The *Journal of International Agricultural and Extension Education (JIAEE)* is the official refereed publication of the Association for International Agricultural and Extension Education (AIAEE). The purpose of the *JIAEE* is to enhance the research and knowledge base of agricultural and extension education from an international perspective. Acceptance rates for the past five volumes are: Volume 20 = 21%. Volume 21 = 13%. Volume 22 = 18%. Volume 23 = 12%. Volume 24 = 18%. Volume 25 = 9%.

Articles intended for publication should focus on international agricultural education and/or international extension education. Articles should relate to current or emerging issues, cite appropriate literature, and develop implications for international agricultural and extension education. *Manuscripts, or portions of manuscripts, must not have been published or be under consideration for publication by another journal.*

For publication in the *JIAEE*, manuscripts must pass the *JIAEE’s double blind, referee process*, where peer reviewers evaluate manuscript content and ensure readability. Reviewers are selected from the AIAEE membership. In the double blind, referee process, all references to authors are removed before the manuscript is sent to reviewers. Articles may be submitted for peer review a total of *three times* before they are no longer acceptable for publication in the *JIAEE*. Failure to meet the submission formatting guidelines will result in an automatic first rejection.

Two different types of articles are solicited for the *JIAEE*: Feature Articles and Research Notes.

**Feature Article**

A Feature Article should focus on philosophy, current or emerging issues, and the methodology and practical application of specific research and appropriate technologies, which have implications for developed and developing countries. Conceptual/Theoretical and Methodological manuscripts are also encouraged as submission for feature articles. If applicable, a feature article should report the findings from a fully investigated study. Feature articles are *no longer than 20 double-spaced pages, excluding references.*

**Research Note**

A Research Note is a concise but complete description of a limited investigation that will not be included in a later manuscript. It serves one of the following purposes: (1) presents initial proof-of-concept results on new ideas or program evaluations, timely issues, or innovative approaches; (2) reports replications or extensions of previously published research that does not merit another full-length manuscript yet provides results that contribute to a greater understanding of the phenomena under study. Research Notes are *no longer than 10 double-spaced pages, excluding references.*
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From the Executive Editor

In a song written by the Beach Boys titled “Summer in Paradise,” part of the first verse goes like this:

Paradise is a state of mind
Where mother nature nurtures and man is kind
We need a change now wouldn't it be nice
If we could bring back summer
Get us back our summer
Summer in paradise

Has the summer already flown by? As I have been compiling our August issue for the JIAEE, it occurred to me that this summer has disappeared faster than any one prior. For those of us who are excited about new beginnings (and who run by the academic semester clock) the event of the fall and ending of summer is a good one. For those of us who look forward to less scheduled meetings, more time to work on personal projects, and extra time spent with kids and family, the end of summer and advent of fall is bittersweet. Regardless, for many of us, we are staring into the beginning of a new year. This allows us to start new projects, begin new collaborations, and brainstorm novel ideas for courses, programming and projects. Let’s see what new ideas can come out of August’s collection of articles.

This issue we have a total of ten articles. We begin with a Research Note focused on appreciative evaluation. This innovative technique builds on an organization’s or community’s strengths rather than their weaknesses, through the lens of evaluation. In this article, extension professionals share how they view the role of this method within their own programming.

Within the Feature Research articles, we have a variety of foci and topics covered. We have two different sets of articles focused in the same geographic area. To begin, two of our articles focus on Haiti – more precisely, both articles provide a specialized focus on Technical and Vocational Education and Training (TVET) institutions. In the first article, the balance of practice and theory within Haitian TVET curricula is investigated. The second article focuses more generally on the current situation of TVET institutions in Haiti and explores the overall purpose of TVETs in the Haitian agricultural system.
Similarly, we also have two articles focused on Eswatini, Swaziland. The first article focuses on the gap in existing literature regarding Agricultural Education research; through the study, themes and gaps are identified that are salient to future research within Ag Education. In the second article, the focus is the experience of cooperative teachers (CT) during teaching practice supervision in Eswatini. Ultimately, researchers found that rapport played an important role in the cooperating teacher and student teacher relationship, and there was certainly a need for future trainings and incentives for participating cooperating teachers.

The topics of culture and leadership played an important role within three of our articles. In the first study, researchers explored how an international study abroad experience in South Africa shaped student perceptions of culture, agriculture and science. In a second study, researchers looked at community leadership and women in two villages in Lempira, Honduras. The findings from this research assisted in providing insight into women’s leadership within the local community, and how gender ultimately effects agricultural engagement. Finally, in a study with farmers in Meru County, Kenya, in-group farmers and non-group farmers were compared, looking at the relationship between group membership and the application of best horticultural farming practices (BHFP).

Innovative topics and techniques were the focus of the two final articles in this issue. Entrepreneurial opportunities for Nicaraguan students were explored through the photovoice methodology; this unique method allowed researchers to gain in-depth information from students, where words might have proven difficult. In another innovative article, researchers looked at how to address needs in community development through social impact, and ultimately how to weave this together with existing efforts in economic impact to present a complete picture.

For many of us, the change in the seasons means new beginnings. We are all doing great things in our local communities. We should continue to listen to the Beach Boys in their famous song:

\[ \text{If we all get together we can make things right} \\
\text{And we can bring back summer...} \\
\text{Get us back our summer} \\
\text{Summer in paradise} \]

Continue all of the good work that you are doing in your communities, universities and organizations. We cannot only work together to “make things right,” but as we undertake new projects, it may provide just the spark we need to energize us all into this new season. I encourage you to read the articles cover-to-cover in this August 2019 edition of JIAEE. Who knows, one of these articles may inspire you to start a new project or program that leads you into next summer!

Warm Regards,

**Kristina D. Hains**

Kristina D. Hains  
Executive Editor, *JIAEE*
An Appreciative Approach to Assessing Extension Professionals’ Perceptions of Evaluation

Abraham S. D. Tidwell
Alexa J. Lamm
Kevan W. Lamm
Jacqueline H. Tidwell
University of Georgia

Abstract
Generating timely, honest, and useful feedback is the cornerstone of all extension program evaluation. However, historical evaluation practices, especially in the international agricultural extension context, have relied on models that emphasize external criticism. One model of evaluation that has the potential to shift the focus toward a more collaborative model of evaluation is that of appreciative evaluation. Appreciative evaluation strives towards building on existing strengths rather than criticizing weaknesses with an emphasis on identifying what an organization does well. This research note reviews the results of a recent survey given to a group of extension professionals within a large land-grant institution to examine how extension professionals view the role of evaluation within their programming from an appreciative perspective. Respondents (n = 204) expressed great professional satisfaction in their work delivering programs and a sense of self-worth stemming from the impact they have in their respective communities. Evaluation tools and techniques were enabling forces as they allowed respondents to gather timely data and make adjustments to programs in ways that were reflective of community needs. When asked to identify any structural components of the extension system that improve evaluation practices and procedures, respondents emphasized the importance of both formal and non-formal training opportunities, the development of modular evaluation tools, and collaboration both within extension and their respective community(ies). The results indicated appreciative inquiry methods have the potential to provide valuable feedback about existing programming.

Keywords: appreciative inquiry; extension education; program evaluation
Introduction

Since the 1960s, evaluation of extension programming world-wide has progressed from being viewed as a necessary evil to a core element of effective program design and implementation (Patton 1987). Much of this transition is owed to a growing agreement that evaluation should be done in collaboration with the users of the knowledge resulting from such studies; what is commonly referred to now as participatory evaluation (Patton, 1987). By involving the user of evaluation knowledge in the process of defining priorities, actors throughout the system can take a realistic assessment of existing program activities, the domains in which they operate (social, managerial, economic), and make adjustments to improve overall outcomes (O’Sullivan & O’Sullivan, 2002). It is often questioned then, why extension professionals across the globe resist or choose not to engage in, the practice of evaluation.

Contemporary and historical evaluation practices, dating back to the inception of evaluation (Fitzpatrick, Sanders, & Worthen, 2003), focus on identifying weak points in existing programming with the intent of reducing barriers to success while improving efficiency. Identifying ways to overcome weaknesses means the weaknesses must be uncovered and determined to be remedied. Those put under the scrutiny of an evaluator’s eye often feel fear when it comes to identifying gaps (Patton, 2006). Perhaps they, or their program, will be questioned and eliminated as a result. It is this fear that often turns people away from the practice of evaluation.

Recent evaluative efforts have taken a different approach – rather than focusing evaluation on defining what is wrong with a given program, these approaches, known as appreciative evaluation, seek to elucidate what is working well, what supports success, and how these successes can be used more widely within the program and the broader system in which it operates (Cooperrider & Whitney, 2005; Preskill & Catsambas, 2006). Appreciative evaluation, as a conceptual framework, focuses on (a) what are the most effective activities; (b) what are the future possibilities for success; and (c) existing team synergies and efforts that support the current and future success of the program. The objective of such an approach is to create collaborative communities of practice; for example, Clarke, Egan, Fletcher, and Bryan (2006) brought together a group of teachers involved in science education professional development programming to identify existing strengths and shared experiences to strengthen future programming. Lamm and Lamm (2018) argued that such appreciative evaluation approaches could refocus international extension evaluation efforts and attention on working towards generating positive results. This is a critical change in frame of mind; where future action and resource allocations emphasize what is going well in a program rather than overcoming issues. Furthermore, an appreciative approach may prove uniquely useful in the context of international extension programming, where limited resources, dependence on volunteers, and the necessity of producing sustainable successes outweigh critiquing program failures (Lamm & Lamm, 2018). However, an appreciative approach has not been tested within the extension education space to determine its applicability.

Purpose & Objectives

The purpose of this study was to determine if an appreciative evaluation approach could be used to identify what supported extension professionals’ engagement in evaluation and, therefore,
determine the best strategy for furthering engagement in the practice of evaluation. The following objectives guided the study:

1. Identify the evaluation achievements for which extension professionals were most proud.
2. Determine what organizational factors helped to support that achievement.

**Methods**

The sample used in this study were extension professionals in the state of [State] in the United States. A simple paper-based survey was designed to elucidate the successful practices being undertaken by extension professionals in the context of evaluating their programming. The survey followed an appreciative evaluation approach (Preskill & Catsambas, 2006) which consisted of two open-ended questions: (1) Describe one outstanding or successful evaluation achievement or contribution of which you are particularly proud, and (2) What organizational factors helped to create or support your achievement? The survey was reviewed by two district extension directors and the state extension director for face and content validity. The survey was then distributed to all extension professionals attending mandatory district meetings throughout the state, all within the same week (November 2018). Extension professionals filled them out at the moment while engaged in a discussion about the future of evaluation within the state extension system. The survey was distributed to 339 extension professionals with 204 surveys completed with the depth necessary to conduct further analysis (60.2% response rate). As the purpose of this study was to identify strengths rather than weaknesses of existing programs, nonresponses were treated as not directly impacting the objectives of the research as the sample was drawn from the same population (extension professionals) across the state (Blair & Zinkhan, 2006).

The survey responses were then typed into a digital format by a third party verbatim and analyzed with MaxQDA using inductive thematic analysis. The inductive thematic analysis focuses on identifying emergent patterns in qualitative research data that is informed by the research question at hand (Patton, 1987). Two of the researchers performed an initial review of all results and generated a series of codes based on commonly observed patterns. The researchers then separately conducted a word frequency analysis of the responses to generate a second series of codes. A standard set of codes and overarching themes were made, peer debriefed with two additional researchers, and verified against the initial survey results to ensure transferability (Creswell, 2002). In total, seven important themes emerged from the data. Three pertained to what elements of ongoing evaluation work extension professionals perceived were going well, and four defined what structural characteristics of the system enabled their success.

**Results**

**Elements of Ongoing Evaluation Work**

Extension professionals expressed significant professional satisfaction in developing, executing, and gathering quality evaluation data on programs that emphasized empowering participants while enabling positive behavioral changes. Common examples included following up with program participants and seeing their implementation of agricultural production best management practices (this was referred to in 31 of the written statements); seeing positive youth development in action related to both 4-H and STEM youth programming (again, referred to 30 times
within the responses); the impacts of health and nutrition programming, such as the Supplemental Nutrition Assistance Program Education (SNAP-Ed) and the Extension Food Nutrition Education Program (EFNEP) courses, on the eating habits of their program participants (referred to 24 times); and the results of training in the practice of education (referred to 19 times within the written statements).

Study participants also emphasized how much personal worth they garnered from effectively developing and executing evaluations that got participants engaged in providing feedback while providing them the ability to discuss how much their participants get out of a given experience. As one respondent noted, “I was able to make a poster for professional development based on the one-page evaluation at a monthly class series we hosted in our county.” Similarly, another respondent highlighted the fact that evaluation training helped them understand how to apply research methods within the context of their own master’s thesis work. Through evaluation training and application, respondents were able to create a positive impact in their communities and develop critical professional skills (e.g., Excel, Qualtrics, etc.).

The third theme was that professionals focused on relevant opportunities to gather timely data (in terms of community and programmatic needs) and thus allowed to see how the programs they implemented had a positive impact in their communities. As part of an agricultural program, one participant indicated how they used evaluation as a virtuous cycle for program improvement, “[f]ollowing my county Grassmaster’s program, I was able to assess the remaining needs of my clients by using a needs assessment survey, which happened to be forage testing.” Another emphasized how evaluation allowed

program leads to document the personal and emotional growth of student participants in a cooking program: “These kids never cooked…they seem so much more confident [after participating in the program].”

Organizational Factors Supporting Extension Evaluation

Four themes were identified that elucidate the organizational factors supporting extension evaluation practices. They were training (formal and informal), collaboration (local and regional), modular evaluation tools, and mentorship. A vital trait all these themes shared were that extension professionals emphasized the need to translate any knowledge or tools garnered to the specific context under which their program was being implemented and evaluated.

The first theme that emerged was training. According to the study participants, training was a critical force for enabling their ability to develop and execute sound evaluations of their extension programs. Training opportunities identified within their statements included formal workshops (e.g., master evaluator class), formal classwork (as part of advanced degrees), and informal learning venues (in particular online videos offered by extension evaluation specialists within the system).

The second theme that emerged was collaboration. In terms of intensity within the responses, collaboration emerged as relatively equal to training in its amount of influence on their evaluation engagement. Extension professionals mentioned cooperation with their peers at the county, district, and statewide level as a key way to generate sound evaluation processes and work toward consistent practices across similar programs. The study participants also actively sought out community members to bring into their programs that would create local buy-in and assist in
translating their programming to specific audiences (e.g., teachers). Working with local participants in their community, one respondent was “Developing a three-fold program with community partners and have had success of partners in families learning to be healthy.” Their collaboration also extended back into the extension network as they actively sought a “Specialist [research faculty] to help review the material to make sure it stayed within research based education.”

The third theme that emerged was mentorship at both the county and district level. Many participants identified mentorship as crucial for enabling the successful implementation of program evaluation. Extension evaluation specialists were also mentioned in this space but not as consistently. They were noted explicitly as providing scientific expertise on survey design and implementation. There was some mention of receiving mentorship from tenure-track faculty; however, these individuals appeared to have been seeking advanced degrees when receiving this assistance.

The fourth theme to emerge was the use of modular evaluation tools. The study participants expressed a deep appreciation and recognition that the development of evaluation tools by other units was critical in supporting their successful evaluation of programs. For example, a series of surveys were developed by several 4-H staff for use in 4-H programming. They were commonly referred to and appreciated by the study participants because they were easy to adapt to local program content and evaluation goals. Using these tools, respondents noted the ready-made surveys enabled quick program evaluation, with one respondent indicating they were “[g]etting feedback from [a] large sampling of 5th grade students of CCRPI [College and Career Ready Performance Index] (500 of 3,000 students).”

Conclusions, Implications & Recommendations

Despite their location around the world, one thing all extension professionals strive to create is relevant programming for their communities that are attuned to local needs and wants. This commitment to relevance extends into the realm of program evaluation as extension professionals seek opportunities to develop evaluation procedures and practices where their community members will provide honest and timely feedback. As it relates to application, the results from this study provide insight into the elements of ongoing evaluation work as well as the organizational factors supporting extension evaluation. From a methodological perspective, the results indicated it is possible for extension professionals to gather insights using an appreciative evaluation approach when juxtaposed with gap-analysis type evaluation model that focuses on identifying weaknesses (Patton, 2006).

From an applied perspective, the results indicated having professional satisfaction in collecting evaluation data is an important theme associated with the behavior. This finding implies that if individuals can feel more personally connected and invested in the activity, they are much more likely to persist. An associated recommendation would be to frame evaluation as a good and impactful set of actions as necessary and essential as any of the preceding effort. Extension professionals should be encouraged to see evaluation activities as the final component of their hard work, an opportunity to demonstrate their professional satisfaction in their efforts and see programs fully through completion. The ethos of professional
satisfaction is further reinforced through the emergent themes of personal worth and impact.

In addition to the intrapersonal elements of ongoing evaluation work, four organizational factors supporting extension evaluation were also identified; specifically, training, collaboration, tools, and mentorship. Although each of the themes emerged independently, a higher-order or meta-theme of education might subsume training, collaboration, and mentorship. A recommendation would be to acknowledge the education meta-theme and consider using training, collaboration, and mentorship as unique tactics to accomplish the same intended goal. An additional recommendation is for extension professionals, especially those with evaluation skills and experience, to make their evaluation tools available for others. The combination of empowering others through education and providing them with the appropriate tools has the potential to create an environment supportive of extension evaluation.

A recommendation is for future extension evaluation research to consider a similar tactic. Focusing on what is going well, and building from a position of strength can be an empowering process (Lamm & Lamm, 2018). Although the results of the current study provide both applied and methodological insights, some limitations must be acknowledged. First, the study is limited in scope to one particular extension system. Although the purpose of qualitative research is not generalizability per se (Creswell, 2002), the implications and recommendations presented are limited to only the present study. Secondly, as a qualitative study, the results are constrained. Although data were collected and thematically analyzed in accordance with the research objectives, the data were limited to written responses, making it preliminary. Interview and focus group techniques may uncover richer descriptions of the underlying phenomenon (Creswell, 2002). Therefore, a recommendation would be for future research to replicate the study using a different qualitative data collection approach.

Extension professionals around the globe are being asked to do more with fewer resources (Lamm & Lamm, 2018). Therefore, our efforts must be focused on the ways to get as much as we can out of every dollar that goes into extension programming. Appreciative evaluation may be a powerful tool to provide insights into what extension professionals are doing right, give the impact data needed to show return on investment, and refocus extension professionals on their successes (and building upon them) rather than fearing what is not going well and getting reprimanded as a result. Perhaps if evaluation can be reframed in this way, an increase in evaluation efforts will be obtained as fear is reduced.

References


Creswell, J. (2002). *Educational research: Planning, conducting, and*


The Balance of Theoretical and Practical Skills in Agricultural Technical Schools in Haiti: An Exploration of the Curriculum

M. Christelle Calixte
T. Grady Roberts
J. C. Bunch
University of Florida

Abstract

Haiti, with its alarming hunger index, and serious concerns for the population’s food security status, suggests that its agricultural production and productivity are insufficient to guarantee availability of food for the people. Increased productivity supposes the dissemination of best agricultural practices among farmers, and enough qualified extension agents carrying the scientific findings into the rural communities. However, studies in Haiti, have found that the extension activities are mostly conducted by graduates from TVET schools. Meanwhile, little is known about the quality of the training provided in these institutions. This study explored the balance of practice and theory in Haitian TVET curricula. Individual interviews to directors and teachers and focus groups with students explained the role of practical experiences in TVET curriculum by emphasizing on the importance, the purposes and the amount of such practical experiences in the program of study. The various instructional methods used to ensure sufficient practices were also revealed, specifically, participative methods, research and various field activities. Nevertheless, many barriers impede more practices, which were (a) scheduling, (b) lack of resources, (c) students’ attitudes, (d) absence of laboratories in Haiti, and (e) the rural reality and environmental issues.

Keywords: Haiti; experiential learning; technical schools; agriculture

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Introduction
Agricultural activities are important because farming produces the food necessary to human consumption and survival (Moehler, 1997). However, still today, in many parts of the world food insecurity exists (FAO, IFAD, & WFP, 2015) both on the national and at the household level (FAO, 2003). In the developing countries, as opposed to industrialized ones, agriculture is part of normal activities because a high percentage of the population is involved in production (Wilkin, 1997). This situation may explain why developing countries produce less food per acre of land per worker (Fuglie & Wang, 2012) and why 70% to 75% of the poor of the world live in rural areas (FAO, 2002). Haiti is a country that faces all of these obstacles, with an alarming hunger index severity (von Grebmer et al., 2016), with 25% of the population living in extreme poverty (WFP, 2018), and 39% of the total population living in rural communities according to FAOSTAT (2018). Since GFRAS (2017) found that graduates from the technical schools for the most part work in extension in Haiti, it would be important to understand the curriculum of Haitian agricultural Technical, Vocational, Education and Training (TVET) as it relates to the state of agricultural production in the country. The Ministry of Education has reported that TVET has been declining in the country and quality of private TVET is not guaranteed (MENFP, 2012). It becomes crucial to investigate the curriculum at Haitian agricultural TVET schools.

Literature Review
Mouzakitis (2010) defined TVET as a type of education which trains people to work in a particular occupation through suitable and relevant curriculum or enables lifelong learning for employed people in that occupation. From this definition, it can be inferred that the provision of skills which address market demands ought to be included in a TVET program, so as to encourage employment (Mouzakitis, 2010). In a developing country like Ghana, TVET has been found to provide employable skills to the youth (Darvas & Palmer, 2014). In Latin America and the Caribbean (LAC) region, TVET has incurred curricular modifications to add entrepreneurial and organizational skills to the technical (King, 1993), because there may not be enough demands, so employment must be created (UNESCO, 2015). However, TVET must provide quality skillset that is linked to the economy and meets employer’s needs according to UNESCO (2015). This organization has also raised concerns about the link between academic education and components of curricula with TVET (UNESCO, 2015). In general, TVET’s curricula should aim to integrate elements of participative methodologies and hands-on experiences (Minghat & Yasin, 2010). The different types of teachers which are involved in TVET, as well as their contribution in the specific characteristics of the institutions where they work, is important to consider when attempting to understand TVET as an educational system (Heikkinen, 1997). Quality of TVET must be improved, through the standardization of the curriculum and the development of non-technical skills, innovative training and educational methods, professional development for teachers as well as restoration of TVET’s public image (Basu & Majumdar, 2009; Nooruddin, 2017). In reality, TVET is very diverse to respond to a variety of curricula needs based on clienteles, institutions, employment opportunities and outcomes (King, 1993).

Theoretical Framework
This study was framed using Experiential Learning theory (Kolb, 2014)
with a focus on more practical experiences situated in realistic settings to provide context-specific learning and include an enculturation process (Brown, Collins, & Duguid, 1989; Miller & Gildea, 1987). Some example practical experiences include internships, field projects, hands-on laboratory experiments, practicums, educational placements, in-class experiential activities, service learning (Beard & Wilson, 2013; Cantor, 1997; Kolb, 2014; Roberts, 2006).

**Purpose**

This study sought to gain insights into the types of skills Haitian agricultural technicians are receiving at the schools, more specifically what was the balance of theoretical and practical skills within the Haitian agricultural TVET’s curriculum.

**Methodology**

This study used a basic qualitative study approach (Ary, Cheser Jacobs, Sorensen, & Walker, 2012), with semi-structured interviews and focus groups. The study sampling consisted of all the cases within the targeted population of TVET schools in the Ouest department of Haiti (Harding, 2013), resulting in four schools, one in Montrouis, which was affiliated with a university, and three in Petit-Goave. Within each school, the sampling method used was stratified purposeful sampling (Ary et al., 2012) with typical cases chosen (Miles, Huberman, & Saldaña, 2014). In each school, the director and three teachers were interviewed, and a focus group of nine students was conducted. However, in Montrouis (university affiliated) deviant cases were selected and one student was interviewed (Ary et al., 2012). The interview guides were prepared in English, and then translated into French and Haitian Creole; the interviews were conducted in Creole. The interviews and focus groups occurred at participants’ convenience, at their home, office or campus; they were audio-recorded and the researcher kept a journal (Yin, 2016). The results analyzed directly from the audio were not transcribed (Green, Franquiz, & Dixon, 1997), rather researcher took notes in English (Ary et al., 2012; Miles et al., 2014). Initials codes emerged using the constant comparative method; axial coding was then used to organize initial codes into themes and sub themes (Saldaña, 2016). Two peers fluent in English and Creole each reviewed randomly one teacher note for trustworthiness (Creswell & Miller, 2000). Quotes were pulled directly from audio and translated to English. The synthesized versions of directors’ individual interviews were returned to them for member-checking (Cho & Trent, 2006; Hoffart, 1991); three of four gave feedback. To further ensure rigor, the researcher used triangulation of data sources from students, teachers and directors as well as method triangulation with interviews, field notes and observations (Carter, Bryant-Lukosius, DiCenzo, Blythe, & Neville, 2014).

Most of the directors and teachers were agronomists; but some were technicians as well. They were all male. Many were businesspersons or had other teaching positions and only worked part-time at the schools. Three of them had master’s degrees and worked fulltime. All of the students were from rural communities and nine were women out of 28 students. They all reported family activity to be agriculture-related and commerce. Although not asked, the age range seemed relatively wide and many had worked and had studied in other fields before. The institutions were technical schools with the agriculture option, except 03 offered other technical options and 04 was a university offering bachelor’s degrees. The program lasted 2 to 3 years, but 04 had a credit system. The minimal entry level was 3e (school 01 and 02); school 03...
required seconde and 04 philo. Only 02 had INFP recognition and 04 was an accredited university.

Findings
Data yielded three themes related to the balance of theory and practice in the curriculum of agricultural TVET schools in Haiti. The first was the role of practical experiences in the curriculum. The second was instructional strategies used in TVET to provide practical experiences. The final theme focused on barriers to providing more practical experiences.

The Role of Practical Experiences in the Curriculum
All of the respondents thought that practices are at the core of technical studies, as attested by 02-T1: “practice should be 75 to 90%,” because “practice is the base” (03-T3) for technical studies. Moreover, practical experiences serve many purposes in the program of studies, because they are an inherent expectation from technicians as well as a competitive advantage for them, “the practice tells who you are directly” as students from FG-01 revealed. Practical experiences also help in preparing them for their future work in extension and they are the way to ensure best environmental practices are implemented. Each participant also evaluated their level of satisfaction with current ratio of practice and theory, which may be summed up by 01-T1’s comment, “People want to stay in theory; they don’t want to go to practice.” Three sub-themes emerged from the data: (a) the importance of practical experiences, (b) the purposes of practical experiences, and (c) the amount of practical experience in the curriculum.

Importance of practical experiences. Teachers, students and directors gave similar responses about the importance of practical experiences in the technical curriculum that is that, “for me the essential is practice” in an agricultural technic program of study (04-T1). That is because “agricultural sciences are very practical [in nature]” so “we should give them practice for up to 60-70% and the theory could be 30-40% at least” (01-T3), backed up by 01-T2 who says it should be “70% practice and 30% theory.” D-03 says, “with the experiences we have going in the field with them, we see that it has many good beneficial roles, it has a lot of advantages” because, according to 03-T3, “an ounce of practice is worth more than a ton of theory” for them to understand. That situation is explained by the fact that “practice has an extremely important role” because “when you go practice, it means that you go find out that what you’ve seen in writing, what it is exactly” (FG-03). Therefore, practical experiences enhance learning, as 04-T2 explained, “when you do it with your hands, you learn more than 50%” of the course content. Some teachers also gave it the place it deserves in the course’s learning assessments, 01-T2 “the practice is graded as well and sometimes the practice’s grade weighs more than the theories.” Nevertheless, at the end of the day, the point is to prepare the students for the job market and increase their employability. Therefore, according to 01-T3 “you can spend a lot of time doing theory and you can even manage to finish the cycle of studies you’re in but when you get to the field, it’s like you’re someone who never really studied the science for real.” As 03-T1 pointed out “if I say I’m an agricultural technician I must be well-versed in the practice, which means that in the field we must have minimum 60 to 70% of practice.” The students will have to perform in the field, so they must learn the practical skills to be successful in their future jobs as technicians, “for me, an agricultural technician should be more practical than
theoretical; in the training he’s receiving, for me, it’s supposed to be 60% practice and 40% theory” says teacher 04-T3. Teachers also understood that it is their responsibility to provide such needed skills to them while they are studying or as 03-T2 said “I could still give them all the theory, but if it doesn’t get to the field, for them to not only explore but do themselves, the work has not been completed.” Teacher 03-T2 was the only who raised an important point which elevates the importance of practical experiences even more in the technical route. He exposed that the way technicians were taught in the past was positive, in that when the agronomist who teaches the course goes in the field he should have an agricultural technician accompany him. “I have 1 or 2 technicians with me in the field;” “they are the monitors” who explain things to students in the field rather than him, the teacher who already explained the theory in class. In short, everyone agreed, “for me practice is one of the greatest pillars for agricultural technic [...] because practice is the most important in agricultural technic” (FG-02), because, as D-01 recognized “agriculture is an experimental science, it’s the field and it’s the practice.” Nonetheless, FG/E-04 told “but as a technician, they make you do more practice.” This statement, which he reiterated throughout the interview, was however, contradicted by what the dean and all three teachers revealed about the school’s program not making a difference between students from either route, bachelor or technical.

**Purposes of practical experiences.**

Practical experiences have multiple purposes. For one, it seems to be a consensus “practice makes a technician a technician, if you don’t practice you may go teach or something else” as students from FG-01 explained, or in FG-02 “with more practice you’ll become a good agricultural technician because an agricultural technician doesn’t exist on paper.” It is what the technical studies are about, “when you talk about agricultural technic you see more practice than theory” (FG-02). This idea was supported by a few teachers as well, such as 03-T1 “being a technician means being more versed in the practice than theory,” or 03-T3 “when you see agricultural technicians in our culture, you mostly see the field.” That is because as mentioned during FG-03, “practice is important because without practice you will go nowhere, because as a technician practices are your thing.”

Practices are essential to technicians for various other reasons, like the ones related to the types of work in which they ought to be involved. FG-01 said “and also you cannot produce if you don’t practice.” D-04 explained that the practical experiences help students produce real commodities such as chicken, tilapia, legumes, pigs, fruits etc. “but this develops entrepreneurship spirit in them as well.” Practical experiences are important in enabling graduates to be productive members within the agricultural system through effective entrepreneurship. They should also be involved in the extension system, helping the farmers produce better. Therefore, according to 03-T2, the technician’s role is important because of “practice and the fact that they’re in the field, close to the farmers.” 03-T1 thought “the technic focus means the field; the technician has to, for the most part, work in the field, practice and provide his knowledge in a technical manner in the field.” Directors and students shared the same vision for technicians in the extension system as well, as attested by D-04 “you need to be facing reality and in contact with the field.” In focus group FG-03, a student revealed that “we must do the practices, so we may be able to execute them for beneficial results not only for ourselves but
for the benefice of the whole [agricultural] community.” A student in FG-01 exposed that, “I can’t come with a bunch of French [words]” to the farmers as this is not helpful to them at all. The extension activities of technicians can also help enforce better practices with the farmers. As explained by D-01 “we go in the field” to make experimental comparisons between parcels, for example with different types of fertilizers, and prove that the synthetic ones are not necessarily the best ones to use.

Practical experiences in the curriculum are also necessary because “it helps with learning,” 04-T2 revealed, “if you only listen and you never use what you’re listening to, you won’t remember.” As 04-T1 explained “it is in practice that you learn” because he stated, students from previous cohorts who have not had the practicum he taught, consider that they have not learned anything. Teacher 01-T1 explained how class content is chosen so that on the “short term give them [the students] a fast-paced and operational training.” The reason that the training must be “straightforward with fast techniques that can be implemented in the field” (01-T1), is because “an agricultural technician is someone who is very practical” (FG-03). However, there is a need to integrate better practical experiences in the curriculum. Teacher 01-T1 said “we can’t stay stuck with students on the traditional; we go further with them to show them there are ways in which things can be improved.” This situation is also linked to their future roles within the system, as mentioned earlier; because, “there’s a method called hand in the dough, you are not a technician if you can’t apply this method.” As technicians, they must learn how to realize the activities themselves, because “as a technician you should never engage in an activity that has no guarantee, you will fail; you must have the guarantee that you will succeed.”

