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# The Impact of Experiential Learning Overseas on Kenyan Women Farmers

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**Abstract**

A multipartner agricultural and nutrition project was implemented in Kenya between 2015 and 2018. This study examined the impact of the international learning and research project on the emotional and civic engagement status of 43 Kenyan women farmers receiving agricultural and nutrition interventions, comparing this group to a control group. Some project women experienced higher emotional worthlessness in the short term but less worry in the long term in comparison to the control group women. Project women also had higher overall civic engagement levels after the 3-year project compared to the control group women. Our results demonstrate that experiential learning has advantages and disadvantages for overseas communities. For community benefits, research and learning projects should be a partnership with community members.

*Keywords: civic engagement, emotional well-being, experiential learning abroad, postintervention evaluation, smallholder farmers*

International students are individuals who study outside their own countries (Forum on Education Abroad, 2020). Research has shown studying abroad to be an effective tool in developing students' abilities to live and work in a diverse society (McLeod et al., 2015). Types of study abroad program (SAP) include field study, integrated university study, and travel tour. Most SAPs are short term, running 8 weeks or less (Institute of International Education [IIE], 2011) with many using service-learning as a primary pedagogical approach (Hovey & Weinberg, 2009). Service-learning enables student learning through community engagement and has been thought to extend benefits beyond the academic group into the host community (Bringle & Hatcher, 2011; Fisher & Grettenberger, 2015). Students are connected to host country service agencies and are engaged in tasks that allow them to operate in the real world where they apply learned theory to practice (Ash & Clayton, 2009).

Despite increasing emphasis on study abroad partnerships between faculty, students, and host communities for effective learning (Bringle & Hatcher, 2011), research has primarily focused on the traveling students (Engberg & Jourian, 2015; Jackson, 2015; Jacobone & Moro, 2015; McLeod et al., 2015). In comparison, very little literature examines the impact of SAP on host communities (Cruz & Giles, 2000; Wood et al., 2011; Tiessen & Herron, 2012), and even fewer studies investigate the use of research-based models for SAP (e.g., McMillan & Stanton, 2014). It is paramount to shift perspectives toward assessing the impact of research-based learning abroad on both traveling students and host communities to provide stakeholders with insights to create culturally acceptable and mutually benefiting collaborations.

## Literature Review

### Trends in Study Abroad Programs

Programs that facilitate international learning experiences for students are on the increase in the Global North and include internships, field research, service-learning, and volunteer placements (MacDonald & Tiessen, 2018). In Canada, over 95% of post-secondary institutions provide study abroad opportunities (AUCC, 2014). Moreover, a higher percentage of these programs are encouraging and offering learning opportunities in the Global South (Tiessen, Roy, et al., 2018). The IIE reported that the number of American students seeking learning experiences in Africa and Asia had increased by 18% and 17% respectively in a span of 20 years, from 1988 to 2008. Most SAPs are service based and last 8 or fewer weeks (IIE, 2011). Service-learning involves learning through community engagement and reflections linking classroom knowledge to real-world experiences (Bringle & Hatcher, 2011). Two reasons for increased use of service-learning in international education are that (1) it enhances the effectiveness of short-term programs and (2) it extends benefits beyond the academic group into the community in which it occurs (Bringle & Hatcher, 2011; Fisher & Grettenberger, 2015). International learning programs are facilitated by existing strategic partnerships between providers of international education and service agencies. Service agencies assist with entry, placement, and engagement of students in host communities (Bringle & Hatcher, 2011). Noting the scarcity of research-based SAP models (e.g., McMillan & Stanton, 2014), we endeavored to contribute toward this section of the field.

