milk quality and agronomy. These farmers were very receptive to this new information and expressed their willingness to learn more about the health and management of cattle and human nutrition, leading to the successful proposal that funded this QES project.

Two local Women's Groups were participants in the FHF and QES interventions and have about 30 members each. Kenyan women use such groups to access resources to improve their livelihoods, for example, women save money and take out loans when group savings have accumulated. Moreover, these groups provide a chance for women to socially interact and support each other emotionally. Farmers Helping Farmers has previously been involved with one of the Women's Groups through a kitchen gardening project. Members of the two women's groups were eager participants in project training and research activities with the FHF staff, Canadian undergraduate student interns and the Kenyan graduate student researchers.

Study Location

According to a report by Kenya National Bureau of Statistics (KNBS) and Society for International Development (2013), Meru County is characterized as having a youthful population with 75% of the population below 35 years of age. A significant proportion of

the residents have low literacy levels, with only 18% of residents having completed post-primary level education. Nearly half of the residents (42%) earn a living through smallholder agriculture. Farmers keep cows for milk production and grow crops such as maize, beans, sorghum, vegetables and fruits, tea, and coffee. Kenyan smallholder farmers working on and off the farm earn an average combined household income of 22,000 KSh per month (\$275 CAD) (Rapsomanikis, 2015).

The current study was conducted in the Kiirua/Naari area of Meru County in Eastern Kenya. Kiirua/Naari is one of the forty-five electoral wards in Meru, has a population of 27,299 people, and covers 118.6 square kilometers at an elevation of about 2,000 meters above sea level (KNBS, 2009). The majority of residents practice agriculture, especially dairy farming.

Researcher's Biography

Creswell (1998) explains that people have a set of beliefs that direct their actions in life, and researchers utilize a part of their worldview while exploring their subject matter. In respect to this, I would like to state my philosophies as a Kenyan of Luhya descent and a community development practitioner.

The Kenyan culture is diverse, with forty-two tribes scattered all over the country. Kenyans are socialized first with the values and beliefs of their immediate tribal background before being exposed to other tribes and national ideals. Consequently, tribal identity takes precedence in shaping morality and ideology among Kenyans. I was born in the western part of Kenya and socialized into the Luhya tribe way of life. This research took place outside my tribe, among the Meru people, who have different social norms,

beliefs, and language, therefore, I may have at some point used my tribal cues to make meanings of data and findings.

My journey as a community development practitioner began after a volunteer placement which sparked an interest in social change in me. With years of learning and experimenting with community development, it was easy to identify interests and find ways to contribute to social change. My perspectives on community change shifted from what I could do for people, to what people could do for themselves to achieve desired outcomes. Now, my efforts within communities target the development of self-reliance and creation of platforms for people to share ideas, spur creativity, and find opportunities for empowerment.

I have worked on community projects involving health promotion in the west of Kenya, and civic education in central Kenya. These and many other projects have taught me quite a lot, but most importantly, that true change in Kenyan communities is most likely to occur when residents themselves are willing to take up opportunities for development. In addition, my graduate studies in Canada have improved my thinking on community development. Through courses, workshops and community events, I have learned about asset-based and participatory social change models as well as evaluative research approaches on development projects. It is against this backdrop that my interest in civic engagement and actions within Kenyan communities was fostered. I want to know what efforts Kenyans are taking towards their development and what actions can enhance or mobilize these efforts. The area of women's emotional empowerment is a new frontier for me. This current research experience as an international graduate student

allowed me to develop a broader perspective to my knowledge of community, dig deeper into the literature, and extend my exposure to varied research approaches.

Research Rationale

The Canadian Queen Elizabeth Scholarship program is one among many programs promoting and facilitating international education. While most study abroad programs make the traveling students the center of focus, the QES project at UPEI was concerned with both students and the host community. As such, it was important to shift perspectives and assess outcomes within the community to inform future QES projects. A unique aspect of this QES project was the involvement of multi-disciplinary students in research and community training on farms in a rural Kenyan community, in contrast to much of the international study abroad literature which tends toward short-term courses or service learning in international education.

Purpose, Objectives and Hypothesis of the Study

The purpose of the study was to investigate the impact of a multi-disciplinary study abroad research and development project on community groups in Naari, Eastern Kenya. Specific study objectives included; 1) to investigate the impact of a study abroad research and development project on the emotional and civic engagement status of selected members of a Women's Group and Naari Dairy Farmers Cooperative Society in the QES project compared with a Control Group, not directly engaged with the same project; 2) to examine the demographic factors influencing the emotional and civic engagement status of selected members of a Women's Group and Naari Dairy Farmers Cooperative Society; and 3) to explore through women's knowledge

and lived experiences the socio-cultural factors promoting and hindering the emotional and civic engagement status of Naari women. The study hypothesized that the combined QES research and development project would improve the emotional status and increase civic engagement of participating community members in the Dairy Group women (who are loosely affiliated with each other) and members of a Women's Group (who are closely affiliated with each other).

Significance of Study

This study will be useful in contributing knowledge on effects of multi-disciplinary multi-partner collaboration of development and research-based study abroad projects on host communities. It is also significant in that it adds the voices of Kenyan women farmers to the literature base, a population that is underrepresented in the emotional and civic engagement status literature. By way of knowledge translation activities, it will also assist the participants in the study to understand their emotional and civic engagement status and the factors influencing these characteristics. The study will provide researchers and NGO partners with some insight into the impacts of their activities on the community to inform future collaborative efforts. Lastly, by highlighting factors influencing emotional and civic engagement status of women in Naari, government and non-governmental actors could make more informed decisions to enhance the potential for projects to empower women.

Definition of Key Terminology

Civic engagement (CE) status is referred to as the level of participation of individuals in community matters, and may be low, medium or high. This term is used interchangeably with community engagement. The definition was constructed from reviewing other studies and their definitions (Coleman, 1990; Ekman & Amna, 2012; Mandell, 2010; Putnam, 2000).

Community has been defined as a group of people with diverse characteristics who are linked by social ties, share common perspectives, and engage in joint action in geographical locations or settings (MacQueen, McLellan, Metger, Kegeles, Strauss, Scotti, Blanchard & Trotter, 2001). This study focused on the Naari community in Eastern Kenya which has a shared physical location and cultural identity like language and beliefs.

Emotional status is taken to mean the level of feelings reported to be encountered by people in various aspects of life. **Emotional Empowerment** (EE) refers to high levels of positive feelings reported to be encountered by people in various aspects of life, which can lead to greater capabilities and satisfaction. **Emotional Distress** refers to high levels of negative feelings reported to be encountered by people in various aspects of life which can lead to failure and distress. These definitions were drawn from other studies and will be employed in this study (Diener & Biswas-Diener, 2008; Kessler, 2002; Tov & Diener, 2008; Zimmerman 1995).

Blackstone (2012) describes **Field Research** as a qualitative method of data collection that involves observing, interacting with, and interviewing people in their

natural settings. In this study, field research refers to both qualitative and quantitative data collection on Kenyan farms.

Patton (2015) described **impact evaluation** as the process of determining the results or outcome of an intervention. This study conceptualized **impact** as the wide-scale outcomes of the QES study abroad research and development project on emotional empowerment and civic engagement of participants.

Learning abroad program is used to describe programs that facilitate students to study outside their own countries (The Forum on Education Abroad, 2011). This term is used interchangeably with international education programs and study abroad programs.

Social issues refer to undesirable conditions seen or felt by a majority of people (Lauer, 1976). The same definition is adopted for this study.

Service learning is defined as:

A course or competency-based, credit-bearing educational experience in which students (a) participate in mutually identified service activities that benefit the community, and (b) reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of personal values and civic responsibility (Bingle & Clayton, 2012).

Study abroad program (SAP) is defined as “an education abroad enrollment option designed to result in academic credit” (The Forum on Education Abroad, 2011). This term is used interchangeably with international education programs and learning abroad programs.

Outline of Thesis

While study abroad programs are becoming widespread in post-secondary education, those that partner with community organizations most often use a service learning model. Research on these programs has focused more on impacts and outcomes for students rather than other partners. This study sought to investigate the impact of a multi-disciplinary study abroad research and development project on women in a rural community in Kenya. The thesis starts with a review of the literature informing this research study in Chapter two. Chapter three details the data collection and analysis procedures for this mixed methods research project. Chapter four presents the key findings of the study while Chapter five discusses key findings and limitations of this research and concludes with some recommendations and suggested areas of further research.

Chapter 2: Literature Review

Contextual and Theoretical Background

The literature reviewed in this chapter provides readers with a discussion of the broad contextual and theoretical background as well as presents key concepts found helpful to the study. The chapter begins by looking at globalization as the basis for international education and moves on to describe common models of study abroad programs and key research that has explored the impacts of study abroad experiences. This is followed by a discussion of the theoretical frameworks and concepts underpinning this study. Particular attention is given to Social Capital Theory and Empowerment Theory. The chapter concludes with an outline of the research questions.

Globalization and International Education

The global village is the 21st-century term for the decreasing distance between different cultures of the world (Boateng & Thompson, 2013). Connections between nations have increased to the point that actions of individuals in one part of the world for example, war, immigration and economic recessions influence individuals in another part (Bringle, et al., 2011). Education is one of the strategies used to navigate global challenges and promote mutual and sustainable growth (McLeod, et al., 2015; Twombly, Salisbury, Shannon, Tumanut, & Klute, 2012). Post-secondary education, in particular, is considered crucial for developing individuals' capacity to improve themselves and the lives of others (Bringle, et al., 2011). In the face of diversity, international education is seen to increase knowledge of, and sensitivity to, global cultures and suitability of actions in the global environment (Engberg & Jourian, 2015; Zerman, 2014). Students with an open mind and understanding of events from multiple perspectives become highly

effective employees and responsible citizens (Bringle, et. 2011; Franklin, 2010; Jacobone & Moro, 2015). Based on these research findings, it is important to gain a deeper understanding of study abroad programs, including models, impacts, and gaps.

Forms of International Education

There is agreement among institutions that study abroad programs must contribute to students' academic credit (Twombly, et al., 2012). However, the ways in which international learning experiences for students are characterized differs among researchers; there is no single agreed upon criteria. The Forum on Education Abroad (2011) classifies study abroad programs in four ways: (1) field study, which embraces practicality, such as service learning and field research; (2) integrated university study, which allows enrollment of international students in regular university courses; (3) overseas branch campus, which offers students the curriculum from the home university in a different country; and (4) travel tour, which combines tourism and learning. The Institute of International Education (IIE) (2011) categorizes SAP by duration. Short-term programs last for eight or fewer weeks and take place in the summer/mid-semester while long-term programs last for a semester or an academic year. The IIE (2011) found that between 2009-2010, 57% of all SAP were short-term compared to 4% long-term. Fisher and Grettenberger (2015) believed that short-term programs are common for their cost effectiveness. Finally, SAP's are described by their level of intercultural interactions, for example immersed and superficial (Engle & Engle, 2003) as well as their mode of learning, for example service or research based (Forum for Education Abroad, 2011).

Embedding service learning opportunities in international education programs is favored because they provide occasions to enhance students' global-mindedness through increased intercultural interactions and to instill civic responsibility through service to people (Crabtree, 2008; Bringle & Hatcher, 2011; Fisher & Grettenberger, 2015; Lewis & Niesenbaum, 2005). Service agencies assist with entry, placement, and engagement of students in host communities (Bringle, et al., 2011). Literature shows service activities to be most common in relation to: healthcare provision (Curtin, Martin, Schwartz-Barcott, DiMaria, & Ogando, 2013); engineering and construction works (Borg & Zitomer, 2008); social program development (Prins & Webster, 2010); business development (Metcalf, 2010); and environmental conservation (Robinette & Noblet, 2009).

Impact of International Education

Studies on the impact of international education have examined the traveling student; commonly measuring: (1) academic skills (Engberg & Jourian, 2015); (2) cultural competency (Zerman, 2014;); (3) second language speaking (Jacobone & Moro, 2015; Wen-Lin & Wen, 2016); (4) personal growth (McLeod, et al., 2015; McLeod & Wainwright, 2009); (5) global mindedness and (6) employability (Benson-Schrambach, 2009). The impacts on partner organizations and communities are less frequently examined (Maakrun, 2016; Stoecker, Tyron & Hilgendorf, 2009). West (2015) argued that SAP assessment tools are designed to collect data on students and not community members. This challenge was experienced by American students who had to develop a simple tool while in the field in order to assess the impact of their training on Mexican traditional birth attendants (Friedman, et al., 2016). Also, some authors have pointed to difficulties associated with power relations among or between study abroad partners, in

particular in coming to agreement on expectations within such programs. (Fisher & Grettenberger, 2015; Wood, Banks, Galiardi, Koehn, & Schroeder, 2011).

Theoretical Frameworks

This study was grounded in two theories, Social Capital Theory which shows how communities take action through social organization, and Empowerment Theory which emphasizes the need for building capacity of social groups for effective action. These theories were selected as they were foundational in explaining important components of the project. Literature and research drawing on these theoretical underpinnings was reviewed to extend understanding of factors influencing the emotional empowerment and civic engagement of rural women farmers in sub-Saharan Africa, and Kenya in particular.

Social Capital Theory

There is much debate in defining Social Capital Theory. Coleman (1990) defined social capital by the function it plays as a resource for action. Social relations and structures within society facilitate collective action by forming norms, stating obligations and developing trust that brings people together to act for the common good. Coleman further sees social structures as a channel for distributing information among actors. Putnam (2000) advanced Coleman's idea of social capital by proposing that it promotes civic action. He showed that social capital facilitated civic engagement and resulted in democracy and economic growth in Northern Italy. Putnam also observed that trust significantly affected civic action due to norms and obligations that dictated behavior and interaction of individuals. Reciprocating trust leads to bonding and collaboration of actors and to collective action and problem-solving (Putnam, 2000).

Bourdieu (1986) provided another perspective on social capital theory. He saw society as segmented into distinct social fields such as law, politics, and economics. Bourdieu proposed that capital, including social, economic, human and cultural, determined how much control actors had in any of these fields. Specifically, he viewed social capital as social networks and noted that the strength of a group depended on the number and types of connections within it. Bourdieu further suggested that by association with a social group, members earned the right to obtain and use its resources. Finally, he believed that social groups used their networks to influence other forms of capital bridging power and resource imbalances (Bourdieu, 1986).

Empowerment Theory

Empowerment theory posits that actions, activities or structures may strengthen the capacity of people, groups or community functions (Zimmerman, 1995). It refers to both processes and outcomes, which can differ based on target audience and location (Swift & Levine, 1987). Empowerment recognizes people's strength and facilitates self-reliance by mobilizing and utilizing available resources (Gibson, 1991). Overall, empowerment seeks to enhance assets and capacities of people and groups for change (Hammond & Zimmerman, 2012; Zimmerman & Perkins, 1995). The different dimensions of empowerment include: interpersonal, economic, socio, legal, political and psychological. Interpersonal, social and economic dimensions are most often assessed at individual or household levels while the political and legal aspects of empowerment are dominantly assessed at higher levels like regional or national (Malhotra, Schuler & Boender, 2002). Three key elements of empowerment are identified as: participation, critical awareness, and control (Zimmerman, 2000).

Participation is a process of engaging people in addressing a problem they are affected by or concerned about (Islam & Morgan, 2012). Zimmerman (2000) contended that participation can either be a facilitator or a product of critical awareness. People who get involved within a community may gain invaluable knowledge and experiences of society while individuals who intensively learn can increase their involvement in social change. Mandell (2010) showed that members of an American community became socially aware and increased their community engagement. Combining participation and critical awareness can improve people's confidence to make changes (Islam & Morgan, 2012).

Emotional Status

Diener and Ryan (2009) view subjective well-being as the self-assessed level of health status; individuals may report on satisfaction with living or the number of times they experience certain feelings. In the literature, subjective well-being is used interchangeably with emotional and psychological well-being. In this study, emotional empowerment means positive feelings reported to be encountered by people in various aspects of life that lead to greater capabilities, and this was informed by literature (Diener & Biswas-Diener, 2008; Tov and Diener, 2008; Zimmerman, 1995).

The psychological dimension of empowerment is rarely explored in scientific studies (Malhotra, et al., 2002). Measuring emotional status is a challenging task because of its subjectivity and inadequate measuring tools (Wallerstein, 1992). The "Growth Empowerment Measure (GEM)" was developed by Australian researchers to measure 1) the level to which individuals feel particular signs of well-being in their daily lives; and 2) the extent to which individuals have progressed in achieving emotional well-being

(Haswell, Kavanagh, Tsey, Reilly, Cadot-James, Laliberte, Wislon & Doran, 2010). The GEM tool was found to be more sensitive in detecting emotional empowerment outcomes compared to the Kessler 10 tool (Kinchin, Jacups, Tsey & Lines, 2015).

Studies have found a connection between emotional empowerment and good health, better work and income, and quality social relations (Diener & Biswas-Diener, 2008; Lyubomirsky, King, & Diener, 2005). There is evidence that emotionally empowered individuals are more involved in their communities than people with low emotional status (Tov & Diener, 2008). People who feel good about themselves may be more willing to associate with other people and in turn that association may position them in different social networks, increasing their civic engagement (Zimmerman, 1995; Putnam, 2001). The following paragraphs describe how social support, age, education, income, gender and religion are associated with emotional empowerment.