Finally, technicians are competitive on the job market because of their technical skills and are sometimes hired instead of agronomists. 01-T2 gave an example of his former student who was one in a group of three agronomists recruited in the organization to do the same job and with the “same respect.” 02-T2 also said, “The technician is all about practice, that’s what they believe in;” he went on to add, “In whatever project that exists in whatever institution, they want technicians more than they do agronomists, because the technician is more practical.” So, inherent to the technician and his program of study there must be practical experience, because it is ultimately a competitive advantage, even compared to agronomists. Students were aware of that situation as well, like in FG-03, someone supported that “the technician does more practice than the agronomist; the technician is more practical than the agronomist.” They also said that “if you take more theory now, and you don’t practice, it’s like you feel you’re not a technician anymore.” Another student in FG-03 reported what an agronomist told him “sometimes technicians compete with agronomists and win because of practice.” After all, “when you’re in the field that’s when you feel you are directly in the profession for real” (FG-03).

**Amount of practical experience.** In the focus groups, the amount of practice deemed necessary ranges between 60 to 80% across groups and inside each individual group as well. However, most focus groups were reluctant to give a number on what the actual balance between practice and theory looked like, but in FG-02, a student ventured to say that reality might be around 50% of each in her opinion. However, another student quickly disagreed
with her, and says that for him, it is “at least 70% of practice.” It can also be inferred that FG/E-04 felt the practice he got was insufficient, because he practices on his own volition with a few institutions to complement his training. The teachers, for the most part, did not think they are able to include the sufficient amount of practice in their courses. 01-T1 bluntly stated that, in agricultural education at all levels, “currently there’s almost no practice the way things are done right now;” students sometimes spend their whole study cycle and never go on the field.” However, he agreed that “at the technical level this happens a little bit but not as it should.” This moderate view is the most shared among teachers. 04-T3 claimed that “for the courses I teach, it’s not 60/40, but I could say 70% theory and 30% practice;” 02-T1 managed to do less than his ideal 75-90%, having only “50 to 70% practice” in his courses. For teacher 01-T3 “with a lot of sacrifices it [balance between practice and theory] may be 50/50.” 04-T2 thought that sometimes learning is insufficient without the practice because students are amazed at how much easier it is than expected when they do practice, which is why he feels that “practice should be superior to theory.” However, some still feel that they have managed to give the students what is needed. According to 01-T3, “you should do more practice than theory but mostly in Haiti, you do more theory than practice” but “with our weak means we offer the students an adequate training.” 03-T1 claimed that “by evaluations that we have conducted, we estimate that the students have cumulated enough practical knowledge to become agricultural technicians.” On the other hand, the directors, in general, were more optimistic than the teachers were. As D-03 admitted, practice must be “75-80% […] but up to now we are at 60-75%; or D-01 “I’ll say [it is] 50/50 but practice should be 60%.” Nevertheless, D-04 revealed, “I am personally very satisfied with the results” of the reversed pyramid experiment that has been going on for 7-8 years because “I find students to be more practical.” D-02 even claimed that “here they [students] do more practice than theory” because “the technical schools are 80% practice and 20% theory, but we do 50% theory and 80% practice, which means we increase it.”

**Instructional Methods**

Many teachers revealed different instructional methods they use to ensure that there is a balance in the curriculum, starting with various (a) participative methods, (b) research assignments, and (c) field activities.

**Participative methods.** There are a few ways in which teachers include participative methods in their teaching. For instance, teacher 04-T2, who taught a practicum, said his classes do not have lectures in them, “they’re very interactive, [he] takes each person’s opinions.” Then the students got to compare methods in the demonstration parcels and he derives the conclusion through the results. 04-T2 thought that sometimes learning is insufficient without the practice because students are amazed at how much easier it is than expected when they do practice, which is why he feels that “practice should be superior to theory.” However, some still feel that they have managed to give the students what is needed. According to 01-T3, “you should do more practice than theory but mostly in Haiti, you do more theory than practice” but “with our weak means we offer the students an adequate training.” 03-T1 claimed that “by evaluations that we have conducted, we estimate that the students have cumulated enough practical knowledge to become agricultural technicians.” On the other hand, the directors, in general, were more optimistic than the teachers were. As D-03 admitted, practice must be “75-80% […] but up to now we are at 60-75%; or D-01 “I’ll say [it is] 50/50 but practice should be 60%.” Nevertheless, D-04 revealed, “I am personally very satisfied with the results” of the reversed pyramid experiment that has been going on for 7-8 years because “I find students to be more practical.” D-02 even claimed that “here they [students] do more practice than theory” because “the technical schools are 80% practice and 20% theory, but we do 50% theory and 80% practice, which means we increase it.”
learned.” Teacher 04-T3 made groups of students present whole chapters of the course content. He explained, “I dispense 50% lectures and the students basically do the other 50%, or I do 40% and the students do 60%.” “It’s almost like debate sessions” where the students also do oral presentations and “it allows students to learn better.”

Research. Conducting their own research was said to help students learn better. According to 03-T1 “we accentuate on assignments, particularly research assignments, practice assignments” because students remember more from research assignments than with lectures in classroom, students “find more personally with research” than lectures. Many teachers however (04-T3; 02-T3; 03-T1; 01-T2; 01-T3), mentioned giving research assignments to students. For example, 01-T2 said “we also teach them to do research,” 04-T3 said “I push the students towards research,” and 01-T3 said “we send them to do research as well.” 03-T3 added “for homework, I mostly make them do research.” Research was therefore, viewed as a positive tool for learning. However, in only one of the focus groups (FG-01) research was mentioned “sometimes he [the teacher] just throws the subject out there and sends us to do research, and I appreciate that.” The students in general refrained from speaking about methods when prompted.

Field activities. Most teachers (04-T2; 04-T3; 02-T1; 02-T2; 03-T1; 03-T2; 03-T3; 01-T1; 01-T2; 01-T3) and a few students mentioned field trips and visits as a way to integrate practical applications to course content. According to 04-T3, “for the courses I teach, […] it’s field visits,” and in FG-02 they expressed that “they [teachers] mostly go out with us in the field.” What happens in these trips vary among teachers and according to the type of course. Sometimes it really is just about visiting what exists and allow students to see with their own eyes. Like 01-T3, who said “for example we go out with them, we visit farms with them.” This idea was supported by students in FG-01 “sometimes after two weeks of theory, on the third week, he [the teacher] programs and tells us let’s practice; so, we go visit a farm […] each trip is always different.” Sometimes it is more the description of an ideal than reality, like 01-T1 expressed, “we must do a lot of visits, look at each production sector […] and propose recommendations to help the sector advance.” Other times the teacher precisely mentioned taking the students to do active observations in the field because of the type of course or because of the lesson need. As examples, 03-T1 said “I go to the field with them to show them the different systems in the Haitian peasantry,” 03-T1 who said “we draw from the science and go in the field to make observations,” and 03-T1 who also said “agroforestry is more based on observations.” In other times the observations preceded more active practices like 02-T2 revealed “my courses have more visits in them” in which the students observe then get to realize the practice themselves. He was not the only one mentioning practices of that sort. 03-T1 also claimed his students “also go in the field and do the practice.” Other teachers preceded the practice not with observation but with demonstrations. For instance, 04-T2 said “I do a demonstration” first before they are released to do the assignment. Demonstrations were also used by 02-T1 who integrated practical experiences through visits, trips and demonstrations and 01-T2 who mostly visited and did demonstrations with the students. These trips and visits took place in farms and other private businesses; like D-01 stated “we also visit farms, we see some farmers,” and 03-
T3 added “we have trips to private enterprises.”

**Barriers to More Practical Experiences**

However, many obstacles were also revealed that get in the way of successful integration of practices in the program of study. Sub-themes under barriers included scheduling, resources, student attitudes, laboratories, and the rural realities in Haiti.

**Scheduling.** This problem was mentioned by a few teachers. 03-T2 said ideally, “after each class you’d have a trip with the students, but when the students go out for them it’s a day of work. So, if the course lasted 2 hours, the trip is a whole day of work, from 8 am to 4 pm.” This situation is problematic because “I have always desired to make my courses 60% practice and 40% theory, but it would require that the courses I conduct them only in the field, but the way the schedule is established, the students may have two different courses in the same day, so it can become more difficult to travel with the students” (04-T3). 04-T3 concluded, “maybe [it is] relative to how the schedule is set up, it makes it difficult for my courses to be more practical (…) so schedule organization can be a handicap to having more practical courses.”

**Resources.** Many participants (D-01; D-03; 04-T1; 04-T2; 04-T3; 03-T2; 01-T1; 01-T3) expressed that the school lacked in resources to realize more practices because students do not pay tuition. 03-T2 revealed that in another school he taught in, “the trip also requires a contribution from students” but only 2 out of 4 may show up and so it may be difficult to go financially, but also because he would have to make up for the other two. That is because “the technical school is quasi free of charge [for students]” (01-T1). The director D-01 agreed that he does not pay the teachers because the students do not pay him tuition. The teachers are “friends” and “volunteers.” He went on to say that “the tools for practice I buy them with my own money.” However, the schools have to work around that issue, because according to 01-T3, “most students, I won’t say all of them, but most of them live in very precarious conditions, therefore automatically, if you ask them to contribute financially and pay the school you’ll see them run away” therefore, “what you should offer them you cannot.” 01-T1 admitted that “the training we know we should give them is not the one they’re getting because there are too many constraints.” But 04-T3 disagreed completely “I don’t know about all professors, but I don’t have many constraints when I need to travel” with students. D-02 also mentioned the financial constraints from students who do not pay tuition. Nevertheless, they did not seem to have difficulties providing practice and theory they claim to give at the school. However, a school seemed to have fewer issues than all the others and 04-T1 revealed that “we have a farm, it’s 10 hectares” and a dormitory. D-04 explained “upon creating the university, we already had 10 hectares of land.”

**Student attitudes.** When the inability to have more practice is not due to the students not paying tuition and fees, it is about their attitude. 03-T2 revealed that “when the students go out a lot, they find it tiring; so that becomes a constraint to make more practice.” Since it depends on students’ attitude, the last cohort spent more than 60% of the time in the field he further explained. Students seemed to agree on the fact that it is also their responsibility. In FG-03 this idea came out that “sometimes us as students, sometimes by laziness, we don’t put ourselves in condition to assimilate properly.” FG-02 students disagreed to the amount of practice they received at the...
school. One student argued for 70%, instead of the 50% proposed by another, claiming that “I don’t know if the other students adapted them [the field trips] like me,” somehow suggesting that it varies across students. This idea was welcomed by the group and the disagreeing student as well. 03-T2 bluntly says that “it may not be 50/50 because the students [...] have a phase where they’re more or less lazy.” Once they get out of the phase, more trips can occur. In conclusion, as D-03 put it one way or another, it is on the students, “not everybody learns the same, not everybody has the same will” and it can happen that only 50% of the students show up. If they are asked to “pay little fees” to participate in the expenses “of the big trips, they are not that interested.”

**Laboratories in Haiti.** A big obstacle is the lack of infrastructure like laboratories. Simply put, “there are no laboratories” according to 01-T3. Even though he recognized that “they [the agricultural technical schools] should have a laboratory because some work can’t be done without a lab.” 04-T2 felt that “a lab can’t be something you imagine.” However, D-01 clarified “we have a lab problem, here [in Haiti] there are no labs” because “these things require a lot of money, we don’t have money to do them.” Laboratory equipment cost more than having land parcels for demonstrations. There was at least one teacher who did not complain about the laboratory situation, 04-T3 “when I need to go to a lab for the students to make analyses on soils, I just send a pro forma to the lab under the university’s name and they take care of it.” This collaboration with external laboratories was confirmed by D-04 “while rebuilding all the labs, we try to associate with experimental farms that have big labs such as USAID.” This institution had laboratories, but they were destroyed during the 2010 earthquake and they have been in the process of rebuilding. It is a university, it has more resources in general, like dormitories, land as well, a credit system which has many advantages for students, but they must pay tuition.

**Rural reality & the environment.** Teachers 01-T1 and 01-T3 felt concern for the type of information students get as it relates to the reality they will have to deal with. 01-T1 acknowledged, “I conserve a little bit of rusticity [in the course] because of the way animal breeding is done in Haiti.” For example, pure improved breeds cannot survive in rural Haitian conditions, therefore, they must be mixed with local breeds to “meet the condition of traditional animal husbandry” Haitian farmers currently practice. He went on to clarify that “we’re in a country where it is important to learn how to use what is available” like, the use of local plants rather than synthetic products as pesticides. 01-T3 taught “how to manage the environment better” in his course. Then again, D-01 stated that “in the school we don’t encourage the chemical fertilizers too much.” It seems that the need to respect Haitian reality is closely connected to protecting the environment. 04-T2 explained that, in his course, students realized demonstration parcels experimenting about natural versus synthetic pesticides, he concluded with them if the “insects did not attack yours, and insects did not attack mine, so why should I use the chemicals?” A few directors and many teachers (03-T1; 03-T2; D-02) mentioned that the course content is elaborated based on what other technical schools are doing and the INFP required courses, but as 03-T2 expressed, “also you take into account what exists where you are, with examples taken from the places where you do the practices.” Unfortunately, adapting to Haitian reality sometimes also means not having access to resources. Like 03-T2 explained, because “there are less
agricultural enterprises, you find less entrepreneurs in the zone,” so he has less trips to businesses in his entrepreneurship course than desired.

Conclusions, Recommendations & Implications

Agricultural TVET schools in Haiti want to focus on practical issues as part of their mission, without neglecting the theoretical aspect. A number of participative instructional methods emerged as a way to ensure sufficient amount of practice was covered during the training. However, there seemed to be real obstacles, financial mostly, to achieving the ideal ratio of practice and theory. The constructivist approach in education posits that curriculum, as well as teaching methods and tools should enhance learners solving problems, through various participative practices, which are conducive to all sorts of interactions among students and their subsequent engagement (Doolittle & Camp, 1999; Powell & Kalina, 2009).

The relevance of practical experiences in TVET schools was expressed through the importance of practical experiences, the purposes of practical experiences, and the amount of practical experience in the curriculum. It has been recognized that there is a need for practical experience within the curriculum in agricultural education, such as work experience on campus farms and greenhouses, hands-on training, and internships (Albert, Roberts, & Harder; 2017; Coorts, 1987). The findings are consistent with this proposition. However, practice was found insufficient in the majority of cases because of lack of resources. A general lack of resources for agricultural education and extension in Haiti has been previously noted (Albert, et al., 2017; Pierre, et al., 2018). With the exception of the university, no other schools had farms for practice. Nevertheless, they all collaborated with external entities to have access to resources for students, including internships after the program has been completed. A study in seven African countries revealed that educators in the post-secondary agricultural training must increase practical learning activities through students’ interaction with production entities such as private agribusinesses, farmer organizations, NGOs, or other, preferably with internship or other types of student placement in those institutions (Rivera, 2006).

Teachers at agricultural TVET schools used a variety of instructional methods to help students gain practical experiences. These included participative methods, research assignments, and field activities. Many recognize the necessity to find new approaches to teach agriculture to students focusing on different learning styles and problem solving (Coorts, 1987). Many teachers referred to participative methods, research and other instructional methods like reversed pyramid, they were experimenting with the students to enhance their learning. Freer (2015) suggested the reinforcement of entrepreneurial mentality in students through participatory and experiential learning methods such as debates and discussions, teamwork and problem solving, etc. Sustainable development in the curriculum requires, creativity, and participative teaching methods focused on hands-on experiences, visits to factories, field-work, laboratory work, and internships (Minghat & Yasin, 2010).

Participants revealed several barriers to providing practical experiences for students. These included scheduling, resources, student attitudes, laboratories, and the rural realities in Haiti. Facing the reality of the real-world is what situated learning refers to as the enculturation process through the integration of symbols or mental
representations stored in memory, which cannot be complete or accurate, nor applicable in real life if they are only learned in school setting (Brown et al., 1989; Vera & Simon, 1993). A few teachers mentioned scheduling conflict that do not accommodate extensive practical activities in the field. This situation was not reported as frequently as the serious financial lack that these schools face. Similar to studies in seven African countries, this study revealed that administrators and educators pointed out inexistent laboratory equipment, computers, financial sponsorship of students, instructional farms, student lodging, and insufficient teaching materials and staff development (Rivera, 2006). Another study on African agricultural TVET also found that it faced financial problems, due to lack of resources, obsolete teaching materials, and farm equipment (Atchoarena, Wallace, Green & Gomes, 2003). Rivera (2006) identified six critical areas for post-secondary agricultural education and training, which are government policy and funding, stakeholder representation, appropriate teaching methods, curriculum relevance, and institutional linkages. Ultimately, what is sought is more access to laboratories, teaching farms, libraries, computers, availability of internet connectivity, equipment, communication technology, and better facilities (Rivera, 2006).

Recommendations for research would be to realize an in-depth comparison of the curricula in TVET schools in this and other geographic departments of Haiti. It could also be helpful to gather more information about the INFP regulations and processes for certification of TVET schools. On the other hand, the ministry of Agriculture also has EMAs, which this study did not include. At this point, it would make sense to understand their cursus better as well.

Recommendations for practice is that the curriculum may benefit from a better coordination between two ministries, because some agricultural TVET institutions are under the Ministry of Agriculture and others report to the Ministry of Education. As the required skillset becomes more complex, it may be essential for these students to interact with other concentrations, therefore, TVET learning centers integrated with extension activities, may be proposed as a solution, which will allow students learning through real life experiences. Learning centers may also help in catering to some of the financial difficulties the schools face and their subsequent lack of infrastructure and resources, because the state may be able to provide a general access to these resources, which all options can utilize with proper scheduling.

References


Harding, J. (2013). *Qualitative data analysis: From start to finish.* Los Angeles, CA: SAGE.


What did Aspiring Young Entrepreneurs in Nicaragua Recognize as Agribusiness and Ecotourism Opportunities using Photovoice as a Data Collection Tool?

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Abstract
Interest in entrepreneurship education by scholars and practitioners as a way to overcome poverty is growing. Yet little is known about how entrepreneurship can be a successful approach to achieving prosperity in resource-poor conditions. Entrepreneurship has been mainly associated with the view of entrepreneurs as super humans capable of solving all problems, especially if operating in resource-rich contexts. This qualitative study’s purpose was to explore, through photovoice methodology, the entrepreneurial opportunities involving agribusiness and ecotourism that Nicaraguan students recognized in their communities. Photovoice allowed the researchers to gain in-depth information from students who expressed in images what may have been difficult to explain in words. The students recognized different opportunities linked to their contexts as expressed through photos documenting local assets and materials. The study participants also indicated interests in doing social good, which suggested a more societally oriented view of entrepreneurship. The poor, including youth often marginalized, were able to recognize business opportunities in concert with their economic conditions. Opportunity recognition may be one of the more promising ways to overcome poverty. Its facilitation holds implications for agricultural, tourism, and rural development curricula and educational programming.

Keywords: entrepreneurship education; opportunity recognition; photovoice; resource constraints; youth
Introduction

According to The World Bank (2016), about one billion people live under the global poverty line of $1.90 USD per day and mainly populate developing countries. The lack of economic opportunities to overcome poverty in many nations is evident: most people live in underserved areas, share the adverse consequences of poverty and social marginalization, and have a mixture of needs (Zahra, Korri, & Yu, 2005). Attention to these issues is usually the focus of government-based efforts and many impoverished people have largely hoped that governments will solve their socioeconomic problems (Mack & Pützschel, 2014). However, “[g]overnment alone is clearly not the answer” (Dees, 2007, p. 25). Multi-sectorial approaches should be considered to combat the multifaceted phenomenon of poverty (Van Praag & Ferrer-i-Carbonell, 2007). The rise of for-profit businesses in developing countries represents an approach to overcoming poverty; for example, many context-appropriate businesses have been exploited in resource-poor settings through a web of local businesses and other entrepreneurial endeavors (Hahn, 2009; Seelos & Mair, 2007).

Nonetheless, the conception of the entrepreneur as a heroic man or super human who pursues for-profit businesses in formal, resource-rich economies has dominated the thinking of many entrepreneurship thought-leaders (Banerjee & Duflo, 2012; Williams & Nadin, 2013). An interest, however, by scholars and practitioners on social impact, other than only revenue, has emerged recently, e.g., social entrepreneurship (Chell, 2007; Mair & Marti, 2006; Perrini, 2006; Zahra et al., 2005; Zahra, Rawhouser, Bhawe, Neubaum, & Hayton, 2008). According to Zahra et al. (2008), social entrepreneurship “encompasses the activities and processes undertaken to discover, define, and exploit opportunities in order to enhance social wealth by creating new ventures or managing existing organizations in an innovative manner” (p. 118). The mission of social entrepreneurship is to create economic wealth but also social wealth (Elkington & Hartigan, 2008; Keohane, 2013; Lasprogata & Cotten, 2003; Mair & Noboa, 2003; Martin & Osberg, 2007; Zahra et al., 2008). It seeks to balance the relational and economic spheres of society (Elkington & Hartigan, 2008; Perrini, 2006). Social entrepreneurs operate in diverse fields such as education, environment, health care, and human rights, among others (Mack & Pützschel, 2014).

Recognition of Entrepreneurial Opportunities

Most research on entrepreneurship has been conducted in resource-rich contexts, and mainly in the so-called developed countries (Baron, 2004; Baron & Ensley, 2006; Singh, 2001; Timmons, Muzyka, Stevenson, & Bygrave, 1987; Zahra et al., 2005). However, multinational corporations have pursued social entrepreneurship opportunities in developing countries by linking local resources and people’s abilities (Prahalad, 2005), and by creating partnerships with local governments and non-governmental agencies to foster economic development (Zahra et al., 2008). In most cases, however, the aggregate contribution of these local businesses is far away from solving the endemic poverty found in their communities (Hahn, 2009).

Recognizing business opportunities based on perceived resources is the foundational phase of the entrepreneurship process (Baron, 2006). Opportunity recognition is conceived as a cognitive process (Baron, 2004), i.e., the moment in which the entrepreneur recognizes an
opportunity to create a new venture (Singh, 2001). “[O]pportunity recognition occurs in a single step: entrepreneurs observe various events or changes, and, upon examining them, recognize links or connections between them that then suggest new business opportunities” (Baron, 2006, p. 110). Understanding the phenomenon of opportunity recognition in regard to potential business ventures by local people in constrained socioeconomic conditions is vital to alleviating poverty.

Photovoice as a Participatory Diagnostic Tool for Understanding Social Phenomena

An approach for understanding social phenomena, such as community issues, is participatory diagnosis (Wang & Burris, 1997), e.g., local citizens collaborating with experts in formal meetings. However, participatory diagnosis has some limitations, including (1) people perceiving they are in a trusted environment and free to express their concerns without negative consequences, and (2) experts honestly listening, understanding, and considering people’s concerns (Wang & Burris, 1997). Using visual images such as photos as an aid in participatory diagnosis is viewed as more effective than traditional approaches by some researchers (Harper, 1988; Wang & Burris). Photos can enhance and enrich our understanding of social phenomena (Harper, 1988). In addition, a higher level of credibility can be expected in research involving photos compared with only words because photos are more about showing than telling, and their content may be more difficult to modify (Delgado, 2015; Tracy, 2010). Photovoice is a data collection method involving photography, which empowers people to more openly express themselves and allows the telling of their stories through photographic images (Wang, 1999; Wang & Burris, 1997; Wang, Yi, Tao, & Carovano, 1998). Photovoice can equip people to consider making necessary changes according to their unique situations (Goodhart et al., 2006; Strack, Magill, & McDonagh, 2004). “It entrusts cameras into the hands of people to enable them to act as recorders, and potential catalysts for change, in their own communities” (Wang & Burris, 1997, p. 369).

Photovoice expands the genre of participatory needs assessment. From the people, their visions, and their words, we can begin to assess real local needs, in the hope that the divergent perspectives of . . . professionals and laypeople will converge to exert a more effective impact on a community’s well-being. (Wang & Burris, 1997, p. 385)

In a review of peer-refereed literature about photovoice, Catalani and Minkler (2010) concluded: “There is increasing evidence that photovoice can be used as a participatory tool for engaging communities as partners in a CBPR [community-based participatory research] process” (p. 447) and can help researchers “to reach hard-to-reach communities and engage them in a meaningful, action-oriented research process” (p. 448). To that aim, photovoice has been used effectively to involve people in participatory action research (Delgado, 2015; Findholt, Michael, & Davis, 2011; Strack et al., 2004; Wang & Burris, 1997), including the participation of youth.

Photovoice in Youth Research

Because youth represent the future, their perspectives are vital for a community’s well-being, especially regarding strategies to improve local economies and overcome poverty.
Fishman, Law, Lichty, and Aoun (2010) stated that “youth are both able and eager to think critically about their community and the data generated in a PAR [Participatory Action Research] process” (p. 82). Photovoice has been extensively used in research involving youth in a broad range of settings (Brazg, Bekemeier, Spigner, & Huebner, 2011; Catalani & Minkler, 2010; Chonody, Ferman, Amitrani-Welsh, & Martin, 2013; Delgado, 2015; Denov, Doucet, & Kamara, 2012; Findholt et al., 2011; Graham et al., 2013; Strack et al., 2004). It has the potential to explicate issues and conditions affecting youth and their communities. Brazg et al. (2011), who studied substance abuse, concluded that by using photovoice “youth explained the importance of factors that do not appear to have been included in the literature or in the local community assessment” (p. 508). Photovoice allowed Chonody et al. to understand nontraditional perceptions of violence from the viewpoints of youth:

...Interestingly, one of the themes that emerged from the discussion groups was love as a cause of violence. One of the obvious problems with such forms of behavior is that it merely perpetuates the cycle of violence as retaliation leads to additional reprisals and so on. (Chonody et al., 2013, p. 97)

Youth in urban Detroit used photovoice to document the need to address economic devastation in their community and created environmental degradation countermeasures as a result (Graham et al., 2013). Likewise, Denov et al. (2012) asserted that photovoice was a useful method for exploring and documenting post-war life and social reintegration of child soldiers in Sierra Leone. In their findings about obesity from the views of high school students, Findholt et al. (2011) concluded that “the photographs and stories produced by the youth generated excitement and garnered attention in ways that our traditionally gathered data did not” (p. 189). Moreover, these authors highlighted the potential of photovoice to serve as a catalyst for social change by such an approach inviting the participation of different decision makers from their respective communities.

Poverty & Inequality in Nicaragua

As of 2014, about 30% of the population of Nicaragua lived in poverty (Instituto Nacional de Información de Desarrollo, 2015). Nicaragua’s average annual GDP per capita in 2014 was $1,825 USD and its citizens averaged about six years of formal schooling (The World Bank, 2015). In the last few decades, the nation experienced a boom in emigration to Costa Rica and the United States, especially of its young people (Hobbs & Jameson, 2012). Youth in Nicaragua are at great risk, e.g., high rates of gang membership (Maclure & Sotelo, 2004; Rodgers, 2006), suicidal expression (Medina, Jegannathan, Dahlblom, & Kullgren, 2012), as well as substance abuse and HIV risk behaviors (Prado et al., 2007). Innovative approaches are needed to address these issues.

Nicaragua’s Agricultural Sector & Emprendedora Technical High School

In 2014, 42% of Nicaragua’s population was rural and agriculture represented about 20% of its national GDP (The World Bank, 2015). These numbers are relatively high compared to most nations of Latin America. Moreover, as of 2015, the agriculture value added per worker was $3,762 USD (The World Bank, 2015). Entrepreneurial ventures involving opportunities in agriculture and the
environment exist in Nicaragua, including enterprises led by youth.

In 2012 the non-governmental organization Opportunity International created the Emprendedora Technical High School in Granada, Nicaragua to serve low-income rural youth (Opportunity International, 2017). The school is located in a rural area between the cities of Granada and Diriomo. Emprendedora is a five-year high school, including grades 7 through 11. All students take the same courses in grades 7, 8, and 9; during grades 10 and 11 they enroll in courses related to their technical interests. The goal of Emprendedora is to prepare leaders who can respond to the needs of their communities (Opportunity International, 2017). Students receive general and vocational education which includes learning entrepreneurial skills. Two technical strands or focus areas are available to the students: sustainable agriculture and sustainable tourism. In sustainable agriculture, Emprendedora focuses on the production and commercialization of certified organic fruits and vegetables mainly for the local market. For sustainable tourism, the school prepares students to start environment friendly tourist attractions featuring natural resources (D. Campos, personal communication, October 22, 2015).

Other than only the traditional instruction, such as math and science, students in Emprendedora also learn business planning, sustainability, microfinance, administration, marketing, and production and commercialization, among other entrepreneurship topics. Their learning includes many hands-on activities in real-world settings. The school has an agricultural operation on site where students gain experience in growing and marketing its products. An eco-hotel was under construction in 2015, as supported by Opportunity International, where tourism students would learn and practice skills in the hospitality industry (D. Campos, personal communication, October 22, 2015).

Theoretical Framework

Ajzen’s (1987, 1991) theory of planned behavior (TPB) served as the theoretical framework for this study. Ajzen hypothesized that behavioral beliefs, normative beliefs, and control beliefs play a critical role in influencing the intentions of individuals; and intentions antecede subsequent actions. An individual’s behavioral beliefs, i.e., specific attitudes toward a given behavior, are expected to predict the likelihood of a person executing related actions. Normative beliefs refer to how members of a social system view the behaviors in question. Moreover, individuals’ perceived abilities to successfully perform given behaviors precipitate their control beliefs (see Figure 1). For this study, Ajzen’s TPB served to frame an understanding and interpretation of students’ attitudes, views on subjective norms, and perceptions of control regarding opportunity recognition and, thereby, indicated their intentions to be entrepreneurs.
Purpose & Research Questions

Although other studies have addressed the importance of exploring resources available for potential business opportunities in resource-rich contexts, less evidence exists about how entrepreneurship can be a successful approach to achieving prosperity under meager socioeconomic conditions (Seelos & Mair, 2007; Wennekers, Van Wennekers, Thurik, & Reynolds, 2005; Zahra, Gedajlovic, Neubaum, & Shulman, 2009). In addition, opportunity recognition is usually considered essential to successfully exploiting new business ventures (Baron, 2006; Baron & Ensley, 2006; Timmons et al., 1987). The purpose of this qualitative study, therefore, was to explore, through photovoice, the entrepreneurial opportunities Nicaraguan high school students recognized in their communities. Three research questions guided the study:

1. Which business opportunities were recognized by aspiring youth entrepreneurs as they considered existing resources in their communities?
2. What were the aspiring youth entrepreneurs’ rationales for linking existing resources to business opportunities?
3. What was learned about the use of photovoice as a data collection method in regard to aspiring youth entrepreneurs and opportunity recognition in a resource-constrained context?

Procedures

Recruitment of Study Participants

Emprendedora is a technical high school in Nicaragua where students receive general and vocational education. It was selected to conduct the study because of an existing relationship with faculty members of Oklahoma State University who had provided the institution technical expertise on entrepreneurship. Students in grade 10 from the two technical areas, sustainable agriculture and sustainable tourism, were purposively selected to participate in the study. Tenth grade students were chosen because of their expected higher knowledge of entrepreneurial skills compared to students in the lower grades. Because the school started in 2012, no students...
populated grade 11 in 2015. The school’s enrollment was 96 students during the study. A meeting between researchers and students was arranged by the school’s principal; 35 students attended the meeting from a total of 47 students in grade 10, or about three-fourths of the class. A comprehensive description of the research process was provided to the students, i.e., voluntary participation, risks associated with participation, no penalties or retaliation for not participating, their right to leave the study at any time, and protection of students’ privacy. The need to gain parental consent for students willing to participate in the study was emphasized. The researchers were available to answer questions from the students or their parents, school staff, or Opportunity International staff. The students were provided assent and consent forms; those who assented also submitted their parents’ consent before participating in the study. The time in the school year of data collection may have affected students’ participation and the study’s response rate because it occurred on a religious holiday weekend in Nicaragua. Further, when data were collected, the students had finished their school year; they met only for the purpose of the study on a Friday and were requested to submit their photos the following Monday. These conditions represent potential limitations of the study.

Data Collection

The study’s research protocol was pilot tested with Spanish-speaking, Hispanic students in the United States before being administered to the students in Nicaragua; modifications were made, as warranted. Data collected thereafter included three types: (1) students’ personal characteristics through a paper-based survey questionnaire; (2) students’ written statements about their pre-existing business ideas using questions adapted from the SHOWeD guide; and (3) students’ photographs and answers to written prompts for such.

Students’ personal characteristics and information about their business ideas were collected before the taking of photos (Delgado, 2015; Wang & Burris, 1997). For the written statements about business ideas, students were asked to consider their existing resources regarding potential entrepreneurial opportunities. A modified version of the SHOWeD guide recommended by the Metropolitan Area Planning Council (as cited in Delgado, 2015) was provided to students to frame the analysis about their business ideas. The SHOWeD guides youth “in articulating their thoughts and reactions” (Delgado, p. 139). The original guide consisted of five questions or prompts. A panel of experts on participatory research helped adapt the guide’s questions to this study’s context. The modified framing questions were included: (1) What motivates you to do this business idea? (2) What would be the impact of this business idea? (3) How does this business idea relate to your life? (4) Why should this business idea exist? and (5) What would you change in your surrounding environment for this to be a feasible business idea?