### Study Abroad Program Outcomes

Studies on the impact of international education have dwelled more on the traveling students than other partners (Engberg & Jourian, 2015; McLeod et al., 2015). Findings of high levels of emotional well-being/empowerment, such as satisfaction with life and increased confidence, have been reported among experiential learning abroad students (Engberg & Jourian, 2015). Likewise, high levels of emotional distress/disempowerment (e.g., anxiety) among the same groups of students have been noted by Poulakis et al. (2017). Furthermore, international education experiences have been shown to correlate positively with students' civic awareness and engagement (Rui, 2013). This engagement can take the form of participation in local and international communities, for example, through volunteerism, social entrepreneurship, and social activism (Paige et al., 2009). These findings may be explained by students gaining intercultural competence and awareness through knowledge exchange (McLeod & Wainwright, 2009).

Studies of the impacts on partner organizations and communities are less frequent (Fisher & Grettenberger, 2015; Maakrun, 2016). Assessment tools, such as the Global Perspective Inventory, the Global Awareness Profile, and the Cross-cultural Adaptability Inventory, are designed to collect data on students and faculty (West, 2015). However, the type of questions, the level of thinking required, and the language used within these instruments are not always applicable to host communities. For example, to measure the impact of their global health service-learning program on a group of Mexican traditional birth attendants, American students created a pilot assessment tool that was more suitable for their context (Friedman et al., 2016). Although this and other studies (e.g., Lau et al., 2021; Tibbetts & Leeper, 2016; Tiessen & Heron, 2012) have tried to highlight effects of international learning and volunteer programs on host community members and organizations, few have assessed changes in emotional and civic engagement status of participating community members. One study involving university students and a community organization in Chicago reported an increase in voter registration for host community members (d'Arlach et al., 2009); however, this study did not involve international students. Although Hernandez and Rerrie (2018) found that the experience of hosting international students helped Nicaraguan women participants to improve their self-esteem, they did not measure any civic engagement changes. Given these shortcomings, we sought to document the emotional and civic engagement levels of Kenyan women farmers involved in a Kenyan–Canadian research-based learning project.

Our study addressed the challenge of measuring community outcomes in an international education project with multiple community partnerships. Researchers from a Kenyan university and a Canadian university reviewed research questions to ensure

they met both scientific and cultural standards. Additionally, pretesting allowed the host community members to fine-tune the questionnaire to their satisfaction, thereby modifying the validated tool for applicability to the host community. We conceptualized that study abroad programs that are mutually collaborative can be empowering to members of the host community. For example, colearning deepens student and community member encounters; while residents deliver crucial indigenous knowledge, they also learn new and valuable information (Friedman et al., 2016; Tibbetts & Leeper, 2016). Adding new ideas, skills, and materials to existing knowledge and lived experiences can enhance the confidence and capacity of host community members to deal with existing and new challenges.

## International Experiential Learning: Opportunities and Challenges

Actions of individuals and nations in one part of the world are now potentially influencing people on other continents, affecting conditions such as war, immigration, and poverty (Bringle & Hatcher, 2011). Studying abroad is said to develop global competency: attitudes, knowledge, and skills that enable one to deal with emerging and challenging societal problems at home and abroad. Due to this anticipation, universities and colleges are making international education a priority (Jackson, 2015). Nonetheless, concerns remain around how SAPs are designed and implemented, as well as their actual impacts. For example, in her analysis, Grantham (2018) concluded that a majority of SAPs run by Canadian universities contribute little to long-lasting global social change, possibly because SAPs mostly serve as a marketing tool to increase student enrollment and revenue rather than being designed with consideration for the actual experience.

Ethically, international learning experiences should endeavor to create mutual and sustainable benefits. To meet such a standard, leaders need to bring stakeholders on board to agree on the purpose and expectations of such programs (Karim-Haji et al., 2016). Tiessen, Lough, & Cheung, 2018 noted that partner organizations and communities in the Global South are normally excluded from deciding which students from the Global North can fit and meaningfully contribute to their missions. These researchers further suggest that such power imbalances may promote damaging notions of imperialism for Northerners and salvation for Southerners.