A study conducted in different countries revealed that the social environment significantly impacts one's emotional empowerment. It was found that having "someone to count on" was twice as important as "getting a 50% increase" in income (Helliwell, Barrington-Leigh, Harris, & Huang, 2009). Two studies conducted in Africa found mixed results when looking at the level of social support. Kyerematen (2012) found lower depression rates among large-sized rural Ghanaian households compared to small-sized ones, it was reported that many household members increased the amount of support required. In contrast, Hamad, Fernald, Karlan, and Zinman (2008) observed increased perceived stress among urban households with a large number of members in South Africa but did not speculate any reason.

Gender has been found to influence individuals' emotional status. A study by Hamad, and colleagues (2008) found higher levels of depression among adult females than males in South Africa. Findings also showed that depression levels were higher among respondents who made decisions alone compared to joint decision-making with partners. Waller (2014) explained that project women in Malawi had to seek their husbands' approval to participate in community groups, as not doing that would have implied disrespect and caused conflict, arguments and violence. In Tanzania, women farmers were more frustrated when using manual irrigators compared to their male counterparts as it was time consuming and prevented them from finishing their household chores (Theis, Lefore, Meinzen-Dick, & Bryan, 2017). Although a study in Malawi similarly observed that rural women farmers performed heavier domestic workload than their male counterparts, it only assessed the impact of this scenario on women's economic status and not on their emotional status (Waller, 2014).

Religion and positive feelings have or share strong associations. Wyshak (2016) found that most participants who belonged to a religious denomination were less likely to be depressed. People considered to be spiritual are assumed to draw purpose and meaning from their religious beliefs (Diener & Ryan, 2009). Additionally, gathering at places of worship can also facilitate actions of social bonding and support (Wyshak, 2016). Clarke, Marchall, Ryff and Rosenthal (2000) found lower levels of depression among Canadian seniors with higher income. A South African study reported that adults who had unstable incomes showed higher emotional distress (Hamad et al., 2008). However Wyshak (2016) presents no association between income and emotional empowerment. Arguments have been posed that the relationship between wealth and emotional empowerment

weakens with higher levels of income (Diener, Ng, & Tov, 2009). Waller (2014) conducted a study in Malawi and showed that participants who were involved in an agricultural project felt less worried because they were able to buy more food compared to a control group not part of the project. Some studies found a link between education and emotional empowerment, the higher the educational level the better the respondents were emotionally. (Hamad et al., 2008; Keyes et al., 2002).

Studies on the impact of research and development projects on participants' emotional empowerment in Kenya is lacking. The review found one study examining the emotional status of young women in Western Kenya (Gust, Gvetadze, Furtado, Makanga, Akelo, Ondenge, Nyagol, & McLellan-Lemal, 2017). This quantitative study used a Kessler (K-6) psychological distress scale with female participants who were using contraceptives and found nearly 80% of participants experienced moderate to high emotional distress. Due to the paucity of Kenyan literature, the current study used mixed methods techniques to measure the emotional empowerment levels of smallholder farmers in rural Eastern Kenya and further investigate how women conceptualized and experienced emotional empowerment or disempowerment.

Civic Engagement

Definitions of civic engagement (CE) are highly contextual. For example, Putnam (2000) equates civic engagement with social groups, while Einfeld and Collins (2008) represent CE as knowledge of, and ability to act upon, one's social responsibilities. Ekman and Amna (2012) see CE as public participation in social or political spheres, individually or collectively and Shortall (2008) claims that CE could lead to community development. In brief, scholars view civic engagement as the participation of citizens in

public affairs. This study defined civic engagement as the participation of individuals in community matters with the intent of solving problems from merging ideas of the previously stated scholars. Civic engagement can be influenced by several factors.

Access to resources, such as money, is a prime factor that impacts how people engage in social and political matters (Zuniga & Valenzuela, 2010). As a result of their privileges, wealthy people are well positioned to take part in public matters when compared to low income earning individuals (Zukin, Keeter, Andolina, Jenkins, & Dellicarpini, 2006). In Kenya, Kinyajui and Misaro (2013) found low income earners to be more engaged in public projects for assistance due to their personal or family needs. Another Kenyan study revealed contrary results; participants who had a higher revenue were more likely to engage in school-based and business projects but did not offer explanation to this trend (Kimani & Kombo, 2011).

Klofstad (2007) suggested that people who have attained higher levels of education were critical, good problem solvers and more likely to engage. Jennings and Stoker (2004) showed voting among youth with a college education to be higher than among youth without a college education in the U.S. Interestingly, informal education seems to have differing effects on civic engagement. For instance, Kinyajui and Misaro (2013) observed that high literacy rates did not translate into higher engagement in government funded community projects in Central Kenya. Yet in Mozambique, women who received basic literacy skills increased their involvement in rural organizations (Penrose-Buckley, 2007).

Gender is a third factor influencing civic engagement. In the U.S., men were found to be more active in politics compared to women (Burns, Schlozman, & Verba,

2001). The case is similar in Sub-Saharan Africa, more men hold elective positions than women (Coffe & Bolzendahl, 2011). This tendency could be a function of differences in culture as well as access to resources such as influential networks, money, and technical skills (Zuniga & Valenzuela, 2010). In Malawi, men in a rural community were found to engage more in public affairs than women because they were freer and had formal employment with higher incomes than women (Waller, 2014). In Kenya, women's involvement at the start of community projects was low for two reasons: (1) project planning was done in public rallies which women did not attend; and (2) the burden of housework and husbands controlling their social and financial decisions (Elishiba & Kombo, 2011).

Structural organization has been associated with civic engagement. Churches and schools provided platforms for civic engagement in the United States (Jennings & Stoker, 2004). Kapucu (2008) claimed that social groups can develop skills for effective leadership, communication, and organization necessary for civic engagement. Putnam (2001) found evidence of economic growth among American communities because of active and trusted social groups; while Mandell (2010) showed a community-based organization incorporated learning opportunities and increased civic engagement of members. In Western Kenya, it was found that women used religious and social groups to address HIV/AIDS and gender-based violence (Oino, Auya, & Luvega, 2014).

Finally, attitudes and beliefs also affect how people take action in social and political domains. Perception of well-being has been strongly related to civic volunteerism around the world (Helliwell, Barrington-Leigh, Harris, & Huang, 2009). For instance, when people feel satisfied with their life, they are motivated to assist others.

Likewise, successful involvement in civic activity reinforces this behavior with feelings of confidence and fulfillment (Zuniga & Valenzuela, 2010).

While studies have examined factors predicting civic engagement, less is written about civic engagement levels, especially for women in rural areas of nations such as Kenya. One study recorded low civic engagement levels (participation rate of less than 17%) in government sponsored community projects by both Kenyan men and women in Ol-Kalou, Nyandarua County (Kinyajui & Misaro, 2013). The current study used quantitative methods to measure the civic engagement levels of smallholder farmers in rural Eastern Kenya and qualitative approaches to explore how women conceptualized and practiced civic engagement.

The Role of Women's Groups in Community Development

Conversations on women empowerment around the world began as early as the 1950's and drew attention to women's issues, such as discrimination and their role in transforming societies (Boserup, 1970). The year 1995 is a critical landmark when women's human rights and fundamental freedoms were reaffirmed in Beijing (United Nations, 2012). Since then, efforts have been made to provide an enabling environment for the empowerment of women. There still remains a lot to be done if having a Sustainable Development Goal dedicated to gender equality is considered, nevertheless, initiatives, such as social mobilization, are contributing towards women's empowerment (Bourdieu, 1986; Putnam, 2000; SDG, n.d.).

Social mobilization is the coming together of individuals for common good; the term is synonymous with community groups, self-help groups and women's groups (Akudugu, 2011; Coleman, 1990). It is suggested that social mobilization happens when

individuals associate with each other, negotiate terms of their engagement, agree on their responsibilities and trust each other to work together for social change (Putnam, 2000).

The formation of women's groups in Asia and Africa has been found to serve two purposes, first as a poverty reduction strategy, and second as a vehicle for tackling gender inequality, as many of these societies are highly patriarchal (Rathinam & Akudugu, 2014).

Several studies have highlighted the role of women's groups in improving economic, social and emotional status of women. Many women's groups offer savings and loan services that provide women increased access to financial resources (Akudugu, 2010); loan money is largely invested in productive assets. A formal evaluation of selected Oxfam development projects in Malawi reported that loans within Village Savings Loan (VSL) groups were used mainly for purchasing livestock and fertilizers. It was also observed that VSL members produced a wider range of crops than households not in the groups, and generated higher revenue from agricultural production than before (Oxfam, 2014). Another study evaluating the impacts of a five year United States Agency for International Development (USAID) project found that members of the savings groups reduced household food insecurity due to acquired livestock, increased income and improved farming. It was further reported that women in the USAID project increased their confidence as they were able to cover basic household expenses. Eventually, this increased income earned them some respect and admiration from their husbands. Many women also learned how to express themselves, outgrew their shyness, and engaged more in leadership roles (Waller, 2014).

Research Objectives, Hypothesis and Questions

The overall study objective was to investigate the impact of a multi-disciplinary study abroad research and development project on community groups in Naari, Eastern Kenya. Our study assumed that the project would contribute to emotional empowerment and increase the civic engagement levels of participating farmers. This study sought to answer the following four questions.

- 1) What is the impact of a study abroad research and development project on the emotional status of selected members of a Women's Group and Naari Dairy Farmers Cooperative Society in the QES project compared with a Control Group not directly engaged with the same project?
- 2) What is the impact of a study abroad research and development project on the civic engagement status of selected members of a Women's Group and Naari Dairy Farmers Cooperative Society in the QES project compared with a Control Group not directly engaged with the same project?
- 3) What demographic factors influence the emotional and civic engagement status of selected members of a Women's Group and Naari Dairy Farmers Cooperative Society?
- 4) What socio-cultural factors promote or hinder the emotional and civic engagement status of Naari women?

Summary

Review of the literature revealed that most study abroad programs were short-term and sought to maximize learning experiences for students. Very little literature examines the impact of study abroad programs on host communities and even fewer

studies use a research and development model for study abroad programs. In addition, there was little information on the emotional empowerment and civic engagement levels of rural women in Kenya. This study addressed stated literature concerns by investigating the impact of a long-term study abroad research and development project on Kenyan women farmers. It further assessed the emotional and civic engagement status of participating women in Kenya.

Chapter 3: Methods

Ethical Approval

The study was approved by UPEI's Research Ethics Board file number 6007127. Information about the study was explained to participants in the native Swahili and Kimeru languages. Informed written consent was obtained from participants who voluntarily consented to take part in the research. Consent was re-confirmed when a participant was involved in another phase of data collection and voice recording used after participants had orally consented. Above all, given that the women's groups had small membership (30 and less) in a small rural community, our study has not disclosed the name of the women's group to protect the identity of participants. The information letters for participants and consent forms can be found in Appendix A, B, D, E, G and H.

Design and Study Site

The study used a mixed methods approach where quantitative and qualitative techniques were used to collect and analyze data. Outcome levels between the intervention groups and the control group were also compared (Tashakkori & Teddlie, 2003). Data collection was carried out between May and July 2017 in Naari, Meru County, Kenya. Naari is a rural community with limited access to good physical infrastructure and markets, facing problems such as unemployment, food shortages, diseases, low literacy levels, and lack of water. The region was selected based on: (1) successful prior engagement with community groups (Naari Dairy Farmers Cooperative Society and the Women's Group) by both UPEI and FHF which enabled better understanding of the community groups involved in the project, their priorities and their expectations, and (2) good climate for expansion of dairy farming. The Women's Group received horticultural and human nutrition education sessions, resources and support, and

the Naari Dairy Farmers Cooperative Society (NDFCS) received dairy cow health management education sessions, resources and support.

Sampling

Random sampling was used to select 20 female participants from each of two community groups involved with the research and development project. There were 30 and 100 members in the Women's Group and the NDFCS, respectively, who were involved in interventions as part of the research and development project. The Women's Group farmers was involved in a horticulture and human nutrition intervention, while the NDFCS farmers were involved in a dairy cattle management intervention. The researcher obtained names of members within each group, assigned numbers to the names, and used a spreadsheet to generate numbers randomly. Selected women were invited to join the study by phone, and the researcher continued to draw additional names until the required number of participants were recruited. A Control Group of 20 women was drawn randomly from a group of 300 farmers from NDFCS who were not actively involved in other parts of the research and development project and met the eligibility criteria for the study (making them similar to the farmers in the two community groups): 1) farming was their primary source of income; and 2) their farms had three or fewer milking cows. Three leaders from the Women's Group were also purposively included in the study to assist with examining the role of leadership in women empowerment as was illustrated by Mehta and Sharma (2014). Therefore, there were three groups of participant for comparing emotional and civic engagement status: 1) those participating in the dairy cow management intervention part of the project; 2) those involved in a human nutrition

intervention part of the project; and 3) those not involved in either interventions but living in the same community as those involved in the interventions.

Data Instruments

Growth Empowerment Measure (GEM).

The GEM tool was developed by Australian researchers (Haswell et. al., 2010). The tool was designed to measure the processes and outcomes of social and emotional empowerment among the Indigenous Australian population that result from empowerment interventions. The GEM has four sections, beginning with demographic assessment, such as age, gender, type of community, marital status, and housing and occupation status. The tool then proceeds to an Emotional Empowerment Scale (EES14) which inquires the extent to which an individual is able to experience certain feelings of wellbeing in their daily life. The EES14 variables represent emotional outcomes resulting from the process of empowerment or self-improving. Questions on the EES14 explore how people feel about themselves most of the time and are measured on a five point scale; score 1 represents negative responses and score 5 represents positive responses. The fourteen different dimensions of emotional wellbeing include: knowledgeable, skillful, body strength, happy, having opportunities, valued, voice or ability to express self, belonging, hopeful, shame, caring, worried with current life, fear of future, and anger.

Twelve Empowerment Scenarios (12S) are also part of the GEM, and they measure the extent to which an individual has progressed in their emotional wellbeing, from the lowest level (scored 1) to the highest level (scored 7). The 12 scenarios are captured in the following 12 questions. How do you deal with painful feelings in your

life? How do you deal with your , and your family's safety? How do you respond when asked to do things for other people? How do you feel about making changes in your life? Are you engaging in learning opportunities? What do you think about your own spirituality? Do you have a strong sense of knowing who you are? Are you able to speak out and be heard in your community? Do you feel that you are respected in your workplace? What do you do when you feel like you are being judged? How do you see your relationships with other people? How empowered do you think your community is?

A Kessler Distress Scale (K6) (Kessler & Mroczek, 1992) is embedded in the GEM tool to assist with measuring individual's emotional distress. There are six questions on the Kessler scale. How often did you feel sad? How often did you feel restless? How often did you feel without hope? How often did you feel everything was an effort? How often did you feel worthless? Two questions "In the last one month, how often did you feel happy in yourself" and "In the last one month, how often did you feel angry with yourself or others" were added to the original 6 Kessler questions by developers of the GEM tool.

In our study, the GEM tool was modified in a number of ways to enable measurement of both emotional empowerment (process and outcome) and emotional distress (Kessler K6) our study population. GEM is a relatively new tool, and to the best of our knowledge, we only came across one study that used it to assess emotional wellness among Indigenous communities in Australia (Kinchin, et.al, 2015). Since there was only one study to draw from regarding the utilization and the interaction of the GEM tool, we were limited in how we could have operationalized GEM in our study. More so, our study was conducted in Kenya in an entirely different socio-cultural and economic

context from Australia. While developers of the GEM tool encouraged exploration of these scales across cultures and settings, the challenge was to deliver the tool in a way that would not interfere with its credibility and validity while maintaining simplicity for participants to understand questions and provide relevant answers. Since our participants were Indigenous Kenyan women from the Meru tribe and did not comprehend and speak English, this tool was translated into the native Kiswahili and Kimeru languages. To reduce confusion with translations in three languages, the content of the tool was reduced to key sentences and words. Also, because the items on the tool were delivered orally, the researcher had to construct easily-understood oral responses across the scales to give participants understandable options to choose from. Likert responses, specifically “Never, Slightly, Somewhat, Moderately, and Extremely”, were introduced on the scale measuring the 14 Emotional Empowerment outcomes to make it easier for participants to distinguish between options, and respond effectively. For the purposes of maintaining consistency and reducing confusion among participants, the Likert scale responses used for emotional status outcomes were applied to the Kessler (K6) scale as well, replacing the original measures “none of the time, a little of the time, some of the time, most of the time and all of the time”. Another modification to the tool for our study was that participants were asked to recall their emotional wellness over the last one month and the last three years, since the introduction/initiation of the project in the Naari community started three year earlier.

In summary, the GEM tool was modified to measure emotional status in our study for three reasons: 1) to facilitate translation into Kiswahili and Kimeru, and then back to English; 2) to ease the burden on the participants whose literacy levels were low; and 3)

to use consistent responses between different parts of the tool to reduce confusion of interpretation of results from the different parts of the tool. A copy of our survey tool can be found in Appendix C. Due to the modifications made to the survey, it was felt that these changes would challenge its validity as a coherent scale, as it was used elsewhere (Haswell et al., 2010; Kinchin et al., 2015). As a result, it was decided that variables on the emotional distress and empowerment scales would be analyzed as individual items of emotional status (see statistical analyses). Also, in our study feeling happy and angry are not included in the Kessler (K6) results as our study was not assessing how these two variables were related to participant's emotional distress.