To collect visual data, students were asked to take 5 to 10 photos (Delgado, 2015) of resources in their communities they considered important for implementing achievable business ideas. The students had two options for taking the photos; either use their mobile telephones or use disposable cameras provided by the researchers. The students were asked to respond to a writing prompt for each photo, and to do that immediately after recording the images (Delgado; Wang & Burris, 1997). The writing prompt question was “Why is this photo important for your business idea?” They also numbered, dated, and named their photos. Training was provided on how to
use the disposable cameras. The students had two days to submit photos and answer the writing prompt. The digital photos taken with students’ mobile telephones were copied to a data storage device, and the disposable cameras were collected for film development.

Data Coding & Analysis
The analysis of photos was facilitated with supporting data about the students’ personal characteristics, written statements regarding business ideas, and written responses to the prompt for each of their photos (Delgado, 2015; Emerson, Fretz, & Shaw, 1995). The written data were transcribed verbatim and translated from Spanish to English by the lead researcher. Data analysis followed qualitative guidelines, including open coding to identify significant statements and patterns supporting the visual evidence (Creswell, 2013; Saldaña, 2009). The principle that “coding is not just labeling, [but] it is linking” (Saldaña, 2009, p. 8) was followed. Similarities, differences, frequencies, sequences, correspondence, and causation were among the criteria considered when looking for patterns in the information from the different sources of data (Saldaña, 2009). During the open coding process, patterns emerged that led to the creation of themes to answer research question two (Creswell, 2013; Patton, 2002; Ryan & Russel Bernard, 2003; Saldaña, 2009; Yin, 2009). Data were analyzed several times and presented to knowledgeable researcher colleagues for confirmation of the emergent themes (Bloomberg & Volpe, 2008; Chenail, 2011).

Considerations for Quality Qualitative Research
The eight big-tent criteria recommended by Tracy (2010) for achieving excellent quality in qualitative research were followed in this study. Some of the criteria were embedded throughout the study such as worthy topic, significant contribution, and meaningful coherence (Tracy, 2010). To ensure rich rigor, both interpretivist and constructivist theoretical perspectives supported the understanding of opportunity recognition by the study’s aspiring youth entrepreneurs (Delgado, 2015). Information was gathered from several sources to interpret and construct reality, including the students’ and the researchers’ viewpoints (Bloomberg & Volpe, 2008). The main postulation was that the observations were related, and interdependent, to the observers and their contexts in regard to interpreting and constructing the study’s reality (Crotty, 1998). Therefore, the researchers’ realities influenced the meaning of the study’s purpose, research questions, and procedures; likewise, the students’ realities were reflected through the data they provided and their related interpretations of such.

Regarding sincerity, the investigators were facilitators of the research process (Delgado, 2015; Wang & Burris, 1997), i.e., as Schoorman and Bogotch (2010) stated: “[R]esearch is not done on members of the community but [rather] with them” (p. 262). Ongoing communication between researchers and stakeholders was maintained throughout the research process. At the end of data analysis, a debriefing meeting (Delgado, 2015; Wang & Burris, 1997) occurred between the researchers and stakeholders, which included the school’s principal and a local staff member of Opportunity International. Findings of the study were presented to and discussed with the stakeholders. This practice is particularly important in photovoice which has as its ultimate goal change to occur from and within the community (Delgado, 2015; Wang & Burris, 1997). To address credibility, triangulation occurred by comparing and contrasting the various data (Lincoln & Guba, 1985). Further, having multiple
researchers allowed collaboration in analysis, member reflections, and checking for inter-coder reliability, i.e., multivocality (Tracy, 2010). Regarding resonance, we aimed to provide sufficient and detailed information about the study for readers to draw their own conclusions (Lincoln & Guba, 1985) about transferability of the study’s findings.

An Institutional Review Board (IRB) protocol observing Oklahoma State University’s and Nicaragua’s laws and regulations was submitted and approved before data collection to address ethical concerns. The study’s consent and assent forms were prepared in English and translated to Spanish at an appropriate reading level for students and their parents. The students were assigned numeric identities to maintain their anonymity and the confidentiality of the students’ responses.

**Researchers’ Reflexivity**

“One model [of reflexivity] is to include a separate section in which authors declare their position . . . [however, i]ntegrating your reflexive commentary within the analysis may be a better way of demonstrating how the researcher’s involvement affected the research process” (Shaw, 2010, pp. 241-242). Reflexivity was embedded during the study which elucidated the research process and helped to ensure that a reflexive approach was followed (Shaw, 2010). The lead researcher’s reflexivity requires unique explanation because of his background and involvement in data collection. In contrast to the other researchers, the lead researcher’s culture is similar to the students, e.g., mother language and diet. He is also a Latin American and from a rural part of Mexico and has worked to deliver extension services to agriculturists there. In addition, he had previous professional and personal relationships in Nicaragua. This background may have influenced how he interacted with the study’s participants and introduced bias into the research process by influencing the study’s design, results, and interpretations. One co-author taught Hispanic students as a teacher of high school agriculture in Texas and has mentored two Hispanic doctoral students working to earn doctoral degrees in agricultural education; one student whose study involves aspects of entrepreneurship development. His work in Latin America has been rather limited. The other co-author is an associate professor of entrepreneurship, leads an institute for global social entrepreneurship, and provided professional development for teachers and school leaders at Emprendedora technical high school in Nicaragua prior to the study.

**Findings & Discussion**

Fifteen females and five males provided photos; 12 in tourism and eight in agriculture. The mean age of students was 16 years, and the median annual family income was $3,210 USD for an average family of six members. The students’ family incomes ranged from $622 to $7,778 USD (see Table 1). Female participation was higher than males even though the class ratio was almost evenly divided. Family incomes were higher for students who opted to use their mobile telephones to take photos than for those who used disposable cameras, i.e., $4,226.29 versus $2,419.55 (see Table 1). Students taking photos with disposable cameras reported either not owning a mobile telephone with photo capabilities or not owning a mobile telephone at all. In addition, the participation rate was higher for students who used disposable cameras to take their photos than of those who used personal mobile telephones, i.e., 11 versus 9 (see Table 1).
Table 1
**Selected Personal Characteristics of Aspiring Youth Entrepreneurs in Nicaragua**

<table>
<thead>
<tr>
<th>Student Number</th>
<th>Business Idea</th>
<th>Age</th>
<th>Sex</th>
<th>Technical Option</th>
<th>Family’s Annual Income</th>
<th>Family Members</th>
<th>Photo Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Crafts (wood scraps)</td>
<td>15</td>
<td>F</td>
<td>Tourism</td>
<td>No answer</td>
<td>6</td>
<td>Mobile</td>
</tr>
<tr>
<td>2</td>
<td>Crafts (woven plastic)</td>
<td>16</td>
<td>F</td>
<td>Tourism</td>
<td>$4,444</td>
<td>5</td>
<td>Mobile</td>
</tr>
<tr>
<td>3</td>
<td>Bakery</td>
<td>16</td>
<td>F</td>
<td>Tourism</td>
<td>No Answer</td>
<td>5</td>
<td>Disposable</td>
</tr>
<tr>
<td>4</td>
<td>Juice bar</td>
<td>15</td>
<td>M</td>
<td>Tourism</td>
<td>$1,333</td>
<td>3</td>
<td>Mobile</td>
</tr>
<tr>
<td>5</td>
<td>Paintings (panel)</td>
<td>15</td>
<td>F</td>
<td>Tourism</td>
<td>$2,222</td>
<td>5</td>
<td>Disposable</td>
</tr>
<tr>
<td>7</td>
<td>Crafts and paints</td>
<td>16</td>
<td>F</td>
<td>Tourism</td>
<td>$7,778</td>
<td>4</td>
<td>Mobile</td>
</tr>
<tr>
<td>8</td>
<td>Organic fertilizer prod.</td>
<td>16</td>
<td>F</td>
<td>Agriculture</td>
<td>$622</td>
<td>3</td>
<td>Disposable</td>
</tr>
<tr>
<td>9</td>
<td>Pineapple prod.</td>
<td>17</td>
<td>M</td>
<td>Agriculture</td>
<td>$2,000</td>
<td>6</td>
<td>Disposable</td>
</tr>
<tr>
<td>11</td>
<td>Coconut oil prod.</td>
<td>15</td>
<td>F</td>
<td>Agriculture</td>
<td>$622</td>
<td>9</td>
<td>Mobile</td>
</tr>
<tr>
<td>13</td>
<td>Organic fertilizer prod.</td>
<td>16</td>
<td>F</td>
<td>Agriculture</td>
<td>$1,600</td>
<td>7</td>
<td>Disposable</td>
</tr>
<tr>
<td>14</td>
<td>Hibiscus prod.</td>
<td>15</td>
<td>F</td>
<td>Tourism</td>
<td>$5,333</td>
<td>5</td>
<td>Disposable</td>
</tr>
<tr>
<td>21</td>
<td>Sale of fresh fruits</td>
<td>16</td>
<td>F</td>
<td>Tourism</td>
<td>$2,222</td>
<td>6</td>
<td>Disposable</td>
</tr>
<tr>
<td>22</td>
<td>Bakery</td>
<td>15</td>
<td>M</td>
<td>Tourism</td>
<td>$1,481</td>
<td>5</td>
<td>Disposable</td>
</tr>
<tr>
<td>23</td>
<td>Lamb prod.</td>
<td>16</td>
<td>M</td>
<td>Agriculture</td>
<td>$889</td>
<td>5</td>
<td>Disposable</td>
</tr>
<tr>
<td>24</td>
<td>Chiltoma pepper prod.</td>
<td>16</td>
<td>F</td>
<td>Agriculture</td>
<td>$3,556</td>
<td>4</td>
<td>Mobile</td>
</tr>
<tr>
<td>27</td>
<td>Library</td>
<td>16</td>
<td>F</td>
<td>Tourism</td>
<td>$5,407</td>
<td>6</td>
<td>Disposable</td>
</tr>
<tr>
<td>28</td>
<td>Butterfly farm</td>
<td>15</td>
<td>F</td>
<td>Tourism</td>
<td>No Answer</td>
<td>6</td>
<td>Mobile</td>
</tr>
<tr>
<td>30</td>
<td>Dragon fruit prod.</td>
<td>17</td>
<td>F</td>
<td>Agriculture</td>
<td>No Answer</td>
<td>4</td>
<td>Disposable</td>
</tr>
<tr>
<td>32</td>
<td>Juice bar (smoothies)</td>
<td>15</td>
<td>F</td>
<td>Tourism</td>
<td>$4,444</td>
<td>6</td>
<td>Mobile</td>
</tr>
<tr>
<td>33</td>
<td>Chicken meat prod.</td>
<td>16</td>
<td>M</td>
<td>Agriculture</td>
<td>$7,407</td>
<td>9</td>
<td>Mobile</td>
</tr>
</tbody>
</table>

*Note.* “F”= female; “M”= male. Income is shown in USD: $27 Nicaraguan Cordobas = $1 USD.

**Research Question #1.** Which business opportunities were recognized by aspiring youth entrepreneurs as they considered existing resources in their communities?

Tourism students presented ideas such as craft shops, bakeries, juice bars, a library, and a butterfly farm. Agriculture students indicated business ideas about organic fertilizer, pineapple, coconut oil, chicken, lamb, and chiltoma pepper, a local bell pepper (see Table 1 & Figure 2).
Figure 2. Photos representing business opportunities recognized by aspiring youth entrepreneurs in Nicaragua. Tourism: a) crafts (carpentry-scraps); b) crafts (woven plastic); and c) a juice bar. Agriculture: d) coconut oil production; e) chiltoma peppers; and f) chicken meat.

Recycled materials were among the resources students considered relevant to their business ideas. Student #1 identified carpentry scraps as one of the most important resources for her business idea. In response to the prompt – “Why is this photo important for your business idea?” – in one of her photos (see Figure 2a.), Student #1 stated: “It’s important because these are the carpentry-scraps with which we can work to make crafts.”
Although the exercise of taking photos stressed the importance of students considering existing resources in regard to their business ideas, they were not prevented from documenting other potential raw materials or inputs. However, in general, students did not photograph large companies or well-known brands, but instead documented locally available assets and materials. A majority described their ideas as production-oriented enterprises, and a few emphasized marketing or advertising. A small number indicated exporting to other countries or creating large companies. Student #30 said: “The dragon fruit has great potential for exports, and for making dragon fruit jelly.” In response to the prompt – “Why is this photo important for your business idea?” – Student #9 stated: “I need the product (pineapple) to start my commercialization and sell it in the markets of my country, and then export to other countries.” The opportunities were related to the students’ study options (see Table 1). Student #8 expressed: “What motivates me for this business idea is that I'm studying agriculture and I know the importance of compost and I like doing that.” These findings support Zahra et al. (2009) results on the influence of immediate context in the exercise of opportunity recognition by entrepreneurs. This conflation of what students learned in school with the recognition of income-generating opportunities in their communities is important for Nicaragua with much of its population rural and agriculture about 20% of the nation’s GDP (The World Bank, 2015).

Research Question #2: What were the aspiring youth entrepreneurs’ rationales for linking existing resources to business opportunities?

Four themes emerged from students’ rationales for linking their local resources to potential business ideas. Data from the modified questionnaire, supported by students’ personal attributes and written prompts for the photos, revealed the themes.

Theme #1: Motivated to help themselves and their families by exploiting the need for a service or product in their communities. This theme emerged from students’ answers to “What motivates you to do this business idea?” Student #27 stated: “To help my family financially and learn to self-sustain me.” Student #4 said: “personal growth, help my family, income, support of my parents.” And Student #22 replied: “[I]t would be very important because it would bring prosperity to my family and I will take this product to people.”

Theme #2: Meet the needs of producers and consumers by providing a quality service or product for their communities. To arrive at this theme, students’ responses were analyzed to the question “What would be the impact of this business idea?” Comments included: “my business would be an easier access to organic fertilizer for big farmers” (Student #8); “producer[s] connected to the country's markets and offer a quality product to the public” (Student #9); “satisfaction of consumer needs, and generate income for the country and owner” (Student #14); “this idea would be good for the community because of the provision of work; it will have a good impact on the consumer because there is no company [now] that is responsible for production” (Student #24); and “the product will provide vitamins to people” (Student #33).

Theme #3: Identification with products and services through personal experiences. Students’ responses from two questions supported this theme: a) “How
does this business idea relate to your life?” and b) “Why should this business idea exist?” Regarding how the ideas related to their lives, students said: “because I can paint and it is an art for me, it is a gift that God has given me and I would like everybody to know what I do” (Student #5); “I have lived in a family that practiced their own businesses and I know where and how to negotiate” (Student #22); “because it is something that I have some knowledge about and it’s something of easy access” (Student #27); “[i]t relates to my life because my family use to have a beef business and while delivering I noticed that buyers demanded more chicken than beef” (Student #33). Regarding rationales for the existence of their business ideas, several students explained: “it should exist because youth and people eat junk food every day and they stop[ped] eating healthy food” (Student #21); “because this product is highly demanded in my area and if it exists people will buy it and they will not have to get it from a far distance” (Student #22); “it should exist because the product I will offer is very viable and demanded by Nicaragua” (Student #24); and “because it is a viable way to contribute to the household and national economy” (Student #33).

**Theme #4: Recognition of the need for change if their entrepreneurial goals are to be achieved.** Students insights to the question – “What would you change, in your surrounding environment, for this to be a feasible business idea?” – supported this theme: “offer products in the communities, where they need to improve their yields and quality of their crops” (Student #13); “[w]hat I would change is the demand that exists in Nicaragua, if not increasing demand elsewhere and create greater publicity of this hibiscus product” (Student #14). Creating social wealth via social entrepreneurship also emerged from the rationales. For example, Student #28, an aspiring butterfly farm owner, said: “What I would change is the culture, the way of life of the people in the community, as I would recycle and help nature.” Student #21 saw the need to provide children with fresh fruit, and contended that a child she photographed “will not be healthy since he does not consume fruits because they are not at his fingertips.”

**Research Question #3: What was learned about the use of photovoice as a data collection method in regard to aspiring youth entrepreneurs and opportunity recognition?**

Guidelines for taking the photos caused some anxiety because the students wanted examples of resources they could photograph for their business ideas, but Delgado (2015) warned about conditioning expressibility, i.e., limiting students’ creativity to a given example. Therefore, instead of examples, the students were encouraged to think deeply about existing resources and then take photos of what they considered important. In this way, everything was a possibility; so, the collection guidelines for photovoice should be clear but not restrictive. The pilot test aided in focusing but not narrowing the exercise’s guidelines for collecting data and students taking photos of business opportunities and complementary resources (Chenail, 2011; Delgado, 2015). Having a facilitator, the school’s principal, who understood the local context (Wang & Burris, 1997), aided in overcoming potential obstacles such as building trust with the participants. Providing disposable cameras to facilitate photo collection allowed some students to participate in the study who might not have due to lacking mobile telephones capable of taking photos.
Conclusions, Implications & Recommendations

Opportunity recognition demonstrated the students’ behavioral intentions to become entrepreneurs (Ajzen, 1987, 1991; see Figure 1). This intention was shaped by their behavioral, normative, and control beliefs toward entrepreneurship. Behavioral beliefs included aspects of social entrepreneurship as represented by the attitudes of some students who perceived their business ideas were good actions to take while also improving their communities. As for normative beliefs, the students perceived that members of the social system, such as family members, positively valued their business ideas. Concerning control beliefs, the students expressed the confidence to execute business ideas, and perceived themselves to be knowledgeable about entrepreneurship and capable of relying on local assets to execute their aspirations.

These positive attitudes, views on subjective norms, and perceptions of control regarding opportunity recognition indicated a strong intention from students to become entrepreneurs. The more favorable a person’s attitudes and perceptions of subjective norms, and the greater an individual’s perceived control, the stronger his or her intentions are to perform a given behavior (Ajzen, 1991). Photovoice allowed the researchers to gain in-depth information from students who expressed in images what may have been difficult to convey in words (Delgado, 2015). Having multiple sources of data also provided a triangulated understanding of the phenomenon’s complexities (Emerson et al., 1995; Patton, 2002). In addition, the students showed a high capacity to identify opportunities and how to pursue such, and they were able to connect the dots (Baron, 2006). Aspiring young entrepreneurs in Nicaragua identified opportunities on which to capitalize and recognized a variety of entrepreneurial possibilities being linked to their situational contexts (Baron, 2006; see Table 1). Some also expressed strong interests in doing social good suggesting a more societal improvement than traditional, profit-oriented view (Zahra et al., 2009).

The poor are able to recognize business opportunities in concert with their economic conditions, and do not need to be super humans (Banerjee & Duflo, 2012; Williams & Nadin, 2013) to do that. Opportunity recognition (Baron, 2004; Singh, 2001) may be one of the more promising ways to overcome poverty; its facilitation holds implications for agricultural, tourism, and rural development curricula and educational programming, especially regarding youth education and their learning experiences. For instance, Bell (2015) described improved development of skills when students actively participated in the entrepreneurial process. Moreover, Elert, Andersson, and Wennberg (2015) found a significant and positive impact of high school students’ entrepreneurship education experiences on their long-term entrepreneurial performance. This study’s results suggest support for Elert et al. findings. By aiding students’ in recognizing context-appropriate businesses, such may become important economic lifters of communities with endemic poverty.

Additional research should be conducted on how the recognition of income-generating opportunities leads to the establishment of businesses by high school students in Nicaragua and in similar contexts. The study’s higher female participation supports the recommendation by Wang and Burris (1997) about using photovoice in action research with the aim of empowering women. Having a local research facilitator is recommended in studies involving photovoice. It is also recommended to provide participants with
the research materials needed for a study, e.g., disposable cameras, when their economic status may limit participation. Although the study’s findings should not be generalized beyond the sample, some transferability may exist to similar settings (Creswell, 2013). In that regard, social entrepreneurship warrants consideration for agricultural as well as tourism education and rural development, especially for youth in resource-constrained communities.

References


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The Influence of Gender on Rural Honduran Women’s Participation and Leadership in Community Groups

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Abstract

Throughout Latin America, increasing women’s leadership has been part of many development efforts. However, extensive research on this topic, especially with rural indigenous women, is limited in the literature. Barriers and opportunities for women to participate in leadership within their communities and local organizations may be related to economic, psychological, and social factors that influence their personal empowerment. This study used mixed methods to explore multiple perspectives of community participation and leadership of two Lenca villages in the western department of Lempira, Honduras. The findings from this study provide insight into structural constraints on women’s leadership in the community, and how gender affects engagement in agriculture. The importance of this research is its applicability to agricultural extension practitioners working in rural communities where participation in traditional gender roles may create gaps in women’s opportunities to engage in decision-making around agriculture, participate in community development, and be valued as leaders. For communities whose livelihoods rely on agriculture, understanding barriers to women’s participation can aid extension practitioners working to increase food security, as women play key roles in both agriculture and in supporting their families.

Keywords: gender, women, agriculture, leadership, participation
Introduction

Evidence suggests that rural women in developing countries have played a pivotal role in agriculture for decades (Lastarria-Cornhiel, 2006; Satio & Weidman, 1990). However, they have often been excluded from participating in rural organizations and from receiving extension support that could increase access to services, productive resources, and bargaining power (Colverson, 1995; Tanwir & Safdara, 2013; Todaro & Smith, 2012). A myriad of barriers to rural women’s participation in groups have been identified including: time constraints due to involvement in domestic tasks (Antwal & Bellurkar, 2016; Meinzen-Dick, Behrman, Pandolfelli, Peterman, & Quimsumbing, 2014; Mudege, Nyekanyeke, Kapalasa, Chevo, & Demo, 2015), low levels of education and self-confidence (Fonchingong, 2006; Meinzen-Dick et al., 2014), and constraints related to traditional gender roles and social status in organizations and communities (Gotschi, Njuki, & Delve, 2008; Meola, 2013; Mudege et al., 2015). For Latin America, increasing women’s leadership has been part of many development efforts, but extensive research on this topic, especially with rural indigenous women, is limited in the literature. For Honduras, increasing women’s participation in agricultural and community organizations is particularly salient due to socioeconomic issues that disproportionately affect them such as poverty, violence, and education (Guillen Soto, 2013; Ronderos, 2011; UNDP, 2016). Projects that have promoted equal participation of both men and women, including those who have involved women in the adoption of innovations, can be catalysts for the empowerment of women and increase productivity and income (Ashby et al., 2009; Tanwir & Safdara, 2013); therefore, understanding the barriers to women’s participation can aid the work of agricultural extension practitioners whose aim is to increase food security and reduce poverty.

In small farmer sectors, women work in crop and livestock activities as well as collect, process, cook and sell food, indicating that women contribute significantly to food security in rural areas of Honduras (Guillen Soto, 2013). However, recent work by Feed the Future’s Horticulture Innovation Lab in Western Honduras revealed that gender norms are deeply entrenched and can limit institutional support of rural women as well as their participation in community development and household decision-making (Larson, 2017). Local organizations working with Feed the Future projects in Honduras identified the need to engage women in more leadership roles in agriculture and the community as a strategy for closing gender gaps in these areas (Colverson et al., 2016). By providing more training and support for women in leadership, the social norms that limit women’s opportunities can shift, yielding more access to economic opportunities and increased decision-making in the home and community. Understanding women’s lived experiences and how they see their roles in the home, community, and as leaders, is necessary to create programs and leadership opportunities that women are comfortable adopting. In this study, both quantitative and qualitative methods were employed to understand rural women’s empowerment in agriculture and gender norms around community participation and leadership.

Literature Review

Previous research on the economic, social, and psychological dimensions of rural women’s lives provided insight into the factors considered influential in their empowerment and ultimate participation in groups and leadership. Structural economic
constraints such as time spent on domestic tasks, lack of control over finances and decision-making, male-dominated extension services, and dependency on men due to limited access to, and control over, productive resources have been documented as influencing women’s participation in agricultural groups (Alkire, Meinzen-Dick, Peterman, Quisumbing, Seymour, & Vaz, 2013; Antwal & Bellurkar, 2016; Fonchingong, 2006; Gotschi, Njuki, & Delve, 2008; Mudege et al., 2015). Yet, with increased access to training and extension services, as well as the creation of female dominated agricultural cooperatives, opportunities for women to participate and engage in leadership have been found to be successful (Ferguson & Kepe, 2011; Meola, 2013). Social norms such as women’s inability to speak in groups, lack of support by husbands, gendered exclusion from organizations, and gender imbalances in social settings can also be barriers for women in rural communities (Gotschi et al., 2008; Klein, 2016; Mudege et al., 2015; Torkelsson, 2007). Whereas, higher levels of trust in groups, support of the husband, or more autonomy in the home may result in more participation by women (Klein, 2016; Meola, 2013; Weinberger & Jütting, 2001). The psychological factors of low self-esteem and self-efficacy due to lack of education and skill development have emerged as barriers to women’s participation in groups and leadership (Fonchingong, 2006; Meinzen-Dick et al., 2014). However, targeted business, leadership, and agricultural training for rural women as well as engagement in entrepreneurial and relationship-building activities increased their capacity and confidence of working in groups, their self-esteem, and enhanced their independence (Chhoeun, Sok, & Byrne, 2008; Ferguson & Kepe, 2011; Rewani & Lalhumliana, 2014).

The aforementioned scholarship on rural women’s participation in groups and leadership indicates that targeted engagement can empower women and increase their economic standing, confidence, independence, and community engagement. Specific to agriculture, empowering women through closing gender gaps in assets and increasing their ability to make decisions on what to plant and which animals to rear can increase productivity and self-esteem (Alkire et al., 2013). Although, there has been an observed feminization of the agricultural sector due to women’s increased responsibility for subsistence farming (Deere, 2005), the evidence of continuing gender bias in access to extension services and gender-specific constraints in technology adoption has been well documented (Rasaga, 2014). Understanding women’s state of empowerment across various dimensions offers insight for agricultural extension practitioners as they work to close gender gaps in services and opportunities. Identifying contextual variables such as the social acceptability of women’s agricultural and leadership roles, women’s economic needs and decision-making power, as well as what they need from extension services, can deepen the impact of projects for women and their families.

**Conceptual Framework**
In the context of development research, gender can be understood as a sociocultural relationship, referred to as the roles and meanings assigned to men and women (Moghadam & Senftova, 2005). Lorber (1994) referred to gender as a social institution of which human beings organize their lives, through the process of learning how to be women and men. The process of gender thus creates social differences between men and women, as well as a stratification system in which gender ranks
men above women in status and competence (Lorber, 1994; Ridgeway & Correll, 2004). Gender was an organizing principle for the study to identify how women’s participation differed from men’s in both agriculture and the community. Understanding that gender crosscuts development work, the study was also conceptualized utilizing dimensions of women’s empowerment to identify factors influencing their participation in leadership.

Broadly stated, empowerment refers to the expansion of freedom of choice and action to shape one’s life (Narayan-Parker, 2005). Empowerment can also be described at the individual or group level as people’s capacity to make choices and then transform those choices into desired actions and outcomes (Alsop, Bertelsen, & Holland, 2006). Structural constraints and opportunities should be attended to when conceptualizing empowerment within development work as Sen (1999) asserted that freedoms, such as political, social, and economic are interrelated, and a freedom of one type may advance others. Moghadam and Senftova (2005) conceptualized empowerment by addressing it, “as a multi-dimensional process of civil, political, social, economic, and cultural participation and rights” (p. 390). For the purpose of this study, the focus was on the economic, social, and psychological dimensions as they were considered to encompass many of the factors that influence women’s participation and leadership in rural communities.

Economic empowerment can refer to women’s control over income in the household and decision-making related to assets as well as access to employment, markets, and assets (Narayan, 2005). Economic empowerment factors identified for the study as influential in the agricultural context include: how women’s time is divided between productive and reproductive tasks; their access to markets in order to sell agricultural products; their roles in household decision-making over resources; and their access to extension services that enable them to increase their productivity through time-saving innovations. The domain of social empowerment is derived from social capital theory that explains how an individual’s relationships and networks along with social norms and trust can provide some type of benefit for the individual (Lin, 1999; Putnam, 2000). Social capital can also be articulated as a community’s personal and institutional relationships and networks, and how these enable both increases to an individual’s social ties, access to resources, and collective action (Woolcock, 1998; Woolcock & Narayan, 2000; Lin, 1999). Thus, women’s social relationships, the norms relating to familial support and gender within the community, gendered group organization, and the social trust between women farmers and partners or extension practitioners were included as factors that may influence women’s participation in the leadership roles. Finally, the domain of psychological empowerment has foundations in the self-efficacy work of Bandura (1995, 1997), who argued that perceived self-efficacy, or the belief that one can do something, influences one’s choices, aspirations, effort levels, perseverance, and resilience. This was later integrated into the concept of leadership self-efficacy, which asserts that if a person has confidence that she can make a difference and believes in her abilities, she will be more likely to take on leadership roles (Komives, 2009). Factors in this domain encompass women’s leadership self-efficacy, self-confidence in leadership abilities, motivations to participate, as well as the perceived risks, barriers, and achievements related to leadership.

The authors’ framework was intended to measure rural women’s ability
and freedom of choice to not only participate in local groups and organizations but also engage in leadership roles. For smallholder farming communities, this participation and engagement was related to their empowerment in agriculture and community development as both impact their ability to act in that context.

Purpose & Objectives
To provide a deeper understanding of the spaces for rural women leaders, the primary purpose of this study was to explore factors that influence participation in groups and leadership roles of rural Honduran women in the Western department of Lempira. Specifically, the study sought to (1) describe the economic, psychological, and social factors of empowerment that influence women’s group and leadership participation and (2) describe the risk, barriers, and opportunities that affect women’s ability to participate in leadership roles.

Methods
A transformative, mixed-methods design was used to frame the study. This design is framed within a transformative theoretical perspective in order to explore inequalities or bring about change in an underrepresented group (Creswell & Plano Clark, 2011). Within a transformative design, the data collection for these two strands can occur concurrently (Creswell & Plano Clark, 2011), thus quantitative and qualitative aspects of the study occurred in the same phase. Quantitative and qualitative data were collected through researcher and enumerator administered surveys, and additional qualitative data were collected through four focus groups. The survey research explored the dimensions of rural women’s empowerment in agriculture in order to identify barriers and opportunities related to women’s participation in groups and leadership. The researcher sought to discover common factors that influence women’s participation, as well as any correlations among variables between women who do participate and those who do not. Qualitative data provided supportive information for quantitative efforts, and was thus considered to be embedded within the study (Creswell, 2009).

The Western departments of Honduras, one of which comprised the study area, are part of the Feed the Future zone of influence. USAID (2011) identified this population as particularly vulnerable to environmental and economic shocks as well as to the cycle of poverty. Women have been identified as a subgroup with which to work, to avoid further marginalization and maximize development efforts (USAID, 2015). Therefore, the study’s target population was rural women who identified as Lenca, one of the nine indigenous communities in Honduras living in the western department of Lempira. The Lenca were chosen so as to focus on one cultural group since social norms and customs that influence women’s participation were assumed to be more consistent within the group, reducing the amount of variation in the study. The study participants lived in areas served by non-profit and governmental organizations, hereinafter referred to as partner organizations, working with the Integrating Gender and Nutrition within Agricultural Extension Services (INGENAES) project supported by USAID as part of the Feed the Future initiative. A sampling frame of potential communities was compiled from census data indicating which municipalities were primarily Lenca in the department of Lempira. Two Lenca communities were identified in different zones in Lempira: Posa Verde and San Antonio. Apart from the population being Lenca, these communities were also chosen due to their dependence on subsistence
agriculture and the partner agencies’ familiarity with them through extension activities. Access to these communities was also a selection factor, as no public transportation was available and four-wheel drive vehicles were required. Partner agencies assisted the researcher in visiting the communities in order to conduct the study.

A paper-based questionnaire administered to female heads of household utilized open- and close-ended items to collect data for descriptive and evaluative purposes, primarily yielding the quantitative data for the study. The literacy level of the target population and lack of technological access informed the use of face-to-face, orally-administered questionnaires. The questionnaires were based on well-established instruments to gather data on economic, social, and psychological factors that can influence group participation and leadership, thus content validity is considered high. Questions related to household decision-making around production and income generation, influence on decision-making, time allocation, and individual leadership and influence in the community were adapted from the Women’s Empowerment in Agriculture Index (WEAI) (Alkire et al., 2013). The Sociopolitical Control Scale (SPCS-R) (Peterson et al., 2006) was used to measure perceived leadership competence, related to psychological empowerment, and was the only latent variable measured using a Likert-type scale. Finally, Grootaert and Van Bastelaer’s (2002) questions from the Social Capital Assessment Tool were adapted to explore factors of social empowerment that included confidence and solidarity in the community.