Our project was keen to avoid portraying such unfavorable ideas by emphasizing the vital role that host partner organizations and community members play in transforming their society. Our learning and development research project sought to add value to existing socioeconomic initiatives in the Naari community. For example, Naari Dairy Farmers Co-operative Society provides livelihood opportunities to about 500 small-scale dairy farmers through the sale of their milk. We provided field-based training on health and management of cattle to increase milk production among Naari farmers. Likewise, two locally organized groups were part of the project. Kenyan women use such groups to access resources such as micro-credit loans 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. We leveraged these organized women's spaces to improve family nutrition through kitchen gardening activities. Trainings were conducted jointly by Kenyan and Canadian veterinary/agrochemist/nutrition professionals and students. Having Kenyan professionals and students in the project ensured that technical knowledge and skills were relevant to the local context and culture and able to remain within the community for the long run.

Finally, a rather common challenge of experiential learning abroad has to do with scarcity of resources. Limited resources in the form of time and money mean that some students do not participate or opt for short-term foreign study experiences while denying host communities meaningful and sustainable benefits (Grantham, 2018).

### Canadian Queen Elizabeth II Diamond Jubilee Scholarship Program

The Queen Elizabeth II Diamond Jubilee Scholarship (QES) program mobilizes young global leaders for positive community change through international education (https://queenelizabethscholars.ca). QES funded a multipartner, multidisciplinary study abroad project that 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. The

project also involved five Kenyan partners: Kenyatta University, University of Nairobi, Naari Dairy Farmers Co-operative Society (ND), and two women's groups located in the ND area of Eastern Kenya. Over the course of 4 years (2015–2018), the project sought to improve and sustain smallholder family nutrition and horticultural and dairy farming in Eastern Kenya through practical evidence-based best practices.

The UPEI QES 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. After completing one academic year at UPEI, Kenyan graduate students spent 18 months (doctoral) and 3 months (master's) in the Naari community engaged in training and research focused on how and why to prepare healthy meals and how to feed, breed, and provide comfort for cows. Canadian undergraduate students were in Kenya for 90-day internships and worked with Kenyan graduate students to educate farmers and collect data. Students assessed the impact of training and interventions on cow nutrition, reproduction, and comfort; human food security and diet diversity; and nutrition knowledge, attitudes, and practices. In addition, two students assessed the use of traditional face-to-face training compared to integrated face-to-face and cell phone training methods for improving human nutrition and cattle management.

### Purpose

The purpose of this article was to investigate the impact of a research-based learning project on selected women farmers in Naari, Eastern Kenya. We hypothesized that the project would contribute to the emotional empowerment and increased civic engagement levels of participating farmers. This study sought to answer the following question: What is the impact of a research-based learning project on the emotional and civic engagement status of selected farmer members of one of the two women's groups and Naari Dairy Farmers Cooperative Society compared with a control group of farmers not directly engaged with the same project?

The study conceptualized emotional status as the level of feelings reported to be encountered by people in various aspects of life (Diener & Ryan, 2009). Civic engagement is defined as the participation of individuals in community matters and measured in terms of low, medium, and high levels (Putnam, 2000).

## Methods

### Participants and Sampling

There were 30 and 100 members in the selected women's group and the ND, respectively, who were involved in QES project interventions. The women's group farmers were involved in a horticulture and human nutrition intervention, and the ND farmers were involved in a dairy cattle management intervention. Random sampling was used to select 20 female participants from each of the women's group and ND sampling frames. A control group of 20 women was drawn randomly from a group of 300 farmers from the ND who were not involved in other parts of the research project and met the eligibility criteria for the study, namely: (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).