Civic Engagement Tool.

The civic engagement tool used in our study was informed by civic engagement measures used in three different studies. Ketter, Zukin, Andolina and Jenkins (2002) conducted a national survey and used nineteen Core Civic Engagement Indicators to measure the Civic and Political Health of 1,674 youth and 547 adult Americans. These indicators are divided into three categories as civic, electoral and political voice. Civic activities are concerned with offering assistance to individuals, as well as promoting social change, for example, service volunteering, joining a local group, and fundraising for social events or non-profit organizations. Electoral activities focus on people's involvement in political process, such as voting, persuading others to vote, or volunteering for a political campaign or organization. Political voice activities are those through which individuals state their political and social opinions, and include contacting elected leaders and the media, signing petitions, and protesting.

Putnam (2001) used some of the following measures to capture citizen engagement in both society and politics: participation in voluntary associations (e.g. school, recreational, professional, and religious or any charitable organizations), voting, contacting local & national officials, working for political parties & organizations, discussing politics with neighbors, attending public meetings, joining in election campaigns, signing petitions and speaking out on radio shows.

Finally, our study considered Ombaka's (2013) measure of civic engagement. Since Ketter and colleagues (2002) and Putnam (2001) had measured civic engagement in America, it was important to include a study that had assessed civic engagement in Kenya, where the current study was to be situated. Ombaka measured civic engagement of Kenyan University students by assessing their membership and involvement in voluntary associations. However, Kenyan university students would be substantially different demographically from our study population of Kenyan farm women with respect to age, education and financial means.

Based on the above civic engagement measures, our study choose to assess overall participation in the community, and specifically focus on areas of: 1) overall civic engagement; 2) community meeting attendance; 3) speaking in community meetings; 4) volunteerism in public schools; 5) volunteerism in public health programs; 6) participation in Naari Dairy Farmers Co-operative Society 7) engagement in leadership roles; 8) money donations to charity events/organizations; 9) fundraising for charity events; and 10) voting in national elections.

Questions for the semi-structured in-depth interviews (Appendix F) were developed based on the study objectives, literature review and emerging issues from the survey, and

served to provide a deeper understanding of emotional and civic engagement issues as known and experienced by the study participants. Through these interviews, qualitative data were collected on socio-cultural factors thought to be associated with women's emotions and civic engagement. In addition, overall project effectiveness and community problem solving were explored.

Data Instrument Pretesting

A woman from the Naari community was hired as a translator and she received training to support the administration of the survey, and was trained by the researcher. The survey questionnaire was pretested with five women from the NDFCS who were not part of the study sample. This is in keeping with the recommendations of Wild and colleagues (2005) who recommended pretesting data instruments on a sample size of between five to eight participants. This process was essential to ensure clarity for translation purposes, as all participants spoke the local language, Kimeru. The survey tools and administration protocols were adjusted based on feedback from the pretest.

Data Collection

Data collection was carried out between May and July 2017 in Naari, Meru County, Kenya. Data were collected in three phases using a survey questionnaire, an in-depth interview schedule and a focus group discussion guide.

For Phase 1, a quantitative phase, an open-ended survey questionnaire was administered to each of the 63 women. The researcher was accompanied by a female translator to participants' homes. Survey questions (Appendix C) were delivered in the

native Swahili and Kimeru languages and asked about demographic status, emotional status and civic engagement within the group and community.

In Phase 2, a qualitative phase, 18 of the 63 surveyed women (six from each study group) were purposively sampled and took part in individual in-depth interviews. The interviews were conducted in Swahili and Kimeru languages by the researcher at each participant's homes. Interviews were digitally recorded using a cell phone. Women who were chosen for this phase were considered to be more informed about their emotional status, their groups, and the local community, as was observed from their responses to Phase 1 questions.

Data collection in Phase 3, a second qualitative phase, involved three focus groups, one for each study group. Six women from each of the three study groups were selected to participate in a focus group discussion (FGD) for their group to help validate information collected in phase 1 and 2 as well as to provide a comprehensive view of women's emotional and civic engagement concepts and practices. Women who were chosen for this phase were considered to be more informed about their emotional and civic engagement status as was observed in their responses to Phase 1 questions but had not gotten a chance to be part of Phase 2. Selected participants chose convenient locations for FGDs within the study area and the researcher went there to facilitate the discussion. Swahili and Kimeru languages were used and responses were both noted down on paper and digitally recorded by a cell phone. The discussion guide (Appendix I) was developed in advance, based on the research questions and topics identified through the literature review. The guide also drew on common themes from the phase 1 survey and phase 2 interview responses.

In-depth exploration of the overall impact of the QES research and development project on participating community members was limited as study participants were not familiar with the complexities around study abroad programs such as multi-sectoral engagement and partnerships, global mindedness and intercultural intelligence.

Quantitative Data Management and Analysis

The survey data were entered twice into two sets of data in Epidata software, and the two datasets were compared to check for inconsistencies. Data entry errors were corrected by comparing the inconsistencies with the hard copies. The final copy of the data was imported to Statistical Analysis System (SAS Institute, North Carolina-USA) and Stata (StataCorp., California-USA) for quantitative data analysis.

Descriptive statistics, and univariable and multivariable logistic regression models were used in the analyses, as described below. SAS was used to compute the descriptive statistics, including averages and standard deviations for continuous variables, and frequencies and proportions for categorical variables, while Stata was used to perform inferential statistics and modeling.

For inferential statistics, a Chi-square test was used to find significant associations between categorical predictors and categorical outcome variables. When cell numbers were fewer than five, Fisher's Exact Tests were used, as recommended (Freeman & Campbell, 2011). The value $p < 0.05$ was the level at which significant differences were tested.

During the inferential statistical analysis, data collapsing was done systematically and based on intuitive plausibility (i.e. contiguous categories) to reduce the number of degrees of freedom and increase the power to detect differences between

groups. Variables for example the predictor (e.g. income) and outcome (e.g. emotional empowerment) were considered for collapsing. The number of observations in the category (if small numbers, that category was combined with another category), and trends in data relative to other variables (if two categories had opposite trends, they were not collapsed). If no significant differences were found in the raw data between predictor and outcome, a trend relationship in the raw data was checked, and plausible collapsing of categories was done to explore options for finding significant differences.

For the emotional status and civic engagement (CE) outcome variables with statistically significant differences between groups, forward stepwise multivariable logistic regressions were investigated in STATA to determine if demographic factors might be partly or completely responsible for the observed relationships between the outcomes and the factors (i.e. acting as confounders). Therefore, the observed relationships between emotional status or CE and other factors, including group identification, could be interpreted while controlling for possible confounders in the dataset. For models with more than one independent variable, interactions between main effects were examined for effect modification.

Qualitative Data Management and Analysis

Qualitative data obtained through interviews and focus groups in the local native Kimeru language were translated into English by the researcher and research assistant. The two sets of transcriptions were used concurrently. The process of translation increased familiarization of the researcher with the data. Thematic analysis was conducted as described by Braun and Clarke (2006) using NVivo software (QSR International, Melbourne-Australia) to code repetitive segments of data into pre-existing

study themes. Themes were refined to provide logical and sufficient evidence for data interpretation and reporting.

Qualitative research is highly criticized for being subjective to investigators predispositions. This perception raises the following question: whose perceptions are being represented in the findings? Since trust and bias are important drivers affecting the quality of this kind of research, the researcher used the following strategies to enhance trust and minimize bias, as proposed by Patton (2015).

The researcher documented her assumptions and observations regarding the research in a reflective journal and consulted study professors on their validity. In addition, the researcher sought clarification from study participants on aspects of data that were not clear. Data were triangulated using a survey, in-depth interviews, and focus group discussions. The researcher worked with a research assistant who was fluent in Kimeru, Kiswahili and English to ensure accurate translation and transcription of the qualitative data. This accurate translation was critical since typical qualitative research processes used for data accuracy, such as member checking (i.e. reading the transcripts for errors), were not viable due to literacy issues among the participants.

During data analysis, codes and emerging themes were validated by a second researcher. A Master's student on the QES project was provided with study themes and FGD transcriptions; she reviewed and categorized responses into relevant themes. Code themes of the main and second researcher were compared, inconsistencies discussed and a suitable coding strategy agreed upon.

Approaching Mixed Methods Findings

This study integrated two methods; quantitative results are supported by qualitative data. Survey data were analyzed first and key findings used to influence qualitative analysis. For example, when participant's monthly income was found to be statistically significantly associated with an emotional empowerment variable, income was made a theme code in the analysis of interviews and focus group discussions. In the findings section, quantitative results are first presented and then backed up with women narratives on the same variables.

Some of the data captured by the study instruments were not analyzed and does not appear among the results. Such missing results include: the process of women's emotional empowerment (part 6 of the survey) and the direct effectiveness of project interventions (both in-depth interviews and FGD). After examining these data, it was clear that the women's understanding of the overall project and processes of emotional empowerment were insufficient to make it possible to do these analyses.

Chapter 4: Findings

The following sections are the results of an evaluation study of the impact of an integrated research and development project on the emotional and civic engagement status of 63 women farmers within three groups, carried out between May and July 2017 in Naari in Eastern Kenya. The three groups included: 1) those participating in the dairy cow management intervention part of the project (“Dairy Group”); 2) those involved in the human nutrition intervention part of the project (“Nutrition Group”); and 3) those not involved in either interventions but living in the same community as those involved in the interventions (“Control Group”).

Section 1: Demographics and Socioeconomic Status

Age

Out of the 63 participants surveyed, 38% were between the ages of 46 and 55 years. The fewest participants (6%) were between the ages of 26 and 35 years, leading to limited representativeness and possible interpretations related to this age group (Table 4.1).

A chi-square test showed no statistical significant difference in age between groups, however, participants in the Nutrition Group and the Control Group were slightly younger than the Dairy Group. The largest proportion of participants in the Nutrition and Control Groups was between the ages of 46 and 55, whereas the Dairy Group had over a third of its participants (8 of 20) over 55 years of age as shown in Table 4.1.

Table 4.1 Descriptive statistics of 63 participating Kenyan women, by group, in 2017

	Nutrition Group (n=23) N (%)	Dairy Group (n=20) N (%)	Control Group (n=20) N (%)	P-value
Age				0.804
< 25 years	0	0	0	
26 – 35 years	1 (4)	2 (10)	1 (5)	
36 – 45 years	7 (31)	4 (20)	6 (30)	
46 – 55 years	9 (39)	6 (30)	9 (45)	
> 55 years	6 (26)	8 (40)	4 (20)	
Education				0.747
None	3 (13)	1 (5)	1 (5)	
Primary	14 (61)	10 (50)	9 (45)	
Secondary	6 (26)	7 (35)	7 (35)	
College	0	1 (5)	1 (5)	
University	0	1 (5)	1 (5)	
Monthly income				0.206
≤ 5000 KSH	16 (70)	6 (30)	6 (30)	
6000 – 10,000 KSH	4 (18)	6 (30)	7 (35)	
11,000 – 15,000 KSH	1 (4)	4 (20)	2 (10)	
16,000 – 20,000 KSH	1 (4)	2 (10)	3 (15)	
≥21,000 KSH	1 (4)	2 (10)	2 (10)	
Control of Dairy Income				0.514
A lot	7 (58)	9 (45)	6 (30)	
Quite a bit	2 (17)	7 (35)	6 (30)	
A little	1 (8)	3 (15)	6 (30)	
None	2 (17)	1 (5)	2 (10)	
Membership in Community Groups				0.717
Belonging to one of the three study groups and any other community groups in Naari	19 (83)	18 (90)	18 (90)	
Belonging to only one of the three study groups	4 (17)	2 (10)	2 (10)	

Education

A majority of the participants (52%) had completed a primary level education; however few participants had attained post-secondary education. For example, 5% (3/63) of participants indicated that they had finished college, while only 3% had a university degree (2/63). Five participants (8%) reported having no formal education.

Although statistically there was no significant difference in education levels between groups, the Nutrition Group participants had lower education attainment compared to Dairy and Control Group participants (Table 4.1). There were slightly more participants in the nutrition group with only a primary level education than there were in the Dairy and Control Groups.

Income

Many participants in the study (44%) were earning at or below five thousand Kenyan Shillings (KSH) or \$62 CAD per month. Only 8% (6/63) of all participants earned an income of 21,000 KSH (\$258 CAD) and above per month.

A majority of study participants (70%) in the Nutrition Group earned 5,000 KSH (\$62 CAD) or less, compared to 30 % in both the Dairy Group and Control Groups as shown in Table 4.1. although these figures were not statistically significant we thought they needed to be mentioned as the differences between them were huge. Similarly, when the proportion of participants with an income of 11,000 KSH (\$135 CAD) and above were compared, results showed fewer participants in the Nutrition Group (13%) earned in that range compared to the Dairy (40%) and Control (35%) Groups.

Control of Dairy Income

Control of dairy income was measured in five categories, including: 1) A lot; 2) Quite a bit; 3) A little; 4) None; and 5) Not applicable. Out of the 52 participants who were selling milk within the Naari locality, a majority (42%) had a lot of control over the income. Only a small proportion (10%) indicated they had no control over the milk money. Eleven women from the Nutrition Group did not sell any milk (Table 4.1). Of the

12 (of 23) women in the Nutrition Group who sold milk, a greater proportion of them (58%) had a lot of control over milk money compared to participants in the Dairy Group (45%) and Control Group (30%) but there was no statistically significant differences between these percentages.

Membership in Other Community Groups

Membership in other community groups was measured in two ways; 1) only belonging to one of the study groups (no other community group); and 2) belonging to one of the three study groups plus any other community groups in Naari. Over three-quarters of all participants (87%) belonged to more than one community group.

There were slightly more participants in the Nutrition Group who were not in any other community group compared to the Dairy and the Control Groups as shown in Table 4.1. When type of other community group was considered, most participants belonged to: a Clan (sub-tribe) (41%), a religious group (40%), or a self-help group (35%). While enrollment of women in education and health groups was below 7%, no participants reported belonging to a political association.

Section 2: Levels of Emotional Distress During the Last One Month

Descriptive Results of the 63 Respondents

Table 4.2 summarizes responses to levels of various elements of emotional distress over the last month. Only 2% of participants felt extremely sad. A good number of participants were not at all feeling nervous (48%), restless (40%) or worthless (57%). One-third of participants reported feeling somewhat, moderately or extremely struggling with their life.

Table 4.2

Levels of feeling six items of emotional distress (over the last 1 month), as reported by 63 Kenyan women in 2017 (% of all women)

Items on Emotional Empowerment scale	Levels				
	Never	Slightly	Somewhat	Moderately	Extremely
Sad	25%	46%	11%	16%	2%
Nervous	48%	33%	6%	9%	3%
Restless	40%	32%	8%	14%	6%
Hopeless	56%	30%	3%	8%	3%
Struggling	22%	43%	10%	19%	6%
Worthless	57%	29%	5%	8%	2%

Comparing Emotional Distress Elements over the Last Month, by Demographic Variables

When membership in community groups and the emotional distress of participants were considered in the last month, there was a trend ($0.05 < P < 0.1$) towards lower emotional distress among participants belonging to multiple community groups compared to participants who belonged to a single group. Specifically, a higher percentage of participants in multiple community groups were never feeling worthless (62%) compared to the proportion never feeling worthless (25%) and belonging to only one community group.

Education was also correlated with participants' emotional distress in the last month, specifically with regard to feelings of sadness ($p=0.02$). There was a higher proportion of participants (85%) with a primary education certificate that felt somewhat/moderately/extremely sad in the last month compared to only 70% of

participants who had a secondary school level education that felt the same way. No other emotional distress variables and demographic variables were significantly associated.

Comparing Emotional Distress Elements, by Intervention Group

Emotional distress levels of participants within the two intervention groups are presented in Table 4.3. The Nutrition Group showed higher levels of emotional distress in terms of feeling hopeless and nervous compared to participants from the Dairy Group. Precisely, a significantly higher proportion of participants in the Dairy Group were never feeling at all hopeless (70%) and nervous (60%) compared to participants in the Nutrition Group who were not at all feeling hopeless (39%) or nervous (30%).

Table 4.3

Proportions of women feeling no emotional distress (over the last 1 month), as reported by 23 women in the nutrition group and 20 women in the dairy group in Kenya in 2017

Emotional empowerment level	Nutrition Group (n=23)	Dairy Group (n=20)	Chi-square statistic	Chi-square test ¹ /Fisher's Exact test ²
	Percent (number)	Percent (number)		P value
No feelings of hopelessness during the last month	39% (9)	70% (14)	4.09	0.043 ¹
No feelings of nervousness during the last month	30% (7)	60% (12)	3.79	0.051 ²

Worthlessness as a distressful emotion was also statistically significantly different between the Nutrition Group and the combined Dairy and Control Groups when data were collapsed (Table 4.4). The Dairy Group and Control Group were collapsed together because they were similar with respect to their proportions of women feeling worthless in the last month. Participants who indicated feeling "slightly" "somewhat" "moderately" or

"extremely" worthless in the last month were combined and compared to those who reported "never feeling worthless." A significantly higher proportion of participants in the Nutrition Group (61%) were feeling slightly, somewhat, moderately and extremely worthless in the last one month compared to the combined Dairy and Control groups (32%) (p=0.04).