Face validity was established by an expert panel consisting of faculty from [a land grant University] representing the Departments of Agricultural Education and Communication, The International Center, and the Institute of Food and Agricultural Sciences Global Office. This panel included a native Spanish speaker who reviewed each phase of the instrument. The instrument was pilot-tested with 10 rural women in Western Honduras with similar education levels and communities as the target population. Due to comprehension issues with several constructs, the questionnaire was revised to aid understanding and reduce administration time to under one hour. The only latent scale in the instrument measured leadership competency and due to the small group of pilot-test participants the reliability coefficient was assessed after full administration of the questionnaire. The leadership competence scale was found to be reliable with a post hoc Cronbach’s alpha of .78. Other scales were analyzed individually for descriptive purposes. The questionnaire also included open-ended responses that provided qualitative data.

Random, cluster sampling was used in this study to identify households. In both communities, the layout of households was established and the population was used to create clusters. The clusters were randomly sampled, with all units measured in each cluster. The populations of both communities equaled 140 households. Fifty questionnaires were planned to be collected due to time and transportation constraints and forty-nine total questionnaires were completed by female heads of household.

Focus groups were the main qualitative method for collecting descriptive data, along with supporting data collected via open-ended responses from the questionnaire. A focus group protocol was created including instructions for interviewers/focus group facilitators, questions related to leadership and empowerment from the literature, and probes. Participants for the focus group were sampled purposively based on their
willingness to participate, age range, marital status, and participation in community groups. Four focus groups of 6-8 participants, one female and one male per community, were facilitated after the surveys had been completed.

Quantitative data from the questionnaire were entered into the Statistical Package for Social Sciences (SPSS) version 22 software yielding descriptive and inferential statistics. Descriptive statistics were reported for the respondents’ demographic data and for data from the economic, psychological, and social portions of the questionnaire. Qualitative data from both the focus groups and open-ended responses from the questionnaire were examined using Harding’s (2013) thematic analysis process for using codes to analyze focus group data. The recorded focus group discussions were transcribed, summarized, and initial categories identified. Codes were written alongside the transcripts with a revision of a list of categories to follow. Themes and findings were explored in each category relating to gender, leadership, and empowerment constructs and integrated with the quantitative data from the questionnaires during analysis.

Results

Demographic Characteristics of Respondents

Questionnaire respondent demographics are hereto presented. The age range of respondents was 21 to 72, with an average age of 42. Most respondents had either no education (35%) or incomplete primary education (45%). The majority of respondents were either married (63%) or cohabitating with their partner (22%). The number of household members ranged from 2 to 11, with an average household size of 5.5. Female focus group participants included women from a range of demographic attributes including: age, education, and marital status. Male focus group participants were either husbands of female focus group participants or other married or single members of the community. They also represented different age ranges and education levels.

Factors that Influence Women’s Participation & Leadership

Economic. Women’s roles, how they spend their time, and their access to extension services were factors that influenced women’s capacity to participate in and contribute to growth processes that may influence their economic empowerment. Women’s self-identity and responsibility as a caregiver arose through both the focus groups and questionnaire findings. The majority of households (73%, N=49) included children or grandchildren under the age of 11, ranging from one to four per household. Both men and women in the focus groups discussed how the woman’s role was to take care of the children and home, limiting their ability to leave for meetings and trainings.

In addition to childcare, women participated heavily in other reproductive activities, with survey respondents (N=49) reporting that they engaged in cultivating crops for family consumption, raising animals, fetching water, fetching wood, cooking, caring for others, cleaning, and sewing. Table 1 displays the average time spent on these activities and represents the entire sample. The activities with the highest numbers of respondents were cooking, raising animals, caring for others, and fetching wood. Apart from raising animals, these activities also had the highest mean hours spent on the task.
Agriculture was referenced across focus groups, emphasizing its importance to participants’ livelihoods. San Antonio women discussed the ability to grow crops and train others in agriculture as something that they valued. This group discussed that it was the men’s responsibility to tend to crops, whereas women were responsible for the house. Few women reported participating in agricultural training; however, the aforementioned data revealed that they did regularly engage in agricultural activities. Decision-making within the household was analyzed to aid in understanding where women’s contributions are valued. Here, respondents also reported higher levels of decision-making input for household gardens and raising animals, although fewer respondents participated in selling livestock for income. See tables 2 thru 4 for decision-making related to agriculture within their households.

Table 2
Women’s Decision-making in Agriculture – Household Garden (n=47)

<table>
<thead>
<tr>
<th>Type of decision</th>
<th>Self</th>
<th>Spouse</th>
<th>Joint</th>
<th>Other household member</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>What to grow</td>
<td>10</td>
<td>21.2</td>
<td>19</td>
<td>40.4</td>
</tr>
</tbody>
</table>

Table 3
Women’s Decision-making in Agriculture – Crops to Sell (n=22)

<table>
<thead>
<tr>
<th>Type of decision</th>
<th>Self</th>
<th>Spouse</th>
<th>Joint</th>
<th>Other household member</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>What to grow</td>
<td>3</td>
<td>13.6</td>
<td>13</td>
<td>59.0</td>
</tr>
<tr>
<td>What to sell</td>
<td>3</td>
<td>13.6</td>
<td>9</td>
<td>40.9</td>
</tr>
<tr>
<td>How to use income</td>
<td>2</td>
<td>9.0</td>
<td>12</td>
<td>54.5</td>
</tr>
</tbody>
</table>
Table 4  
Women’s Decision-making in Agriculture – Livestock (n=45)  

<table>
<thead>
<tr>
<th>Type of decision</th>
<th>Self</th>
<th>Spouse</th>
<th>Joint</th>
<th>Other household member</th>
</tr>
</thead>
<tbody>
<tr>
<td>What to raise</td>
<td>26</td>
<td>5.78</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>What to sell</td>
<td>15</td>
<td>33.3</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>How to use income</td>
<td>11</td>
<td>37.9</td>
<td>5</td>
<td>12</td>
</tr>
</tbody>
</table>

**Psychological.** Self-confidence and a sense of self-efficacy are important precursors to action and may explain why individuals with similar abilities and resources differ in actions on their own behalf (Narayan-Parker, 2005). Self-confidence in leadership abilities was discussed in focus groups as a barrier to leadership and group participation, specifically in relation to public speaking and participating in meetings. In the San Antonio focus group, Patricia stated, “we have never been accustomed, so we feel fear to be in a position.” San Antonio women emphasized being timid and the need for training as constraints to holding leadership positions. Quite different from the San Antonio group, Posa Verde women discussed their identities as leaders after they had reflected on the characteristics, abilities, and resources that their leaders exemplified. Daniela from Posa Verde stated, “A woman is always able to perform the role of a leader, in the abilities and characteristics.” Posa Verde women discussed how men and women were equal, but that men had the leadership roles. In this way, women conceptualized leadership to include the social, spiritual, and maternal responsibilities that women carried out in the community.

Gender roles emerged again as a barrier to engaging in leadership during both women’s focus groups; they specifically named marriage as a barrier. Posa Verde respondent Juanita noted “I am a single mother, but in many cases, I have seen many homes that the obstacle they have is that the man says, ‘No you are not going to leave, you are not going to be a leader in the community, and there this is what I order’.” Beyond marriage, Posa Verde and San Antonio women, as well as San Antonio men, commented on how men were more courageous than women in regard to leadership, and this perceived lack of courage served as a barrier to women taking on those roles. This was related to the ability to leave the house or community as well as to physical strength. As Jorge from San Antonio commented, “It is the importance of a man, like they said, of a man, more responsible over all because it’s up to them to leave their place for another region or the same region.” The courage or importance of males and their proclivity for leadership roles may also be explained by their physical strength in relation to external threats to safety. As mentioned in the male San Antonio group:

Sometimes they do this (choose men) because the men always feel more courage in ability to travel out of the community.
Therefore, a woman feels like... it is not that she cannot, but she feels fear during the time that we go out to all these places, there is always this problem of crime. (Luis)

Vulnerability of women traveling outside of the community, coupled with their daily tasks within the home, give little opportunity to engage in activities beyond their village. As a result, women may be forced to rely on men’s leadership even if they are thought to be capable of serving in those roles. The discord between perceived ability and opportunity was illuminated through the quantitative results from the leadership competence scale. The scale measured levels of agreement for statements related to working in groups, serving in leadership roles, and participating in leadership tasks. Women reported low levels of participation in leadership roles \((n=36)\), yet higher levels of leadership competencies such as leading with their ideas \((n=38)\), trying new and challenging tasks \((n=35)\), and problem-solving \((n=39)\). Table 5 displays frequencies for each scale item.

### Table 5

**Frequencies for Leadership Competency Scale Items (N=49)**

<table>
<thead>
<tr>
<th>Scale item</th>
<th>Always</th>
<th>Almost always</th>
<th>Almost never</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am often a leader in groups</td>
<td>8</td>
<td>5</td>
<td>14</td>
<td>22</td>
</tr>
<tr>
<td>I would prefer to be a leader rather than a follower</td>
<td>20</td>
<td>3</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>I would rather have a leadership role when I am involved in group work</td>
<td>20</td>
<td>5</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>I can usually organize people to get things done</td>
<td>15</td>
<td>9</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Other people usually follow my ideas</td>
<td>23</td>
<td>15</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>I find it very easy to talk in front of a group</td>
<td>20</td>
<td>7</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>I like to work on solving a problem myself rather than wait to see if someone else will do it</td>
<td>27</td>
<td>12</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>I like trying new things that are challenging to me</td>
<td>24</td>
<td>11</td>
<td>5</td>
<td>9</td>
</tr>
</tbody>
</table>

**Social.** The domain of social empowerment is presented in the conceptual framework as the network of relationships among people within and outside of a community, the available resources resulting from this network, and the social norms around gender and groups. Across the focus groups, participants discussed community connectedness as something an individual needed in order to become a leader. This manifested as being supported by the people and, inversely, supporting the people in the community. Specific to the female focus groups, both Posa Verde and San Antonio women discussed how leaders should travel to, and communicate with, people outside the community in order to collaborate and network with institutions if one was to accomplish this type of work. Survey questions that explored women’s social networks were included in the group membership sections. The group with the highest level of participation from respondents was the church \((n=39)\) with the next highest being the water users’ group \((n=19)\), and the school-parent group \((n=18)\). More gender parity was reported in the religious group and parent group with 86% and 95% reporting equal male and female participation respectively.
San Antonio women and men, as well as Posa Verde men, discussed the need for a women’s group. Women in San Antonio also felt that a men’s group that could work with a women’s group would be beneficial when it comes to completing projects for the community. Further, the creation of an agricultural collective for men and women, wherein the women are valued equally, was an expressed idea:

If you believe that there should be a collective to grow corn and beans, a vegetable garden, a half a hectare of carrots, it is a goal that all of the group is going to speak. The men and the women have the same value to question each other how we are going to do things, how we are going to sort it out. (Clara)

Therefore, participants acknowledged the need for women’s representation and organized groups as both a space to engage in the community as well as support livelihoods through agriculture. However, in the men’s groups women’s opportunities in agriculture were limited to home gardens without mention of commercial crops or livestock.

Trust, as another factor of the social dimension of empowerment, was reported for outside community groups with whom women interacted. Table 6 depicts responses for the following groups: local government officials, teacher and school officials, extension technicians, police, and employees of NGOs. The highest level of variability in trust was in local government officials with trust levels much higher for other groups.

<table>
<thead>
<tr>
<th></th>
<th>A lot of trust</th>
<th>Some trust</th>
<th>Little trust</th>
<th>No trust</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local government officials</td>
<td>15 (30.6%)</td>
<td>8 (16.3%)</td>
<td>12 (24.5%)</td>
<td>14 (28.6%)</td>
</tr>
<tr>
<td>Teacher/school officials</td>
<td>37 (75.5%)</td>
<td>8 (16.3%)</td>
<td>3 (6.1%)</td>
<td>1 (2.0%)</td>
</tr>
<tr>
<td>Extension technicians</td>
<td>30 (61.2%)</td>
<td>9 (18.4%)</td>
<td>7 (14.3%)</td>
<td>3 (6.1%)</td>
</tr>
<tr>
<td>Police</td>
<td>30 (61.2%)</td>
<td>11 (22.4%)</td>
<td>5 (10.2%)</td>
<td>2 (4.0%)</td>
</tr>
<tr>
<td>Employees of NGOs</td>
<td>28 (57.1%)</td>
<td>10 (20.4%)</td>
<td>9 (18.4%)</td>
<td>2 (4.0%)</td>
</tr>
</tbody>
</table>

Conclusions, Recommendations & Implications

Gender roles crosscut each of the economic, psychological, and social domains of empowerment. Women’s freedoms around participation in community groups and leadership appeared to be tied closely to their perceived domestic and familial responsibilities and abilities. Male participant statements in the focus groups also supported these beliefs around women’s leadership participation and gender roles. In particular, the barriers to leadership related to the gendered division of labor and access to opportunities were apparent. The gender division that emerged in the data related to decision-making over use of income and domestic responsibilities aligns with previous women’s economic empowerment research from other developing countries (Alkire et al., 2013; Antwal & Bellurkar, 2016; Fonchingong, 2006; Gotschi et al,
2008; Mudege et al., 2015). The amount of time women are required to spend in the home taking care of reproductive tasks and working on productive tasks, as well as how much free time they have available, can influence how they are able to participate in community activities. Women in Posa Verde and San Antonio reported higher decision-making power over their home gardens and raising livestock and less over commercial crops. Therefore, an entry point for women’s leadership in agriculture using this approach can be through animal husbandry. Their higher levels of autonomy in this area indicate social acceptance for their decision-making roles. Becoming experts in this area could increase their assets and their leadership abilities as they teach others about best practices. However, domestic responsibilities may still present challenges to participating in trainings. These tasks have also been documented in the literature as barriers to increasing women’s economic empowerment through participation in agricultural groups. In this study, both focus group and quantitative data clearly reflected women’s primary responsibilities for childcare and other domestic responsibilities. Thus, developing training for women must be purposive in that extension technicians should engage in community visits and talk with a wide variety of people before beginning programming to understand local power dynamics and gender norms. This will support extension efforts in designing trainings that cater to these unique dynamics, leading to trainings that take women’s time and ability to reach meeting locations into account. Doing so will allow extension practionners to further incorporate women into their outreach efforts, increasing women’s opportunities for leadership and engagement.

Although animal husbandry presents an opportunity, focus group data revealed that agricultural knowledge specific to crops was thought to be held primarily by men. Also relating to economic empowerment, both women and men valued leaders having technical abilities related to crops and being able to teach others. Women discussed needing additional training in agriculture and expressed the desire to obtain it. The higher levels of trust with extension technicians may demonstrate that women had fairly positive interactions with them. Therefore, those engaged in extension efforts should also identify ways to engage women in horticultural production, while supporting how their contributions could be more highly valued in this domain. However, attending to the accepted social roles of women in agriculture is also important for extension practitioners. Resistance to engagement in trainings may be due to gender norms in the community; therefore, gender sensitive trainings where women may be able to participate with their partners and given opportunities to engage rather than women’s only trainings, may be an option. For example, in San Antonio, female focus group respondents discussed the possibility of an agricultural collective for both men and women. Assessing the receptivity of mixed gender groups when working in communities can present the opportunity for extension services to help create this type of organizational structure.

Leadership skills, relating to the psychological empowerment domain, including managing people and speaking in groups were also discussed as needs in the focus groups. Leadership competency scale items indicated that women had self-efficacy in areas of leadership, yet opportunities to practice and gain self-confidence were lacking. Creating opportunities for women to lead a discussion, teach others a new skill, or share their ideas are ways in which to create more inclusive spaces for practicing leadership. In addition, the female Posa
Verde focus group saw themselves as having leadership abilities and characteristics in their roles with family, friends, and church; therefore, supporting and building upon those leadership identities can increase engagement and participation in groups. For both female focus groups, the participants indicated that the discussion itself served as a way to connect with their leadership abilities, learn about leadership, and participate in a way they had not before. There is evidence of how women’s only spaces, either through formal training or self-help groups, can provide an opportunity to work together, share experiences, increase their self-esteem, and become less dependent on men (Chhoeun et al., 2008; Oberhauser & Pratt, 2007; Mudege et al., 2015). In both communities, public meetings tended to be male dominated, apart from the church and parent groups, limiting the psychologically safe public spaces available for women. Men and women from both communities expressed the formation of a women’s group as opportunities for increased engagement for women.

Agricultural knowledge and the availability of resources were valued in the communities; therefore, there are many opportunities for extension to work with men and women. However, extension practitioners must be aware of how gender norms in communities can influence who is able to participate in and benefit from projects. Establishing trust and support emerged as important to increasing participation for women leadership roles and the power of expert knowledge and resources should not be ignored for those working in poor, subsistence farming communities.

References


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Gap Analysis for Future Agricultural Education Research in Eswatini, Swaziland

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Abstract
From the late 1970s to the early 1980s, agriculture educators began to use research as a way of verifying, creating, disseminating and applying new knowledge. However, existing literature is inconclusive on research themes covered and yet to be covered in Agricultural Education in Eswatini. Thus, this study sought to identify themes and gaps for future research in Agricultural Education in Eswatini. This was a qualitative study employing desk review in data collection. Trustworthiness of the content analysis guide was ensured through the use of experts from the Department of Agricultural Education and Extension (AEE) at the University of Eswatini (UNESWA). Data analysis was performed using frequencies and percentages. Findings of the study revealed that in Agricultural Education, gaps existed in the following thematic areas: primary themes - programme delivery methodologies and curriculum programme planning; and secondary themes- creative thinking and problem-solving; innovative instructional technologies; teaching basic and academic skills; professional staff development; educational methodologies for teaching and learning; professional preparation and competence; and needs of future agricultural workforce. The study concluded that research conducted in Agricultural Education in Eswatini is imbalanced in both primary and secondary research themes. Therefore, the Department of AEE at UNESWA must establish a research agenda to ensure that the research conducted is thematically balanced.

Keywords: Agricultural Education, primary themes, research project, research thematic areas, secondary themes, University of Eswatini
Introduction

Agricultural Education is relatively a young discipline that emerged in the early 1900s (Williams, 1991). In Africa, Agricultural Education emerged in the 1920s (Paterson & Arends, 2004) and in Eswatini emerged in 1973 (Gooday, 1974). Late in the 1970s to the early 1980s, agricultural educators started believing in both knowledge and facts coming from empirical investigation. Agricultural Education research became a way of verifying existing knowledge; creating new knowledge; and for disseminating and applying that knowledge. The current focus of Agricultural Education across the globe is on research. Generally, the future of Agricultural Education depends on the development and application of new knowledge through research (Silva-Guerrero & Sutphin, 1990). It further depends upon many variables; and one of them of which is acquisition and application of new knowledge generated from research (Dyer, Haase-Wittler & Washburn, 2003).

In the past, it has been difficult to appraise the impact of Agricultural Education research, and it was equally difficult to perceive its potential (Williams, 1991). Generally, Agricultural Education research has been described as too shallow to develop essential understanding; focused on ancillary areas, and often unrelated to what is already known (Mannebach, 1981; Miller & Warmbroad, 1982; Warmbroad, 1987; Newcomb, 1978). In Thailand, Traimongkolkul and Tanpichai (2005) found that Agricultural Education was not focused, thus recommended that a national forum be formed to revitalise the total system of Agricultural Education.

Moore (2006) posited that it is clear that agricultural educators are not “driving” the profession; they spend their time “dabbling in esoteric research that does not have much relevance to the real world” (p. 1). Since the 1990s, rapid growth in research and publishing activities in Agricultural Education has resulted in a plethora of Agricultural Education literature (Radhakrishna & Jackson, 1992b). Thus, Myers and Dyer (2004) concluded that the institutional demands of research, teaching, extension, and service, faculty often allow one area to suffer to meet the expectations of another. If research suffers, then every aspect of the Agricultural Education discipline suffers. Moore (1987) found that some thematic areas in Agricultural Education doctoral research had been well researched while others had not; thus concluded that research in Agricultural Education lacked focus.

Ball and Knobloch (2005) asserted that it is critical for practitioners to examine the knowledge base of the field to allow the profession to reflect upon actions and ultimately improve the discipline. Newcomb (1993) pointed at the need for Agricultural Education research to become more focused, coordinated and conducted passionately. Shinn, Briers and Baker (2008)’s expression of the need to focus the Agricultural Education discipline, examine its knowledge base, and review its literature is a call to use a holistic approach to examine research in Agricultural Education.

Few specific calls in Agricultural Education have been made to examine the essence of its research; yet, there is a need to understand where the discipline has been and to allow the profession to better understand where to focus research efforts in the future. A need arose to re-examine Agricultural Education in a future that has already happened (Edgar, Edgar, Briers & Rutherford, 2008). Edgar et al. (2008) posed this question: How can we be sure where we are headed with our research; if the direction is not adequate and appropriate; and if we are unclear as to where we have been?
A need also exists to analyse the dimensions of Agricultural Education in holistically and suggest strategies to focus the discipline and prepare it for the future. Understanding research occurring in Agricultural Education can assist the discipline and other integrated specialisations to more fully focus literary contexts and further strengthen the discipline. Edgar et al. (2008) argued that lack of understanding the depth and type of research occurring in Agricultural Education meant that researchers in the discipline were unable to determine what futuristic research should be done. Structuring and identifying a research agenda can be valuable for: (i) maintaining compatibility with the national priorities of the educational system; (ii) guiding research investments and (iii) communicating priorities to agencies and organisations which have national responsibilities to plan and budget for research (Buriak & Shinn, 1993). Buriak and Shinn further asserted that a need was apparent for “researching to research.” This was a line of inquiry to focus the profession on salient problems that are significant to the future of Agricultural Education.

Existing literature reveals that some scholars found that the following primary themes were covered in the research conducted in Agricultural Education: programme relevance and effectiveness (American Association for Agricultural Education [AAAE], 2005); programme evaluation (AAAE, 2005; Edgar, Briers & Rutherford 2008); instructional programme delivery approaches (Edgar et al., 2008; Radhakrishna & Mbaga, 1995); programme development and improvement (Radhakrishna & Mbaga, 1995; Schmidt, Lynch & Frantz, 1988); curriculum and instructional development (Crunkilton, 1988; Moore, 1987; Silva-Guerrero & Sutphin, 1990); evaluation of agriculture teaching and teachers (Buriak & Shinn, 1989; Silva-Guerrero & Sutphin, 1990). Tsikati, Dlamini and Dube (2019) found that research conducted by post-graduate students in Eswatini covered mainly programme relevance and effectiveness, and knowledge base for teaching and learning. Contrary, some authors reported that Agricultural Education research was lacking regarding the following primary themes: planning learning experiences (Mathonsi, 2000); evaluation (Mathonsi, 2000); effective instructional structures (Miller & Madou-Bangurah, 1993); educational programme and effectiveness (Buriak & Shinn, 1989); and efficient information delivery systems (Buriak & Shinn, 1989). Tsikati, et al. (2019) found that curriculum programme planning and delivery methodology primary themes were under-researched by post-graduate students in Eswatini.

Regarding secondary themes, some scholars reported that the following were covered in Agricultural Education research: philosophical concerns and policy related issues (AAAE, 2005; Crunkilton, 1988); analysis of innovations (AAAE, 2005); creative thinking and problem solving (Luft, 2002; Silva-Guerrero & Sutphin, 1990); faculty development (Edgar et al., 2008; Radhakrishna & Mbaga, 1995); evaluation of teaching programme (Radhakrishna & Mbaga, 1995; Silva-Guerrero & Sutphin, 1990); curriculum programme planning and delivery methodology (Radhakrishna & Mbaga, 1995; Silva-Guerrero & Sutphin, 1990); recruitment (Radhakrishna & Mbaga, 1995); innovative instructional technology (Silva-Guerrero & Sutphin, 1990); educational methodologies in teaching and learning (Silva-Guerrero & Sutphin, 1990); instructional resources (Crunkilton, 1988); and individual achievement – basic skill development (Crunkilton, 1988). Tsikati et al. (2019) found that faculty and staff development, evaluation of teaching or programmes, and individual achievement were the most
researched secondary themes in Agricultural Education.

Secondary themes reported to have been under-researched in Agricultural Education were: teaching competence of high school and university faculty (Buriak & Shinn, 1989); teaching and learning (Mathonsi, 2000); education technology (Buriak & Shinn, 1989; Miller & Madou-Bangurah, 1993); evaluation of teaching or programmes (Miller & Madou-Bangurah, 1993); and effectiveness of instructional strategies and learning characteristics (Buriak & Shinn, 1989). Also, Tsikati et al. (2019) reported that the following secondary themes were under-research in post-graduate theses in Eswatini: educational methodologies for teaching and learning; innovative instructional technologies; history, philosophy, future and policy in Agricultural Education; teaching basic and academic skills; and creative thinking and problem-solving.

In Eswatini, students enrolled for a Bachelor of Science in Agricultural Education at UNESWA are required to undertake research projects. Studies conducted on focusing research themes and gap analyses for future Agricultural Education research in Eswatini are inconclusive. The researchers observed that generally, research projects conducted to synthesise and analyse research output in Agricultural Education at the University of Eswatini did not identify gaps to which future research could be focused. Thus, a great need existed to identify research gaps for future Agricultural Education research priorities in Eswatini. The future of Agricultural Education in Eswatini depends on the development and application of new knowledge through appropriate and relevant research. Agricultural educators will be able to target specific areas as they build the Agricultural Education discipline. Also, Agricultural education students will be able to focus on areas that have not been adequately researched.

**Purpose & Objectives**

The purpose of the study was to identify themes and gaps for future research in Agricultural Education in Eswatini. The objectives of the study were to:

1. Identify research themes covered by agricultural education students’ research conducted at UNESWA; and
2. Determine research gaps that exist in agricultural education students’ research conducted at UNESWA.

**Theoretical & Conceptual Framework**

The study was framed using the dimensions articulated by Buriak and Shinn (1989) in Agricultural Education research (see Figure 1). The figure presents the research areas that should be covered in Agricultural Education. The innermost circle represents the mission of Agricultural Education. The second circle presents the Agricultural Education research problem areas grouped into four research problem areas. Finally, the outermost circle represents the research activities for each problem area in Agricultural Education. The problem research areas were treated as the primary research themes in this study. Thus, the primary research themes are: (i) knowledge base for teaching and learning; (ii) curriculum programme planning; (iii) delivery methodologies; and (iv) programme relevance and effectiveness.

The research activities were treated as secondary themes in the study. Thus, each primary theme has secondary themes. Buriak and Shinn (1993) revealed that the knowledge base for teaching and learning has the following secondary themes: creative thinking and problem solving, individual achievement, and professional preparation and competence. Curriculum
programme planning entails teaching basic and academic skills; and needs of future agricultural workforce. Then, delivery methodologies relate to educational methodologies for teaching and learning; and innovative instructional technologies. Finally, programme relevance and effectiveness involves the history, philosophy, future, and policy in Agricultural Education; faculty and staff development, and evaluation of teaching or programmes.

**Figure 1.** Theoretical framework (Buriak & Shinn, 1993).

Moore (1987) recommended that research in Agricultural Education should be balanced across the themes; Eswatini is no exception. In this study, research thematic gaps were established by comparing the researched thematic areas in Agricultural Education undergraduate research projects at the University of Eswatini against the thematic areas [primary and secondary] adapted from the study by Buriak and Shinn (1989). Gaps that existed in the research output were also reported by Edgar, et al. (2008a). The gap is a pointer to the research areas or topics that are yet to be researched in Agricultural Education (Silva-Guerrero & Sutphin, 1990).

**Methodology**

The study was qualitative and a census employing desk review in data collection of Agricultural Education undergraduate research projects (n=370) completed from 2008 to 2017. Research projects were considered to be in Agricultural Education if they related to the teaching of agriculture [both education and extension]. The researchers sought permission in writing to collect data from...
UNESWA Library and permission was granted by the Senior Assistant Librarian at Luyengo Campus at the University of Eswatini. A total of 206 research projects found to be focused in Agricultural Education were analysed.

Trustworthiness and rigour were addressed using credibility, transferability, dependability and confirmability. Two experts from the Department of Agricultural Education at UNESWA reviewed the content analysis guide used for data collection to address issues of credibility. The experts added items and removed some from the content analysis guide. For instance, the researchers removed items on inferential analysis such as t-test and analysis of variance as suggested by the experts as they felt the study was getting wide open. Dependability was ensured by a detailed description of the implementation of the research methodology. Transferability was ensured by providing sufficient contextual information about students’ research conducted at UNESWA and thick description of the thematic research areas in Agricultural Education. Finally, confirmability was assured through audit trails. The content analysis guide was divided into four primary themes; which were sub-divided into secondary themes. Each primary theme had check boxes where the researchers ticked to indicate for the primary and secondary themes. Each research project was carefully assessed and categorized into the appropriate primary and secondary theme. Both primary and secondary themes were mutually exclusive: that is, each research project was classified in to one primary theme and one secondary theme.

The research projects were analysed manually, using tally marks which were converted into frequencies and percentages. The structural dimensions for research in Agricultural Education postulated by Buriak and Shinn (1993) were used to identify the research themes and gaps in agricultural education students’ research.

Findings & Discussion

Research Themes in Agricultural Education

Table 1 presents the number of research projects covered by each of the primary research themes expressed in percentages. The findings revealed that programme relevance and effectiveness (n=103, 50.0%) was the main primary research theme covered by Agricultural Education students’ research at UNESWA. The second primary theme that is commonly addressed by Agricultural Education students’ research was knowledge base for teaching and learning is (n=59, 28.6%). Similarly, existing literature indicates that in United States of America, programme relevance and effectiveness is the primary theme that was well researched (AAAE, 2005; Edgar et al., 2008). Radhakrishna and Mbaga (1995) and Schmidt, Lynch and Frantz (1988) found that programme development and improvement were also well covered. Tsikati, et al. (2019) found that research conducted by post-graduate students covered mainly programme relevance and effectiveness, and knowledge base for teaching and learning.
Table 1  
*Primary Research Themes Addressed by Students’ Research Projects in Agricultural Education at the University of Eswatini*

<table>
<thead>
<tr>
<th>Primary themes</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programme relevance and effectiveness</td>
<td>103</td>
<td>50</td>
</tr>
<tr>
<td>Knowledge base for teaching and learning</td>
<td>59</td>
<td>28.6</td>
</tr>
<tr>
<td>Curriculum programme planning</td>
<td>24</td>
<td>11.7</td>
</tr>
<tr>
<td>Delivery methodologies</td>
<td>20</td>
<td>9.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>206</td>
<td>100</td>
</tr>
</tbody>
</table>

Data in Table 2 present the number of secondary research themes addressed by students in Agricultural Education at UNESWA expressed in percentages. The table depicts that the most commonly addressed secondary research theme by students’ research in Agricultural Education at the University of Eswatini is evaluation of the programme (n=53, 25.9%). Other secondary research themes that were adequately addressed by students’ projects in Agricultural Education were: student achievement (n=37, 18.0%) and history, philosophy, future and policy in Agricultural Education (n=35, 17.0%). Existing literature reveals that the following secondary themes were covered in agricultural education research: philosophical concerns and policy related issues (AAAE, 2005; Crunkilton, 1988); evaluation of teaching programme (Radhakrishna & Mbaga, 1995; Silva-Guerrero & Sutphin, 1990); and individual achievement (Crunkilton, 1988). Tsikati et al. (2019) found that evaluation of teaching or programmes and individual achievement were the most researched secondary themes in Agricultural Education by post-graduates students at UNESWA.

Table 2  
*Secondary Research Themes Addressed by Students in Agricultural Education at the University of Eswatini*

<table>
<thead>
<tr>
<th>Secondary themes</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge base for teaching and learning</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional preparation and competence</td>
<td>21</td>
<td>10.2</td>
</tr>
<tr>
<td>Individual achievement</td>
<td>37</td>
<td>18.0</td>
</tr>
<tr>
<td>Creative thinking and problem solving</td>
<td>1</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Curriculum planning</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needs for future agricultural workforce</td>
<td>19</td>
<td>9.2</td>
</tr>
<tr>
<td>Teaching basic and academic skills</td>
<td>5</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>Delivery methodologies</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational methodologies for teaching and learning</td>
<td>16</td>
<td>7.8</td>
</tr>
<tr>
<td>Innovative instructional technologies</td>
<td>4</td>
<td>1.9</td>
</tr>
<tr>
<td><strong>Programme relevance and effectiveness</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation of teaching or programmes</td>
<td>53</td>
<td>25.9</td>
</tr>
<tr>
<td>History, philosophy, future and policy in Agricultural Education</td>
<td>35</td>
<td>17.0</td>
</tr>
<tr>
<td>Faculty and staff development</td>
<td>15</td>
<td>7.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>206</td>
<td>100</td>
</tr>
</tbody>
</table>
Gaps in Agricultural Education

Table 1 depicts that the least covered primary research themes revealing gaps are programme delivery methodologies (n=20, 9.7%) and curriculum programme planning (n=24, 11.7%). Williams (1991) attributed the imbalance in the research conducted in Agricultural Education to the fact that it is generally a young discipline. Agricultural Education is also a young discipline in Africa (Paterson & Arends, 2004) and in Eswatini (Gooday, 1974). The findings of this study are consistent with the salient literature regarding the following secondary themes: planning learning experiences (Mathonsi, 2000); educational programme and effectiveness (Buriak & Shinn, 1989); and efficient information delivery systems (Buriak & Shinn, 1989). Similarly, Tsikati, et al. (2019) found that the most under-researched primary themes by post-graduate students in Eswatini were: curriculum programme planning and delivery methodology.