### Measurement Tools

Two measurement tools were used for emotional assessments. The Growth Empowerment Measure (GEM; Haswell et al., 2010) is a validated tool that was designed to measure the processes and outcomes of social and emotional empowerment among the Indigenous Australian population. Within the GEM, the Emotional Empowerment Scale (EES14) explores how people feel about themselves most of the time (mostly positive attributes). The GEM encompasses 14 dimensions of emotional well-being: knowledgeable, skillful, body strength, happy, having opportunities, valued, voice or ability to express self, belonging, hopeful, shame, caring, worried about current life, fear of future, and feeling angry. These dimensions are measured on a five-point scale; a score of 1 represents negative responses, and a score of 5 represents positive responses.

The Kessler Distress Scale (K6; Kessler & Mroczek, 1992) is used to measure an individual's emotional distress/disempowerment (negative attributes). The six questions on the Kessler scale ask how often

the respondent was feeling sad, nervous, restless, hopeless, everything was an effort (struggling), and worthless. K6 uses a Likert scale with responses of *none of the time*, *a little of the time*, *some of the time*, *most of the time*, and *all of the time* for measurement.

For our purposes, the EES14 and K6 questions were both incorporated into our assessments since they were measuring somewhat similar attributes (e.g., sad versus happy), but with a different focus. We also wanted to ask questions related to attributes during the last month (potentially reflecting cumulative benefits currently felt from the 3 years of the project) versus during the last 3 years (potentially reflecting their overall situation during the entire duration of the project). Therefore, participants were asked to recall their emotional status over the last one month (K6) and the last 3 years (EES14) of the project. The questions were translated into the native Kiswahili and Kimeru languages in order that participants would comprehend the questions (both languages were used in this part of Kenya). Questions were reduced to key sentences and words to minimize confusion with the translation. For example, the questions asked how often the respondents were feeling each of the attributes since that wording was felt to be easier to understand than the EES14 wording. Likert responses, specifically *never*, *slightly*, *somewhat*, *moderately*, and *extremely*, were used with both the EES14 and K6 questions for consistency.

The Civic Engagement Tool was developed by the study researchers and was based on questions from three other studies. Ketter et al. (2002) and Putnam (2000) conducted surveys to capture citizen engagement in America using some of the following indicators: service volunteering, fund raising for nonprofit organizations, voting, contacting elected leaders and the media, protesting, participation in voluntary associations (e.g., school), working for political parties, attending public meetings, and signing petitions. Ombaka (2013) measured civic engagement in a Kenyan context by collecting data on membership and involvement of Kenyan university students in voluntary associations. Based on the above civic engagement measures, our study assessed current participation in the community compared to 3 years ago (before the project started), regarding the following specific factors: overall civic engagement (e.g., how involved they are in various volunteer sectors in Naari), community meeting attendance, speaking in community meetings, volunteerism in public schools, volunteerism in public health programs, participation in Naari Dairy Farmers Co-operative Society, engagement in leadership roles, money donations to charity events/organizations, fund raising for charity events, and voting in national elections. Possible responses to the questions included "never," "less than 3 years ago," "same as 3 years ago," and "more than 3 years ago." Finally, demographic questions on age, education, marital status, income, income control, and group membership were included in the survey questionnaire to understand the study population and to ensure that these factors were considered in the results.

Authors from a Kenyan university and a Canadian university reviewed the research questions to ensure they met both scientific and cultural standards. Additionally, pretesting allowed the host community members to fine-tune the questionnaire to their satisfaction, thereby modifying the validated tool for applicability to the host community.

### Data Collection Procedure

The study was approved by UPEI's Research Ethics Board. After the study was explained to potential participants, their written consent was obtained to voluntarily take part in the research. Data collection was carried out between May and July 2017 in Naari, Meru County, Kenya. Data were collected using an open-ended survey questionnaire, which was administered to each of the 63 selected women. A female translator accompanied the researcher to participants' homes for the interviews. The translator was chosen based on her knowledge of the native Kimeru language and Naari location, and her excellent familiarity with research group participants. Survey questions were delivered orally in Kiswahili, the national language, or Kimeru, the native language, and responses were recorded by the researcher on the print copy of the questionnaire.