Table 4.4

Levels of feeling worthless (in the last 1 month), as reported by Kenyan women in a combined intervention group (n=43) versus the control group (n=20) in 2017

Group	Worthless – Frequency (percentage)		Total
	Never	Slightly /Somewhat/Moderately/Extremely	
Nutrition group	39% (9/63)	61% (14/63)	37% (23/63)
Combined Dairy and Control Group	68% (27/20)	32% (13/20)	63% (40/63)
Total	57% (36/63)	43% (27/63)	100% 63/63)

Note. Chi-square statistic ($X^2 = 3.82$), Degree of Freedom ($DF=1$) and Probability associated with the X^2 statistic is $p = 0.04$.

After controlling for membership in community groups, the Nutrition Group remained significantly associated (p=0.04) with feelings of worthlessness in the last month (Table 4.5). This result showed that participants in the Nutrition Group had higher odds of feeling worthless over the last month compared to those in the combined Dairy and Control Groups, and this result was not a function of group membership or differences in the demographics examined.

Membership in community groups was marginally significantly associated with feelings of worthlessness in Table 4.5 (p = 0.09). Participants who belonged to two or

more community groups had higher odds of feeling slightly, somewhat, moderately and extremely worthless in the last one month compared to those who were in a single community group, although it is unclear which came first; feeling worthless may have instigated needing to belong to more than one community group, or vice versa. There was no significant interaction between the group variable and membership in community groups. Pseudo R^2 for this model was 0.094, indicating 9.4% of variation was explained.

All other variables on the emotional distress scale (in last 1 month) were not significantly different between study groups and no multivariable regression analysis were conducted on them.

Table 4.5

Odds of feeling worthless (in the last month), as reported by Kenyan women in a combined intervention group (n=43) versus the control group (n=20) in 2017

Variable	Odds Ratio	P value	95% CI
Nutrition Group	3.10	0.04	[1.04 – 9.28]
Member of community groups	4.54	0.09	[0.7971 – 25.8827]

Data presented in Table 4.1 to Table 4.5 above were from survey questionnaires. Further qualitative exploration of participant's emotional distress was conducted. The following paragraphs illustrate participant's responses on emotional distress collected during individual qualitative in-depth interviews or focus group discussions.

The struggle of owning productive assets and engaging in out-of-home work seemed to make participants feel oppressed, low and painful. For example, respondents stated that most women in Naari were not permitted by their husbands to acquire assets

even when they sometimes could afford to and if they did, husbands tended to control income from the assets or possess them all the same.

As a woman, there is nothing I can do at home and say it's my own. For example, if I am planting some crops, my husband wants to know how much I used, how much I am keeping in the house, there is no freedom of selling my things. I feel oppressed; if it's the milk I have been taking, he wants to know how much [money] I have got at the end of the month, so he can even take it (Focus group discussion #3).

And then still on the issues of dairy [cows], in some of the families, it's the men who manage monies from the cow while women feed and milk the cows. This makes women feel a bit low because they cannot decide things without the man (Interview participant #5).

Children seemed to be the only asset women participants claimed to own at home, a woman put it this way: "Nothing belongs to the woman; only children can be termed as ours" (Focus group discussion #3). Furthermore, when women participants opted to find means of support outside the home, it was noted that most of their husbands took offense. The consequence was to reprimand women at the minimum, and at worst, not allow them to return home at all.

Many husbands don't want their wives to go out of the home and engage in entrepreneurial activities; they want them just to be there. If they [women] leave, husbands think they have gone to do other things. It becomes hard to go out of the home (Focus group discussion #3).

The results above represent participants' emotional distress over the last one month. The next section examines emotional empowerment over the last three years of project implementation timeline using the Growth Empowerment Measure.

Section 3: Emotional Empowerment Levels over the Last Three Years

Descriptive Results of the 63 Respondents

In the last three years, over 75% of women participants felt moderately or extremely hopeful (Table 4.6). A majority of participants felt at least somewhat knowledgeable, caring, having opportunities in life. However, a quarter of the participants were feeling completely unable to voice their opinion. Over half of participants had moderate to extreme levels of worry with their current life (57%) and fear of the future (75%). A third of the participants were feeling slightly, somewhat, moderately, or extremely angry.

Table 4.6

Levels of feeling various elements of emotional empowerment (over the last 3 years), as reported by 63 Kenyan women in 2017

Items on Emotional	Emotional Empowerment scale				
	Never	I felt Slightly...	I felt Somewhat...	I felt Moderately...	I felt Extremely...
Knowledgeable	2%	25%	46%	12%	14%
Skilled	0	27%	41%	25%	6%
Strong	1%	29%	35%	18%	18%
Happy	0	8%	41%	27%	24%
Opportunity	8%	21%	44%	19%	8%
Valued	0	10%	43%	33%	14%
Able to voice my opinion	24%	21%	19%	29%	8%
Belong	3%	13%	40%	37%	8%
Hopeful	0	8%	16%	37%	40%
Caring	0	17%	48%	25%	10%
Worried	17%	19%	6%	44%	13%
Fearful of the future	11%	6%	8%	54%	21%
Anger	68%	22%	2%	2%	6%

Comparing Emotional Empowerment Elements over the Last Three Years, by Demographic Variables

Higher income was significantly associated with perceptions of body strength ($p=0.02$), feeling able to speak out ($p=0.05$), and feeling caring ($p=0.02$; Table 4.7). No other emotional status variables were significantly associated with income levels.

A majority of participants (62%) who felt somewhat, moderately and extremely strong in their bodies in the last three years were earning slightly more money (between 11,000 - 20,000 KSH) than the 24% of participants who felt the same but earned below 11,000 KSH. The five categories of income were collapsed into three to make it easier to identify statistically significant differences between income groups and other variables: 1) $\leq 10,000$ KSH; 2) 11,000 – 20,000 KSH; and 3) $\geq 21,000$ KSH.

Feeling able to speak out in the last three years was somewhat, moderately and extremely common among participants with a higher income. For example, 85% of participants who reported to earn between 11, 000 – 20,000 KSH (\$135 – \$246 CAD) were somewhat, moderately or extremely able to express themselves most of the time in the last three years pertaining community issues, compared to 47% of participants who earned less than 11,000 KSH/\$135 CAD feeling able at these levels. Perceived care for self or family in the last three years was also seen to be somewhat, moderately and extremely common among 60 % of participants with higher income ($>20,000$ KSH/\$246 CAD) but only among 24% of participants with a lower income (below 11,000 KSH/\$135 CAD).

Table 4.7

Associations between income categories and feelings of body strength, ability to speak out and caring over the last 3 years, as reported by 63 Kenyan women in 2017

Emotional status (over the last 3 years)	Income	
	X² statistic	Fisher's Exact test P value
Somewhat, moderate and extreme feeling of body strength	7.61	0.02
Somewhat, moderate and extreme feeling able to speak out	5.93	0.05
Somewhat, moderate and extreme feeling of caring	7.61	0.02

Our study also found significant associations between membership in community groups and women's emotional empowerment (Table 4.8). A large proportion of participants (76%, $p=0.04$) who belonged to two or more community groups reported feeling somewhat, moderate or extremely able to access opportunities in life most of the time in the last three years compared to 37% of participants in single community groups. Likewise, 36% ($p=0.05$) of participants in multiple groups felt they were able to somewhat, moderately or extremely deal with anger in the last three years compared to participants in a singular community group.

Table 4.8

Correlations between membership in community groups and emotional status variables compared to 3 years ago, as reported by 63 Kenyan women in 2017

Elements of emotional empowerment	Membership in one group Percent (number)	Membership in two or more groups Percent (number)	Fisher's Exact test P value
Feeling somewhat, moderate or extreme access to opportunities most of the time in last 3 years	37% (3/8)	76% (42/55)	0.04
Feeling somewhat, moderately or extremely able to deal with anger most of the time in last 3 years	0% (0/8)	36% (20/55)	0.05

Comparing Emotional Empowerment Elements over the Last 3 years, by Group

Feelings of worry showed a statistically significant ($p < 0.05$) association among study participants when data were collapsed into a combined intervention group (comprising of Nutrition & Dairy Groups) and compared to the Control Group (Table 4.9). Also for this association, participants who indicated feeling "no worry" or "slightly worried" were combined, and those who stated feeling "somewhat" "moderately" or "extremely" worried over the last three years were combined together as well. Participants in the combined intervention group were significantly less likely to feel somewhat, moderately, or extremely worried most of the time in the last three years compared to the Control Group ($p = 0.02$).

All other variables on the emotional empowerment scale (in last three years) were not significantly different between study groups. The multivariable logistic regression analysis revealed no other variables associated with the outcome of "worry", confirming that age, education, monthly income, control of income, and membership in groups did

not account for observed differences in this outcome between the combined intervention and control groups. Model Pseudo R^2 was 0.077; so 7.7% of variation was explained.

Table 4.9
Levels of feeling worried (over the last 3 years), as reported by Kenyan women in a combined intervention group (n=43) versus control group (n=20) in 2017

Group	Worry – Frequency (Percentage)		
	None/slightly	Somewhat/Moderately/ Extremely	Total
Combined Intervention (Nutrition & Dairy) Groups	47% (20/43)	53% (23/43)	68% (43/63)
Control Group	15% (3/20)	85% (17/20)	32% (20/63)
Total	37% (23/63)	63% (40/63)	100% (63/63)

Note. Chi-square statistic ($X^2 = 5.85$), Degree of Freedom ($DF=1$) and Probability associated with Fisher's Exact Test is $p = 0.02$.

Data presented in Table 4.6 to Table 4.9 above were from survey questionnaires. Further qualitative exploration of women's emotional empowerment was conducted through in-depth interviews and focus group discussions. The following paragraphs highlight women responses in relation to their emotional empowerment.

A majority of women had received informal education through seminars mostly on topics associated with agri-business and family matters. Participants reported that they felt happy with the experience of getting to know and do new things and viewed this as a chance to improve their lives. For example, some participants expressed joy over the QES peer-led nutrition training where leaders (referred to as *Champs*) were first trained by UPEI students, and these leaders then trained their fellow group members. They viewed the experience as helpful in improving their self-confidence. A participant who was a *Champ* remarked:

I felt very nice [being a champ] because on that day I got an opportunity to be a teacher. I got to be confident and am ready and willing to go teach other groups (Interview participant #7).

Participants also seemed to suggest that women in Naari were extremely religious. Women's involvement with community groups' especially churches seemed to make women feel they belonged. Furthermore, participants indicated that social networks facilitated their social bonding, information sharing, and resource mobilization as noted below:

I think these days most people engage in church groups; everyone is a church-goer. These groups are helping so much to educate people. People have now known the importance of groups, being taught on how to farm and assisting to buy things in the house... For example, if a woman is bereaved and she does not belong to any church or engage in community events or projects, it becomes difficult to get assistance from people within the community. She remains alone with no one to assist her. (Interview participant #3).

It was noted that participants who were financially deprived felt despised and unable to speak in front of others. Participants also reported that Naari women had a greater responsibility over their families because many husbands were unavailable and unconcerned about their family's welfare, primarily due to alcohol abuse. The following quotes attest to these findings

It depends on your living standards – if you have lower living standards, you are not valued – the people with low living standards are involved with the dirty work... You feel pain when you are down there [poor] (Focus group discussion #1).

If you have a husband who is an alcoholic and not responsible, everything in the house comes to you and is your responsibility. At times you will take care of cows, get milk and he will go get the whole amount of money earned and drink it all. This brings me pain and is a difficult situation (Focus group discussion #3).

Women participants were afraid of what would happen to their children when they themselves died - one surveyed participant stated” I am worried about dying and leaving my children". Furthermore, the lack of money challenged participants’ implementation of some of the technical cow health information as was revealed in this quote “The making of silage is expensive to me” (Survey participant #11).

While emotional empowerment is a necessary to civic engagement, improvement in emotional empowerment may or may not translate into improvements in civic engagement in a particular group. The next section examines current civic engagement levels versus three years ago of selected women in Naari community groups.

Section 4: Current Civic Engagement Levels versus Three Years Ago

Descriptive Results of the 63 Respondents

The overall civic engagement increased for nearly two-thirds of women participants in the Naari community over the last three years (Table 4.10). However,

there were variations in how participants engaged within specific sectors of the community. A higher proportion of participants (62%) were donating money more often in 2017 than they did in 2014. Voting slightly improved while participation in community meetings largely remained the same. A majority of participants (87%) did not speak their opinions in community meetings and no participants were involved in planning and reviewing public health programs.

Table 4.10

Current levels of civic engagement elements compared to three years ago, as reported by 63 Kenyan women in 2017

Items on Civic engagement	Levels			
	Never	Less	Same	More
Overall civic engagement	0	25%	13%	62%
Attend community meetings	32%	25%	24%	19%
Speak in community meetings	87%	2%	3%	5%
Volunteer in school programs	57%	10%	6%	27%
Volunteer in health programs	100%	0	0	0
Attend Naari dairy meetings	41%	6%	17%	35%
Hold a leadership role	53%	2%	14%	30%
Contribute donations (money)	0	17%	20%	62%
Volunteer in fundraising events	38%	14%	14%	33%
Participate in voting	0	0	86%	14%

Comparing Civic Engagement Elements over the Last Three Years, by Demographic Variables

Age was found to significantly correlate with participants' overall civic engagement and money donation (Table 4.11). It was observed that younger participants (ages 26-45) were more likely to be civically engaged more often now than three years ago (86%) compared to women participants aged 46 to 55 (62%) and above 55 years (33%) ($X^2 = 10.04, p=0.01$). Likewise, the practice of donating money to charity events was done more often than three years ago especially among young participants aged 26 to 45 (76%), while a lower percentage (33%) of older participants (over 55 years) donated money more often than three years ago ($X^2 = 9.74, p=0.01$). Income levels, control of dairy money, education levels and membership in community groups were not significantly associated with overall civic engagement and money donation.

Table 4.11

Correlations between age and reported civic engagement variables of 63 Kenyan women in 2017

Civic engagement (over the last 3 years)	Age	
	X^2 statistic	Fisher's Exact Test P value
Overall civic engagement	10.04	0.01
Money donation	9.74	0.01

Comparing Civic Engagement Elements, by Group

Voting patterns showed a statistically significant difference between the study groups. Significantly more participants in the Nutrition Group (30%) were voting more often in 2017 than in 2014 compared to the Dairy and Control Groups (5% each) (Table

4.12). No participant indicated to have reduced their voting in in 2017 thus does not appear in the table.

Table 4.12

Current levels of voting compared to three years ago, as reported by 63 Kenyan women combined intervention (n=43) and control (n=20) in 2017 by group

Group	Voting - Frequency (Percentage)		
	Same	More	Total
Nutrition	16 (70)	7 (30)	23 (37)
Dairy	19 (95)	1 (5)	20 (32)
Control	19 (95)	1 (5)	20 (32)
Total	54 (86)	9 (14)	63 (100)

Note. Chi-square statistic ($X^2 = 7.72$), Degree of Freedom ($DF=2$) and Probability associated with Fisher's Exact Test is $p = 0.03$.

The multivariable logistic regression analysis revealed no other variables associated with voting, confirming that age, education, monthly income, control of dairy income, and membership in groups did not account for observed differences in voting between the study groups.

Speaking at community meetings is one area of civic engagement in which very few participants were involved (Table 4.13). Only 8 out of the 63 surveyed participants were somewhat involved in voicing their opinion in community meetings, with 55 participants never voicing their opinion. Although these data were limited in representativeness and interpretability, the strong observed trend necessitated reporting. All five participants who spoke at meetings and were voicing their opinions more often than they were three years ago before the project started were in the intervention groups (Nutrition and Dairy Groups), whereas none of the Control Group participants were

voicing their opinions more often than they were three years ago before the project.

However, the data are based on small numbers and therefore rather limited for drawing conclusions.

Table 4.13

Current levels of speaking in community meetings compared to three years ago, as reported by Kenyan women (n=8) who actually spoke at community meetings in 2017

Group	Voice – Frequency (Percent)			Total
	Less	Same	More	
Nutrition	0	0	2 (100)	2 (24)
Dairy	0	0	3 (100)	3 (38)
Control	1 (33)	2 (67)	0	3 (38)
Total	1 (13)	2 (25)	5 (62)	8 (100)

Note. Chi-square statistic ($X^2 = 8.00$), Degree of Freedom ($DF=4$) and Probability associated with Fisher's Exact Test is $p = 0.07$.

In Table 4.14, a comparison of civic engagement levels of participants within the intervention groups is presented for those engagement activities that were significantly different between groups. The civic engagement of participants in the Nutrition Group was higher than that of women in the Dairy Group. This was evidenced by larger percentages of participants in the Nutrition Group who were voting and attending community meetings more often in 2017 than they did in 2014 compared to participants from the Dairy Group.