Table 2 also revealed research gaps in the following secondary themes: creative thinking and problem-solving (n=1, 0%); innovative instructional technologies (n=4, 1.9%); teaching basic and academic skills (n=5, 2.4%); professional staff development (n=15, 7.3%); educational methodologies for teaching and learning (n=16, 7.8%); needs of future agricultural workforce (n=19, 9.2%) and professional preparation and competence (n=21, 10.2%). The findings of the study on under-researched secondary themes are consistent with literature on: teaching competence of high school and university faculty (Buriak & Shinn, 1989); teaching and learning (Mathonsi, 2000); and educational technology (Buriak & Shinn, 1989; Miller & Madou-Bangurah, 1993). Similarly, Tsikati et al. (2019) reported educational methodologies for teaching and learning; innovative instructional technologies; and creative thinking and problem-solving as most under-researched secondary themes in post-graduate students’ theses in Eswatini.

Conclusions, Implications & Recommendations

A primary conclusion drawn from this study is that research conducted by Agricultural Education undergraduate students in Eswatini in both primary and secondary research themes is imbalanced. Gaps in the research themes as adapted from Buriak and Shinn (1989) used as theoretical framework of the study were evident in the following primary themes: programme delivery methodologies and curriculum programme planning. Secondary themes which lacked research were: creative thinking and problem-solving; innovative instructional technologies; teaching basic and academic skills; professional staff development; educational methodologies for teaching and learning; professional preparation and competence; and needs of future agricultural workforce.

The implication of the findings is that a need exists for periodic assessment of institutional research to determine gaps in research to ensure that research is directed to the targeted thematic areas. The periodic assessment of institutional research can also help in directing limited resources and time to address most needed research. The findings of the study also imply that the future of Agricultural Education including Eswatini depends on the development and application of new knowledge generated through the thematic research areas (Dyer, Haase-Wittler & Washburn, 2003; Silva-Guerrero & Sutphin, 1990). Moore (2006) noted that some agricultural educators spend their time “dabbling in esoteric research that does not have much relevance to the real world” (p. 1). Also, Agricultural
Education research has been cited as too shallow to develop essential understanding, focused on ancillary areas, and often unrelated to what is already known (Silva-Guerrero & Sutphin, 1990). The study unveils the need for more focused and coordinated student projects in Agricultural Education. A need also arose to understand where the discipline has been, to allow the profession to better understand where to focus research efforts in the future. Edgar et al. (2008) argued that there was a need to re-examine Agricultural Education in a future that has already happened. In Eswatini, focusing and directing Agricultural Education research is imperative for its proper growth as the discipline is still young (Gooday, 1974). The use of the dimensions by Buriak and Shinn (1989) to establish gaps in thematic areas researched in Agricultural Education student projects in Eswatini implies that the global community of researchers must also embrace.

Based on the findings of the study the following recommendations were made:

1. A need to periodically (e.g. every 5 years) analyze research based on the themes that are covered in Agricultural Education is evident. This will ensure that the research conducted in the discipline is well coordinated and directed.

2. Researchers in Agricultural Education in Eswatini need to exert more effort towards research on thinking or problem-solving skills and innovative instructional technologies as they are important contemporary issues.

3. Researchers in Agricultural Education in Eswatini also need to focus their research on programme delivery methodologies and curriculum programme planning. If research conducted in these themes continue to be lacking; the methodologies used in teaching and learning and the curriculum in education will be stagnated.

4. The Department of Agricultural Education and Extension at the University of Eswatini must establish a research agenda to ensure balanced research in Agricultural Education. The research agenda should indicate and emphasize the status of research to be conducted on the pertinent thematic areas. Also, the researchers should collaborate with Agricultural Education stakeholders in identifying priority research thematic areas. This initiative will ensure adequate coverage of all relevant research themes. Similarly, other countries having Agricultural Education can also develop their own research agenda if they do not already have it.

References


anachronism or developmental opportunity. Cuba, Havana: WCCES


Natural and Social Sciences, 7(1), 25-36.


Social Impact Assessment in the Cooperative Extension System: Revitalizing the Community Capitals Framework in Measurement and Approach

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Abstract
Measuring program impact is continually placed in the forefront of discussions, efforts, and reporting when it comes to outreach and engagement efforts related to Cooperative Extension. However, the diversity of programs represented through program areas, as well as the complexities of local infrastructures present ongoing challenges to effectively addressing needs in community development and vitality. One of the greater hurdles in these efforts is addressing areas of social impact. This article argues for a deliberate attempt to parse out efforts that address social impact, while looking for ways to bring such impact full circle with existing efforts in economic impact. This article answers the following questions: (1) How is program impact defined as it relates to the land-grant university? and (2) How is social impact defined, and what are the common approaches to examining/measuring social impact? Based on this review of the literature, we describe and justify a proposed model approach for overall community diagnostics, directly supporting social impact assessment efforts. Such a proposed model would then have the capacity to lead to two very distinct and applicable outcomes that ultimately lead to measuring and examining program impact. The first is an immediate snapshot of a given community for diagnostic purposes; and the second would create a framework by which longitudinal data could be collected, which can then demonstrate changes and shifts over time. Such data can then provide a more holistic approach to program planning, development, and overall evaluation.

Keywords: community development; Extension; needs assessment; program evaluation; social impact
Introduction

The Cooperative Extension System (CES) is a complex and multifaceted structure, addressing pertinent issues in agricultural and natural resources, youth development, family finance and nutrition, and community development – all, of which, serve as entry points into the plethora of needs and issues that exist at every local level. To maintain capacity and meet community needs, extension programming is often dependent on local, state, and federal dollars to aid in program design and leverage sustainability from county to county (Franz & Townson, 2008). Such multi-level funding is facilitated by grants, contracts, user fees, and fiscal gifts. Subsequently, fiscal ties result in the pressure and expectation to demonstrate a return on investment (ROI) and community impact from delivered programs.

Of course, economic data have a firmly established and valuable place within the realm of impact reporting, such as in production yield, business development, and volunteer hours to name a few. Regardless of the program area, such data are imperative when demonstrating and justifying the ROI among key stakeholders. However, some of the more difficult, yet important, dimensions to assess amongst programs are the social dimensions that address overall individual and community development and wellbeing over time (Berry & Welsh, 2010).

The purpose of this article is to outline and argue for a deliberate attempt to parse out efforts that address social impact, while looking for ways to bring such impact full circle with existing efforts in economic impact. This article is driven by the following questions:

1. How is program impact defined as it relates to the land-grant university, and how it has traditionally been approached?

2. How is social impact defined, and what are the common approaches to examining/measuring social impact?

Based on this review of the literature, we describe and justify a proposed model approach for overall community diagnostics, directly supporting social impact assessment efforts.

Program Impact Defined

Program impact is an outcome facilitated by organizational activities and experienced by a targeted population (Israel, Harder, & Brodeur, 2011). Such impact is also expected to explain the difference a program’s results make in the life of a person or collective group of people (Workman & Scheer, 2012). Common forms and documented best practices of impact assessment include one or a combination of surveys, focus groups, interviews, and observations that indicate a change in knowledge, attitude, or behavior (Nichols, Blake, Chazdon, & Radhakrishna, 2015; Workman & Scheer, 2012). The resulting collected data are then shared in informal and institutional reports, scholarly journals, as well as institutional marketing collateral.

While extension is no stranger to reporting mechanisms that aim to demonstrate the ongoing ROI, whether domestically or internationally, the diversity of programs representing the multifaceted program areas present unique challenges that have continued to endure over time (Lamm & Lamm, 2018). For example, in a 1983 Journal of Extension publication, Smith and Straughn contend that extension goals are often so broad that the ability to strategically focus on explicit outcomes (direct or indirect, positive or negative) is difficult or prohibitive. Today, established goals remain broad—i.e., Extension aims to “Prepare people to break the cycle of poverty, encourage healthful lifestyles, and prepare youth for responsible adulthood” (USDA-NIFA, 2018, para. 6)—leaving
significant room for interpretation, program design, and application. Further critique of impact evaluation resides in overarching program goals being too process-oriented or non-existent, and if results are non-generalizable or complicated (intentional vs. unintentional, short- vs. long-term, or directly or indirectly targeting a given audience). To consider such challenges in land-grant university program evaluation and impact reporting, it is relevant to also consider the significant changes in expectations over the life of legislative support and requirements (Nichols et al, 2015):

- **Hatch Act (1887)** – Established experiment stations to focus on agricultural production that oversaw demonstration fields and plots, and testing recommended practices that were then reported to farmers through university publications or other agricultural publications.

- **Smith-Lever Act (1914)** – Cooperative Extension System was formally established, and Congress became more concerned with reports that offered full detail in overall operations rather than programmatic impact.

- **Food and Agriculture Act (1977)** – Ushered in a new era of accountability and evaluation, calling for the justification of actions, as well as economic and social consequences of existing programs. Extension became a key focus of such accountability and evaluation.


- **Agricultural Research, Extension and Education Reform Act (1998)** – “…required state Extension programs to submit plans of work and reports of results documenting how formula-funded programs were achieving outcomes toward five national goals” (p. 87).

Throughout this period, there have been a number of scholars and specialists who have dedicated tremendous effort in developing evaluation methods and tools that can attest to the value of university outreach and engagement (Ladewig, 1999), provide structure in program development and delivery (Lamm, Carter, & Lamm, 2016), and be accountable to the shifting expectations of fiscally supportive agencies (Lamm, Lamm, Davis, & Swaroop, 2018). Some of the key developments and adoption throughout this time include the logic model and the Targeting Outcomes of Programs model (Rockwell & Bennett, 2004).

While models and associated practices have been developed, the complex university structure creates a challenging situation when it comes to determining where evaluation efforts and experts should be located. Lambur (2008) examined three possible structural choices, identifying unique limitations through in-depth interviews with evaluators: (1) Within an administrative unit where evaluators potentially focus on the needs of the organization and accountability rather than program impact; (2) as a separate evaluation unit or program area where evaluators may better understand the given unit or area, potentially inserting bias and limiting scope and application in other areas; and (3) within an academic unit or school where evaluators may diminish the importance of accountability and rely more so on the expertise of applied researchers.

Regardless of where evaluation is located within the university, the likelihood of its existence in a single location to account for a holistic overview of an institution’s comprehensive outreach and engagement efforts is low to impossible.
Programmatic evaluation is not a one-size-fits-all approach (Roucan-Kane, 2008). Key variables of interest used to account for impact range significantly from agriculture to youth and leadership development programs (Marshall, 2012; Scott, Weeks, & Weeks, 2018; Yueh-Ti Chen, King, Cochran, & Argabright, 2014), as well as diverse areas of interest from country to country (Jayaratne et al., 2017; Warner & Murphrey, 2015).

One key characteristic revealed within the context of program impact associated with university-based evaluation and assessment is that collected data are predominantly situated from an outside-in perspective. In other words, key measurements are based on programmatic outcomes—considering the impact as a result of a university program’s presence (the outsiders) in the community (the insiders). This perspective is perpetuated as a result of funding processes that require accountability and effective communication of achieved goals and future intentions (Kalambokidis, 2004; Workman & Scheer, 2012). Thus, impact planning, development, and evaluation, especially pertaining to societal change, will continue to be increasingly important. As Workman and Scheer (2012) asserted, “The ultimate goal is to remain relevant and of value to the public. The strongest method to demonstrate relevancy and public value is to document ‘true impact’” (“Conclusions/Implications”, para. 3). However, aside from determining what is true impact, critics claim there is a continued lack of consistency, as well as a lack of consideration in bridging short-term and long-term impacts (Rossi, Lipsey, & Freeman, 2004). In addition, while institutional impact reporting efforts are intended to indicate positive changes in the knowledge, attitude, and behavior of clientele, important lessons can also be learned from results and impacts that miss the mark of a program’s intended goals (Diem, 2003). To address this would require an inside-out perspective, rather than outside-in.

In an effort to shift away from an outside-in perspective, and begin considering what an inside-out perspective could look like, there is a need to reconsider the entry point of evaluation. Inside-out would place the entry point with the existing infrastructure at the local level, with the intent to point a collected mass of local data back to university outreach and engagement efforts for purposes of program planning, development, and evaluation. While economic and other infrastructural data can play a role in this proposed approach, inside-out places the context and emphasis of examination efforts within the social impact research paradigm, which begins to situate the conversation around unique community characteristics, as well as overall community vitality.

Social Impact Overview

Social Impact’s Definition, Operationalization & Value

Impacts that are social in nature refer to various aspects of people’s lives and the physical, political, interpersonal, and intrapersonal systems in which they operate (Jones, McGinlay, & Dimitrakopoulos, 2017). In this manner, social impact takes cultural impact into account as people experience a new normal and re-think how they view themselves and their environment (Burdge et al., 1995). Social impact has been formally defined as the effect an organization or program’s actions have on the well-being of a community or population (Franz, Arnold, & Baughman, 2014; The Wharton School, 2011). It is the “…consequences to human populations of any public or private actions – that alter the ways in which people live, work, play, relate
to one another, organize to meet their needs, and generally cope as members of society” (Burdge et al., 1995, p. 11).

Researchers claim that if used as a primary entry point into program evaluation, social impact provides the type of community engagement that promotes parity and integrity (Gust & Jordan, 2006; Srinivas, Meenan, Drogin, & DePrince, 2015). In addition, social impact research has often placed its central focus on social capital as a key construct, where a number of community characteristics have been examined. Such characteristics include areas such as social networks and reciprocity (Stone & Hughes, 2002), including those between and among individuals and organizations (Chilenski et al., 2014). Other characteristics include trust, accepted norms, and connections among people (Zoorob & Salemi, 2017); civic identity and engagement related to predictions in societal outcomes (Zoorob & Salemi, 2017); and public value related to those directly and indirectly impacted by a program (Franz et al., 2014; Kalambokidis, 2004). Areas of research and practice that incorporate such characteristics include epidemiology and public health (De Silva et al., 2005), drug and alcohol dependence (Zoorob & Salemi, 2017), public policy and management (Ozanne et al., 2017), education and developmental psychology (Magson, Craven, & Bodkin-Andrews, 2014), community service learning (Srinivas et al., 2015), tourism and extension (Bhattacharyya, Templin, Messer, & Chazdon, 2017), rural sociology (Flora & Bregendahl, 2012), and policy analysis (Fey, Bregendahl, & Flora, 2006).

Methods of Social Impact Assessment

Common approaches to examining social impact implemented by both researchers and practitioners include the community impact scale, social impact assessment, ripple effects mapping, and community capitals framework. Each uses a community-based research (CBR) approach that calls for more interaction between research entities and the communities in which they address issues and problems. For the purposes of this overview, these common approaches will be briefly expounded upon.

Community impact scale. The community impact scale (CIS) is designed as a 46-item scale to help community organizations gauge costs and benefits of community-university partnerships and how those partnerships may affect an organization and its staff (Srinivas, Meenan, Drogin, & DePrince, 2015). Often used in university service-learning programs, CIS examines university-community partnerships in regard to being collaborative, rigorous, and context-specific. The scale is also intended to account for multi-dimensional factors and emerging themes from a given partnership.

Social impact assessment. Social impact assessment (SIA) aims to examine possible effects on a particular group of people because of a government, an organization, or an event (Score, 1995). The intent is to gain stakeholder input on how program and community data are collected and categorized, creating a community profile, summarizing subsequent projections, and sharing information with community members, whose response can determine the success or failure of an existing or future project (Barrow, 2000; Cordova, 2011; Score, 1995). SIA is in alignment with CBR as it argues for stakeholder input for the credibility and accountability of program planning, development, and implementation (Score, 1995). This approach is often used in environmental studies (Burdge, 1995), the
Cooperative Extension System, rural sociology, policy analysis, and non-governmental organizations.

**Ripple effects mapping.** Ripple Effects Mapping (REM) is an evaluation tool that involves groups of people creating visual representations of impacts once a program is complete (Bhattacharyya, Templin, Messer, & Chazdon, 2017). Predominantly qualitative in method, themes often emerge from methods using mind mapping and appreciative inquiry, which provides groups with information that informs the analysis of the findings and their learning. REM also highlights unintended results of an initiative as well as insight into how those involved should move forward (Emery, Higgins, Chazdon, & Hansen, 2015). The REM process can be beneficial for program leaders, program participants, and/or other stakeholders. Emery et al. (2015) described three approaches to REM: web mapping (mapping short-, medium-, and long-term impact onto a community capitals-based template), in-depth rippling (mapping to find the effects considered the most impactful), and theming and rippling (mapping to gather a collective list of impact, which generates themes and subsequent participant stories that align with themes). Those using REM are encouraged to choose a method that works best for the group and the resulting desired data (Emery et al., 2015). REM has been used in fields such as 4-H and youth development (Baker & Johannes, 2013), tourism (Bhattacharyya et al., 2017), and Cooperative Extension community gardening (Kollock, Flage, Chazdon, Paine, & Higgins, 2012).

**Community capitals framework.** The Community capitals framework (CCF), developed by Cornelia Flora, Jan Flora, and Susan Fey in 2004, is a systems approach (Emery et al., 2006) and a logic model (Bhattacharyya et al., 2017) for community characteristics, known as capitals, that can be influenced. It has been used to outline and map community strategies, monitor results, envision the future, create holistic planning committee structures, and enhance other methods such as Appreciative Inquiry (Emery, Fey, & Flora, 2006; Bhattacharyya et al., 2017). In the same way that a community profile provides a more holistic view of a community and the initiatives that are incorporated on its behalf, CCF helps researchers and practitioners view their work in a holistic way (Flora & Bregendahl, 2012). It is noted to improve both communities and organizations and provides an outline for how capitals can be defined in the context of a community, how they influence each other, and how they can be the foundation of communal actions (Flora & Bregendahl, 2012). The framework defines community capital in terms of assets, using seven components: **Natural** (environmental assets that abide in a specific location), **human** (people’s natural and learned competencies, and access to necessary resources), **social** (connections among people and organizations), **cultural** (how people understand and interact with the world around them), **political** (access to personal and structured power), **financial** (monetary support for community improvement), and **built** (physical infrastructure) (Emery & Flora, 2006; Fey, Bregendahl, & Flora, 2006; Flora & Bregendahl, 2012). These capitals, of which social capital is deemed the most abstract (Stone & Hughes, 2002), emerged out of C. Flora, J. Flora, and Fey’s research on communities supportive of entrepreneurship and were indicative of long-lasting community and economic development when communities invested in all of them (Emery et al., 2006). They have now been used to assist concepts, such as community-
supported agriculture (Flora & Bregendahl, 2012).

CCF’s unique strengths (when compared to other approaches) lie in its ability to encapsulate a broad set of variables, while recognizing the complexity of the community issues and needs. It also highlights the holistic benefit of paying attention to all capital areas, especially social capital, to avoid a decline of effectiveness in certain assets affecting programmatic initiatives and the community as a whole (Emery et al., 2006; Stone & Hughes, 2002).

Social Impact Assessment Challenges & Opportunities

Social impact and its organization-based societal effects are directly correlated with social capital. Measuring social impact, social capital, or any of the associated community capitals has been noted as difficult because it involves abstract materials that make up societies (Fey et al., 2006), along with longitudinal time and effort that are required to recognize genuine change (Beckman et al., 2011). Among multiple attempts to create valid instruments, evaluative constructs and wording are still convoluted (Magson et al., 2014). This results in empirical work that is limited and measurement consensus that cannot be found, both of which are heralded as the field’s greatest weaknesses (Magson et al., 2014). Özanne et al. (2017) also adds that while assessment of this type of impact is an increasing priority, there are no agreed-upon best practices due to the complexity of its nature and influences. Measuring social impacts in objective (i.e. quantifiable changes) and subjective (i.e. changes in well-being) ways also complicates measurement procedures (Jones et al., 2017). The literature suggests that for social capital research to be instrumentally- and theoretically-sound, the following must be adhered: (1) social capital measurement needs to be theoretically informed; (2) social capital needs to be viewed as a resource for collective action and assessed as to whether or not it generates desirable social and economic outcomes; (3) social capital needs to be theorized as a multidimensional construct; and (4) it needs to be recognized that social capital will vary depending on network type and social scale under examination (i.e., family, community, societal) (Magson et al., 2014).

Additionally, the literature reiterates the subjective nature of social impact research. Aspects of what is chosen to be evaluated can be influenced by a sociopolitical climate (Smith & Straughn, 1983) and funding can affect the use and/or implementation of suggested strategies such as the community profile (Score, 1995). Furthermore, to fully grasp the impact on societies, longitudinal work has long been needed (Smith &Straughn, 1983; Workman & Scheer, 2012) and impact work and evaluation should not take place solely upon completion of an initiative. Rather, desired programmatic benefits, along with strategies for how to engage stakeholders (Gust & Jordan, 2006; Özanne et al., 2017), should be discussed at the beginning of an initiative’s planning stages and weaved throughout its development and implementation (Diem, 2003). Özanne and colleagues (2017) not only call for research to be more applicable to stakeholders, but that researchers be more intentional about effective societal impact measurement and that publications reflect this improvement.

Proposed Model Approach

Leveraging the unique qualities and segmented areas of the community capitals framework (CCF), there is an opportunity to take on the recommended inside-out perspective as an initial step toward evaluation and assessment related to local
programming efforts. The argument here is to take a two-part assumption: (1) that, regardless of the presence or absence of university programming, the community profile must first be considered; and (2) local perceptions are critical to shifts—positive or negative—related to community development and vitality. CCF’s holistic approach in considering the seven capitals sets the stage to address both assumptions.

**Considering the Community Profile**

For approaches addressing social capital, the literature states that any form of measurement be theoretically informed (Magson et al., 2014). This proposed model seeks to modify the approach to CCF by using the culture-centered approach (Dutta, 2008; CCA) as the overarching framework. Traditionally used in international health communication research, CCA recognizes culture as a dynamic construct, while placing its primary entry point on the marginalized members of a community—individually or collectively. Guided by critical theory, CCA, as a methodological framework, is concerned with the modes of knowledge production and access to existing resources, political processes, and the design of the existing infrastructure within a particular community or targeted population. The overarching intent of CCA is to critically deconstruct the infrastructure while locating the actual barriers that exist through the voices, perceptions, and lived experiences of members of the community—individually and collectively. Three constructs that guide CCA are culture, agency, and structure (Figure 1), whereby the critical deconstruction is placed on the contested intersection that exists between each of those constructs.

**Figure 1.** The three constructs of CCA (Dutta, 2008).

By allowing CCA to inform the development of the CCF, a new discursive space becomes possible within the context of the community. Not only would individuals’ outward perception of their community be considered—which has traditionally been the objectives of previous CCF work (Emery & Flora, 2006; Fey, Bregendahl, & Flora, 2006; Flora & Bregendahl, 2012)—but their individual agency related to the seven capitals is also incorporated into the collected data. This provides a distinction between individuals’ outward view of the community along with
their perceived personal capacity within the community.

The value of better understanding personal agency within the context of the community perspective is because, regardless of a given community infrastructure, along with established resources and opportunities (i.e., employment, education, healthcare), if an individual perceives their access to such resources to be minimized or non-existent, or if they believe others’ ability to access is compromised, the quality of the infrastructure is diminished. This, in turn, creates the potential for an overarching set of community indices that complements and enriches economic data analysis.

**A Modified CCF Scale**

With these assumptions in mind, a modified approach to CCF was designed to address how an individual operationalizes each capital from two points of view. The first is based on structural perception and the second is based on perceived internal agency. For example, each capital will be addressed as a portion of the complete set of capitals, representing a complete CCF scale. The following is an excerpt of the scale with select representative statements. The scale statements are assessed via a five-point Likert scale, ranging from strongly agree to strongly disagree (Figure 2).

### HUMAN CAPITAL

**Structural Perception:** “I believe that my community…”
- Has meaningful employment to attract young people.
- Offers residents access to a wide range of healthcare.

**Internal Agency:** “If I choose to, I have the ability to…”
- Be a leader in my community.
- Collaborate to impact community change.

![Figure 2. Example of Likert-designed statements (Human Capital only).](image)

A possibility for administering this scale at the local level might be completed using opt-in panels through an online survey firm. This would ensure that preidentified quotas could be filled at the local level. In addition to the representation of all capitals in the proposed scale, additional data, including representative census-based demographic data, as well as individual participation in an extension program within the last five years, could be collected.

Of course, such data, collected at a given point in time within a defined geographic area, cannot directly point to extension programmatic impact. However, it does provide a robust set of baseline data, serving as a comprehensive measure and leading to two very distinct and applicable outcomes that ultimately lead to measuring and examining program impact. The first is an immediate snapshot of a given community—or applicable geographical boundary, such as counties in the United States, or villages or provinces within an international context. Such a snapshot offers a form of diagnostic analysis, which provides a unique overview based on abstract social structures that are captured from each of the seven capitals. Regression analysis would demonstrate significant relationships between or among the capitals as constructs, or among the items of each
construct. Demonstrating significant relationships between or among constructs can lead to a more informed approach to program planning and development. This is especially the case if there is a significant statistical difference between the individuals’ outward view of the community and perceived personal capacity within the community.

The second outcome is the value of longitudinal data. Throughout the development of this modified CCF scale, our intent is to capture this data on an annual basis statewide, which would begin to demonstrate changes and shifts across the state and from county to county. While economic consequences play a critical role in accounting for programmatic impact and justification, there are also social consequences that are just as critically important. To this point, no identified research approach and subsequent analysis has been able to successfully bridge the two. While the results of the CCF scale cannot directly point to extension program impact, the anticipation is that the regression analysis between CCF data and economic data will be able to point to programmatic impact—socially and economically—over time.

The expectation is that this approach to community assessment and evaluation will not replace current efforts uniquely designed for a given program area or unit. However, this particular approach can help to support these efforts, as well as demonstrate overarching trends and unique community characteristics over time.

**Future Application**

Within the context that the scale has been developed, which is at a large research university in the Southeastern United States, the expectation of the associated Cooperative Extension System is that it will enhance overall community development and vitality through distinct program areas. While program goals may continue to remain broad and far reaching for the sake of the diverse array of institutional programming, it is ever more essential that such programming approaches every county with the capacity to address the unique obstacles and opportunities of each county.

Follow-up reports based on evaluative data are expected to demonstrate positive shifts. Therefore, included data that demonstrate how a program may have “missed the mark” does not necessarily bode well for extension program viability. Yet, what this proposed model provides is a way for extension professionals and researchers to be more holistically informed at the onset of a given program, establishing an inside-out perspective of being vested in the needs of a community.

Collecting CCF data at a given point in time provides a set of baseline data that serves as a diagnostic tool for a targeted community, village, county, or province—or any collective, thereof. But, in that single snapshot, the capacity to provide social impact data does not exist. What it does do is establish the entry points through which key areas of inquiry can be formed. For instance, if the data demonstrate lower levels of individuals’ outward view of the community, but higher levels of perceived personal capacity within their community, then a significant opportunity exists to begin working within the context of individual capacity to address the perceived limitations of structural capacity. Not only does this inform program planning and development, but it can also identify key variables of interest for program evaluation efforts. As such, the inside-out perspective is preserved.

The inside-out perspective is even further maintained if such CCF baseline data serve as the entry points by which a qualitative approach—perhaps based in ethnographic methods—is designed to
further engage with and understand the unique and complex dynamics that lend themselves to the perceived structural and individual capacities. Such an approach would help to identify and account for extrinsic influencers, such as political and economic changes, or even areas of modern popular culture. Even more so, as extension professionals or researchers engage in an international context, CCF ensures that the local perspective and cultural values are first taken into account prior to designing a prescriptive solution for local issues.

As stated before, conducting social impact assessment has become an increasing priority in developing evaluation efforts (Ozanne et al, 2017). As such, collecting CCF data using this modified approach over a longitudinal period of time can provide data that support long-term follow-up to programs where measuring true and immediate social impact has traditionally proven to be more challenging. Longitudinal data can demonstrate shifts over time, showing relevant correlations or even patterns between or among the capitals, and how social capital may or may not serve as the proverbial fulcrum by which all other capitals hinge (Gust & Jordan, 2006; Srinivas, Meenan, Drogin, & DePrince, 2015).

In addition, this model also demonstrates the capacity to offer a comparative analysis with economic data and other indices, such as health or education, providing a more enhanced diagnostic overview of community trends on such indices relative to each capital. The scale thus provides the opportunity to extend and deepen potential partnerships and collaborations between extension and other community-level entities.

Overall, the relevance of this model is its intent to transition from an outside-in to an inside-out perspective when it comes to extension programming and community-engaged research. Where the entry point of assessment and understanding begins with the existing infrastructure at the local level, with the intent to point the collected mass of local data back to and direct the efforts of extension outreach and engagement—equipping extension professionals to more readily assess and measure perception and impact changes within communities and across cultures.

References


Influence of Smallholder Farmer Groups on the Application of Best Horticultural Farming Practices in Kenya

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Abstract
This study aimed at establishing the relationship between group membership and application of best horticultural farming practices (BHFP) among the group and non-group farmers in Meru County, Kenya. A descriptive design involving a cross-sectional survey was applied to address the research objectives. The target population consisted of 4950 smallholders from horticultural group and non-group farmers. The study sample was 224 farmers chosen through stratified random sampling. Data were gathered using a researcher-developed questionnaire. Both descriptive and inferential statistics were employed in data analysis. The analysis was accomplished using the Statistical Package for Social Sciences (SPSS). The study revealed a variance in mean BHFP application scores between groups' farmers (M = 76.49, SD = 4.78) and non-groups' farmers (M = 67.71, SD = 8.57). There was a positive substantial correlation between group membership and application of BHFP, which was statistically significant (rpb = .50, N = 224, p < .01). Discriminant function analysis revealed that Wilks’ lambda was significant, λ = .47, χ² (16) = 162.63, p = <.05, R² = .53 implying that the group means differed significantly. Farmers in groups applied BHFP more than the non-group farmers hence a clear association between group membership and BHFP application. The study recommends that farmer groups should be promoted to facilitate dissemination and application of BHFP.

Keywords: best horticultural farming practices; farmer group; smallholder farmers
Introduction

The tropical and humid climate found in Kenya suggests favorable conditions for production of horticultural crops. This subsector produces a variety of crops including fruit, flowers, vegetables, spices, root crops and herbs. Horticulture employs about two million people where most of them are smallholder growers who constitute 80% of farmers. According to Ongeri, (2014), the horticultural subsector helps to eradicate poverty and improve smallholders’ farm income. It has also proven to be one of the top foreign exchange earners for the country generating about 1 billion US dollars annually. In 2015, horticulture’s contribution to national gross domestic product was 1.45% while that of flowers alone was 1.01%. Horticultural export volumes increased by nearly 3% to reach 220,200 tons in 2014. Earnings from exports of fresh produce hit KSh84.1bn ($925.1m), a rise of around KShs 700m ($7.7m) over 2013 and driven by a 12.5% spike in fruit export revenues, which reached KShs 5.4bn ($59.4m). Earnings from vegetables, however, fell nearly 18% to KSh18.8bn ($206.8m), despite higher volumes (Kenya National Bureau of Statistics, 2015).

Much of the fresh fruit and vegetables produced in Kenya targets almost exclusively the European market, thus the produce are checked against Euro-Retailer Produce Working Group for Good Agricultural Practice (EurepGAP) standards before export. Rising quality control standards have meanwhile affected the industry. In October 2014, horticulture exporters were concerned to learn that Kenya’s 30-year economic partnership agreement (EPA) with the EU had not been renewed, as officials continued to negotiate issues such as taxation, good governance, and subsidies. EU-bound exports were instead subject to tariffs under the Generalized System of Preferences, which range from 4% to 24% and apply to some 67% of goods flowing from Kenya to Europe. The EU had earlier set a September 30, 2014, deadline for Kenya to cut the amount of chemical residue in all EU-destined produce exports, promising to introduce stricter inspections (Kenya National Bureau of Statistics, 2015).