### Data Analysis

The modifications to the EES14 and K6 questions for translation and coherence within our population would challenge the validity of the GEM tool, making problematic the combined analyses as a coherent scale as performed in other research (Haswell et al., 2010; Kinchin et al., 2015). As a result, the EES14 and K6 variables were analyzed as individual items of emotional status. Survey

data were entered into Epidata software in duplicate and compared for inconsistencies. The final corrected copy of the data was imported to Statistical Analysis System (SAS) and STATA for analysis. SAS was used to compute the descriptive statistics, including averages and standard deviations for continuous variables, and frequencies and proportions for categorical variables.

During the descriptive and inferential statistical analysis, groups and categories of variables were sometimes collapsed in a systematic manner and based on intuitive plausibility. This collapsing was performed to assist with the description of the results and to increase the power to detect significant differences between groups. STATA was used to perform inferential statistics and modeling. For inferential statistics, a chi-squared 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). A $p$-value < .05 was used to establish significant differences or associations. For the emotional status and civic engagement outcome variables with statistically significant differences between groups, forward stepwise multivariable logistic regressions were conducted to determine whether demographic factors might be partly or completely responsible for the observed relationships between the outcome variables and the factors of interest (i.e., acting as confounders).

## Results

### Demographic Status of Participants

Out of the 63 participants surveyed, 38% were between the ages of 46 and 55 years (Table 1). Many of the participants (52%) had completed a primary level education; however, few participants had attained postsecondary education. Many participants in the study (44%) were earning at or below 5,000 Kenyan shillings (KES) or $62 Canadian per month. Out of the 52 participants who were selling milk within the Naari locality, 42% had a lot of control over the income they generated. Over three quarters of all participants (87%) belonged to more than one community group. There were no significant differences ($p$-value > .2) in participant demographics between groups.

### Levels of Emotional Distress (K6) Over the Last One Month

A good number of participants were not at all feeling nervous (48%), restless (40%), hopeless (56%), or worthless (57%). Only 25% and 22% never felt sad or struggling, respectively, with nearly a third of participants (29%) feeling somewhat, moderately, or extremely sad. Over a third (35%) of participants felt they had somewhat, moderate, or extreme struggles with life.

Level of worthlessness as a distressful emotion was statistically significantly different between the combined intervention group (nutrition and dairy groups) and the control group when data were collapsed in the following ways. The dairy and nutrition groups were collapsed together because participants in these groups received project interventions. 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 combined intervention group (81%) were feeling slightly, somewhat, moderately, or extremely worthless in the last one month compared to participants in the control group (19%; $p$ = .05).

In the multivariable logistic regression model for factors associated with feeling worthless, membership in community groups was a confounder of group status, and "marginally" associated with feelings of worthlessness ($p$ = .09). Participants who belonged to two or more community groups had 4.5 times higher odds of feeling slightly, somewhat, moderately, or extremely worthless in the last one month compared to those who were in a single community group. No other demographic variables were significant in the final model. Therefore, after controlling for membership in community groups, the nutrition group remained significantly associated (odds ratio = 3.1) with feelings of worthlessness in the last month, and this result was not a function of community group memberships or differences in the demographics examined. There was no significant interaction between the group variable and membership in community groups. Pseudo $R^2$ for this model was .094, indicating 9.4% of variation was explained by the model variables. All other variables on the K6 emotional distress scale (in the last 1 month) were not significantly different between study groups, and therefore