Table 4.14

Significant differences in proportions for civic engagement, as reported by 23 women in the nutrition group and 20 women in the dairy group in Kenya in 2017

Civic engagement level	Nutrition Group Percent (number)	Dairy Group Percent (number)	Chi-squared statistic	Fisher's Exact¹/ Chi-squared² P value
Voting more now than 3 years ago	30% (7/23)	5% (1/20)	4.57	0.050 ¹
Attend community meetings more now than 3 years ago	74% (14/19)	38% (5/13)	3.97	0.046 ²

Comparing Overall Community Engagement, by Group

Data on Nutrition and Dairy Groups were collapsed into an “intervention group” versus the Control Group, and participants who indicated engaging “less than” or “same as” three years ago were combined together and compared with those indicating engagement “more than” three years ago (Table 4.15). Overall civic engagement was measured by a general involvement in the community. A marginally significantly higher proportion of participants in the combined intervention group were more civically engaged overall than three years ago compared with the Control Group.

Table 4.15

Current levels of overall civic engagement compared to 3 years ago, as reported by 63 Kenyan women in a combined intervention group (n=43) versus the control group (n=20) in 2017

Group	Overall Civic engagement – Frequency (Percentage)		
	Less & Same	More	Total
Combine intervention (Nutrition & Dairy)	13 (30)	30 (70)	43 (68)
Control	11 (55)	9 (45)	20 (32)
Total	24 (38)	39 (62)	63 (100)

Note. Chi-square statistic ($X^2 = 3.55$), Degree of Freedom ($DF=1$) and Probability associated with is X^2 is $p = 0.059$.

In the multivariable logistic regression model (Table 4.16), group affiliation (combined intervention vs control), age (<36yrs, 36-55yrs and >55yrs) and control of dairy income (high vs low) were found to be significantly associated with overall civic engagement. The odds of young participants (less than 36 years of age) and middle-aged participants (between 36 and 55 years of age) engaging in the community more often compared to 3 years ago were higher than the odds for older participants (over 55 years of age). Although there appeared to be a substantial difference in the odds ratios for participants < 36 years old (33) and 36 to 55 years (11), their wide confidence intervals from the small sample size indicate no statistically significant difference between these two age groups with respect to civic engagement. The final model also shows that participants with lower control of dairy income had higher odds of engaging more often in the community compared to 3 years ago versus participants with high control of dairy income.

As well participants in a combined intervention group had higher odds of more overall civic engagement than 3 years ago compared to those in the control group, and this result was not a function of income control or differences in the demographics examined. There were no significant interactions among the variables in the final model in Table 4.16. The model Pseudo R^2 was 0.315; so 31.5% of variation was explained.

Table 4.16

Final logistic regression model for current overall civic engagement compared to 3 years ago, as reported by 63 Kenyan women in a combined intervention group (n=43) versus the control group (n=20) in 2017

Variable	Odds Ratio	P value	95% CI
Combine intervention group	12.13	0.005	2.10 – 70.14
Age			
Age 1 (< 35 yrs.)	33.23	0.002	3.57 – 308.99
Age 2 (35-54 yrs.)	11.36	0.013	1.65 – 78.07
Age 3 (over 54 yrs.)	Reference	Reference	Reference
Lower income control	5.41	0.041	1.07 – 27.37

Data presented in Table 4.10 to Table 4.16 above were from survey questionnaires. In-depth interviews and focus group discussions were conducted to discover more about women’s civic engagement. This section provides a narrative of women ideas and experiences with regard to their civic engagement.

In one of the interviews, a participant (#8) was recorded saying “Getting involved in community projects mostly demands resources, especially money”. Other participants indicated that lack of money inhibited their involvement in community projects or

engagement with community members as was required or requested of them. The following quote represents some of their ideas:

Because women are supposed to be there [community projects], sometimes women refuse to participate because of what needs to be done there. Mostly, money is involved in these community projects, and some women don't have money (Interview participant #5).

Belonging to community groups like churches and women groups seemed to affect civic action among Naari women. Groups were seen to gather women together and organize their discussions around community problems. Groups also seemed to offer resources that were required in addressing social issues. The following quotes give insights to the utilization of groups.

I have seen women take the initiative and engage in community projects. For example, women come together and go to schools within community to advice students. And since women know girls' problems better than men, they help them to understand and address some of these issues (Interview participant #2).

I have been involved with a community project. We formed a group to pull resources together and meet the cost of connecting water from the forest where it comes from to the community members (Interview participant #6).

The absence or lack of a channel for soliciting opinions and ideas was said to deter women's advocacy on community issues. It was noted that most social and

government organizations in Naari regularly used their structures as a way of distributing information to women in the community rather than consulting with them. Participants stated that they did not feel comfortable questioning or counteracting their leaders, as it was considered rude and playing politics. Some participants were afraid of being arrested if they spoke against individuals in authority. Some of these ideas are found in the following statements.

I don't have a channel to present my grievances or opinion on such issues [hospital and health matters]. There is no opportunity or space for me to give my opinion (Interview participant #6).

We don't talk in such meetings [community meetings] because only those that have leadership positions will be allowed to talk, so what we lack in this is an opportunity to talk. Personally if given a chance, I will talk (Focus group discussion #3).

Women are not given an opportunity to speak because the leaders do not provide that platform to them. The leaders, for example the chief's office, plan the agenda and whom to speak in such meetings (Interview participant #3).

Study participants revealed that traditionally, Naari women were viewed by men as incapable of being smart. During a focus group discussion (#2), it was said "Men in this community say women don't know anything and thus women see no point in standing up and speaking their mind". Women were not expected to think on their own, make decisions freely, or have many levels of control over their lives. Instead, women

were to depend on the male figures in their lives for guidance. This cultural perception significantly hindered participants from asserting their opinions in the presence of men. It was more difficult for participants who wanted to share their perspective before leaders who were men, as illustrated below.

The men talk on our behalf most of the time. For example, on matters of water, they go and talk on our behalf for they do not want the women to talk, and beat them [to be better]. They want the women to remain down there (Focus group discussion #3).

Participants reported lack of trust to be a challenge to their civic engagement. Naari women risked verbal and physical violence for speaking out. When women raised attention to issues in the wider community, they were reprovved, called names, gossiped about, or isolated by those who were experiencing these troubles because they often took it as an insult. Some of these ideas were narrated as follows:

If you say a specific thing is hindering the children from learning or going to school, you will be told to say it's your child, not ours. So you will definitely keep quiet when that happens. So women fear to be blamed by others (Focus group discussion #2).

Moreover, if women brought to light social problems through personal experiences, they faced difficulties in their relationships with their spouses. During an interview, a participant (#2) said that women were not advocating for issues in Naari “because they don’t want to be confronted by their husbands or other people within the community”.

Likewise when issues were brought to leaders' attention in private by women, confidentiality was often broken. The following statement acknowledges a participant's thoughts on lack of trustworthiness.

If I go and tell the chief [local community leader] about a certain problem in the community, they will insist on knowing who it is that is affected, in the name of wanting to address the problem (Interviews participant #4).

These results for civic engagement, and factors associated with them, are helpful, but do not determine if there is a relationship between emotional empowerment and civic engagement. The next section examines whether there is a relationship between emotional empowerment and civic engagement.

Section 5: Relationship between Emotional Empowerment and Civic Engagement

The association between various emotional empowerment variables (dichotomizing "extremely" versus "never, slightly, somewhat and moderately") and overall civic engagement (dichotomizing "more" versus "same/less") for the 43 women participants in the intervention groups (Nutrition and Dairy Groups) over the last three years are shown in Table 4.17. The relationships between these two dependent variables were not found to be statistically significant except for one item, feeling hopeful. Women participants who were extremely hopeful were very likely (89%) to engage more often in the community in 2017 than in 2014 compared to those women who felt less hopeful (56%). The multivariable logistic regression analysis revealed no other variables associated with the outcome of overall civic engagement and hopefulness, confirming that age, education, monthly income, income control, and membership in groups did not

account for observed differences in civic engagement and hopefulness in the women participants in the last three years.

Table 4.17

Association between dichotomized levels of emotional empowerment variables over the last 3 years and dichotomized overall civic engagement over the last 3 years, as reported by 43 Kenyan women in the combined intervention group (n=43) in 2017

Emotional empowerment variables: feeling... (over the last 3 years)	Overall civic engagement (2017 compared to 2014)		
	X^2 statistic	X^2 Test P value	Fisher's Exact Test P value
Knowledgeable	0.26	0.61	0.71
Skilled	0.63	0.42	0.50
Body strength	0.52	0.77	0.84
Happy	1.69	0.19	0.32
Opportunity	1.57	0.21	0.29
Valued	0.03	0.86	1.00
Voice	0.80	0.37	0.51
Belong	0.14	0.71	0.75
Hope	5.37	0.02	0.04*
Caring	0.01	0.91	0.91
Worried	0.00	0.98	1.00
Fear of future	0.06	0.80	0.80
Dealing with anger	0.76	0.38	0.49

Chapter 5: Discussion and Conclusions

This chapter discusses key aspects of our research and methods, and includes sections that explain results in relation to prior research and our Queen Elizabeth II Diamond Jubilee Scholarship (QES) Project in the context of study abroad programs and Kenyan development. Limitations of our research and suggestions for further study are also considered. The chapter finishes with a series of recommendations and conclusions.

Overall Impact of the QES Project on Women's Emotional Empowerment (EE) and Civic Engagement (CE)

This study found mixed results in the emotional and civic engagement status of participants. Participants in the Nutrition Group experienced emotional distress, specifically feeling more worthless in the short-term (last month) compared to the Dairy Group and Control Group. However, the same Nutrition Group participants experienced emotional empowerment, particularly by feeling less worried in the long term (over three years) when compared to the Control Group, while controlling for demographic differences between groups. One possible reason for this finding could be the lower income of the Nutrition Group compared to the other two groups, with a high proportion (44%) of women earning at or less than 5000 KSH (\$62 CAD)..

This finding is important for researchers and development organizations as it can help them design projects sensitive to women, such as those that elevate women's worth and voice. Literature has shown that some women's empowerment projects have resulted in challenges for women in their spousal relationships, and recommended that projects should work with both women and men to promote more respectful gender ideas and relations (Theis et al., 2017; Waller, 2014). Importantly the finding that the overall civic

engagement levels of most participants in the intervention increased over the duration of the larger project, and the intervention groups increased more than the control group, while controlling for demographic differences between groups.

Study Research Methods in Kenyan Context

This study used a mixed methods approach (questionnaire, in-depth interviews, and focus group discussions). Evaluation frameworks in Kenya's development sector are predominantly quantitative. For example, Karani, Bichange and Kamau (2014) conducted an impact assessment in 24 Kenyan non-governmental organizations and collected data using only questionnaires. Tarsilla (2014) argued that evaluations in Africa are donor-driven and mainly accounts for resources. This economic focus may be one reason for the limited use of qualitative methods that seek subjective perspectives. Our study gave participants an opportunity to provide meanings of emotional empowerment and civic engagement through their knowledge and lived experiences. Participant narratives supported and expounded quantitative results.

The study also used the Growth Empowerment Measure (GEM), the tool has been used among the indigenous population of Australia and Quebec, Canada. GEM was picked for our study because it assesses both the outcome and process of emotional empowerment. We learnt that GEM was being used in Quebec from email conversations with Melissa Haswell, one of the developers of the tool (M. Haswell, personal communication, 25th March, 2017), however, we could not find a publication showing results of the GEM tool in Quebec. In Australia, GEM was used to collect data on Aboriginal male and female rural employees before three day empowerment training; assessing retrospectively after three month period, post GEM analysis showed a 17%

increase in emotional empowerment mean scores of participants (Kinchin, Jacups, Tsey & Lines, 2015). The GEM tool was the most sensitive tool in tracking changes in emotional development because of its specific subject questioning compared to the Kessler (K6) tool (detecting a 1% change rate) with general questions (Kinchin, et al., 2015). However, that study provided only the effect of the whole empowerment project, and so individual emotional empowerment and distress levels were not highlighted for comparison with our study.

Our study used GEM to collect data once and on self-employed farm women who received training for several months with mixed results on emotional status in the short and long term. We recognize that our study modified the tool and asked participants to recall their emotional wellness over a long period of time (over 3 year project training) which could have been challenging. Also we note the different data analysis methods used in our study (proportions of individual emotional levels) versus the Australian study limiting comparison of specific elements on the scales. Nevertheless, a general comparison of results suggest that emotional empowerment may vary with social, economic and cultural environments. This observation agrees with Malhotra, Schuler and Boender (2002) thoughts that empowerment behaviors and attributes are different from place to place.

Women Demographics Compared to Kenyan Rural Population

The 2014 Kenya Demographic Housing Survey (KDHS) found the majority of rural residents (78%) were in the lower wealth quintiles (KBS, 2015). Our study did not measure household wealth rather it assessed women's monthly income. From what women reported, a higher proportion (44%) earned at or less than 5000 KSH (\$62 CAD).

Further analysis should be done to allow comparison of household income between Naari families and Kenyan rural families. Keeping in mind the International Poverty Line set by the World Bank is currently set at \$1.90 (USD)/day (World Bank, 2015), our study group most likely representative of the majority of rural residents in Kenya.

The KDHS (2014) also indicated that the Kenyan population is young, however, the female population between the age of 45 to 49 and 50-54 years were slowly increasing. Our study showed the majority of women (67%) were above the age of 45. Our study reflects the KDHS report that the number of older women in Kenya is high, and again supports that our study group is representative of rural Kenya.

On education, KDHS (2014) reported only 14.7% of Kenyan rural population completed primary level education and a minority (4.2%) attained some form of post-secondary education. Our study found 52% of women had completed a primary level education while 8% of women had attained a post-secondary certificate. Our study indicates that Naari women are doing better in education compared to other rural areas in Kenya.

Putting Women's EE Findings in the Kenyan and Global Context

A study conducted in Kisumu, Western Kenya assessed the impact of training in the use of contraceptives and found nearly 80% of participating women experienced moderate to high emotional distress (Gust et al., 2017). In view of the Kisumu study, our findings of emotional distress (61% of project women experiencing higher emotional distress) were not unexpected. Our study and the Kisumu study show that empowerment projects and particularly those offering knowledge and skills transfer may have an emotional burden on women. We note the lack of studies that examine the impact of

agricultural and livelihood interventions on women's emotional empowerment. There are few research studies looking beyond the direct effect of an intervention towards broader impacts associated with women's emotional status. Moreover, tools used for measuring women empowerment tend to fall short of assessing emotional wellbeing. For example, a tool developed by the United States Agency for International Development, Oxford Poverty and Human Development Initiative (n.d) "The Women's Empowerment in Agriculture Index (WEAI)" measures the empowerment and inclusion of women in agriculture in five domains that include: agricultural production (e.g. sole or joint decision-making over food and cash-crop farming); resources (e.g. ownership and access to, and decision-making over, productive resources such as land); income (e.g. sole or joint control over income and expenditures); leadership (e.g. membership in economic or social groups and comfort in speaking in public); and time (e.g. allocation of time to productive and domestic tasks). Our study is breaking ground in highlighting what happens to women emotionally after receiving agricultural capacity-building interventions, and we recommend that more studies should investigate this subject more deeply.

Zimmerman (1995) hypothesized that empowerment programs strengthen capacities of people and groups. For example, savings groups in Malawi were found to reduce member's household food insecurity because they learned better farming. The saving groups enabled connections to development agencies which provided empowerment in form of agricultural learning which was used to increase their crop farming (Waller, 2014). In Australia, conflict-resolution training improved the emotional status of male and female employees in a rural organization (Kinchin, Jacups, Tsey, &

Lines, 2015). Studies in Rwanda (Uwantege & Mbabazi, 2015) and Kenya (Mjomba, 2011) found that economic empowerment projects improved women's employment opportunities, increased their income and slightly improved their voices in household decision making. Conversely, our study found both positive and negative impacts on the emotional status of project participants. We speculate that the inability to immediately implement some of the FHF and QES project training could initially have made our participants feel more worthless than before. Also, it is possible that with the training, women were recognizing or remembering that their lack of education may be contributing to their challenges in life, which could be contributing to feelings of worthlessness in the short-term. However, it is speculated that in the long-run, when participants found ways to apply the training in their own personal situation, their participation in the interventions may have helped them improve their livelihoods, reducing their levels of worry.

Income and education levels, group support, and cultural norms also influenced the emotional empowerment of Naari women. Wyshak (2016) found no correlation between emotional wellness and high income among American women. Our study shows a correlation between emotional empowerment and low incomes of women. This comparison may suggest that a modest increase in very low income has a greater impact on one's emotional status when compared to great wealth. These thoughts were also shared by Diener, Ng and Tov (2009). Our finding that women who earned a slightly higher income felt more caring and strong in their bodies can potentially be because they can meet additional family needs, as compared to the lowest income participants. This potential ability to meet extra family needs may be a benefit of implementing knowledge

and skills acquired through horticultural, human nutrition and dairy training to improve their livelihoods.