The compliance with EurepGAP standards by smallholder farmers has been a center of focus due to food safety concerns in recent years. However, this compliance entails application of BHFP, which involve expensive investment in farm inputs and long-term farm structures (Asfaw, 2010). In Kenya, smallholder farmers contribute about 50-60% of total horticultural crop production (Ongeri, 2014). Very few studies have been conducted to determine the level of application of BHFP among horticultural farmers. Not much research has been done on smallholder farmer groups in Kenya and empirical studies on their influence on the application of agricultural technologies are limited. In Meru County, horticulture involves the production of cut flowers; fruit such as passion fruit, mangoes, avocados and vegetables such as French beans and snow peas (Meru County, 2014). Most horticultural smallholder farmers in Meru County have formed groups to enjoy economies of scale. Penunia (2011) contends that through the groups, farmers enjoy lower production costs through improved access to farm inputs such as agrochemicals and fertilizers. These farmers, through their groups, are well positioning to meet EurepGAP standards and manage the grading, cleaning, processing, drying, packaging, storage, branding, collection and transportation of produce. As a group, farmers are better able to negotiate the prices of the produce resulting in increased profits that accrue to farmers rather than intermediaries and buyers.
Theoretical Framework
The research utilized social learning theory (SLT) to describe how farmers access, share, apply knowledge and apply skills related to BHFP. According to Kolb (1984), learning occurs from continuous communication and iteration between thinking and action: concrete actions result in certain experiences which when reflected upon generating cognitive changes resulting in new actions. Leeuwis, (2003) observed that organizational and social space also contribute in the learning process. Farmer groups serve as organizations for collective action in Africa and they have heightened participatory access to extension services and technologies (Prager & Creany, 2017). Through normative and informational influence, farmers in a group tend to conform to standards set by the group and apply practices agreeable to the group. Once the group has expressed a commitment, people in a group tend to exhibit a strong tendency to act in a way that is consistent with the commitment. Since farmers tend to adopt and practice what they see others doing, SLT principles can be used to change perceptions of the social environment by making certain practices more common. Groups provide social support its members and this makes them consider adopting practices agreed upon by the members.

Literature Review
Best Horticultural Farming Practices (BHFP)
Recent studies indicate that quality and safety of food have raised concerns of many European consumers and this has shaken their trust in the imported food safety (Jaffee & Masakure, 2005), some of which is produced in Kenya. This has resulted in the strict enforcement of EurepGAP (Zoss & Pletziger, 2007), which demands the application of BHFP in producing, harvesting, processing and transportation of horticultural produce (FAO, 2010). In response to the rising standards, food safety has received increased attention globally in recent times (Jaffee & Masakure, 2005; Narrod, Gulati, Minot & Delgado, 2005). Studies by Henson, Masakure and Boselie (2005) and Jaffee (2003) indicate that to meet this concern, some exporters choose input suppliers and agronomists to advise farmers on production, processing and transport of produce. Following heightened food safety concerns in retail markets; produce hygiene and handling practices at production, harvesting and processing are well monitored (Jaffee & Masakure, 2005). Farmers are expected to construct a pesticide storage structure, toilet, and a hand washing facility at the farm as well as a grading shed (Boselie, 2005). In certain instances, exporters have been conducting soil and water tests twice a year on farms of those contracted to produce crops for the European Union retail market. These exporters also require farmers to keep records either individually or collectively.

A number of studies have been conducted examining the costs of complying with BHFP and the likely benefits of adoption (World Bank, 2011). In the process of trying to deal with emerging opportunities and challenges associated with adoption of BHFP, many development agencies have applied a collection of measures to facilitate small-scale farmers’ compliance with the standards, especially in Sub-Saharan Africa (SSA). There has been a continued modification of government policies and the institutional environment to improve the application of BHFP practices in developing countries (Jaffee, 2003). The World Bank has taken diverse measures involving various entry points, which include focusing on farmer group capacities for production, collective action, and standards compliance (World Bank, 2011).
Farmer Groups Membership

Various studies have been conducted to investigate the role of farmer groups in improving access to input, output markets and agricultural information by small-scale farmers (Shiferaw, Hellin & Muricho, 2011) however; very few studies have focused on the application of best horticultural practices. Farmer benefits from economies of scale in terms of access to less expensive inputs, marketing costs and better produce prices, all which are gained through participation in farmer organizations. Shiferaw et al., (2009) documented that farmer groups have enabled smallholders to access high-value markets in Africa, Asia, and Latin America. Collective action empowers farmers to access inputs, such as improved seed, fertilizer, and agrochemicals (Ofuoku & Urang, 2009).

Other than enhancing farmers’ access, farmer groups are a means of alleviating inefficiencies in the market (Shiferaw et al., 2009). Further, in a study by Kirui and Njiraini, (2013) it was reported that farmer groups are valuable social assets to smallholder farmers as they enable them solve the challenge of accessing both input and output markets. Franzel, Wambugu, and Tuwei, (2003) recommended a critical review of farmer groups’ contribution of improving smallholder agriculture since they were being professed as an effective platform for enhancing agricultural productivity in many African countries.

Purpose & Objectives

This research aimed at examining the association between group membership and application of BHFP among smallholder farmers in Kenya. The study was guided by the following objectives;

1. To identify the reasons why smallholder farmers subscribe to horticultural farmer groups’ membership

2. To determine the relationship between farmer group membership and application of BHFP

3. To determine whether non-group and group horticultural farmers differed on the application of BHFP.

Omnibus Statistical Hypotheses

HO: In the population from which the samples are drawn, the group centroids from all the discriminant functions are equal.

Research Methodology

The study was conducted in Meru County, Kenya. It is located along the equator on the eastern slopes of Mt. Kenya. Agriculture is the main land use and involves both livestock and crop production. The county receives an average of 1250 mm (49.21 inches) of rainfall per annum characterized by two rainy seasons. The long rains falls between March and May while the short rains occurs between the months of October and December. The temperatures varies from a low of 8°C (46.4 °F) during cold weather to a high of 32 °C (89.6 °F). This study used a quantitative research approach and specifically a cross-sectional survey design was used to address the objectives. The target population consisted of 4950 smallholder farmers, out of which 1950 belonged to 35 horticultural farmer groups in Meru County and 2000 were individual smallholder farmers (Non-group farmers). Stratified random sampling was used to select a sample of 224 farmers. This sample size was considered adequate at an alpha level of 0.05 (Bartlett, Kotrlik, & Higgins, 2001). The population was stratified based on group membership (group and non-group farmers) and then random sampling was used to select 112 farmers from each stratum.

A researcher developed questionnaire was used as a means of data collection. The questionnaire was comprised
of three main parts; group membership, BHFP and benefits of group membership. Group membership was assessed based on group size, age, and number of meetings. It was also measured as a binary construct of either a group member or not (0= No, 1=Yes). The application of BHFP was measured using a 5-point Likert type scale. The application score for each farmer was computed by summing items. BHFP were developed through the ISEAL Alliance and Governmental Use of Voluntary Standards’ project in 2008 to ensure food safety, protect workers’ health and the environment (ISEAL Alliance, 2008). A panel of experts established face and content validity of the instrument. Reliability assessment for the instrument was accomplished by using Cronbach’s alpha internal consistency reliability coefficient. The analysis revealed a Cronbach’s alpha coefficients of .78 for group membership construct and .86 for BHFP application construct. George and Mallery (2003) indicate that the minimum acceptable alpha is .70.

Two hundred and twenty-four questionnaires were distributed to the sampled farmers at produce collection centers. The decision to administer questionnaires during produce collection days at marketing centers when all farmers were present, enabled the researchers to reach all the sampled members at once thus achieving 100% response rate. Point biserial correlation, \( r_{pb} \) was used to determine the association between group membership and application of BHFP. According to Howell, (2004) Point biserial correlation is equivalent to Pearson's correlation when one of the variables is dichotomous. Discriminant analysis was used to test the hypothesis that farmers belonging to producer groups and those who did not, differed significantly on BHFP application levels. The grouping variable (dependent variable) was farmer group membership in which there were two categories of farmers; non-group and group farmers coded as 1 and 2 respectively.

The discriminating variables (independent variables) included production, harvesting and post-harvesting hygienic practices. The three variables were measured using a Likert-type scale items of 1 = never, 2 = rarely, 3 = occasionally, 4 = frequently, 5 = always. Discriminant analysis was used to determine whether non-group and group horticultural farmers differed significantly on the application of production, harvesting and post-harvesting BHFP. Klecka (1980) observed that discriminant function analysis is used to determine which continuous variables discriminate between two or more naturally occurring groups. Data were found to be normally distributed through an observation of the histograms of the frequency distribution (Tabachnick & Fidell, 1996).

Box’s M test was used to test the multivariate homogeneity of variance-covariance matrices assumption. An insignificant value of Box’s M test shows that those groups do not differ from each other and would meet the assumption. The result showed that Box’s M test \( p \)-value was less than .05. This shows that the assumption of homogeneity of the covariance matrices was not met, therefore the results should be interpreted with caution. However, Tabachnick & Fidell, (2001) argues that if sample sizes are equal, heterogeneity is not an issue but with unequal sample sizes, heterogeneity may compromise the validity of null hypothesis decisions. Correlation matrix was used to check multicollinearity of the variables and it was confirmed that none was exhibited as the coefficient ranged from .00 to .66. The centroids for each group were computed and Wilk’s lambda was used to test for significant differences between groups. The
tests were conducted at 95% level of significance \((p < .05 \text{ a priori})\).

**Results**

**Farmer Group Characteristics**

The major horticultural crops produced by most of the horticultural smallholder farmers (43.8%) in Meru County were peas, tea, and cabbage. All farmer groups cultivated green peas and thus was a popular and a major horticultural crop in Meru County. According to KNBS (2015), green peas are one of the main Kenya’s horticultural products that does well in the export market. In Meru County, the specific green pea cultivars grown mainly for export include snap peas and snow peas.

Table 1 presents the distribution of groups based on their sizes, number of meetings, and the length of time the groups had been in existence. More than half of the groups (68.6%) were comprised of between 20 to 59 members with a mean group size of 55.71. Regarding the frequency of meetings, the majority of farmers (90.2%) indicated that they held meetings once or twice per month. The study revealed that group meetings served as avenues for members to share information, discuss issues affecting the groups, get feedback from their leaders and to make important decisions. The study also established that most of the groups (51.8%) were young in that they had been in existence for between 1 and 2 years.

**Table 1**

*Characteristics of Farmers Groups (n= 112)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group sizes&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 – 59</td>
<td>24</td>
<td>69</td>
</tr>
<tr>
<td>60 – 99</td>
<td>8</td>
<td>23</td>
</tr>
<tr>
<td>100 – 139</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>140 – 179</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Number of meetings per month&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>67</td>
<td>59.8</td>
</tr>
<tr>
<td>2</td>
<td>34</td>
<td>30.4</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>.9</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>4.5</td>
</tr>
<tr>
<td>Above 4</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td>Period the group has been in existence&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 yr.</td>
<td>16</td>
<td>14.3</td>
</tr>
<tr>
<td>2 yrs.</td>
<td>42</td>
<td>37.5</td>
</tr>
<tr>
<td>4 yrs.</td>
<td>31</td>
<td>27.7</td>
</tr>
<tr>
<td>Above 4 years</td>
<td>23</td>
<td>19.8</td>
</tr>
</tbody>
</table>

*Note.* <sup>a</sup> = scale of 1-174, <sup>b</sup>, <sup>c</sup> = scale of 1-8

**Reasons for Farmer Group Membership**

The first objective sought to determine the reasons why farmers joined horticultural groups. Table 2 indicates the rank of reasons that caused farmers to subscribe to horticultural groups. The main reasons for horticultural group membership subscription were access to competitive credit facilities from banks such as equity or other microfinance institutions \((M = 4.60,\)
SD = .61), affordable farm inputs (M = 4.59, SD = .53), extension services (M = 4.58, SD = .53), manage risks involved in production of horticultural crops (M = 4.50, SD = .66) and access to produce market (M = 4.46, SD = .68). The findings confirm those of a study by IFPRI, (2012) which observed that farmer groups are useful avenues for increasing farmer productivity and food security. Farmer groups help in improving access to resources, better markets and consequently better prices for the produce.

Other reasons that caused farmers to become members of groups included, strengthen their bargaining power (M = 4.30, SD = .71), improved income through improved production and sales (M = 4.24, SD = .71), attraction to group income-generating activities (M = 4.23, SD = .75) and liking for the members (M = 4.10, SD = 1.23). The majority of the farmers indicated that groups act as a platform for discussing other issues such as education, health, politics or other welfare services (M = 4.04, SD = 1.16), and the group acts as a platform to save money for group uses (M = 3.96, SD = 1.25). These reasons also came up in a study by Aliguma, Magala, and Lwasa, (2007) who found that groups improved access to better prices and facilitated produce transport to markets. Loevinsohn, Mugarura, & Nkusi, (1994) reported that farmer groups facilitate access to competitive credit facilities from financial institutions.

Table 2

<table>
<thead>
<tr>
<th>Reasons</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to competitive credit facilities from banks such as equity or other microfinance institutions</td>
<td>4.60</td>
<td>.61</td>
</tr>
<tr>
<td>Access to affordable farm inputs</td>
<td>4.59</td>
<td>.53</td>
</tr>
<tr>
<td>Access to extension services</td>
<td>4.58</td>
<td>.53</td>
</tr>
<tr>
<td>Manage risks involved in the production of horticultural crops</td>
<td>4.50</td>
<td>.66</td>
</tr>
<tr>
<td>Access to produce market</td>
<td>4.46</td>
<td>.68</td>
</tr>
<tr>
<td>Strengthen the bargaining power</td>
<td>4.30</td>
<td>.71</td>
</tr>
<tr>
<td>Improved income through improved production and sales</td>
<td>4.24</td>
<td>.71</td>
</tr>
<tr>
<td>Attraction to group income generating activities</td>
<td>4.23</td>
<td>.75</td>
</tr>
<tr>
<td>Liking for the members</td>
<td>4.10</td>
<td>1.23</td>
</tr>
<tr>
<td>The group acts as a platform for discussing other issues such as education, health, politics or other welfare services</td>
<td>4.04</td>
<td>1.16</td>
</tr>
<tr>
<td>The group acts as a platform to save money that is inter-lend among members(merry go round)</td>
<td>3.96</td>
<td>1.25</td>
</tr>
</tbody>
</table>

Note: * = 1 = not at all, 2 = very little, 3 = somewhat, 4 = great extent, 5 = very great extent
Application of BHFP

The concept of BHFP evolved recently because of an immense concern about the safety and quality of food as well as the ecological sustainability of horticultural production. BHFP application helps farmers to produce safe and healthy food (Oyinlola, Obadina, Omemu, & Oyewole, 2016). The study revealed (Table 3) that among the practices “I prevent overfilling of produce in the harvesting containers” ($M = 4.98, SD = .13$), “I use clean containers for harvesting” ($M = 4.97, SD = .21$), “I prevent the damaging of produce due to rough handling” ($M = 4.96, SD = .28$), were the top three practices adopted by producers in farmer groups. “I harvest the produce at the right weather conditions” ($M = 4.46, SD = .79$), “I protect the fresh produce from any form of contamination (dust or rain or sunburn)” ($M = 4.46, SD = .76$), and “I use clean containers for harvesting” ($M = 4.46, SD = .76$), were the most applied practices among the non-group farmers.

Table 3
Comparison between Farmer Group and Non-Group Members based on Application of BHFP

<table>
<thead>
<tr>
<th>Practicesa</th>
<th>Group farmers ($n=112$)</th>
<th>Non-group farmers ($n=112$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Production hygiene</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My toilet is not situated near a source of irrigation</td>
<td>4.96</td>
<td>.25</td>
</tr>
<tr>
<td>I avoid production of horticultural crops near potential harmful substances</td>
<td>4.88</td>
<td>.42</td>
</tr>
<tr>
<td>I apply the right amount of organic manure using appropriate methods</td>
<td>4.87</td>
<td>.49</td>
</tr>
<tr>
<td>I consider animals vehicles for contamination with pathogenic organisms</td>
<td>4.85</td>
<td>.62</td>
</tr>
<tr>
<td>I apply the right amount of inorganic fertilizers using appropriate methods</td>
<td>4.80</td>
<td>.72</td>
</tr>
<tr>
<td>I prevent the build-up of pests by crop rotation or biological or integrated control methods</td>
<td>4.72</td>
<td>.65</td>
</tr>
<tr>
<td>I maintain soil cover to minimize soil erosion losses by wind or water</td>
<td>4.41</td>
<td>.82</td>
</tr>
<tr>
<td>Harvesting hygiene</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I prevent overfilling of produce in the harvesting containers</td>
<td>4.98</td>
<td>.13</td>
</tr>
<tr>
<td>I use clean containers for harvesting</td>
<td>4.97</td>
<td>.21</td>
</tr>
<tr>
<td>I prevent the damaging of produce due to rough handling</td>
<td>4.96</td>
<td>.28</td>
</tr>
<tr>
<td>I harvest crops using the correct maturity index</td>
<td>4.93</td>
<td>.31</td>
</tr>
<tr>
<td>I harvest crops using appropriate techniques</td>
<td>4.81</td>
<td>.66</td>
</tr>
<tr>
<td>I use clean clothes and gloves when harvesting</td>
<td>4.54</td>
<td>.88</td>
</tr>
<tr>
<td>I harvest the produce at the right weather conditions</td>
<td>3.83</td>
<td>1.26</td>
</tr>
</tbody>
</table>
Post-harvest hygiene
I clean the areas for storing fresh horticultural crops before harvest 4.89 .49 4.18 .77
I protect the fresh produce from any form of contamination (dust or rain or sunburn) 4.83 .57 4.46 .76

Note. *a = 1 = never, 2 = rarely, 3 = occasionally, 4 = frequently, 5 = always

The mean scores for non-group members were smaller than farmer groups' members. This means that the level of application of BHFP was lower than their counterparts in groups. The standard deviation for the non-group farmers was greater than those of farmer group members implying a higher variation in the application of BHFP among non-group farmers. Research has shown that farmer groups facilitate the adoption of agricultural technologies because they can lower transaction costs, enhance the exchange of information, and lower farmers’ risk aversion toward new techniques and income shocks through a shared risk management (Hogeland, 2006; Shiferaw et al., 2011).

BHFP Application Scores
An application score for each individual farmer was computed using the Likert type scale items in Table 2. The index involved 16 horticultural practices and each was worth five points based on a five-point Likert-type scale, thus the total score for the 16 practices was 80 points. Figure 1 presents the BHFP application score for group and non-group farmers. The majority of farmers (97) who belonged to farmer groups received a score of between 74 and 80 whereas most of the non-groups members scored between 65 and 73. The BHFP application scores for farmer groups’ farmers ranged between 49 to 80 out of a possible score of 80 (M = 76.49, SD = 4.78) whereas those of non-groups’ farmers ranged from 38 to 80 (M = 67.71, SD = 8.57). This shows that the average application score of group farmers was higher than non-group farmers implying that the application of BHFP was higher in farmer groups.

Group Membership & the Application of Horticultural Practices
The second objective sought to determine the association between group membership and application of BHFP. Table 4 indicates various ways in which farmer group membership benefits horticultural production. According to the farmers, the groups helped in negotiating legally enforceable supply contracts with exporters or processors (M = 4.21, SD = .50), improving members’ access to agricultural technologies such as improved crop varieties (M = 4.17, SD = .55), sourcing less expensive inputs (M = 4.16, SD = .51), and accessing knowledge on productivity-enhancing risk-reducing management practices (M = 4.15, SD = .67).
Meiguran, Nyangau and Basweti, (2016) observed that membership in an association positively influences farmer’s decisions in agriculture as it enables farmers to access credit facilities using their collective produce as collateral. Farmers also pointed out that groups helped them in facilitating collective production activities ($M = 4.09, SD = 1.21$), identifying market opportunities ($M = 3.88, SD = 1.16$), improving access to banking services such as saving, loans and other forms of credit ($M = 3.76, SD = 1.33$) and understanding how prices are determined ($M = 3.48, SD = 1.48$).

Table 4
**Benefits of Group Membership** on Horticultural Production ($n = 112$)

<table>
<thead>
<tr>
<th>Items</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Help farmers to enter into legally enforceable supply contracts with exporter or processor</td>
<td>4.21</td>
<td>.50</td>
</tr>
<tr>
<td>My group helps in improving members access to new farming techniques and appropriate farm inputs</td>
<td>4.17</td>
<td>.55</td>
</tr>
<tr>
<td>Help farmers to source for inputs more cheaply</td>
<td>4.16</td>
<td>.51</td>
</tr>
<tr>
<td>Help group members in accessing know-how on productivity-enhancing risk-reducing management practices</td>
<td>4.15</td>
<td>.67</td>
</tr>
<tr>
<td>It facilitates collective production activities</td>
<td>4.09</td>
<td>1.21</td>
</tr>
<tr>
<td>Helps group members in identifying market opportunities</td>
<td>3.88</td>
<td>1.16</td>
</tr>
<tr>
<td>Helps in improving access to financial services (saving, loans and other forms of credit)</td>
<td>3.76</td>
<td>1.33</td>
</tr>
<tr>
<td>Helps farmers in understanding how prices are determined</td>
<td>3.48</td>
<td>1.48</td>
</tr>
</tbody>
</table>

Note: 1= strongly disagree, 2 = disagree, 3= neither agree or disagree 4=agree, 5= strongly agree

A point-biserial correlation was run to determine the relationship. Table 5 shows the correlation between group membership and application of BHFP. There was a positive substantial (Davis, 1971) correlation between group membership and
application of BHFP, which was statistically significant ($r_{pb} = .50, N = 224, p < .01$). This implies that farmers in groups applied BHFP more than those who were not members. These findings are in line with those of other researchers who found a positive association between group membership and technological uptake (Nwakwo, Peters & Bolkemann 2009; Odomenem & Obinne 2010).

Table 5

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Group membership$^a$</td>
<td>-</td>
<td>.50</td>
</tr>
<tr>
<td>2. Application of BHFP$^b$</td>
<td>.50</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note: $^a$ = scale of 0= No, 1= Yes; $^b$ = scale of 1-80, $p < .01$*

Discriminant analysis was used to test the hypothesis that smallholder horticultural farmers belonging to producer groups and those who did not, differed significantly on a linear combination of three variables; production, harvesting and post-harvest hygienic practice application levels. As presented in Table 6 discriminant function analysis revealed that Wilks’ lambda was statistically significant, $\lambda = .47$, $\chi^2 (16) = 162.63, p = <.05, R^2 = .53$. Wilks’ lambda is the proportion of the total variance in the discriminant scores not explained by differences among groups. A lambda of 1.00 occurs when observed group means are equal while a small lambda indicates that group means appear to differ. The analysis revealed a lambda of .47 at $p < .05$, implying that the group means differed significantly. It also implied that 47% of the variance in group membership was unexplained. The analysis yielded a large Eigenvalue of 1.14 which indicates that the discriminant function can explain 1.14 times of the variance in group membership; a higher eigenvalue explains a strong function. Since there is only one function, 100% of the variance is accounted by this function. The squared canonical correlation was .53, indicating that 53% of the variance in group membership was explained by production, harvesting and post-harvest hygienic BHFP.

Structure coefficients show the correlations of each variable with each discriminant function. There was only one discriminant function in this study since there were only two groups. The correlations function like factor loadings in factor analysis by identifying the largest absolute correlations associated with the discriminant function. The coefficients were interpreted based on the rule that they are considered meaningful if they are greater than .3 (Hair, Babin, Money, & Samouel, 2005). The correlations between variables and discriminant function showed that the variable “I consider animals vehicles for contamination with pathogenic organisms” reported the highest loading fairly well (.53). The structure coefficients ranged from .24 to .53. A majority of the variables were considered meaningful. This shows that they moderately correlated with the first function (Davis, 1971). Out of the 16 variables, only two were not meaningful. These were “I apply the right amount of inorganic fertilizers using appropriate methods (.24)” and “I harvest the produce at the right weather conditions (.27).” This implies that the two variables had a low association with the discriminant function.
The standardized discriminant function coefficients in Table 6 serve the same purpose as the standardized beta in regression. They indicate the relative importance of the independent variables in predicting group membership (Field, 2013). Coefficients with large absolute values correspond to variables with greater discriminating ability. The standardized coefficients were interpreted based on the rule that the coefficient whose absolute value is not less than one-half of the largest value is considered in the discriminant function (Hair, et al., 2005). The highest coefficient was .50 (divided by 2 = .25) meaning that variables in that function with a coefficient of more than .25 were considered in the discriminant function. These included applying the right amount of organic manure (-.47), considering animals vehicles for contamination with pathogenic organisms (.47), preventing build-up of pests (.31), maintaining soil cover (-.31), harvesting crops using the correct maturity index (.28), harvesting the produce at the right weather conditions (.50) and protecting fresh produce from contamination (.27). This shows that harvesting the produce at the right weather conditions emerged as the most important BHFP.

Table 6

Production, Harvesting, and Post-Harvest BHFP in Discriminant Function Analysis (N= 224)

<table>
<thead>
<tr>
<th>Practicesa</th>
<th>Structure Matrix</th>
<th>Standardized Canonical Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Production hygiene</strong></td>
<td>Function 1</td>
<td></td>
</tr>
<tr>
<td>My toilet is not situated near a source of irrigation</td>
<td>.39</td>
<td>.19</td>
</tr>
<tr>
<td>I avoid production of horticultural crops near potential harmful substances</td>
<td>.31</td>
<td>.07</td>
</tr>
<tr>
<td>I apply the right amount of organic manure using appropriate methods</td>
<td>.36</td>
<td>-.47</td>
</tr>
<tr>
<td>I consider animals vehicles for contamination with pathogenic organisms</td>
<td>.53</td>
<td>.47</td>
</tr>
<tr>
<td>I apply the right amount of inorganic fertilizers using appropriate methods</td>
<td>.24</td>
<td>-.11</td>
</tr>
<tr>
<td>I prevent the build-up of pests by crop rotation or biological or integrated control methods</td>
<td>.48</td>
<td>.31</td>
</tr>
<tr>
<td>I maintain soil cover to minimize soil erosion losses by wind or water</td>
<td>.26</td>
<td>-.31</td>
</tr>
<tr>
<td><strong>Harvesting hygiene</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I prevent overfilling of produce in the harvesting containers</td>
<td>.43</td>
<td>.16</td>
</tr>
<tr>
<td>I use clean containers for harvesting</td>
<td>.43</td>
<td>.24</td>
</tr>
<tr>
<td>I prevent the damaging of produce due to rough handling</td>
<td>.49</td>
<td>-.01</td>
</tr>
<tr>
<td>I harvest crops using the correct maturity index</td>
<td>.48</td>
<td>.28</td>
</tr>
<tr>
<td>I harvest crops using appropriate techniques</td>
<td>.46</td>
<td>.20</td>
</tr>
<tr>
<td>I use clean clothes and gloves when harvesting</td>
<td>.44</td>
<td>.20</td>
</tr>
<tr>
<td>I harvest the produce at the right weather conditions</td>
<td>.27</td>
<td>.50</td>
</tr>
</tbody>
</table>
Post-harvest hygiene

1 clean the areas for storing fresh horticultural crops before harvest
2 protect the fresh produce from any form of contamination (dust or rain or sunburn)

<table>
<thead>
<tr>
<th>Function</th>
<th>( \lambda )</th>
<th>( \chi^2 )</th>
<th>df</th>
<th>( p )</th>
<th>Eigenvalue</th>
<th>% Variance</th>
<th>Canonical Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.47</td>
<td>162.63</td>
<td>16</td>
<td>&lt;.05</td>
<td>1.14</td>
<td>100</td>
<td>.73</td>
</tr>
</tbody>
</table>

Note: \( *=1 = never, 2 = rarely, 3 = occasionally, 4 = frequently, 5 = always \)

The group centroids are the mean discriminant score for each variable in the two groups (Field, 2013). The group centroids were equal in absolute value but have opposite signs (non-group = -1.06 and group = 1.06). Table 7 indicates the classification of farmers based on their scores on application of BFHP and the two functions at the group centroids. More than 80% were classified correctly.

Reclassification of cases based on the new canonical variables was highly successful: 86.2% of the cases were correctly reclassified into their original categories.

Table 7

<table>
<thead>
<tr>
<th>Classification Analysis for Application of BHFP among Non-Group and Group Farmers ( (N=224) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Membership</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Non-Group Count</td>
</tr>
<tr>
<td>%</td>
</tr>
<tr>
<td>Group Count</td>
</tr>
<tr>
<td>%</td>
</tr>
<tr>
<td>Group centroids</td>
</tr>
</tbody>
</table>

Note. \( *=1 = non- group farmers, 2 = group farmers; ^b = 86.2\% of original grouped cases correctly classified \)

Conclusions & Recommendations

Based on SLT contentions (Leeuwis, 2004), farmers applied BHFP out of the influence of other members in the group and in the process of trying to abide by the group norms. Farmer groups are therefore an important factor in extension utilization and can be a major tool for community-based extension (Davis, 2004). The findings of the study confirm the power of farmer groups as a tool for enhancing the utilization of BHFP. Farmer groups form an important route for rallying producers around a common goal especially in the delivery of extension services and formulation of strategies that support agricultural advancement. The main reasons why smallholder farmers in Meru County subscribed to horticultural groups included access to credit facilities from banks such as equity or other microfinance institutions, affordable farm inputs, extension services, managing risks involved in the production of horticultural crops, and access to produce market (Bosc, et al., 2002).

The level of application of BHFP among farmers in the farmer groups was higher than non-group farmers (Franzel,
This is because group membership had a significant association with the application of BHFP. Group membership enhanced the application of BHFP by improving access to agricultural technologies (Davis, et al., 2004), enabling sourcing of less expensive inputs and accessing knowledge on productivity-enhancing risk-reducing management practices. Additionally, membership facilitates collective production activities, identification market opportunities, improving access to financial services such as saving, loans and other forms of credit and understanding how prices are determined. Among the BHFP, the practice of keeping animals off the farm was considered the most meaningful. Animals can act as vehicles for contamination of produce with pathogenic organisms.

The promotion of farmer groups’ formation may be an avenue of enhancing the dissemination and application of best horticultural practices. Government extension agencies and other stakeholders also need to commit more resources towards strengthening and growth of farmer groups to maximize horticultural production, optimize production costs and stabilize farmer prices (Davis, et al., 2004). Farmer groups help smallholder farmers to enter into legally enforceable supply contracts with exporters and/or processors thus their promotion would also boost smallholder farmers bargaining power and farmers access to credit facilities (Shiferaw, et al., 2009). A replication of this study in other countries in East Africa such as Uganda where farming is done under similar conditions would be instrumental in ascertaining the study results. Such evidence is important not only to smallholder farmers but also to the government for guiding agricultural policy reforms. An ex post facto research can be conducted to find out the causative relationship between group membership and application of BHFP.

References


https://softkenya.com/kenya/horticulture-in-kenya
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Using an International Experience to Bridge the Gap Between Culture and Science Literacy

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Abstract
Today’s agricultural industry is charged with feeding a growing population, which means producing larger quantities of food and marketing the food worldwide. Future employers seek graduates that have global perspectives. To mitigate students’ lack of international knowledge, many higher education institutions are providing students an opportunity to participate in study abroad programs. The purpose of this study was to explore how an international experience in South Africa impacted participants’ perceptions of South African culture, global agriculture, and science. Seven reoccurring themes emerged from the data: a) adaptability (preexperience), b) enhanced communication skills (both pre and post experience), c) an attainment of diverse/broadened academic agricultural knowledge (both pre and post experience), d) risk taking (postexperience), e) intercultural competency and global awareness (both pre and post experience), f) critical thinking skills (postexperience), and g) career enhancement (postexperience). Findings indicate an international experience should integrate cultural learning, academic learning, and should be applied to the participant’s future career.

Keywords: international experiences; science literacy; cultural learning; study abroad
Introduction & Literature Review

Agriculture and food production are global enterprises that create a need and responsibility for colleges to prepare students for an increasingly diverse and global workplace (Ekiri, Aceng, Khaitas, Ejobi, & Kabasa, 2013; Gibson, et al., 2015; Malloy & Davis, 2012; VanDerZanden & Iles, 2013; Zhai & Scheer, 2002). National boundaries have lost their significance as increased travel, communication, investment, and trade have proliferated in the global community (Chieffo & Griffiths, 2004). According to the Food and Agriculture Organization of the United Nations (FAO), today’s agricultural industry is charged with feeding a growing population (2009). In order to sustain a growing population the agricultural industry must produce larger quantities of food and market the food worldwide (Heinert & Roberts, 2016). Population growth compels the agricultural community to recognize complexities related to growing adequate amounts of food and marketing products to a global community (Heinert & Roberts, 2016).