**Table 1. Demographics and Socioeconomic Status of Participants**

| Demographic variables | Groups | | | Total Population (n=63) *N* (%) |
|---|---|---|---|---|
| | Nutrition (n=23) *N* (%) | Dairy (n=20) *N* (%) | Control (n=20) *N* (%) | |
| **Age** | | | | |
| < 25 years | 0 | 0 | 0 | 0 |
| 26 – 35 years | 1 (4%) | 2 (10%) | 1 (5%) | 4 (6%) |
| 36 – 45 years | 7 (31%) | 4 (20%) | 6 (30%) | 17 (27%) |
| 46 – 55 years | 9 (39%) | 6 (30%) | 9 (45%) | 24 (38%) |
| > 55 years | 6 (26%) | 8 (40%) | 4 (20%) | 18 (29%) |
| **Education** | | | | |
| None | 3 (13%) | 1 (5%) | 1 (5%) | 5 (8%) |
| Primary | 14 (61%) | 10 (50%) | 9 (45%) | 33 (52%) |
| Secondary | 6 (26%) | 7 (35%) | 7 (35%) | 20 (31%) |
| College | 0 | 1 (5%) | 2 (10%) | 3 (5%) |
| University | 0 | 1 (5%) | 1 (5%) | 2 (3%) |
| **Monthly income (KES)** | | | | |
| ≤ 5000 | 16 (70%) | 6 (30%) | 6 (30%) | 28 (44%) |
| 6000 – 10,000 | 4 (18%) | 6 (30%) | 7 (35%) | 17 (27%) |
| 11,000 – 15,000 | 1 (4%) | 4 (20%) | 2 (10%) | 7 (11%) |
| 16,000 – 20,000 | 1 (4%) | 2 (10%) | 3 (15%) | 6 (10%) |
| ≥ 21,000 | 1 (4%) | 2 (10%) | 2 (10%) | 5 (8%) |
| **Control of dairy income** | | | | |
| A lot | 7 (58%) | 9 (45%) | 6 (30%) | 22 (42%) |
| Quite a bit | 2 (17%) | 7 (35%) | 6 (30%) | 15 (29%) |
| A little | 1 (8%) | 3 (15%) | 6 (30%) | 10 (19%) |
| None | 2 (17%) | 1 (5%) | 2 (10%) | 5 (10%) |
| **Group membership** | | | | |
| Study group and other community groups in Naari | 19 (83%) | 18 (90%) | 18 (90%) | 55 (87%) |
| Only study group | 4 (17%) | 2 (10%) | 2 (10%) | 8 (13%) |

*Note.* $^{*}p \leq .05$; $^{**}p \leq .01$; $^{***}p \leq .001$

no multivariable regression analyses were conducted on them.

### Levels of Emotional Empowerment Over the Last 3 Years

In the last 3 years, over 75% of women participants felt moderately or extremely hopeful. Two thirds of the participants felt "never able" to deal with anger. Many participants felt at least somewhat knowledgeable (72%), valued (90%), caring (83%), skilled (72%), body strength (61%), happy (92%), belonging (85%), and having opportunities (71%). 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%).

Feelings of worry showed a statistically

significant ($p < .05$) difference among study groups when data were collapsed into a combined intervention group (combining nutrition and dairy groups) and compared to the control group. Also, for this association, participants who indicated feeling no worry or slightly worried were combined, and those who indicated feeling somewhat, moderately, or extremely worried over the last 3 years were combined as well. Participants in the combined intervention group were significantly less likely to have felt somewhat, moderately, or extremely worried most of the time in the last 3 years (53%) compared to the control group (85%; $p = .02$). 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 community groups did not account for observed differences in this worry outcome between the combined intervention group and control group.

All other variables on the emotional empowerment scale (in the last 3 years) were not significantly different between study groups, and therefore no multivariable regression analyses were conducted on them.

### Current Civic Engagement Levels Versus 3 Years Ago

From a descriptive perspective, the overall civic engagement increased over the last 3 years (2017 vs. 2014) for nearly two thirds of women participants in the Naari community. However, there were variations in how participants engaged within specific aspects of the community life. A high proportion of participants (62%) were donating money more often in 2017 than they did in 2014. Volunteering in fund raising events increased over the 3 years (33% volunteered more often compared to 14% volunteering less often), as did volunteering in school programs (27% volunteered more often compared to 10% volunteering less often). Voting slightly improved (14% voted more often in 2017 than 2014, with the rest being the same), but 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.