Farmers Helping Farmers (FHF), like many other international development organizations, work with local community organizations, such as women's groups and dairy groups, to improve economic and social conditions. Projects by reputable international agencies including Oxfam GB and USAID have shown that their work in developing countries, such as Malawi, has resulted in improved agricultural practices, reduced food insecurity and increased income for those living in abject poverty (Oxfam GB, 2014; Waller, 2014). Research conducted within the QES-UPEI-FHF project that has measured the direct impacts of the horticultural, human nutrition and dairy management interventions indicate that the project has made some contributions, including: 1) reduced food insecurity; 2) improved nutrition knowledge, attitudes and diet diversity; and 3) improved stall cleanliness and cow comfort (unpublished results). Farmers Helping Farmers is involved in mobilizing and coordinating the delivery of agricultural training and resources to selected community groups. The organization is also tackling the challenge of diminishing farm land by offering Naari families special bags to grow vegetables, and by providing rain water storage tanks to address water shortages. Furthermore, the nonprofit organization is working with several Naari schools to maintain vegetable gardens that contribute to healthy lunch meals for the students. Finally, FHF and UPEI's Atlantic Veterinary College have developed a dairy health management handbook that provides important information to smallholder dairy farmers in Naari. Similarly, FHF also has a horticulture handbook that provides additional guidance for sustainable vegetable production.

In Meru County, less than a quarter of the population completed post-primary level education (National Bureau of Statistics & Society for International Development, 2013). This study observed a similar education trend among participants. Hamad and colleagues (2008) reported decreased levels of depression among adults with a post primary education in South Africa but do not speculate on reasons. In our current study, women who had a post primary level certificate felt less sad. Since Klofstad (2007) suggested that well-educated people may be more informed and consequently better equipped to handle challenges, we find in our study women who had a higher level of education were emotionally empowered, and we speculate that this happens as they are better able to understand and adopt aspects of the horticultural, nutrition and dairy training.

Two studies point to the influence of social support levels on emotional status. Kyerematen (2012) observed that many Ghanaian relatives living in the same household increased available support and reduced the level of stress among its members. In contrast, Hamad and others (2008) report increased stress among large-sized households in South Africa but do not speculate on the reasons. Nonetheless, these two studies do not show how external non-family relationships impact one's emotional empowerment. Our study observed how community groups influenced women's emotional empowerment. Participants who belong to and were actively involved in multiple groups perceived themselves to be better emotionally. Bourdieu (1986) proposed that one type of capital could be social networks with resources within such networks being utilized by members. Bourdieu also suggested that social networks can be the bridge to acquiring resources outside their domain. Similar to findings in our study, a Kenyan study reported that

projects within 164 social groups improved women's household food security due to agricultural education that improved crop production (Onyango, 2014). Considering social capital theory and practice, our study makes a similar assumption that participants were able to access financial, material and human resources available through group membership and gain access to external linkages that helped them meet household needs and reduce stress.

Although our study did not compare emotional status between women and men, social norms around gender can influence women's emotional well-being. From data collected within the study, personal communication with participants and knowledge of Kenya, it was inferred that Naari community is part of a patriarchal society where women have fewer rights, especially with regard to ownership and control of property. Participants communicated their frustration in not being able to pursue their life aspirations. A similar situation was reported in Tanzania when trained women were hindered in the use of irrigation technologies they had acquired, as men owned and controlled land use. The Tanzanian study recommended that agricultural development projects targeting women should first secure the support of their husbands (Theis et al., 2017). A study in Malawi concluded that women's empowerment projects did not increase women's economic and social status to the point where they would challenge their unequal position in the household. It was suggested that men needed to be part of the empowerment conversation in order to promote fair and respectful gender relations and practices (Waller, 2014).

Putting Women's CE Findings in the Kenyan and Global Context

This study found that Naari women were more highly engaged in their community compared to residents of Ol-Kalou, Nyandarua County, Kenya (Kinyajui & Misaro, 2013). What is more notable is that while involvement in community health programs ranked second highest (with 12% participation rate) in the Ol-Kalou study, no women in our study were engaged with community health programs. It's possible that this difference could have been a result of variations in study samples, men and women were assessed in Ol-Kalou while only women were assessed in Naari. Further research should examine the role community members play in influencing health programs and policies and the existing opportunities and challenges of such processes.

Mandell (2010) investigated whether increased social awareness would result in increased involvement in public matters, her research found that as members of an American community organization learned about their society they became more involved in its affairs. Likewise, Waller (2014) reported that members of community saving groups in Malawi increased their engagement in leadership roles as they learned how to express themselves and outgrew their shyness. Considering Mandell and Waller's studies and also our own examination of existing group membership, it can be speculated that the QES project might have provided participants with opportunities to deepen their understanding of social issues and options for improvement causing an increase in their community engagement. Tov and Diener's (2008) analysis found that countries whose citizens were emotionally empowered also had high volunteerism and democratic attitudes and practices though no reasons are provided. Similarly our study only uses statistics to show that participants who felt extremely hopeful were more engaged in

Naari in general, there was no deep analysis of the relationship between the two variables. Nonetheless, we can use the Empowerment Theory (Zimmerman, 1995) and Social Capital Theory (Putnam, 2000) to provide some insights into this linkage. Empowering projects, such as the larger research and development project that this current research is embedded in, seek to improve people's capacities including their emotional status. People who have high levels of emotional empowerment, for example feeling valued, may be good at developing relationships with other people and in turn increase their social networks. Social networks promote structured organization where norms and obligations create trust and collaboration leading to common action and civic engagement. As was found by Putnam (2000), American states that showed higher civic engagement recorded lower rates of social problems.

Strongly affiliated structural arrangements, such as women's groups and church groups, appeared to influence women's civic engagement in our study. Community groups in Naari not only developed skills for civic action as was suggested by Mandell (2010) and Skinkis and Kaugurs (2015), but also may provide a platform for the mobilization of resources. Participants' engagement in Naari community entailed heavy involvement with financial charitable contributions. This finding raises the following question: why would women who earned very little donate money? An answer may lie in Social Capital Theory where norms and obligations dictate how people act within a social structure (Putnam, 2000). It may be that Naari women do not want to encounter the negative repercussions of not making financial contributions despite their limited disposable income. Another reason could be that women viewed social networks to be resourceful by pulling together small contributions and providing assistance to individual

members when needed (Bourdieu, 1986). In addition, limited organizational structures appear to hinder women's involvement in community issues. For instance, zero participants reported having engaged in planning and review of community health projects, as they indicated having no established way of doing so.

Our study also found that age and civic engagement were positively correlated, participants who were slightly younger had higher odds of engaging more in community activities in Naari compared to older women. Review of the literature yielded only one study exploring these two variables; it was conducted in Kenya and reported no association between age and civic action (Kinyanjui & Misaro, 2013). However, Kinyanjui and Misaro determined that younger families (recently married and with young children) got involved more in community projects, as they needed assistance more than older families. Considering these findings, it can be assumed that younger participants in Naari had younger families with numerous needs, and this may be the underlying reason why they were more likely to seek support through social involvement in comparison to older participants.

In our study, we found cultural norms also affected women and their civic activities. In Malawi, men in a rural community were found to engage more in public affairs because they were freer and had formal employment with a higher income than women (Waller, 2014).. Similarly, our study found that most females in Naari, and rural Kenya more broadly are involuntarily required to let men make decisions even those that directly relate to them because men have power and privilege mostly drawn from owning productive assets; having less autonomy restricted women from engaging in public events especially those of political nature. In addition, some participants reported that women

were prevented from taking part in community activities because: 1) their husbands did not allow them to; or 2) their husbands denied them money that they could have donated in social functions. These circumstances were found by other researchers among rural farming groups in Tanzania (Theis et al., 2017) and a rural community in Kenya (Kimani & Kombo, 2011).

Finally, women fearing what their husbands would think or say limited their involvement in community affairs. Regardless of the uncertainty, Wallar (2014) describes how women talked to their husbands about their intentions to join women's groups to avoid being seen as disrespectful. Putnam (2000) noted that trust promotes civic engagement through the creation of mutual relationships and collaborations among people. Our qualitative findings revealed that fear of repercussions due to lack of trust restrained most participants from speaking about, and offering information on, social issues because they did not want to be verbally or physically abused by husbands, extended family, neighbors or community members regardless of the situation.

The QES Project in the Context of Study Abroad Programs

Study abroad programs utilize institutional, organizational and community partnerships to provide students with learning experiences away from their home country. The QES study-abroad research and development project engaged university students in community education and research. The horticultural and human nutrition, and dairy cow/herd management projects involved practical livelihood-based interventions that were conducted with members of the Naari community with positive findings, such as: 1) reduced food insecurity; 2) improved nutrition knowledge, attitudes and diet diversity; and 3) improved stall cleanliness and cow comfort. Despite the QES project having

direct positive effects on cow comfort and family nutrition, this study found that these interventions and research projects appeared to positively and negatively affect the emotional and civic engagement levels of participating Kenyan women farmers in the long-term. This finding supports the view of other researchers that, when designed with the host community in mind, international education programs have potential to positively impact the capacity of host communities (Bingle et al., (2011). Further research to examine EE and CE is needed within such larger agricultural projects in order to work toward mitigating negative and enhancing positive outcomes.

Two recent studies provide insights into how study abroad projects that are experiential and use training sessions can affect host communities. Tibbetts & Leeper (2016) found that when a summer program in Uganda coordinated international students to give business training to local members of the community, participating community members improved their business skills. In another study, American undergraduate medical students facilitated health education sessions which contributed to the health knowledge of traditional birth attendants in Mexico (Friedman et al., 2016). Although these two studies attest to positive implications of study abroad programs on host communities, they did not assess the impact of the training on emotional and civic engagement levels of host community members.

One study which begins to unravel the intertwined influences of international students on communities revealed that Canadian students potentially influenced communities in the global south both positively and negatively; students contributed their time and effort towards accomplishing service projects and in some occasions, they donated small amounts of money which could have created a sense of dependency

(Tiessen & Heron, 2012). However, those findings were reflections of students and not members of targeted host communities. Our study gathered evidence directly from members of the community in order to explore the impact of this larger project on various participants.

Our findings show that involvement in study-abroad research and development project in Kenya had participants experience higher levels of emotional distress specifically feeling more worthless in the short term (last month) while the same participants experienced emotional empowerment particularly feeling less worried in the long term (over three years) when compared to a control group. Furthermore, project participants were found to have increased their civic engagement levels over the three year project timeline and also when compared to the control group.

Limitations and Strengths

Several factors will limit the generalizability of the quantitative results from this study. The small sample size of this study limited the representativeness and the use of certain statistical procedures; consequently results need to be interpreted with caution. For example, the results on voting were based on a subset of the 63 study participants.

Translation of the tools and interview questions between three different languages could potentially have resulted in less clear responses. However, efforts were made to ensure accurate translations and back-translations were made, utilizing a local translator and a data entry person with the local language of Kimeru as their first language.

Modifying the GEM assessment tools for our study population and purposes meant that we were not able to use similar data analyses as those done by the developers

of the GEM tools, limiting the ability to make direct comparisons between studies. We did add our emotional status scores for each of the participants in each group, and these participant scores were compared by group in a linear regression to determine if there were significant differences between groups. No significant differences were found between groups. We also similarly tabulated scores for the CE tool, and again no significant differences were found between groups. More so the emotional empowerment questions were in reference to a long period of time (over 3 year project training) which could have been challenging for participants to recall.

In addition, the study did not deeply explore the relationship between women's emotional empowerment and civic engagement. A deeper qualitative investigation into potential connections between emotional empowerment and civic engagement was not pursued as there were already a large number of questions for the interviews and focus groups. As busy smallholder farmers, it was unrealistic to ask for more than an hour of their time, as their participation took them away from important revenue generating and family activities. Longer interviews or focus groups would have been overwhelming for the researcher, translator and participants. However, participants in the in-depth interviews and focus group discussions were purposively selected with the goal of ensuring a broad perspective of voices were heard. Furthermore, it was not possible to holistically assess the impact of the QES study abroad program on participant's emotional and civic engagement status as this topic was unfamiliar to women and would not be viewed as relevant to their daily lives.

Future Research Directions

There is clear need for additional research to add to the body of evidence on this topic. Findings from this study suggest that a subsequent investigation be conducted with a larger sample size to make conclusions more representative. Secondly, a similar study with male respondents should be conducted in order to examine comparisons with the female participants' practices and attitudes in this study. It would also be beneficial to explore the association between emotional empowerment and civic engagement further in order to develop a better understanding of the connections. It is further suggested that an investigation be carried out on another QES research and development project promoting international education and information exchange for corroborating the results from this study, and/or testing of other study theoretical framework and assumptions in an entirely different environment. Researchers could consider a purely qualitative research to explore the impact of study abroad programs on community groups. Finally, research could be done to examine the effects of sensitizing men to issues raised by women regarding their emotional and civic engagement status as a way of improving intervention outcomes on children.

Conclusions and Recommendations

To the best of my knowledge this is one of the first research studies to explore the impact of study abroad research and development experiences on Kenyan women's CE and EE. Study abroad programs that utilize training and research have the significant potential to affect the local communities within which they take place. The impacts can be both positive and negative, and felt immediately or linger for a long time. What was

clear from this research was that the effects of these programs are influenced by and interact with existing social, cultural, and economic factors within the host community.

In consideration of the findings, the study recommends the following: 1) training and research interventions need to recognize that the social, cultural and economic conditions of targeted populations can affect emotional burden in the short-term, and that monitoring of emotional burden should be built into the project budget and activities for detection and remediation of problems, if necessary; 2) training and research-based interventions should be viewed as long-term initiatives to increase the capacity and emotional empowerment of participants; and 3) community development activities, training, and research interventions should deliberately provide participants, especially women, with opportunities to have their voices heard, using culturally acceptable settings, environments and assemblies.

As study abroad programs become even more widespread in post-secondary education, universities and colleges that partner with community organizations, engaging students directly with community members in service learning or research-based learning activities should prepare for and take into account potential impacts, such as those found in this study, and the implications this may have for vulnerable communities and individuals.

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Appendix A

Title: Multi-disciplinary Study Abroad Research and Development Project: Impact on Emotional and Civic Engagement Status of Kenyan Women farmers

Study Information for Survey Participants

Who will be conducting the project?

My name is Anne Shileche and I am a Masters student in the Faculty of Science at the University of Prince Edward Island (UPEI) in Canada. My research is part of a project that aims at improving the cow health, human nutrition, and family livelihoods of small holder farmers in Eastern Kenya through projects focusing on nutrition, food security, and cattle management. This study is supervised by Charlene VanLeeuwen, Dr. John VanLeeuwen, and Dr. Colleen Walton from UPEI, and Dr. Lucy Kathuri-Ogola from Kenyatta University.

Purpose of the study

My study wants to know the impact of this project on decision making within your family and within community groups. I will be investigating the impact of trainings offered to selected members of the Naari Dairy Farmers Cooperative Society and the XXXX Women's Group on their awareness and involvement in social issues within their families and within the Naari community. The part of this study that you are being invited to participate in involves 60 women answering a survey. In a later phase of this study, a small number of participants from the survey will be selected for in-depth interviews (15 women) and focus group discussions (18-21 women). This study does not pose any risk beyond what you can encounter in your normal daily life. The survey questionnaire will take between 30 minutes to an hour to complete.

Anonymity and Confidentiality

I will keep all the information collected in this study confidential. To protect your privacy, I will identify your responses and questionnaire information by a number and not your name. Paper copies of survey information will be kept in a locked room in a locked compartment. Computer copies of data will be stored on a password-protected computer that will also be kept in a safe house. Only members of my study supervisory committee at the University of Prince Edward Island, Canada, and Kenyatta University, Kenya will have access to the information. When I produce the final report, it will not include any information that could be used to identify you individually.

If you want to stop participating in the study at any time before it is completed, your personal information will be treated the same as those who participated in the complete study. It will be kept under lock and key and destroyed after 5 years. However, if you wish, we can destroy your information immediately.

Conflict of Interest

This research is funded through the Queen Elizabeth II Diamond Jubilee Scholarships program and the University of Prince Edward Island (UPEI) in Canada. I am not involved with the project finances.

Participation

Taking part in this study is your choice. You can choose to withdraw from the study at any time. If you would like to withdraw from the study, all you have to do is tell me. You do not need to give any reason for choosing to withdraw. There will be no negative consequences to you if you choose not to participate in this study or choose to not answer any question. When the project is completed, I will visit the XXXX Women's Group and Naari Dairy Group to talk about the study findings.

I will give you a copy of the consent form, once you sign it or give oral consent.

The Research Ethics Board of the University of Prince Edward Island in Canada has reviewed this research project. If you have any concerns about the ethical conduct of the study, please contact the UPEI Research Ethics Board at 000 -1-902-620-5104 or by e-mail at reb@upei.ca

If you have any questions about this research, please contact:**Anne Shileche**

(UPEI Masters student)
Phone +254-790-184250
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Appendix B

Title: Multi-disciplinary Study Abroad Research and Development Project: Impact on Emotional and Civic Engagement Status of Kenyan Women farmers

Survey Consent Form

As a participant in this study you are asked to confirm your consent for the following:

- I understand the material in this letter.
- I give permission for the use of anonymous data I provided in future research conducted by the researcher.
- I understand that my participation is voluntary and that I have the freedom to not participate in this survey. I also have the freedom to choose to not answer any question.
- I give my permission to be contacted in the future to be invited to volunteer to participate in further research. _____ YES _____ NO
- I understand that the information will be confidential within the limits of the law.
- I understand that I can keep a copy of this information letter and consent form.
- I understand that I can contact the UPEI Research Ethics Board at 000 -1-902-620-5104 or by e-mail at reb@upei.ca if I have any concerns about the ethical conduct of the study.