The National Research Council (2009) acknowledged the importance of purposefully preparing university students to engage in a globalized world and to be prepared to engage in agriculture that uses basic and applied science. Future employers seek graduates that have both global perspectives and related competencies. Bruening and Shao (2005) stated, “today one in six U.S. jobs is directly tied to international trade” (p. 48). LeCrom, Greenhalgh, and Dwyer (2015) added, “few would deny the importance of being globally minded in today’s marketplace” (p. 65). Experiences outside the students’ home country are invaluable learning opportunities that develop, integrate, and enhance skills necessary to succeed in both their educational and future work and career paths (Kidwai, 2011). As noted by Moore, Boyd, Rosser, and Elbert (2009), graduates with international experience are a critical component of the United States competitiveness in a global marketplace. Unfortunately, many undergraduates lack knowledge that will assist them in a globalized world (Wingenbach et al., 2003). This is especially true of agricultural students who will be compelled to find efficient and effective means to feed the growing population. In order for agricultural students to meet these challenges, those serving in agricultural education will also become accountable in preparing agriculture students with knowledge of the global workplace. Colleges of agriculture are primed to prepare globally competent graduates (Heinert and Roberts, 2016).

To mitigate students’ lack of international knowledge, many higher education institutions are providing students an opportunity to participate in study abroad programs (SAP). SAPs are defined by Alexis, Casco, Martin, and Zhang (2017) as “either short-term or long-term education programs that occur outside the geographical boundaries of the students’ country of origin” (p. 249). SAPs offer students a unique opportunity to gain cross-cultural experiences and awareness, along with transforming their worldview. Harrell, Sterner, Alter, and Lonie (2017) posited that challenging students to stretch their viewpoints is critical when thinking on a global level. Specifically, agricultural SAP experiences can provide participants an opportunity to compare their current knowledge about agriculture and related science to what they experience in another country. This new awareness has the potential to break down barriers of agricultural ethnocentrism or biases participants may have had in regard to how others produce food products.
A growing number of institutions are recognizing the positive effects international experiences have on graduates entering the global workplace (Smith, Smith, Robbins, Eash, & Walker, 2013). When considering study abroad as related to agriculture, Malloy and Davis (2012) stated, “it was now time to ask how agricultural colleges could participate in the internationalization of education through study abroad opportunities” (p. 24). Today’s scientific community is connected at a global level (Alexis, Casco, Martin, & Zhang, 2017) and there is a felt need for individuals to be respectful in relation to culture, economics, and politics (Dwyer & Peters, 2004).

Study abroad experiences are gaining interest as the United States continues to expand global horizons. Organizations such as the Institute of International Education (IIE) and the International Education of Students (IES) have collected data that provides supporting evidence in regard to the benefits of students’ participation in educational SAPs (Dwyers & Peters, 2004). As noted by Zhai and Scheer (2002), SAPs are in the spotlight as the primary method used to expose students to global competencies. Agriculture is one area where a significant global interaction occurs. The ability to specialize and trade what a particular geographical area produces most efficiently and effectively is of primary importance from both an agricultural and economic perspective. Worldwide connectivity necessitates those involved in agriculture to broaden their knowledge and understanding beyond their domicile. Participation in a study abroad program is one way to enhance what is taught in the classroom. SAPs provide students an opportunity to interact first-hand with those engaged in agriculture at the host site. First-hand experiences provide deeper appreciation and learning as a result of being part of the activity (Kidwai, 2011; Shelley-Tobert, Conroy, & Dailey, 2000). SAP experiences also provide participants “a wider range of opportunities for relevant, experiential learning, including hands-on and/or project based work situated in global context” (Jesiek, Haller, & Thompson, 2014, p. 2).

SAPs also provide students an opportunity for acculturation and cultural learning from immersion and direct interaction with individuals in the host country (Akli, 2013). This is especially true when students are “mindful” of their experience. Akli (2013) noted that through mindfulness, students will distance themselves from ethnocentrism, a state where they only see the world from their native perspective. Students will then have the ability to form new perceptions of cultural pluralism and form multiple viewpoints (Alklu, 2013).

Technology has allowed for innovative approaches to be used to help find ways of feeding a growing global population. The ability to efficiently use natural resources and market products globally creates economic gains for both the consumer and producer (Lambin & Meyfroidt, 2011). As concerns for the ability to feed the world continue to grow, scientific knowledge in regard to efficient and effective agricultural production and practices becomes invaluable. Chiasson and Burnett (2001) found “agriscience programs educate students to achieve in diverse areas that are very practical for dealing with the challenges of today’s world” (p. 62). Agricultural careers have expanded to include many different careers and the knowledge and skill taught in agricultural courses can be easily transferred to various careers (Chiasson & Burnett, 2001). As agriculture continues to become less labor intense, technologically advanced, and more globally connected, opportunities for college
graduates with international experience will proliferate (Harder et al., 2015).

**Theoretical Framework**

The theoretical framework guiding this study was Ajzen’s (1985) theory of planned behavior. Ajzen’s theory of planned behavior (TPB) posits that an individual’s behavior is directly driven by the individual’s intention to engage in the behavior and can be used to predict and explain behavior as applied to particular contexts. TPB includes three presiding factors of influence: (1) attitude toward the behavior; (2) subjective norms; and (3) perceived behavioral control. A central component of TPB is a person’s intention to complete a given behavior (Ajzen, 1991). Intentions are motivators that propel an individual either to engage in the behavior or not to engage in the behavior. However, for the action of engagement to occur, factors such as having the opportunity and resources are primary variables. Perceptions of behavioral control (ability to achieve desired outcome) and behavior intention (motivation to engage or not to engage in the activity) are predictors of behavioral achievement (Ajzen, 1991). As noted by Ajzen (1991), self-efficacy (confidence in one’s self) is compatible with TPB. Ajzen (1991) stated, “the theory of planned behavior places the construct of self-efficacy belief or perceived behavioral control within a more general framework of the relations among beliefs, attitudes, intentions, and behavior” (p. 184).

**Purpose & Objectives**

The purpose of this study was to explore how an international experience in South Africa impacted participants’ perceptions of South African culture, global agriculture, and science. More specifically, the objectives of this study were to:

1. Describe how the participants’ perceptions of South African culture, global agriculture, and science changed throughout the short-term study abroad program;
2. Describe how the participants’ will use their new knowledge in their future careers.

**Methods**

A qualitative method allows for a holistic approach in which words and feelings can be analyzed (Creswell, 1998). Merriam’s (2002) basic interpretive approach was used because it allowed researchers to explore a phenomenon. As noted in Merriam and Tisdale (2016), “a central characteristic to all qualitative research is that individuals construct reality in interaction with their social worlds” (p. 24). Merriam and Tisdale (2016) also posited that the use of a basic qualitative study is most useful when the research is interested in “(1) how people interpret their experiences, (2) how they construct their worlds, and (3) what meaning they attribute to their experiences” (p. 24). These three attributes were principle components of interest in this research study; therefore, a basic qualitative approach was used for this study. Additionally, qualitative data collected from open-ended questions administered prior to and upon completion of the SAP, along with reflective journals, allowed students to contextualize their experience and articulate personal growth from their SAP. This data collection approach provides rich, detailed insight from the students’ viewpoint. The study is bounded by the use of specific participants and their experiences from this SAP; therefore, a case study approach has been utilized to explore the phenomenon of interest. As noted by Yin (2014), “a case study allows investigators to focus on a “case” and retain a holistic and real-world...
perspective” (p. 4). Case studies are particularly applicable when the research is an investigation that is a contemporary phenomenon of a real-world context where the phenomenon of interest fails to contain a boundary (delineation) between the context and phenomenon (Merriam & Tisdale, 2016; Yin, 2014).

In agreement with Koro-Ljungberg, Yendol-Hoppey, Smith, and Hayes (2009), constructivism was the theoretical perspective. A constructionist epistemology is appropriate for this study due to the researchers’ purpose of finding meaning constructed by the individual, where multiple realities exist (Crotty, 2004). Furthermore, the researchers would like to disclose their interest in globalizing educational programs and communicating science in order to acknowledge potential bias of this study. All researchers bring bias into their research (Creswell, 2013). We are aware of our direct contact with the participants and their future educational outcomes, requiring them to be cognizant of any potential biases. Trustworthiness and validity of findings were established by triangulation of data collection (pre and post experience questionnaires, in addition to daily reflective journals). Dual researchers reading and coding the open-ended questions and the reflective journals enhanced credibility.

Participants & Study Course

Participants were purposefully selected based on their participation in the International Leadership Seminar for State Officers (ILSSO) and their enrollment at the University of Nebraska-Lincoln in a course designed to enhance their international experience. Seven undergraduate students, four male and three female, participated in this study. All participants were Nebraska FFA officers during the 2015/2016 school year. The ILSSO experience took place in South Africa in January of 2016. The participants traveled first to Virginia where they connected with other State Officers from across the United States and then traveled as a group to South Africa. Class sessions were conducted prior to the international experience and after the international experience.

Data Collection & Analysis

As previously noted, participants of this experience were asked to complete both pre and post experience questions and daily journal reflection entries pertaining to their individual perceptions of each day. Information obtained from preexperience questions focused on background information such as hometown, high school agriculture experiences, career goals/aspirations, personal culture and any prior ‘other’ cultural experiences they may have engaged in. Participants were also asked to theorize on what they might gain from this SAP, what prior knowledge they already possessed about South Africa, and what they might expect to see in their host country in regard to differences in technology, agriculture, and scientific innovation/advancements. Participants concluded with their projections of how they expected this experience to benefit them both personally and professionally.

Upon returning to the United States, participants completed postexperience questions. The postexperience questions included probes in regard to cultural diversity and perceptions of agriculture as related to host country versus home country in aspects such as technology, agriculture, and scientific innovation/advancements. Students were also asked to relate how their SAP experience increased their knowledge, skills, and understanding of the host country and how this experience can benefit them in both their professional and personal lives in the future.
Participants also completed daily reflective journal entries on their experience. The specific prompts that participants based their reflections on were as follows:

1. What did you learn in regards to culture, global agriculture, and scientific advancement within agriculture?
2. How will you use what you learned in your future careers?

Initial data analysis was completed using thematic analysis. Specifically, the block and file approach was used (Grbich, 2007) to identify reoccurring words. Each piece of data was viewed three times and reoccurring words were color coded to identify reoccurring themes. Each theme was given a name that aligned with the data. Trustworthiness techniques (Lincoln & Guba, 1985) were used to enhance the quality of this study. Two data collection methods, multiple researchers, and member checking by use of an outside reader were used to ensure triangulation and to enhance credibility. Thick description of the themes aids in transferability (Dooley, 2007) and decisions of a methodological nature were recorded in a journal to ensure dependability and conformability.

Findings

Six reoccurring themes emerged from the data: a) adaptability, b) enhanced communication skills, c) attainment of diverse/broadened academic agricultural knowledge, d) risk taking, e) intercultural competency, and f) global awareness and impact on future careers.

Adaptability

Prior to South Africa, participants were eager to practice their adaptability (P1; P3; P4; P5). P4 recognized there would be an adjustment period upon arriving in South Africa and it would take some time to learn how to adapt to a different way of living. P5 looked forward to adapting to the surroundings by consciously altering her behavior. The eagerness and anticipation of adapting to a different culture aligns with Ajzen’s (1991) TPD. The participants clearly intended to adapt to the culture in South Africa, which according to Ajzen (1985) an intention can be used to predict and explain behaviors. Prior research indicated that participation in SAPs provides students an opportunity to open their minds to different viewpoints and different cultures (Ayers, 1996; Hutchins, 1996; Garvey, 1996; Kauffmann, Martin, Weaver, & Weaver, 1992; Burn, 1980; as cited in Zhai & Scheer, 2002). Roberts, Conner, and Jones (2013), posited that participation within another culture can result in the participant learning as much about their own culture as what one may learn about the other culture. P3 related the need to adjust their learning to the setting, stating the following, “I adjusted socially by the way I carried my conversations with natives. I had to really watch what I said and make sure that I wasn’t going to say anything offensive.” Participants were amazed by the cultural differences and P1 realized the significance of being willing to set aside your differences and learn about culture that is unfamiliar. Cultural differences were also evident to participants in regard to names of foods (P5 noted ‘chips’ meant French fries), meal preparation (spices used in food) and dining experiences (always a dessert and beverage served as a part of the meal rather than an addition to the meal). P1, P4, and P7 noted this is a culture that is inherently hard working and has a high priority on family. Recognizing the participants initial intent to adapt to the culture in South Africa explains why the participants were able to exhibit the behavior of adaptability and align with Ajzen’s (1985) TPD.

Enhanced Communication Skills

The need for enhanced communication skills emerged early on. P7
realized that effective communication began with effective listening, which helped to break communication barriers. P5 had trouble communicating with individuals due to lack of common interests. Interaction in South Africa encouraged P5 to engage in conversations with complete strangers. P3 stated the following in regard to engaging in conversations with another culture, “I learned how to listen and learn about somebody who comes from a different culture.” The ability to listen to an individual allowed participants to determine the subjective norms (Ajzen, 1985) that were prevalent in a particular region of South Africa. Smith et al. (2013) stated, “students who study abroad exhibit personal and professional attributes that are critical to success in the 21st century workplace” (p. 13). In a study conducted by Zhai and Scheer (2004), findings concluded that agricultural students acknowledge the benefits of an international educational experience as one that increased their personal development and global competency. Acquiring a new appreciation for communication skills with individuals outside the participants’ home country was expressed by all seven of the SAP participants. In addition, P2 stated, “if we are able to communicate with people in a different culture then it will make it easier to communicate with people in our own culture.”

**Attainment of Diverse/Broadened Academic Agricultural Knowledge**

The ‘flattened’ world (Friedman, 2006) has expanded trade and exchanges of technology, allowing businesses to position themselves in many countries (Harder, et al., 2015). Zhai and Scheer (2004) stated, “the expansion of international trade and economic competitiveness means that the agriculture industry must operate on a global scale. Therefore, it is crucial that agriculture students become more knowledgeable about other countries, their cultures, economy, and roles in world affairs” (p. 40). Participants valued learning about agricultural sciences in South Africa. P5 was interested in the biotech crops that are being grown in order to increase yields in order to make agricultural production more sustainable. P1 perceived South African agricultural sciences to be developed in a way that utilizes scientific advancements within production agriculture. However, there were other instances of where participants experienced undeveloped agricultural practices too. P3 noted in their daily journal, “visiting the old shanty town was neat because we could see how the agriculture evolved with money, time, and different groups of people.” P7 noted in postexperience answers, “the agriculture is much more diverse than I could have ever imagined.”

SAP programs provide students an opportunity to contextualize their learning. Contextualized learning is described as “a set of strategies that provide a holistic approach to instruction” (Shelley-Tolbert, Conroy, & Dailey, 2000, p. 52). SAPs can provide conduits between agriculture and STEM concerns in the United States. A number of research studies posited the benefits of teaching science through agriculture (Chiasson & Burnett, 2001; Shelley-Tolbert, Conroy, & Dailey, 2000; Thompson & Schumacher, 1997). Balschweid (2001) agreed, stating, “research findings have supported the claim that integration of science into agriculture curricula is a more effective way to teach science” (p. 362). Additionally, according to Chiasson and Burnett (2001), “today there are a few areas that one can examine to identify current links between education in the fields of science and agriculture to improve science literacy” (p. 63). Therefore, participation in SAPs where agriculture
students are mindful of not only agriculture, but also science in agriculture, provides twofold learning from a single experience. Participants realized that the agricultural sciences were embedded in South African agriculture (P1; P2; P4; P5; P6). If SAP participants knowingly and purposefully learn about necessary overlap between agricultural production and science, according to TPD (Ajzen, 1985) the participants would be likely to experience a change in attitude or behavior within a particular context.

Participants of this SAP were cognizant of technology and innovation, in addition to underdeveloped agriculture and science practices in South Africa. P2, P3, P4, P5, P6, and P7 noted incredulity in the amount of technology already existent in South Africa, while P7 noted many practices lagging in technological use. P7 summed it up in the following statement, “south Africa is either 15 years behind in scientific innovation in the agricultural industry or 3 years ahead of the United States.” This refers to the noted advancements (P7) in regard to AI and other genetics in animal husbandry, whereas in row crop applications (overall use of machinery and mechanized harvesting) even though participants viewed use of major brands such as John Deere or Case, most machinery was older and manual labor was still evident.

**Risk Taking**

P1 and P6 looked forward to experiences that would take them out of their comfort zone and force them to take risks. P1 and P4 expressed how this experience required them to ‘step outside their comfort zone’. P4 wrote the following, “I learned to face my fears, quietly make decisions, and how to analyze if I can trust someone with my life on short notice.” Participation in this SAP provided valuable knowledge in regard to appropriate behaviors in culturally diverse situations. In research conducted by Sutton and Rubin (2004), participating in an SAP “adds value to students’ academic achievements” (p. 77). Gibson et al. (2015) adds from Sutton and Rubin’s (2004) research that there were “higher graduation rates, grade point averages and better cultural competencies than undergraduates who did not study abroad” (p. 149). From their SAP experience, P4 noted an increased confidence in their ability to increase involvement and interaction with others, whether it is in social situations, student organizations, community activities, or their future career. International experiences appear to provide individuals with an opportunity to

**Intercultural Competency**

Research completed by Harrell et al. (2017) noted study abroad experiences benefit participants in a variety of developmental processes such as gaining knowledge about the country they visit, a potential to increase their foreign language proficiency, an increased awareness of their own capabilities and beliefs, and an increased understanding of intercultural competency. As a part of many study abroad experiences, students will gain not only knowledge of differences in people and places, but often leave these experiences with knowledge in regard to themselves and their homeland. P1 noted in their pre-experience, “I want to understand first-hand that people live life in a different culture of my own.” Upon return, P1 noted, “I learned not to make a big deal out of cultural differences because they don’t define us as people”. P2, in their daily reflective journal said, “I recognize today the amount of greed Americans have and we have blinders on so much of the time.”

Embedded in SAPs is the attainment of intercultural competence. Intercultural
competence is comprised of three dimensions: cognitive (possessing information in regard to cultural issues), affective (possession of open-mindedness to new values and situations), and behavioral (use of culturally appropriate people skills) dimensions (Williams, 2009). The cognitive aspect of intercultural competence is espoused with the knowledge of cultural norms, behaviors, values, and beliefs of the country being visited. This dimension requires the participants to be open and flexible to the attainment of new perspectives and information. As noted by P1, the work environment in South Africa displayed a social atmosphere where laborers were engaging in communication with each other socially (slow paced and relatively relaxed), not just interacting on work related issues. P1 concluded by stating this would be a work environment they would be happy to be employed in.

The affective attribute of intercultural competence refers to a participants’ flexibility in adapting to new situations and retaining an open-mind when encountering new values. Every participant (P1-P7) reflected that the South African people they came in contact with demonstrated a happy and cheerful disposition, even those individuals living in shanty towns. P1, P3, and P5 felt that even though poverty was evident in the shanty town, the inhabitants demonstrated pride and contentment in what they possessed and were willing to share what little they had with visitors. Participants also realized that cultural differences would evoke various emotions. P1, P2 and P6 reflected on their unease with street vendors and their persistence in selling goods to the them. Participants noted this exposure required them to be aware and savvy when they encountered this street vendors selling goods.

Global Awareness & Impact on Future Careers

The value of global awareness is not only valuable in regard to potential future careers for today’s graduates, but also due to the changing demographics within the borders of the United States. Research has shown that in the United States there is a changing demographic, therefore today’s majority may become the future’s minority (Hempel, 2013; U.S. Census Bureau, 2012; Zhai, 2000). P1, P3, P4, and P7 noted distinct lines of segregation still exist in South Africa. P1, P3, P4, and P7 noted that from their observations Caucasian descent was the minority and white individuals served as managers/supervisors, whereas black individuals were the laborers.

Not only can an international experience increase student sensitivity in regard to other cultures, but participants also attain valuable global competencies to be used in their personal and professional lives (Chang, et al., 2013). As noted by P1, P2, P3, P4, P5, and P6, a new appreciation, understanding, and respect was realized for not only their host country, but also for his/her home country. P4 noted, “these people [South Africans] have so little in terms of material possessions compared to us, yet they are truly joyful in every way. This comes from being grateful for what they have.” P1, P2, P4, P6, and P7 noted the friendliness, pride, and humble manner of the farmers and laborers they came in contact with. In postexperience answers, P7 stated, “I believe I have a strong understanding of the global field of agriculture, food, and natural resources in South Africa”. P5 added, “I now have a much greater understanding of how the global export and trade markets work.” Finally, P1 expressed their increased global understanding by stating, “After spending time in South Africa, I understand that many places in the world use the same agricultural
practices as we do here in the United States”.

As stated by Bruening and Shao (2005), “one in six jobs today is directly tied to international trade” (p. 48). Not only is there an importance of ensuring adequate supplies of food for a growing world population, but there also exists an importance of understanding and assisting with food production systems in developing countries. With increased urbanization, an upsurge in world population, along with lifestyle changes resulting in diverse food preferences, there becomes a necessity to increase animal and crop production, whereby increasing food security (Ekiri et al., 2013; Harrell et al., 2017; Heinert & Roberts, 2016). Zhai and Sheer (2002) noted that as global food needs increase, understanding agriculture in various contexts along with an awareness of international perspectives is imperative to alleviating concerns in regard to adequate food supplies. In a study by Bruening and Frick (2004), it was noted there is a growing need for more agricultural students to participate in SAP experiences in order to increase their cultural knowledge and global contextual understanding. Additionally, by combining cultural awareness with experiential learning as related to agricultural practices, students have the ability to cultivate and develop higher-order thinking along with problem solving skills (Ekiri et al., 2013). Participants in this study learned how to critically think about situations and make quick decisions (P4, P5). P2 used critical thinking when making judgments about South African and American agricultural practices and when thinking about what could be done to ensure that food is transported to people in need.

As noted by Smith et al. (2013), “increasingly institutions of higher learning are recognizing the value of an international experience to students’ preparation for the globalized workplace” (p. 15). P7 stated, “the quote of if there is a gap, there is an opportunity screams South Africa.” This participant continued by reflecting on the fact that while South Africa agriculture has evolved over time, there still exists potential for improvements. The participant continued, stating their desire to grow food science in this country as a part of their future career path. Exposure to a different culture and agricultural practices seemed to open up a new world for many of the participants and allow them to increase their self-efficacy and realize that there is still room for behavioral change. While only P7 noted their interest in working internationally in the future, P1, P4, and P6 communicated how this experience brought new perspectives into their views on agriculture, trade, cultural relationships, and communication that can be relayed to those in their future professional career fields. The entire international experience contributed to enhancement through knowledge of agricultural sciences, communication, and culture (P1; P5).

**Conclusions & Recommendations**

Many students entering agricultural programs in higher education come from rural areas where exposure to different cultures and socioeconomic classes is limited. SAP experiences can bridge the gap between prior limited experiences to future pluralistic careers. Zhai and Scheer (2002) stated, “study abroad programs (SAPs) have become the most visible and popular international activity to enrich and broaden students’ global competency at college and university campuses across the United States” (p. 23). They continue by stating how they possess a newfound confidence in improved employability as a result of this experience. This is important as employers seek candidates who are able to contribute to
a company’s’ economic global presence (Cranmer, 2006; Harder et al., 2015).

The findings from this research indicate an international experience can and should integrate cultural learning, be an academic learning experience focused on science that is essential in today’s global agriculture industry, and should be a learning experience that can be applied to the participant’s future career. In alignment with Ajzen’s (1991) assertion that intention is the central component of TPB, participants went into this study abroad experience purposefully looking for new experiences that would remove them from their comfort zone and promote self-growth. Participants went on the SAP with the intention to change their mindset through cultural experiences. However, it is important to note that cultural learning was intertwined with academic learning, which focused on becoming more scientifically literate within the agricultural sciences.

As interdependence and interconnection between and within countries continues to evolve and develop, it becomes increasingly vital for agricultural students to engage in real-time experiences both within and outside their domicile. This is crucial for not only students as they prepare for their future career path, but also for the United States in order to remain competitive in the global economy and when working toward the challenge of feeding a growing world population. In agreement with Smith et al. (2013) and Harrell et al. (2017), as industry continues to expand globally, universities must provide undergraduates with education that prepares them to effectively operate within other cultures. University instructors should purposefully examine their courses to determine how the courses could be modified to focus on global awareness and intercultural competency. Modifications may include opportunities for students to interact and collaborate with students from other cultures. Interactions could take place on the home campus or interactions could be facilitated online with students or professionals in other countries.

SAPs provide students an opportunity to become global citizens, which is positive for all people (Akli 2013). In research conducted by Kidwai (2011), a participant noted, “I learned how narrow my perception of agriculture was” (p. 33). Hillary Rodham Clinton, in her past role as Secretary of State noted the importance and necessity of a globally educated citizenry and appealed to American students to study outside the United States (Smith et al.). According to the Food and Agriculture Organization (FAO, 2009) the rapidly growing population will lead to 70% of the people residing in urban settings. The rising population will challenge agricultural producers to provide adequate food for the world (FAO, 2009). The complexity of feeding the world makes it ever more important to prepare students for a globally connected world (FAO, 2009). Not only are colleges of agriculture positioned to make an impact on students’ global competency, but these experiences can also shape student perceptions and attitudes of globalization, creating more globally minded individuals who are workforce ready for the 21st century and beyond. University instructors should contact agricultural employers from multiple countries to identify specific global competencies that agricultural employers are looking for and expecting when hiring university graduates.

It should be noted that findings from this case study may not be transferable to all study abroad experiences. This case study contained a limited number of participants and only included one university and one course. Additionally, outcomes resulting from study abroad experiences continue to gain interest in educational institutions. In
order to increase participant awareness, completion of the Intercultural Development Inventory may provide valuable information in regard to findings from their SAP experience.

The international sharing of technology and resources is crucial to concerns related to growing adequate amounts of food for the worlds’ increasing population. As the interconnectedness of agriculture and science continues to evolve, collaborative research related to international experiences can assist in creation of invaluable connections between technology and agriculture.

Future research should be conducted to determine how intercultural competency levels positively or negatively impacts the success of agricultural careers in the 21st century. Additional research identifying and expanding on the intercultural competencies needed for 21st century agricultural jobs will allow for SAPs to modify their programs to better meet the needs of agricultural employers and students. Research should also be conducted to better understand the barriers of participation in SAPs and how SAPs can be modified to enhance science literacy through an agricultural context.

References


Jesiek, B. K., Haller, Y., & Thompson, J. (2014). Developing globally competent engineering researchers: Outcomes-based instructional and assessment strategies from the IREE 2010 China research abroad
U.S Census Bureau. (2012). U.S. census bureau projections show a slower growing, older, more diverse nation a half century from now. Retrieved


Exploring the Purpose of Agricultural Technical Schools in Haiti

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Abstract
Haiti is a country which suffers from food insecurity, therefore, agricultural production and productivity are important to ensure availability of food for the Haitian population. Dissemination of best agricultural practices amongst farmers is crucial, and extension agents bring the scientific discoveries into the rural communities. In Haiti, extension activities are primarily conducted by graduates from agricultural TVETs. However, little is known about the current situation of Haitian TVET within the agricultural system. This study is a basic qualitative research which used constructivism, and backwards design as theoretical framework to explore the purpose of TVET within the Haitian agricultural system. Individual interviews to schools’ directors and teachers, and focus groups conducted with students revealed that respondents thought that TVET helped in students’ social mobility by (a) providing training to disadvantaged youth, (b) helping them get financial independence sooner, (c) provide a path towards higher education, or (d) entrepreneurship; it also allows them to build necessary (e) networking and (f) a reputation for their future. On the other hand, agricultural TVET in Haiti had an important role in improving local communities by (a) ensuring rural development and (b) reducing rural outmigration and poverty. Finally, TVET was also crucial within the agricultural extension system because graduates were responsible for (a) providing technical assistance to farmers, (b) improving production practices, (c) helping protect the environment, and (d) training farmers.

Keywords: Haiti; technical school; training

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Introduction
Agriculture is an important activity because it produces food for human consumption and allows for rural development (Moehler, 1997). However, in Latin America there are still many malnourished people, particularly in the Caribbean islands (FAO, IFAD, & WFP, 2015). Haiti’s situation is one of the most critical in the region, based on its alarming hunger index severity (von Grebmer et al., 2016). Therefore, it is crucial to work on ways to improve food security status in Haiti. Fuglie and Wang (2012) have found that the obstacles which countries have to face for increased agricultural production are linked to the access and implementation of technologies. Extension can play a large role in the technology diffusion. In Haiti, according to GFRAS (2017), graduates from Technical and Vocational Education and Training (TVET) institutions perform most of the extension work. As operationally defined in this study, agricultural TVET schools were the tertiary institutions providing diploma-level credentialing leading to employment as agricultural technicians. Given this important role within the agriculture sector in Haiti, understanding these TVET institutions as a piece of the larger capacity building system which ultimately has implications for the food security situation in Haiti. As previously noted in the literature (Pierre, Calixte, Moore, Bunch, Koenig, Delva, & Roberts, 2018), There is very little empirical understanding of the Haitian agricultural education system. This study adds to the literature by providing a baseline examination of a selected group of agricultural TVET institutions.

Literature Review
The definition of TVET, according to UNESCO (2017b, p. 1), is all “those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupation in various sectors of economic life.” This organization also acknowledges the role of TVET in employment, sustainable development, and social justice (UNESCO, 2017a). Despite the importance of TVETs in developing countries’ economy, it has still been reported that they are highly unpopular, because they are viewed as pertaining to a specific class of people, whom are not expected to enter the higher education system for various reasons (King, 1993). In Ghana, enrollment in public and private TVET have decreased, because graduated lower salaries, and it is perceived to be reserved for people with poor academic performance (Darvas & Palmer, 2014). In Latin America however, TVET provides much needed training to youth with disadvantages (King, 1993). Another complicating factor is the diversity of TVETs, which emerges from whether or not it is controlled by the state, the private sector or both (Koudahl, 2010) and the various types of institutions and outcomes of TVET, as well as the fact that it can be school-based or at the post-secondary level (King, 1993). Agricultural TVET needs to address human capacity development, government funding, institutional networking, curriculum modifications, and physical infrastructure (Rivera, 2006). However, depending on the cultural aspects of TVET in a specific country, many approaches may be appropriate to ensure quality of TVET (King, 1993). If the focus is put on human development, inequality, poverty and other environmental and social issues, TVET can lead to sustainable development (McGrath & Powell, 2016). UNESCO (2015) also recognizes that TVET is holistic, in that beyond job skills, it provides character
education such as positive values, motivation, and entrepreneurial skills.

Previous literature about the agricultural TVET system in Haiti could not be found. Recent research has begun to examine the agricultural universities in Haiti. Pierre et al. (2018) found that university faculty generally felt prepared for their teaching roles. Albert, Roberts, and Harder (2017b) examined how university faculty viewed the importance of developing extension competencies in their students. Faculty had mixed views on their roles in developing the competencies noted by GFRAS (Sulaiman & Davis, 2012). In a similar study, Pierre, Calixte, Moore, Bunch, and Roberts (2018) found faculty believed university students generally had the necessary set of competencies at graduation for employment, but were not competent in all the GFRAS competency areas. This potentially means students were ill-prepared to be frontline extensionists. This situation could be underlying some of the challenges note by Zeleya, Harder, and Roberts (2016) who found that small-scale farmers had challenges accessing information and infrequently relied on extension for their information needs. Although interesting, this research does not shed light on the tertiary-level, diploma-granting institutions. In terms of workforce development, the agricultural universities appear to have strengths and weaknesses in meeting the needs of the agricultural sector. It is, however, unknown about the roles which agricultural TVET schools play in the agricultural sector. This study will seek to begin filling this gap.

**Theoretical Framework**

This study was designed and implemented under a lens of social constructionism (Crotty, 1998). Under this lens, the researchers assumed that the interactions between people in a social system contribute to a collective understanding of a given phenomenon (Crotty, 1998). Then, an individual’s personal experiences in that social system inform his or her personal understanding of the phenomenon through social constructivism, which focuses on the social interactions in the learning processes for individuals (Bozkurt, 2017; Doolittle & Camp, 1999; Powell & Kalina, 2009). Operationally, the social system was defined as agricultural technical schools in Haiti and the individuals in the system were the school directors, teachers, and students. It was assumed that the interactions between these people informed each person’s beliefs, which in turn informed the broader system and vice versa.

The second piece of our theoretical framework was informed by the concept of backwards design (Wiggins & McTighe, 2001). As an instructional design approach, backwards design begins the process with the end goal in mind (i.e. what should students be able to do by the end of the program). Curricula decisions are made based on trying to achieve this end goal. Understanding the end-goal will then allow a better understanding of all other aspects of a given educational program. Operationally, understanding the purpose of agricultural technical schools in Haiti will allow for a more systematic review of the institutions and identification of opportunities for improvement to the system.