For inferential statistical analyses, data for the nutrition group and dairy group were collapsed into a combined intervention group versus the control group, and participants who indicated engaging "less than" or "same as" 3 years ago were combined and compared with those indicating engagement "more than" 3 years ago. A higher proportion of participants in the combined intervention group were more civically engaged overall than 3 years ago compared with the control group ($p < .05$).

In the multivariable logistic regression model for factors associated with overall civic engagement (Table 2), group affiliation (combined intervention group vs. control group), age (<36 years, 36–55 years, and >55 years), and control of dairy income (high vs. low) were found to remain significantly associated in the final model. The odds of young participants (less than 36 years of age) and middle-aged participants (36 to 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 (*OR*) for participants <36 years old ($OR = 33$) and 36 to 55 years old ($OR = 11$), their wide confidence intervals (3.57–308.99 and 1.65–78.07) from the small sample size indicated no statistically significant difference between these two age groups with respect to overall 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. Income levels, education levels, and membership in community groups were not significantly associated with overall civic engagement. Therefore, participants in the 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 between the group variable and age or income control. Pseudo $R^2$ for this model was .315, indicating 31.5% of variation was explained by the model variables.

## Discussion and Conclusions

The QES study abroad project engaged university students in community education and research. The dairy, horticulture, and human nutrition projects involved practical livelihood-based management interventions

**Table 2. Final Logistic Regression Model**

| Variable | Odds ratio | P-value | 95% CI |
|---|---|---|---|
| Combine intervention group | 12.13 | 0.005 | 2.10–70.14 |
| Age | | | |
| Age 1 (<36 yrs.) | 33.23 | 0.002 | 3.57–308.99 |
| Age 2 (36-55 yrs.) | 11.36 | 0.013 | 1.65–78.07 |
| Age 3 (>55 yrs.) | Reference | Reference | Reference |
| Low-income control | 5.41 | 0.041 | 1.07–27.37 |

*Note.* 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.

with members of the Naari community with positive findings, such as (1) reduced food insecurity and improved nutrition knowledge, attitudes, and diet diversity and (2) improved dairy nutrition, reproduction, and cow comfort (Kathambi et al., 2019; Makau, 2019; Muraya, 2019; Muthee, 2018; Wanjohi, 2018). Looking beyond direct impacts, we found that these research projects appeared to have positive and negative effects on the emotional and civic engagement levels of participating Kenyan women farmers in the long and short term.

The literature on service-learning yielded some studies that assessed impacts on host communities but without looking at indirect outcomes such as emotional and civic engagement (Doughty, 2020; Keneisha, 2014; Lau et al., 2021). Although two other studies were found to have incorporated some elements of personal well-being and community engagement, these outcomes were being measured among participating ISL students and not host community members (Chan et al., 2021; Vučković et al., 2021).

Our search did not yield studies reporting the impact of international research-based learning projects on community members specifically regarding emotional and civic engagement areas. As a result, we are left to compare results with a local service-based learning project that paired university students and Latino immigrants in Chicago (d'Arlach et al., 2009). Their findings show that in the beginning, some Latino immigrants seemed to feel ridiculed by some students due to their marginalized status; however, toward the end of the project, Latino community members felt more trusting of students. Also, during the program, Latino community members felt worthy of having something to teach students. Finally, more Latino community participants registered to vote due to increased awareness and problem-solving techniques. Our findings parallel those of d'Arlach et al. in that Kenyan participants experienced higher levels of emotional distress, specifically feeling more worthless in the short term (last month), whereas the same participants experienced emotional empowerment, particularly feeling less worried in the long term (over 3 years), when compared to the control group. Furthermore, project participants were found to have increased their overall civic engagement levels over the 3-year project timeline and when compared to the control group. We speculate that the inability to implement some of the QES project training could have increased our participants' feelings of worthlessness in the short term. 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 also be contributing to feelings of worthlessness in the short term. However, 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.