Your signature below confirms that you have understood the information provided about this study, any questions you have were answered, and that you agree to take part in the study.

Participant’s name _____

Participant’s Signature _____ Date _____

Researcher’s Signature _____ Date _____

If you have any concerns or questions about this research, feel free to contact me or my study supervisors, Lucy Kathuri-Ogola, PhD kathuri.lucy@ku.ac.ke, Charlene VanLeeuwen, PhD(c) cvanleeuwen@upei.ca and John VanLeeuwen, PhD jvanleeuwen@upei.ca

Sincerely,
 Anne Shileche
 Phone +254-790-184250, ashileche@upei.ca

Appendix C

Survey questionnaire

Instructions

Tick the box/es or fill in the blanks to questions applicable

Group ID:	Participant ID:
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PART 1: ABOUT YOU

1. What is your age?

- 18-25
- 26-35
- 36-45
- 46-55
- Above 55

2. What is your marital status?

- Single
- Living together/cohabitating
- Married
- Widowed
- Separated/Divorced

3. What is the highest level of education you have completed?

4. How many children do you have and what level of schooling are they involved in now?

Education level	No. of children
Primary	
Secondary	
College	
University	
No longer in school	
Adult child living independently	

5. What is your main source of income?

- Formal employment
- Casual employment
- Self-employed (e.g. dairy farming)
- Family member/s
- Pension

Other _____

6. What is your estimated total income per month (KSH)?

(Select only one.)

- 5,000 and below
- 6,000 – 10,000
- 11,000 – 15,000
- 16,000 – 20,000
- 21,000 and above

7. How much control do you have over the money you receive from selling milk at Naari Dairy and other places?

- A lot
- Quite a bit
- A little
- None
- Not applicable

PART 2: ABOUT YOUR GROUP

8. How did you become involved with this group? (Circle Dairy or Women’s group)

- Independently – heard about the group and decided to join
- Introduced – someone I knew brought me to the group
(Specify relationship to person) _____
- Other _____

9. What were your reasons for choosing to be part of this group?

(Rank from the most important (1) to least important (4))

Reason	Rank (1,2,3,4)
To help myself	
To help my family	
To help my friends	
To contribute to positive change within my community	

10. How long have you been involved with this group?

- < 1 year
- 1 - ≤ 2 years
- 2 - ≤ 3 years
- 3 - ≤ 4 years
- ≥ 4 years

11. Would you say that being a member of this group benefits you...

- Greatly
- Fairly
- A little
- Not at all

12. How do you currently benefit from being a member of this group?

- It gives me access to technical knowledge
- It enables me to develop technical skills
- It gives me the opportunity to express my point of view or talk about issues
- It gives me a chance to socialize with fellow community members
- I get moral and material support when I am in crisis
- It gives me a place to sell my milk
- Other _____

13. How often does your group hold official meetings?

- Weekly
- Monthly
- Quarterly
- Yearly

14. How often do you attend official group meetings?

- Attend all meetings unless there is a serious reason not to
- Attend most meetings
- Attend some meetings
- Attend less than ½ of all meetings

15. What is your role in the group?

- Socialize with members
- Contribute ideas for group direction/activities
- Vote on issues
- Organize group activities
- Contribute money or material
- Elected leader
- Hired staff
- Other _____

16. What process is mainly used to elect leaders in your group?

- Leaders voted in
- Leaders appointed by members
- Leaders volunteer themselves
- Other _____

17. Would you please give me an example of (1-2) important decisions made by your group?

(Provide an explanation.)

18. How are these key decisions made in your group?

- Imposed by the group's authority
- Made by the group's authority following consultation with members
- Made by a person labelled a specialist
- Made by a majority of the group
- Formulated by a minority of members in the group
- Adopted through consensus

19. State your opinion on the following statement:

I feel that key decisions made within my group are fair?

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

20. To what level do you agree with the following statement?

Information within my group is communicated in time to all members?

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

21. To what level do you agree with the following statement?

My group is working together towards the achievement of our common objectives?

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

22. Are you a member in any other community groups such as?

Type of group	How many you are involved with
Education (e.g. school Parents teachers association, school committee)	
Religious (e.g. church, mosque)	
Health (community clinic)	
Self-help (merry-go-round)	
Business/Traders	
Political	
Other:	

23. Indicate any other community groups in which you hold a leadership position?

- School
- Church
- Health clinic
- Self-help (merry-go-round)
- Business
- Political

Other _____

(The following question is ONLY for XXXX Women Group members)

24. If you are a member of Naari Dairy Farmers Cooperative Society, how often do you attend its official group meetings?

- Attend all meetings unless there is a serious reason not to
- Attend most meetings
- Attend some meetings
- Attend less than ½ of all meetings

PART 3: ABOUT THE TRAINING PROJECT
(XXXX women group; human nutrition) & (Dairy group; cow nutrition or cow reproduction only). (Control group, skip to Q29)

25. What is your overall judgment of the effectiveness of the (name the intervention) program that you are participating in?

- Very helpful
- Helpful
- Neutral
- Not helpful
- Not very helpful

26. What part/s of the training intervention did you like the most? Why?

27. What part/s of the training intervention did you not like? Why?

28. How could this intervention be more effective (for you)? (Provide an explanation.)

PART 4: ABOUT YOUR PARTICIPATION IN COMMUNITY MATTERS

	Statement - Please answer as you think, not what you think I want to hear. Comparing this year to the year 2014	Never	Less	Same	More
29	My overall civic engagement now compared with 2014 is				
30	My attendance of community meetings/barazas now compared to 2014 is				
31	My level of speaking in community meetings now compared to 2014 is				
32	My involvement in school planning and review activities now compared to 2014 is				
33	My involvement in planning and review of services at the local health center now compared to 2014 is				
34	My involvement with Naari Dairy Farmers Cooperative Society now compared to 2014 is				
35	My engagement in leadership roles within the community now compared to 2014 is				
36	My money donations to community organizations/charities now compared to 2014 is				
37	My engagement in fundraising for charity initiatives (Harambees) now compared to 2014 is				
38	My likelihood of voting in the 2017 general elections compared to 2013 is				

PART 5: ABOUT YOUR EMOTIONAL EMPOWERMENT

© The GEM measure was created by the Collaborative Research on Empowerment & Wellbeing Team (CREW, University of Queensland) and the Empowerment Research Program, James Cook University with funds from the NHMRC and the CRC for Aboriginal Health. For more information on this measure, contact Melissa Haswell: m.haswell@unsw.edu.au; 0415-568-536

Part 5a: Please say how you felt about yourself most of the time in the last 3 years

No.	Specific feeling	Measuring scale				
		I felt I don't know anything	I felt slightly knowledgeable	I felt somewhat knowledgeable	I felt moderately knowledgeable	I felt extremely knowledgeable
1	Knowledgeable	I felt I don't know anything	I felt slightly knowledgeable	I felt somewhat knowledgeable	I felt moderately knowledgeable	I felt extremely knowledgeable
2	Skilled	I didn't feel skilled at all	I felt I am slightly skilled	I felt somewhat skilled	I moderately felt skilled	I felt extremely skilled
3	Body strength	I felt not at all strong in my body	I felt slightly strong in my body	I felt somewhat strong in my body	I moderately felt strong in my body	I felt extremely strong in my body
4	Happy	I didn't feel happy at all	I felt slightly strong in my body	I somewhat felt strong in my body	I felt moderately strong in my body	I extremely felt strong in my body
5	Having opportunities	I felt I had no opportunities in my life at all	I felt I had slight opportunities in life	I felt I had some opportunities in life	I felt my opportunities in life were moderate	I felt my opportunities in life were extreme
6	Valued	I felt not valued at all	I felt slightly valued	I somewhat felt valued	I felt moderately valued	I extremely felt valued

7	Voice/Able to express self	I felt not able to speak at all /felt voiceless	I slightly expressed myself	I somewhat voiced my opinion	I felt able to moderately express myself	I felt extremely able to express myself
8	Belonging	I felt I didn't belong in the community at all	I felt I slightly belonged in the community	I felt somewhat belonging in the community	I felt my community belongingness was moderate	I felt my community belongingness was extreme
9	Hopeful	I didn't feel hopeful at all/hopeless	I slightly felt hopeful	I felt somewhat hopeful	My feeling was moderately hopeful	I felt extremely hopeful
10	Caring for myself and family	I felt I didn't care for myself or my family	I slightly felt caring to myself and my family	I felt somewhat caring towards myself and my family	I felt moderately caring towards myself and my family	I felt extremely caring towards myself and my family
11	Worried	I felt no worry at all with my current life	I slightly felt worried with my current life	I felt somewhat worried with my current life	I felt my worry with my current life was moderate	I felt extremely worried with my current life
12	Fear of future	I felt no fear of the future at all	I felt slightly afraid of my future	I felt somewhat afraid of my future	I felt moderately afraid of the future	I felt extremely afraid of the future
13	Able to deal with anger	I felt not able to deal with my anger at all	I felt slightly able to deal with my anger	I felt somewhat able to deal with my anger	I felt I was able to deal with my anger in a moderate way	I felt slightly able to deal with my anger

Part 5b: Please say how you felt about yourself most of the time in the last month

Questions 2 through 7 are the Kessler 6 Scale developed by Professors Ron Kessler and Dan Mroczek in 1992.

Please tell me how you felt (name the feeling) most of the time in the last 1 month						
No.	Specific feeling	Never	Slightly	Somewhat	Moderately	Extremely
1	Happy					
2	Sad					
3	Nervous					
4	Restless/fidgety					
5	Hopeless					
6	Struggling with life					
7	Worthless					
8	Angry					

PART 6: ABOUT YOUR EVERYDAY LIFE

Please think carefully and tell me how you generally see yourself in your situation.

For question 9 , you are asked to describe how you see the Naari community

1. How do you deal with painful feelings and the bad things that have happened in your life?						
So much pain, anger and bad feelings are bottled up inside me	Mid-way	I am beginning to open up and talk about myself.	Mid-way	I have been able to work through some of my feelings and emotions	Mid-way	I can say that I have worked through or moved on from much of the bad experiences and struggles I've had.

2. How do you deal with safety for yourself and your family?						
I just put up with things that harm me. I often get hurt physically or emotionally. I haven't found a way to escape or stop this	Mid-way	When things get frightening, I escape in order to protect myself and my family. I find it hard to trust anyone.	Mid-way	I am learning to take positive steps to protect myself and family against physical and emotional harm.	Mid-way	I have a strong ability to protect myself and my family from things that could harm us. I am able to trust other people when appropriate.
3. How do you respond when people ask you to do things that they should do themselves?						
I always say yes even if it makes me angry or stressed.	Mid-way	I have learned how to avoid situations where I might get forced by somebody. But I usually say yes when it happens even when I want to say no	Mid-way	I am starting to gain the confidence to set boundaries and say no when somebody is making unreasonable demands. I think that people are starting to respect me for that.	Mid-way	I am happy to help people. But, when somebody is asking for too much from me,
4. How do you feel about making changes in life?						
There are things that I should change in my life to be Healthier and Happier. But it seems all too hard.	Mid-way	I have started to think about some changes I'd like to make that would be good for me.	Mid-way	I have gained some skills & confidence to make changes. I have had some successes , but I still don't feel fully confident about making	Mid-way	I have gained skills and confidence and have succeeded in making many important changes in my life.

		But I don't have skills or confidence to make the changes.		change.		
5. Are you engaging in learning opportunities?						
I know that more people are taking courses and doing other kinds of training, but there's no way I could do that even if I wanted to.	Mid-way	I am starting to think through some kinds of training and education opportunities that I think I could do.	Mid-way	I have started or completed training to increase my skills and knowledge. However, I haven't been able to use this yet in my work or my everyday life.	Mid-way	I have reached some educational / training goals that I set for myself. I use these skills in my work or everyday life.
6. Do you have a strong sense of knowing who you are?						
I don't know who I am. I don't know where I am going in my life.	Mid-way	I have a pretty good idea of who I am, but people put labels on me and these affect me.	Mid-way	I am lifting off the labels that other people have given me and other things about me that are not really who I am.	Mid-way	I'm very strong about who I am. I am proud of my cultural identity.
7. Are you able to speak out and be heard in your community?						
I am too shy or ashamed to speak out in this community.	Mid-way	I am beginning to speak out and have some say on some issues.	Mid-way	I am able to speak out and be heard. My views are considered when decisions are made in this community.	Mid-way	I am fully part of the decision-making process in this Community as an individual or a member of an active group.

8. How do you see your relationship with other people?						
I am dealing with things like: anger and fighting, gossiping, bullying.	Mid-way	I have started to think about how to make them better. I think more about what I'm saying.	Mid-way	I think a lot about listening and talking sensitively to people.	Mid-way	My relationships give me peace and harmony in my heart
9. How empowered do you think your community is?						
In this community, there is little harmony or safety. People don't seem to know where to start to make things better. Mostly we just blame each other.	Mid-way	People in this community are becoming aware that things could be different. There is more talk and hope about making things better. But we have a long way to go to address our problems effectively.	Mid-way	Although it is early days, there is a ripple effect happening here. Families and households are changing. People are working better together. We share common goals.	Mid-way	In this community, we are working together for the betterment of our people. People are working with services and organisations to improve life here. Healing has taken place at community level. We can see the fruits of change.

Appendix D

Title: Multi-disciplinary Study Abroad Research and Development Project: Impact on Emotional and Civic Engagement Status of Kenyan Women farmers

Study Information for Interview Participants

Who will be conducting the project?

My name is Anne Shileche and I am a Masters student in the Faculty of Science at the University of Prince Edward Island (UPEI) in Canada. My research is part of a project that aims at improving the cow health, human nutrition, and family livelihoods of small holder farmers in Eastern Kenya through projects focusing on nutrition, food security, and cattle management. This study is supervised by Charlene VanLeeuwen, Dr. John VanLeeuwen, and Dr. Colleen Walton from UPEI, and Dr. Lucy Kathuri-Ogola from Kenyatta University.

Purpose of the study

My study wants to know the impact of this project on decision making within your family and within community groups. I will be investigating the impact of trainings offered to selected members of the Naari Dairy Farmers Cooperative Society and the XXXX Women's Group on their awareness and involvement in social issues within their families and within the Naari community. The part of this study that you are being invited to participate in involves answering some question as part of an in-depth interview. This study does not pose any risk beyond what you can encounter in your normal daily life. The interview will take between 30 minutes to an hour to complete and will be audio taped.

Anonymity and Confidentiality

I will keep all the information collected in this study confidential. To protect your privacy, I will identify your responses and questionnaire information by a number and not your name. Paper copies of survey information will be kept in a locked room in a locked compartment. Computer copies of data will be stored on a password-protected computer that will also be kept in a safe house. Only members of my study supervisory committee at the University of Prince Edward Island, Canada, and Kenyatta University, Kenya will have access to the information. When I produce the final report, it will not include any information that could be used to identify you individually.

If you want to stop participating in the study at any time before it is completed, your personal information will be treated the same as those who participated in the complete study. It will be kept under lock and key and destroyed after 5 years. However, if you wish, we can destroy your information immediately.

Conflict of Interest

This research is funded through the Queen Elizabeth II Diamond Jubilee Scholarships program and the University of Prince Edward Island (UPEI) in Canada. I am not involved with the project finances.

Participation

Taking part in this study is your choice. You can choose to withdraw from the study at any time. If you would like to withdraw from the study, all you have to do is tell me. You do not need to give any reason for choosing to withdraw. There will be no negative consequences to you if you choose not to participate in this study or choose to not answer any question. When the project is completed, I will visit the XXXX Women's Group and Naari Dairy Group to talk about the study findings.

I will give you a copy of the consent form, once you sign it or give oral consent.

The Research Ethics Board of the University of Prince Edward Island in Canada has reviewed this research project. If you have any concerns about the ethical conduct of the study, please contact the UPEI Research Ethics Board at 000 -1-902-620-5104 or by e-mail at reb@upei.ca

If you have any questions about this research, please contact:**Anne Shileche**

(UPEI Masters student)

Phone +254-790-184250

ashileche@upei.ca

Lucy Kathuri-Ogola (PhD)

Kenyan Supervisor

+254-722-342340

kathuri.lucy@ku.ac.ke

UPEI supervisors:

Charlene VanLeeuwen PhD(c) - cvanleeuwen@upei.ca

John VanLeeuwen (PhD) - jvanleeuwen@upei.ca

Colleen Walton (PhD) – cwalton@upei.ca

Appendix E

Title: Multi-disciplinary Study Abroad Research and Development Project: Impact on Emotional and Civic Engagement Status of Kenyan Women farmers

Interview Consent Form

As a participant in this study you are asked to confirm your consent for the following:

- I understand the material in this letter.
- I give permission for the use of anonymous data I provided in future research conducted by the researcher.
- I understand that my participation is voluntary and that I have the freedom to not participate in this survey. I also have the freedom to choose to not answer any question.
- I give my permission to be contacted in the future to be invited to volunteer to participate in further research. _____ YES _____ NO
- I understand that the information will be confidential within the limits of the law.
- I understand that I can keep a copy of this information letter and consent form.
- I understand that I can contact the UPEI Research Ethics Board at 000 -1-902-620-5104 or by e-mail at reb@upei.ca if I have any concerns about the ethical conduct of the study.