Regarding civic engagement status, we think 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. An important discovery of ours is that the emotional and civic engagement results in our study seemed to be highly influenced by the sociocultural status of participating women. This finding disagrees with d'Arlach et al.

(2009), who attributed feelings of emotional distress experienced by Latino immigrants to participating non-Latino university students. Our data and some field observations showed that women participants welcomed partnership with students; they were happy to learn from students, and equally happy to teach them about their culture, their indigenous knowledge and lived experiences. In addition, our QES project was designed to promote mutual interactions and benefits between students and host community members.

One strategy enhancing success in our project was to partner with community groups with a history of prior partnership, leading to an environment of existing rapport and trust. In 2014, FHF started collaborating with Naari Dairy Farmers Co-operative Society and the two women's groups to improve their members' family income through agricultural education and resources. 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. The study farmers were very receptive to this new information and expressed their willingness to learn more about horticulture and management of cattle and human nutrition, leading to the successful proposal that funded this QES project.

A second successful strategy was to have Kenyan and Canadian students work together. With Kenyans taking the lead in the field on the implementation, the research projects appeared to be more culturally sensitive and suitable, an approach that Tiessen, Lough, & Cheung, 2018 have recommended. Also, we found our cross-cultural student research team to be effective in saving time needed for research projects. In the period that Kenyan students undertook their courses at UPEI, they interacted with selected QES Canadian undergraduate students and oriented them on the community in Meru, Kenya. This intercultural learning reduced the need for preparatory courses, as was the case in the South African research project run by Stanford University where students took a spring seminar course to prepare and learn about Cape Town community organizations before their research (McMillan & Stanton, 2014). We noted that the nutrition and veterinary students involved in our program were well matched to the needs of this agricultural community.

It is paramount for program administrators to have a thorough understanding of host community systems, including cultural, social, economic, and political systems, so that they can tailor the experiential learning and research to the community to benefit both students and the local members. Also, our work shows that for study abroad programs to be truly community-based, the relationship between the program administrators and the host community should be a partnership to allow the fair sharing of resources and responsibility for a successful program. For instance, the QES project worked with Naari community organizations and resource persons (e.g., veterinary doctors, nutritionists, agrochemists, and translators) who contributed their knowledge, time, and material for the success of the project. This study is breaking ground in highlighting what happens to community members, particularly women, when they get involved in research-based study abroad projects, and we recommend further study.

**Limitations and Future Research**

Several factors will limit the generalizability of results from this study. The small sample size of this study limited its representativeness and the use of certain statistical procedures; consequently, results need to be interpreted with caution. Translation of the survey questionnaire between three different languages could potentially have resulted in less clear and valid responses. However, efforts were made to ensure that 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 analysis processes as those performed 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 whether significant differences existed between groups, which is similar to how the GEM data have been analyzed (Kinchin et al., 2015). No significant differences were found between groups. We also similarly

tabulated scores for the Civic Engagement Tool, and again no significant differences were found between groups.

We note that the emotional empowerment questions were answered retrospectively (over the 3-year project training), which could have posed recall challenges for participants. Therefore, the study responses with a 3-year time frame should be interpreted with some caution. Ideally, the same questions would be asked at the start and end of the 3 years, and then compared; however, that was not possible for this study for logistical reasons.

Findings from this study lead to several suggestions on future research. First, subsequent investigations should be conducted with a larger sample size to make conclusions more internally and externally valid. Second, a similar study with male respondents should be conducted to enable comparisons with the female participants' practices and attitudes in this study. Investigations of community impacts should be carried out on other projects that promote learning and research abroad to corroborate the results from this study, as should testing of other study theoretical frameworks and assumptions in an entirely different environment. Lastly, researchers could consider a purely qualitative research project to explore the impact of study abroad programs on community groups.

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