Your signature below confirms that you have understood the information provided about this study, any questions you have were answered, and that you agree to take part in the study.

Participant's name _____

Participant's Signature _____ Date _____

Researcher's Signature _____ Date _____

If you have any concerns or questions about this research, feel free to contact me or my study supervisors, Lucy Kathuri-Ogola, PhD kathuri.lucy@ku.ac.ke, Charlene VanLeeuwen, PhD(c) cvanleeuwen@upei.ca and John VanLeeuwen, PhD jvanleeuwen@upei.ca

Sincerely,

Anne Shileche
Phone +254-790-184250, ashileche@upei.ca

Appendix F
In-depth interview questions

Interviewee ID:	Group:	Date:
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Group

1. How do members in your group relate?
2. What is the acceptable behavior in your group?
3. What are the roles of each member? What activities does your group engage in?
4. Apart from the official group meetings, do you and other group members get together? How often does this happen? For what reasons do you meet?
5. Does your group engage with other groups within this community? How do you interact with them? When? How do you benefit from this interaction?

Intervention

6. What part or parts of this project helped you the most? Can you explain how and why?
7. What aspects of this project were not helpful to you? Can you explain how and why?
8. Can you tell me about your experience working with the Kenyan and Canadian students on this project? Based on your involvement, what do you think worked well? What did not work as well?
9. Did you know that the students are at different levels of their programs? What affect did do you think this had on the project? How
10. What could we do to improve the project?

Emotional empowerment

11. On the survey we completed in May, many women reported to feeling shy expressing themselves most of the time. Could you help me understand some of the reasons for this situation?
12. Women also talked about going through experiences that have been painful to them, could you help me understand some of these scenarios, how they come about and how they cause emotional harm to women?
13. When you started to get involved with this group in your community, what encouraged you and helped build your confidence
14. What helps keep you engaged with this group? Are there new things that get in the way these days? How do you deal with them?

Civic Engagement

15. From the survey, many women report that Naari community is, a little harmonious, becoming aware that things could change, experiencing a little change or working together. Can you tell me why you think this?
16. What social issues are you interested in addressing within your community?
17. What strategies are you using to address these social issues?
18. What factors interfere or hinder you from engaging in social issues in your area?
19. You are already involved with (insert group name), what do you think would help you become more involved with issues in your community?

Appendix G

Title: Multi-disciplinary Study Abroad Research and Development Project: Impact on Emotional and Civic Engagement Status of Kenyan Women farmers

Study Information for Focus Group Participants

Who will be conducting the project?

My name is Anne Shileche and I am a Masters student in the Faculty of Science at the University of Prince Edward Island (UPEI) in Canada. My research is part of a project that aims at improving the cow health, human nutrition, and family livelihoods of small holder farmers in Eastern Kenya through projects focusing on nutrition, food security, and cattle management. This study is supervised by Charlene VanLeeuwen, Dr. John VanLeeuwen, and Dr. Colleen Walton from UPEI, and Dr. Lucy Kathuri-Ogola from Kenyatta University.

Purpose of the study

The study wants to know the impact of this project on decision making within your family and within community groups. I will be investigating the impact of trainings offered to selected members of the Naari Dairy Farmers Cooperative Society and the XXXX Women's Group on their awareness and involvement in social issues within their families and within the Naari community. The part of this study that you are being invited to participate in involves telling us how you think on some selected topics while others will be listening. The group discussion will take about an hour and a half to complete and will be audio taped.

Anonymity and Confidentiality

I will keep all the information collected in this study confidential. To protect your privacy, I will identify your responses and questionnaire information by a number and not your name. Paper copies of survey information will be kept in a locked room in a locked compartment. Computer copies of data will be stored on a password-protected computer that will also be kept in a safe house. Only members of my study supervisory committee at the University of Prince Edward Island, Canada, and Kenyatta University, Kenya will have access to the information. When I produce the final report, it will not include any information that could be used to identify you individually.

If you want to stop participating in the study at any time before it is completed, your personal information will be treated the same as those who participated in the complete study. It will be kept under lock and key and destroyed after 5 years. However, if you wish, we can destroy your information immediately.

Conflict of Interest

This research is funded through the Queen Elizabeth II Diamond Jubilee Scholarships program and the University of Prince Edward Island (UPEI) in Canada. I am not involved with the project finances.

Participation

Taking part in this study is your choice. You can choose to withdraw from the study at any time. If you would like to withdraw from the study, all you have to do is tell me. You do not need to give any reason for choosing to withdraw. There will be no negative consequences to you if you choose not to participate in this study or choose to not answer any question. When the project is completed, I will visit the XXXX Women's Group and Naari Dairy Group to talk about the study findings.

I will give you a copy of the consent form, once you sign it or give oral consent.

The Research Ethics Board of the University of Prince Edward Island in Canada has reviewed this research project. If you have any concerns about the ethical conduct of the study, please contact the UPEI Research Ethics Board at 000 -1-902-620-5104 or by e-mail at reb@upei.ca

If you have any questions about this research, please contact:**Anne Shileche**

(UPEI Masters student)
Phone +254-790-184250
ashileche@upei.ca

Lucy Kathuri-Ogola (PhD)

Kenyan Supervisor
+254-722-342340
kathuri.lucy@ku.ac.ke

UPEI supervisors:

Charlene VanLeeuwen PhD(c) - cvanleeuwen@upei.ca
John VanLeeuwen (PhD) - jvanleeuwen@upei.ca
Colleen Walton (PhD) – cwalton@upei.ca

Appendix H

Title: Multi-disciplinary Study Abroad Research and Development Project: Impact on Emotional and Civic Engagement Status of Kenyan Women farmers

Focus Group Consent Form

As a participant in this study you are asked to confirm your consent for the following:

- I understand the material in this letter.
- I give permission for the use of anonymous data I provided in future research conducted by the researcher.
- I understand that my participation is voluntary and that I have the freedom to not participate in this survey. I also have the freedom to choose to not answer any question.
- I give my permission to be contacted in the future to be invited to volunteer to participate in further research. _____ YES _____ NO
- I understand that the information will be confidential within the limits of the law.
- I understand that I can keep a copy of this information letter and consent form.
- I understand that I can contact the UPEI Research Ethics Board at 000 -1-902-620-5104 or by e-mail at reb@upei.ca if I have any concerns about the ethical conduct of the study.

Your signature below confirms that you have understood the information provided about this study, any questions you have were answered, and that you agree to take part in the study.

Participant’s name _____

Participant’s Signature _____ Date _____

Researcher’s Signature _____ Date _____

If you have any concerns or questions about this research, feel free to contact me or my study supervisors, Lucy Kathuri-Ogola, PhD kathuri.lucy@ku.ac.ke, Charlene VanLeeuwen, PhD(c) cvanleeuwen@upei.ca and John VanLeeuwen, PhD jvanleeuwen@upei.ca

Sincerely,

Anne Shileche
 Phone +254-790-184250 ashileche@upei.ca

Appendix I Focus Group Discussion guide

Group:	Date:
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Part 1: About the intervention (Only for women receiving the Human nutrition & Dairy training)

1. You have been receiving training in human nutrition and dairy herd management. I would like you to help me understand some things about this training.
 - i. What part of this training helped you the most? How?
 - ii. What part of this training was challenging or difficult to understand or implement? How? How did you manage or deal with this situation?
 - iii. How did you feel about the people who were training you? With this kind of arrangement (Kenyan and Canadian students), what worked and didn't work well.
 - iv. What do you think about the project having a mixture of students at different stages of their programs? (can explain they are undergraduate and graduate students if needed)
 - v. How could this project have been more effective for you? What suggestions do you have for us?

Part 2: Evaluation of Barriers and enablers to emotional empowerment and civic engagement

Section A: Emotional empowerment

From the Empowerment and Civic Engagement survey questionnaire we administered to your group, some issues were repeated by several people. We would like you to help us understand these issues.

- i. A good number of participants indicated that they feel shy to speak out on issues within their community. Why do you think this is so?
- ii. Some participants revealed that they did not feel valued/admired by other people? In what way do you or others in your community feel not valued? How does this affect you or others?
- iii. Many participants said they have gone through experiences that have left them with pain. Could you share with us some of the experiences that have been painful to you or others? How have you or others in your community been able to deal with them?
- iv. Many participants strongly felt they needed to make changes to improve their lives. However, only a few were able to do so. What are the major hindrances to making these changes? What could be done by you and members of your community to reduce or remove these hindrances?
- v. Many participants said they are highly involved in learning opportunities. What kind of learning opportunities are you or others involved in? How have members of the community used what they have learned?

- vi. Can you tell us whether the training you have received in this group (how to cook nutritious food) has improved your or others' level of confidence? In what way? What is it you can do now as a result of this training that you or others could not do before?
- vii. What do you think would help you or others become confident/emotionally strong enough to actively participate in your group? Do you have ideas on how this could be done?

Section B: Civic Engagement

On the survey we also asked you to tell us about your community. Most of you stated that your community is less empowered; although there is more talk about development. We would like to ask a few more questions on this.

- i. What key social problems do women see in this community?
- ii. What problems have you or members of your group been involved in addressing? And what strategies have you used? What strategies have been used by other women? Men? Are they working? Why or why not?
- iii. (Ask this question if not mentioned in previous question) Have you been able to address problems concerning nutrition/agriculture within your community? How?
- iv. From the survey, participants indicated that they feel ashamed when they did not participate in community matters/projects. Could you help me understand why they might feel that way?
- v. What factors do you think are hindering women in the community from engaging in social issues/addressing the problems in your community?
- vi. Is there anything else that we have not talked about that you think would help women in the community become more involved with issues in your community?

Caution

Please note that whatever will be said here is confidential and should not be shared with any other person outside this group.

Appendix J

Contributions provided to the Queen Elizabeth II Diamond Jubilee Scholarships (QES) project led by the University of Prince Edward Island (UPEI), and contributed by the QES partners:

This appendix provides details of the contributions of the five main partners associated with the QES project led by UPEI and located in Kenya. The UPEI contributions were partially supported by QES funding (\$499,842). Canadian Queen Elizabeth II Diamond Jubilee Scholarships are managed through a unique partnership of Universities Canada, the Rideau Hall Foundation (RHF), Community Foundations of Canada (CFC) and Canadian universities. This program is made possible with financial support from the Government of Canada, provincial governments and the private sector.

A. University of Prince Edward Island (UPEI) resources provided to the QES project

UPEI is a small but growing university in the province of Prince Edward Island in eastern Canada with a reasonably broad array of tertiary education programs, including programs in the Department of Health Management at the Atlantic Veterinary College, and in the Department of Applied Human Sciences in the Faculty of Science. From 2015 to 2018, UPEI provided the following resources to the QES project. These resources, in conjunction with other resources from other QES project partners, helped to achieve the QES project objectives.

Resources to Naari Dairy Farmers Cooperative Society Ltd. and members

- Training on cattle health management, in general, and in dairy cattle nutrition, reproduction and cow comfort specifically
- Training on cattle health management, medicine and surgery with Naari Dairy veterinary technician
- Arranged for interactions between QES interns and Scholars in Naari and Veterinarians without Borders veterinarians and interns from various locations including Wakulima Dairy
- Motorcycle for Naari Dairy veterinary technician, cost-shared with Naari Dairy
- Veterinary medicine and equipment and bonus for the Naari Dairy veterinary technician
- Leguminous shrub seedlings for augmenting cattle nutrition to Naari Dairy farmers
- Semen and semen storage equipment for Naari Dairy, cost-shared with Naari Dairy
- One silage chopper, cost-shared with Naari Dairy, and silage materials
- Dairy Health Management Handbooks (content)

Resources to Two Naari Women's Groups

- Face-to-face training on family nutrition
- Trained peer-nutrition trainers called “Champs”
- Provided nutrition training resources
- Cell phone text messaging on family nutrition
- Honoraria (maize, beans, cooking oil, cattle dewormer) for members participating in research projects
- Solar lights (with capacity to charge cell phones) to 24 members of a Naari women's group
- Funding for a tree seedling greenhouse and resources to grow leguminous shrub seedlings for augmenting cattle nutrition to Naari Dairy farmers

Resources to nine Naari area schools

- Nutritional quality assessment of school meals
- Reports for schools regarding the nutritional quality assessment of school meals, and recommendations and goal setting for nutritional enhancement of the school meals
- Nutrition education seminars for parents

In addition to these specific funds for the Naari Dairy, two Naari women's groups, and 9 Naari schools, UPEI also funded, either through QES funding or UPEI funding, general project costs.

- Selection of QES Scholars
- Training of QES Scholars and Interns
- Orientation and supervision of QES Scholars and Interns
- Management of the QES project
- Transportation costs to and from Kenya, and in Kenya for QES Scholars, Interns and supervisors
- Accommodation and food costs in Kenya for QES Interns and supervisors
- Living stipend costs in Canada and in Kenya for QES Scholars
- Tuition and other registration fees for QES Scholars

B. Farmers Helping Farmers (FHF) resources provided as part of the QES project

FHF is a Canadian based non-profit organization based in Prince Edward Island with a longstanding presence working with Kenyan farmer groups. From 2015 to 2018, FHF provided the following resources to the QES project. These resources, in conjunction with other resources from other QES project partners, helped to achieve the QES project objectives.

Resources to Naari Dairy Farmers Cooperative Society Ltd. and members

- Regular training on milk quality and milk production by FHF staff : Stephen Chandi and Leah Kariuki
- Training on bookkeeping with Dairy directors and groups
- Arranged for guidance from Wakulima Dairy on setting up a Savings and Credit Cooperative (SACCO)
- Two silage choppers, cost-shared with Naari Dairy
- Computers and printer to prepare monthly income statements for members of Naari Dairy
- Funds for a revolving cow loan program to lend money for a cow to needy youth and women
- Dairy Health Management Handbooks (content and printing)

Resources to Two Naari Women's Groups

- Horticultural extension support including:
 - Training on how to install and manage drip irrigation
 - Training in composting and soil tillage
 - Training in the use of recommended inputs, including establishing a small nursery to grow seedlings
 - Training in disease and insect control, etc. in gardens
- Training in book-keeping and provided book-keeping booklets
- Dairy production extension support from Leah Kariuki and Stephen Chandi, including agronomy and milk quality
- Water tanks, drip irrigation & inputs for a vegetable garden for 45 women's farms
- Solar lights (with capacity to charge cell phones) for 35 members of a women's group in the Naari area

Resources to Naari area schools

FHF has established healthy school lunch programs at each of the following schools. School vegetable gardens and water tanks were funded and installed by FHF. Horticultural supports were provided by FHF staff in Kenya. With maize and beans from parents with children attending the school, and food from the school garden, lunches were prepared in a new cookhouse. The cookhouse and a gardener were funded by the Souris Village Feast in PEI.

2015	Muuti-O Thunguri Primary School
2016	Kiirua Primary School
2017	Michaka Primary School
2018	Muruguma Primary School Nkando Primary School Ndunyu Primary School Rugatene Primary School

In addition to these specific funds for the Naari Dairy, two Naari women's groups, and 7 Naari schools, FHF also assisted in:

- Selection of QES Scholars and Interns
- Training of QES Scholars and Interns
- Orientation and supervision of QES Scholars and Interns
- Management of the QES project
- Transportation costs in Kenya for QES Scholars, Interns and supervisors

C. Naari Dairy Farmers Cooperative Society (NDFCS) resources provided for the QES project

NDFCS is a cooperative located in Naari within Meru County of Kenya. It purchases milk from cooperative members, and sells the milk either retail or to a processor, either chilled or not chilled. From 2015 to 2018, NDFCS provided the following resources to the QES project. These resources, in conjunction with other resources from other QES project partners, helped to achieve the QES project objectives.

- Orientation and supervision of QES Scholars and Interns
- Providing board members to help locate farms
- Training of QES Interns
- Management of the QES project
- Training of farmer members on cattle health management, medicine and surgery, through the veterinary technician
- Cost-sharing of the motorcycle for the veterinary technician
- Cost-sharing of semen and semen storage equipment and silage choppers

D. University of Nairobi (UoN) resources provided for the QES project

UoN is a large university in Nairobi, Kenya, with a broad array of tertiary education programs, including veterinary medicine in the Faculty of Veterinary Medicine. From 2015 to 2018, UoN provided the following resources to the QES project. These resources, in conjunction with other resources from other QES project partners, helped to achieve the QES project objectives.

- Selection of QES Scholars
- Training of QES Scholars and Interns
- Orientation and supervision of QES Scholars and Interns
- Management of the QES project

E. Kenyatta University (KU) resources provided for the QES project

KU is a large university in Nairobi, Kenya, with a broad array of tertiary education programs, including programs in the Department of Community Resource Management and in the Department of Foods and Nutrition, both in the School of Applied Human Sciences. From 2016 to 2018, KU provided the following resources to the QES project. These resources, in conjunction with other resources from other QES project partners, helped to achieve the QES project objectives.

- Selection of QES Scholars
- Training of QES Scholars and Interns
- Orientation and supervision of QES Scholars and Interns
- Management of the QES project