Conceptually, the school directors (often founders of the schools), teachers, and students (adult learners) entered the social system (the agricultural technical schools) with their own ideas about the purpose of the schools. Through their interactions, a socially constructed purpose emerges, which in turn has the potential to inform management decisions of the directors, curriculum decisions of teachers, and career choices of students. All of this begins with
an understanding of the purpose of these schools.

**Purpose**

The goal of this study was to explore the purpose of Haitian agricultural TVET schools. This was achieved by synthesizing beliefs of: (a) school directors, (b) teachers, and (c) students. This knowledge can then be used as a lens in which to further examine these schools.

**Methodology**

This study utilized a basic qualitative study design (Ary, Cheser Jacobs, Sorensen, & Walker, 2012). Sampling, data collection, and data analysis were informed by our theoretical framework.

**Sample**

The study sampling method was to select all agricultural technical schools in the Ouest department of Haiti (Harding, 2013). This resulted in four TVET schools. Three schools were located in Petit-Goave (schools 01, 02, and 03). One school was located in Montrouis and affiliated with a university (school 04).

The schools were technical institutions with an agriculture option, except for school 04, which was a university also offering bachelor’s degrees. School 03 included additional technical options (other than just agriculture). The program of study lasted between two and three years, with a credit system for school 04. School 03 required a minimum entry level of 2e, while 01 and 02 only demanded 3e; institution 04 on the other hand required students to have completed their philo (final year of secondary school). State recognition (INFP) was awarded to only school 02. School 04 was accredited as a university.

The director and three teachers were interviewed at each school. Directors were coded D01, D02, etc. Teachers were coded by school and teacher number, for example 02-T1 was teacher 1 from school 2. Additionally, a focus group was conducted with nine students at each school to provide input from typical students (Miles, Huberman, & Saldaña, 2014). Results from focus groups were coded as FG-01, FG-02, etc.

School 04 presented a deviant case because it was affiliated with a university. Circumstances at school 04 allowed for only one student to be interviewed. All the directors and teachers interviewed were male. Most of them were young and agronomists. Only three of them had a master’s degree and worked fulltime. Most of these teachers worked part-time in their these schools and also had other teaching positions, technician positions, or managed their own businesses. Most of the students were male (19 out of 28). They all came from rural communities and reported familial activities to be mostly agriculture and commerce. The age range seemed to include a wide group. Many had worked or studied in a different field before entering agriculture.

**Data Collection**

As noted previously, school directors and teachers were interviewed using semi-structured interviews. Focus groups were conducted with students (although school 04 only had one student, so the focus group became a defacto interview). Interviews and focus groups were conducted in Creole. Interview guides were first written in English, and then translated into French and Haitian Creole. Interviews and focus groups were audio recorded (Yin, 2016) and occurred at participants’ home, office, or campus. The researcher also kept a journal to record observations, reactions, and methodological considerations.
Data Analysis

Data were analyzed in Creole by the lead researcher directly from the audio recordings (Green, Franquiz, & Dixon, 1997). A constant comparative method with open coding was used to identify initial codes (Saldaña, 2016). Axial coding was then used to organize initial codes into themes and sub-themes (Saldaña, 2016). Results were translated to English after analysis was completed. Direct quotes were pulled from recordings and translated to English to provide a voice to participants.

Rigor

Multiple steps were undertaken to ensure the rigor of this study. First, to ensure trustworthiness in the data analysis, two interviews were randomly selected and reviewed by two peers not involved in this study who speak Haitian Creole to ensure accuracy in the analysis (Creswell & Miller, 2000). Second, member checking was accomplished by sending a summary of the analysis to the school directors (Cho & Trent, 2006; Hoffart, 1991). Third, the design of this study allowed for triangulation of data sources from (a) directors, (b) students, and (c) teachers as well as data collection approaches of (a) interviews/focus groups, (b) field notes, and (c) observations (Carter, Bryant-Lukosius, DiCenzo, Blythe, & Neville, 2014). Fourth, the researcher kept a journal to allow for confirmability through an audit trail (Lincoln & Guba, 1985). Finally, the peer debriefing was accomplished through regular interactions during data collection and analysis between the lead researcher and the co-authors of this study.

Findings

Social Mobility of Students

This idea of social mobility appears in the interviews with many directors, from most teachers, and in the focus groups as well, under various forms: (a) training and education for the youth, (b) a step toward higher education, (c) financial independence, (d) entrepreneurship, (e) networking, and (f) reputation. The director D-02 explained the idea of social mobility clearly, when he said: “professional schools can start a future” or with teacher 01-T2 affirming that he is “preparing [his students] to replace him tomorrow and better face life.”

Train the youth. Participants viewed these schools as improving the lives of youth. For nearly all the teachers, one director, and in two of the focus groups, the role of technical schools was mentioned as a way to help the youth and provide them with training that will allow them to get ahead in life. It is also a way to help the country as a whole through helping its youth’s future. For teacher 01-T2, the objective of his teaching is to “prepare the students to help themselves then to contribute to the development of the country” or as 01-T3 expressed “we want to train the youth for tomorrow, for the country.” Education is an important gift to the youth because “in Haiti the question of training in agriculture is problematic” (03-T1). During focus group FG-03, a student felt that the head of the school was his model because “he is responding to a need” through opening the technical school, because he recognizes that “have more people trained and giving good service is better,” particularly given that “the educational system in our country is very difficult.” Teacher 04-T3 got involved in education because he “wants to help improve the level and type of education being given in the country” reinforces this idea that the current situation is difficult. In FG-01, a student felt the same way and “saluted the intellectual committee of the school who are working for the community.
and practically in a voluntary basis.” Director D-01 felt that “training the youth or anybody interested” will give them “more financial autonomy.” Researcher notes reveal that empowerment of the youth or people seemed to be at the core of this director’s speech for opening a technical school. All of the teachers interviewed, except one (02-T2), shared this sentiment. It was also noticed that even the teachers who are not teaching agriculture classes felt that they are motivated to teaching in these schools because the “students have difficulties” in a set of skills that they can help with such as “writing their methodology” (02-T3). Another teacher commented that one of his “objectives for teaching was to train people” and that “the more people are trained in a domain the more doors are open for positive things to occur” for them (04-T2). This training is even more important for those students who have not obtained their Baccalauréat (Bacc) II which is an exam some fail at the end of their studies. D-04 said some students choose a technical diploma because they “may not have passed bacc II.” Bacc II is the government issued high-school diploma needed to access higher education after the last class called philosophie or philo “the reason I did not go to agronomy is that I was stuck in philo and if I waited until I passed I may never go” (FG-03). This statement also represents another role in social mobility for students, which is a step toward the license (bachelor’s degree).

**Higher education/bachelor.** Participants viewed these schools as being stepping stone to further education. One form of social mobility linked to lack of Bacc II, which appeared a lot in the interviews, is that the technical school is a step toward the bachelor’s degree in agricultural sciences. It even seems to be an important aspect for the students themselves, because in all the focus groups the bachelor was mentioned at some point. Many students have an agronomist as a model not a technician; in the case of FG/E04 it is someone with a master’s degree in aquaculture. According to a student in FG-02 “I loved agronomy but I am taking the technical before.” A bachelor is regarded in both FG-01 and FG-03 as a possible outcome for students in the future. It helps them in choosing the school to attend, because “if we wanted to pursue our studies” (FG-03) the students would need to choose a school, which delivers a diploma recognized by the state. Most directors are also aware of the intent to pursue higher degrees and embrace this notion fully as D-02 explained: “professional schools help people start a future and help for university as well.” D-04 understands this situation too, and the school has decided from the beginning to present “same content, evaluation and exams” to students on the technical path “so students do not have anything preventing them from continuing the program” towards a bachelor. Or as D-02 goes to the length of “affiliating” the school with universities. However, at least one teacher 03-T1 saw it as an alternative to the bachelor; he supported that “those who do not want to go in the sciences go to the technical.” Additionally, if the reason for starting with a technical diploma may be a lack of Bacc II, it is often due to financial reasons. FG/E-04 exemplified this situation because “I aimed for a license [bachelor] at the beginning, I didn’t aim for a diploma,” which he was then forced to pursue due to lack of funding; he wasted his money in a university that was not “recognized.”

**Financial independence.** Participants viewed these schools as a tool to provide financial independence for students. As perfectly stated by D-04, “students choose agricultural technic 80% of
the time for economic reasons” in his school. A student at his institution, FG/E-04 agreed that “reason is financial” for him to switch from a bachelor to a technical diploma. This idea is supported indirectly by all the other directors when they mentioned that “students do not really pay the school” tuition (D-02) since “they do not have money, reality is very precarious” (D-01). This situation is not easily solved because, according to D-03, “you cannot ask them to pay too much because if you do they leave.” As a result, “some [of his] students to date have not paid anything to the school” and are about to graduate after the two-year program. This explains why, for so many of them, the shorter program constitutes a benefit. As a teacher 04-T1 explained, technical diplomas “facilitate financial independence.” Graduating early has advantages as “parents invest a lot of money in their kids’ high school and expect something from them early” because “we must see Haiti as a poor country” (04-T1). The situation is such that 04-T3 claimed that “in Haiti, due to economic situations, many students start but cannot finish” the program but they are able to “work as technicians.” Therefore, technical diplomas are helping young people to be financially secure sooner/faster “shorter training,” and “enter the job market faster” (04-T1). Some students may even finance their bachelor studies as well with the technical diploma. FG/E-04 intended to finance his bachelor upon completion of technical studies. A teacher (01-T1) reported that his former student has told him that he is currently “paying for my own tuition, not my parents with [legumes] parcels.”

Entrepreneurship. Participants viewed these schools as a way to develop entrepreneurs. Entrepreneurship was mentioned as another path to financial independence. After all, “the more people having personal activities to live leads to less poverty in the country,” (D-01). In this sense, agricultural TVET in Haiti is important to combat poverty for the graduates, by enabling them to start a new business. Entrepreneurship seems to be viewed as an essential vocation of agricultural TVET to many respondents (FG/E-04; FG-03; FG-01; D-01; 04-T2; 03-T1; 03-T3;01-T1). Many students had an entrepreneur as a model. For example, during FG-03, an agronomist who “has fish” ponds was described as a great role model for students. In FG-01, entrepreneurship is described as an inherent characteristic of “the technician [whom] cannot wait for the state” to provide jobs, because “if you are a technician you must be able to produce without the state.” Many teachers felt the same way as well. 04-T2 claimed for him “in the Haitian agricultural system the technical training” “should be about creating jobs, every technician should be an entrepreneur.” 03-T3 said “I believe in that a lot” referring to the fact that “students can create own activity,” because “students must not wait” for jobs. This idea of entrepreneurship was prevalent across all schools visited and for all levels of interviewees.

Networking. Participants believed these schools expanded the social networks of students. Networking is essential to technical schools and technicians, both as a way to get to the school, and for the connections the student is able to create through the school. A few teachers and directors have mentioned bringing guest teachers or taking the students to practices in the areas where they know they may be able to create bonds with important people and organizations working in the agricultural sector (D-04; D-02; 03-T2; 03-T3; 01T1; 01-T2). Moreover, some students are connected to TVET because of work
relationships in the agricultural sector. According to D-04, “some students are promised a job by someone to study agricultural technic.” This director even said that “some [students] are funded by their employer” or “family members may work in a program that will need technicians and train them for that.” Nonetheless, if this situation seemed to be particular to school 04 in which “most students we have studying technical are financed by organizations,” there were students from other schools who were simply inspired to get a technical diploma because of agriculture-related organizations and programs working in their communities. A student in FG-01 said that he knew about the school because “FAO came with the agricultural field in the area with Mrs [name removed] who came with a movement about farming in the region.” Most students have been encouraged by someone in the agricultural sector to pursue a diploma in that field, whether that is a family member, a teacher or director at the school like a teacher, or current/former students. In certain cases, the opportunities that exist in their communities have prompted a demand for technical studies. D-02 explained that “the weekend option has more students [attendance] than during the week” because “they find a job while studying here especially the ones from Cote-de-Fer.” “The school has a lot of students from Cote-de-Fer” because “many agricultural projects go to Cote-de-Fer, which explains the high demand” of students from this region. The situation is such that “we have demand in Cote-de-Fer for [the school] to have an annex there.” It seems that wherever people are actively working in agriculture, is where the youth are most likely to know about and decide to attend an agricultural technical school.

**Reputation.** Participants believed these schools helped develop the professional reputations of students. Being a technician is a tool towards success. D-02 mentioned that agricultural TVET is “a big tool” in the Haitian agricultural system and 01-T1 that “technicians are tools” in the agricultural sector. Being a technician legitimates decisions in the field as well. For example, this student who was encouraged to enter a technical program by his farming father who “recognized my ideas but told me he would prefer I do agriculture technician.” Another student who claimed that when farmers argue with him, he “tell[s] them I am a technician if you don’t do as I say you won’t get results.” It gives standing in the rural communities like this student in FG-03 who decided to study because he “can be like the technicians” he sees during his work as agricultural agent. This standing and reputation can be essential in building a career. In FG-03 someone mentioned “in agricultural technic you study animal health; by studying animal health, you can become a great veterinarian, not only for the commune but for the whole country.” According to 03-T2, “some technicians in the city […] have a good reputation; sometimes have received plaque of honor.” However, the search for standing and reputation was deemed problematic by teacher 04-T3 who wondered “what kind of relationship should exist between agronomists and agricultural technicians.” He raised this question because technicians may “present an inferiority complex.” His personal experience working “in our reality particularly the rural communities [where] the technicians present themselves as agronomists” has prompted him to realize that “they may not know what their job is; in their training they receive no orientation in that regard.” D-02 explained “although they’re not agronomists, they get called agro
in the field; only they know that they don’t have a 5-year bachelor.”

**Improving Local Communities**

The sentence “an agricultural technician is someone who has an extremely important role not just for the farmers we can say even in the cities” (FG-03) depicts some of the various ways in which a technician is expected to contribute to society’s welfare. The technician (a) supports rural development and (b) helps reduce poverty and migration.

**Rural development.** Participants expressed how these schools helped develop rural communities. Helping farmers and agronomists working in the field is contributing to rural development. Teacher 01-T1 thought, “It is the most important for the development of the country” while speaking of agricultural TVET’s role within the Haitian agricultural system. 01-T2 stated that “agricultural technic is extremely important in the development of the country, may it be on the environmental level, vegetal, and why not animal breeding.” 01-T1 also cared to explore “how to increase revenue for farmers” in his courses because he believes that is what a technician is called to do. Students also know that this is a future endeavor for them as agricultural technicians. During FG-02 a student recognized that “our role […] is to give them [the farmers] the technique that we have to help them get ahead” economically. A student in FG-01 explained it best by stating that “a technician has a lot of importance because a technician is first an agent of development.” The importance of TVET in the agricultural sector in Haiti is linked to the essential role that technicians play within it because, like a few respondents pointed out, “this country is primarily/essentially agricultural” (D-03; FG-01; 03-T3). The technician belongs where the farmers are, which is in the mountains because Haiti is a “mountainous land” (D-01). Therefore, as mentioned during FG-02, “we will see if the technicians want to go up the mountains or stay in the cities, they will see they pay the consequences for that.” Not going in the mountains means not working closely with the farmers and not contributing to rural development in that sense. D-01 says is best “extension activities on agriculture-related knowledge will allow for rural development in the mountains.” The technicians must go in the mountains, as mentioned many times because their “final objective is to increase farmers’ income/revenue” (01-T1); and the mountains is where the peasants do agriculture in Haiti. Their work is necessary because it provides services that are needed. According to 01-T3, agricultural sciences “first aims at protecting the environment and secondly its objective or goal is to change the lives of all the people living in the communities.”

**Migration/poverty.** Participants saw a connection between the schools and a reduction on poverty and related rural outmigration. Helping rural development means helping farmers stay in the rural communities, therefore, it means combating rural migration and poverty, “because someone who does agriculture can’t be poor tomorrow” (FG-02). The reality though, is that “the population leaves the mountains and comes to the city” (FG-01) because they are poor and that “farming is not productive” for them (FG-01). Low productivity in agriculture is the reason farmers “come to the cities, form the slums but there are no means, so they have to beg” (FG-01). FG-01 “Sometimes some of them do not even have a job; they’re forced to walk in the streets rather than work in the mountains.” Somehow the students mostly, and a few teachers as well (04-T1; 01-T1;
01-T3), felt that these conditions can be improved with more technicians properly imparting knowledge to the population. However, the migration occurs also from the cities to the rest of the world. 01-T2 attested “I have some [students] currently in Dominican Republic doing graft.” Therefore, in that regard, agricultural TVET has not been able to stop the migration. This migration problem is noticed by 03-T2 who saw that “in [the city] some youth have contempt and are not interested to go to technical schools because they do not see themselves in Haiti; they are turning to other places.”

Agricultural Extension

Many respondents emphasized that “a technician is an extensionist for the peasants, growers mostly” (FG-03). The extension work agricultural technicians ought to perform are multiple but can be summed by (a) providing technical assistance, (b) improving production practices, (c) protecting the environment, (d) increasing food security, and (d) training.

Provide technical assistance.

Participants thought these schools gave students the ability to provide technical assistance that complemented the agronomists. The role of a technician is to provide technical assistance was shared by nearly all respondents. However, whom they assisted may vary. For some, “we may consider an agricultural technician as an auxiliary to an agronomist” (FG-04), because the “agronomist may need support and this support is no other than a technician” (01-T3). As 01-T2 puts it bluntly “technicians are auxiliary to agronomists,” idea that is supported by D-04 “agricultural technicians are here to apply what agronomists tell them.” However, the importance of the technicians seemed to ascribe primarily to their mastering of fieldwork. “As an agricultural technician our role is to accompany the agronomists in the field” recognizes a student in FG-02, because “agronomists may conduct a study but when implementing in the field they require technicians” (01-T1). Their role while accompanying the agronomist is crucial “when he [an agronomist] has technicians [with him in the field] he realizes what he wants to” according to 01-T3. “A technician is [also] there to fill in for an agronomist” (03-T3) because “in the absence of the agronomist the technicians are here, and the work continues well” (01-T3). They are also there to help/accompany farmers “the role of an agricultural technician is to accompany the farmers” (03-T3). According to 04-T3 “it is more than necessary to have more trained agricultural technicians, so the farmers may get the support they need.” This notion of helping/accompanying the farmers is so entrenched in the subculture that many students use the same wording when reflecting upon the work they project to do after graduation, like this one during FG-01 who wants “to go to [his] rural section to accompany the farmers.” Teachers like 01-T3 also viewed the students’ future work as “to help the peasants.”

Improving production practices.

Participants believed the schools could ultimately help improved agricultural production in Haiti. Students viewed the purpose of their future work as “help[ing] them [the farmers] farm better” (FG-01). There seemed to be a consensus amongst the students on the fact that Haitian farmers engage in activities that are detrimental to agricultural productivity. In FG-03 a student described the fact that “they [the farmers] do not realize that they don’t properly maintain the space they are cultivating” because the farmers cultivate the land but yields keep going down, which is explained not by the
low quality of the beans, like they claim, but by the bad practices they are attached to generationally. It is the job of a technician to show them a better way in order for the production to yield more. According to students in FG-02, there needs to be “someone in the zone who’s an agricultural technician, who can enable the peasants to plant better.” This person is necessary as mentioned earlier “because their farming is not efficacious” (FG-02). In FG-01, someone took an example on their own families: “our parents used to work very badly, now with the training I have, I make them […] progress in the sector.” The bad practices Haitian farmers currently use make their yield lower but seems to affect the environment, which subsequently lowers the productivity more, in a vicious cycle. FG-02 “reforestation matters and make them work the land [farm] in a different manner” because the way they farm is not being productive nor does it respect the environment.

**Protecting the environment.** Participants believed what was learned at the schools could help better protect the environment in Haiti through better production practices. Environmental issues are therefore a huge component of a technician’s role or even of the science at large, as proposed by 01-T3 “agronomic sciences are beautiful and first aim at protecting the environment,” that is imperative in Haiti because “we have a cheap vegetal cover.” Many students want to get involved, upon graduation, in environmental issues, particularly in reforestation campaigns. Like this student from FG-01 whose “dream is to work in environmental issues and reforestation.” Other students were inspired by people working for the improvement of the environment. In FG-03, a student mentioned a role model who is an “agronomist who has an ecological farm” or another one who was inspired to become a technician by watching other technicians at work “talking about reforestation” to the farmers. He was deeply impacted by this training he had participated in and decided to pursue studies in the field as a result. Therefore, ecology is an attractive component of the job to these students and they feel that they are the most prepared to face these issues. For example, “as an agricultural technician, I can say that the reforestation campaigns are not done” criticized someone from FG-03. According to students from the same focus group, “the erosion that degrades the mountains create problems in the city” as well. So, their contribution to the environmental issues is not limited to the rural areas, as ecology is holistic in nature. Reforestation is particularly a focal point as attested by this student during FG-02 “our dream is to go help the farmers in terms of how they deforest.”

**Increase food security.** Participants thought these schools could have an impact on food insecurity in Haiti. A student in FG-01 said “after graduating, it is about helping the farmers know about how to plant and have higher yields,” which, according to FG/E-04 “can help the country develop in terms of food security” referring to technicians’ starting own activity. In FG-02, the “vision for the future is to accompany the peasants so they can make the soil have more yield.” If deforestation and other destructive practices give lower yields, it is the technician’s primary goal to, “as a trained agricultural technician show the peasants how to work to see improvements in soil” productivity (FG-02). So, “if I help them with my knowledge, what I have, I think their farms will have more yields” (FG-01). By improving agricultural yields and productivity, agricultural technicians also tackle the topic of food insecurity in the
country. As teacher 01-T3 evoked “it will also allow them to help the whole population with a series of food they need for their bodies,” speaking about agricultural technicians who choose entrepreneurship. The reason is after all, “I can’t be eating things I don’t know; what I eat I must seek to produce it” says teacher 01-T1. But according to 01-T1 it is not an obvious goal, “because there are no institutions that do agriculture in Haiti; it is a country that mostly imports things from abroad.” However, the students felt it was their responsibility to tackle the food security issue in Haiti, despite the state’s failure in that regard. After all, “there is no agricultural policy, no infrastructure and no environmental protection policy” (FG-01). The way in which these agricultural technicians will attain the objectives is through proper training of the farmers and other agricultural producers. Examples of technicians doing this type of work existed for some of these students, for instance in FG-03, who recalled “the way they train the peasants who used to farm badly so these farmers may have more yields and more food.” This is what they want to do in the agricultural sector in Haiti.

Training. Participants expressed how these schools created trainers to work with farmers. Improvement in food security status in the country means that the “role of technician is to accompany and guide the farmers for intensification of agriculture” according to teacher 02-T1. This idea was supported by 04-T2, “the agricultural technician’s job is to work with people building models” which will increase yield and he must show people “better ways to do it [agriculture].” Many teachers and directors (D-02; D-01; 04-T1; 04-T2; 04-T3; 02-T1; 02-T2; 03-T1; 03-T2; 03-T3; 01-T3) agreed that “when you say agricultural technician that means working with peasants” (D-02), that the technician is “the person who’s going to live with the peasants, so the technician has a very tight link with this” idea of being in the field engaging the people (03-T2). In conclusion, as stated by 03-T3, “the role of the agricultural technician is to accompany the farmers and to train them as well.” Students also understood their role as such. They identified with role models who are “agricultural technicians [who] used to come to the zone and [give] some training” which the peasants benefitted from. “I remember that I participated in a training” of theirs shared someone from FG-03. In FG-01 another student revealed that he “want[s] to train other people who may lack knowledge in this sector because cultivating requires a minimum of training.” FG/E-04 wanted to gain all the skills necessary for him to be able to “push through with my lessons and allow people to learn from me.” FG-03 was inspired from “when I used to go to the activities with the peasants [as an agricultural agent] I used to see how the technicians do the conventions” and he was working towards his diploma to do just that as well. All of these dreams and aspirations point in the same direction, that “the agricultural technician’s role is extremely high; he is a teacher for the peasants” (FG-03).

Conclusions, Recommendations & Implications

Results from this study revealed that agricultural technical schools in Haiti increase social mobility of students, improve local communities, and enhance the extension capacity in the country. Meaning-making is socially constructed, context-bound and is sensitive to cultural context (Doolittle & Camp, 1999; Powell & Kalina, 2009). In Haitian context, TVET’s purpose has meanings that are inherent to the cultural
context in which it was constructed by the different stakeholders within it.

Social Mobility
Agricultural TVET increases social mobility of students through (a) additional training and education, (b) providing a step toward higher education, (c) helping establish financial independence, (d) developing entrepreneurship skills, (e) building networks, and (f) establishing a solid professional reputation. The various experiential learning activities provided to students during their training have allowed them to enhance the utility, purposefulness and practicality of the skills they have acquired for better competitiveness after their graduation, as TVET creates a connection between education and real life (Buchmann & Schwille, 1983; Cantor, 1997).

The findings from the interviews and focus groups with various stakeholders within the Haitian agricultural TVET, have revealed that TVET had potential to help vulnerable young people receiving training when they may not have had the formal possibility to gain any skills otherwise. Developing countries, in Latin America particularly, used this level of training to meet the needs of disadvantaged youth (King, 1993). The youth enrolled in these schools, was found to have less schooling and therefore would face issues being admitted into the universities. Most of the schools selected for the study required lower educational levels for admission than universities, which was also reported by King (1993). Those graduates often were able to finance their higher education themselves, although the majority of the schools, except the university, have a tradition of non-terminal TVET (King, 1993; Swanson & Rajalahti, 2010). In Latin America, as it was found that there are both terminal and non-terminal TVETs (King, 1993).

Improve Communities
Agricultural TVET schools also improve local communities through supporting rural development, reducing poverty, and rural outmigration. In Honduras, it has been found that there is a direct correlation between TVET and higher rural productivity and incomes (Atchoarena, Wallace, Green, & Gomes, 2003). TVET in Haiti also helped the youth to get out of poverty as it did in India (Bisariya & Mishra, 2015), notably by allowing young people to find employment faster. Beyond students being direct beneficiaries of TVET, the findings also suggest that, according to the participants interviewed, it also had the potential to help the country’s economy in a sustainable way. According to Edokpolor and Owenvbiugie (2017), Nigerian TVET had the potential to help youth develop this developing country’s economy sustainably. As this position was prevalent in teachers and certain directors, it can be inferred that it is an inherent part of their responsibilities as TVET educators. Finnish TVET teachers “took responsibility for enlightenment and for promoting economic and social progress; this is clearly present in agriculture and forestry, but also in commerce” (Heikkinen, 1997, p. 420).

Enhance Extension
Agricultural TVET schools also play a crucial role in developing the capacity for extension-type activities in the country like: (a) providing technical assistance, (b) improving production practices, (c) protecting the environment, (d) increasing food security; and (d) training. The agricultural technicians are to help the rural world, through the training they ought to provide to the farmers about food production and environmental issues. These roles are
crucial for Haiti’s farmers, as Albert, Roberts, and Harder (2017a) found that environmental issues and resource limitations are significant barriers for farmers. Many countries employ graduates from agricultural schools, rather than university graduates, to do the field-level extension activities (Swanson & Rajalahti, 2010). In developing countries, the government agencies train these workers for their own agricultural field level extension services in many areas like forestry, fisheries, etc. (Atchoarena et al., 2003).

**Recommendations for Research**

Recommendations for research would be to further investigate private TVETs in other geographic departments of the country. It would also be interesting to understand Haitian TVET from the teachers’ standpoint, the different types of teachers, the characteristics of their educational institutions and their professional development as it relates to INFP. It would also be important to investigate EMAs, which are the public agricultural TVET schools under the ministry of Agriculture, rather than the ministry of Education that supervises the private TVET schools examined in the current study. This study did not include the view of farmers and rural communities on the work of technicians, so it would also be interesting to explore the beliefs of these stakeholders.

**Recommendations for Practice**

Recommendations for practice stem from the participants themselves, who have expressed the need for the state to provide more support to the sector through the ministry of Agriculture. Externally, it would make sense, first to clearly define the relationship between these schools and the ministry of Agriculture. Second, given the emergence of a focus on entrepreneurship, sufficient agricultural microfinance programs should be in place. Third, these schools lack infrastructure and resources. The government of Haiti may be able to intervene in that regard, since many of them could conglomerate into learning centers with other technical and vocational options offered. Finally, given that the training provided in these schools could be non-terminal, articulation agreements with universities should be explored to allow students to naturally progress towards a bachelor’s degree if they have obtained their Bacc II.

Internally at the schools, other recommendations should target the various trainings for teachers and curriculum adjustments needed in the TVET schools. The curriculum should better address the roles of technicians in the agricultural system, particularly their relationship with agronomists. The curriculum should also address organic and other sustainable practices so as to better inform the farmers they train. Their work with farmers also creates needs for them to know about adult education principles and diverse communication skills.

**References**


Harding, J. (2013). *Qualitative data analysis: From start to finish*. Los Angeles; London; New Delhi; Singapore; Washington, DC: SAGE.


Experiences of Cooperating Teachers on Teaching Practice Supervision in Eswatini, Swaziland

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Abstract
Cooperating teachers (CTs) are key participants in ensuring a valuable experience for the student teacher (ST) during teaching practice. Surprisingly, their voices largely remain absent in the extant literature. Thus, the purpose of the study was to investigate the experiences of CTs during teaching practice supervision in Eswatini. A descriptive research design using a census of 46 CTs for student teachers (STs) who did teaching practice in the 2015/16 academic year of the University of Eswatini in the Department of Agricultural Education was used. A self-administered questionnaire was used for collecting data. A five-point numerical scale and six-point Likert-type rating scale were used to measure the variables. Three lecturers from the Department of Agricultural Education and Extension and two agriculture teachers established content and face validity for the questionnaire. Inter-item reliability from a pilot study was .78. Findings of the study revealed that CTs were supported by the University through the supervisors and Teaching Practice Handbook. The CTs noted that establishing rapport with the STs was essential and head teachers needed to visit the STs in the respective classes they teach. STs were good in developing, organizing and using instructional materials but had challenges in disciplining learners. The study recommended that CTs should be provided with trainings and incentives so that they can effectively discharge their duties during teaching practice.

Keywords: cooperating teachers; in-service teachers; student teachers; teaching practice; teaching practicum
Introduction

A cooperating teacher (CT) is a practicing, in-service teacher, who assumes the responsibility of working with a pre-service teacher for a set length of time (Zeichner, 2002). The CT provides day-to-day guidance and mentoring to the ST (Smalley, Retallick, & Paulsen, 2015). CTs have a strong influence on the teaching practice of STs (Rozelle & Wilson, 2012); as they usher them to the profession (Clarke, Triggs, & Nielsen, 2014). The CT is considered as a master teacher, a guidance counsellor, a master planner and organizer, and a sympathetic father or mother to the ST (University of Eswatini [UNESWA], 2018). The role of a CT is to mentor the ST (Crasborn, Hennissen, Brouwer, Korthagen, & Bergen, 2011). Thus, the CT is recognised as one of the key participants in ensuring a valuable experience to the ST during teaching practice (Zeichner, 2002).

Tsikati and Nxumalo (2018) found that the CT works most closely with the ST than any of the stakeholders. Clarke et al. (2014) revealed that CTs serve as: (i) providers of feedback, (ii) gatekeepers of the profession, (iii) modelers of practice, (iv) supporters of reflection, (v) purveyors of context, (vi) conveners of relation, (vii) agents of socialisation, (viii) advocates of the practical, (ix) gleaners of knowledge, (x) abiders of change, and (xi) teachers of children. Torrez and Krebs (2012) reported that CTs organize teaching resources and materials such as access to teaching files, copies of textbooks, and assessments for the ST. Consequently, CTs are the most important contributors to the teacher preparation programme; by the role that they play during the teaching practice experience (Clarke et al., 2014). Additionally, headteachers, on behalf of the school administration should also visit the STs to contribute towards their professional development (Holland, 2009).

Stoynoff (1999) described the task of CTs as that of organizing the teaching practice experiences by effectively integrating knowledge and the act of teaching. Lewis (2017) identified three main areas in which CTs should be grounded for effective ST supervision. These are knowledge, learning, and sharing. Regarding knowledge, CTs should possess required skills; be resourceful as role models; have wisdom to provide insight where necessary; and know their duties or professional obligations in directing the ST. CTs should also be learning continuously; in order to inspire the STs. They should learn through reflection on their practices; be exemplary for the pre-service teachers and should be passionate about education so that the STs are inspired. Finally, the CTs should be willing to share by interacting with the pre-service teachers, which serves as a network. The CTs can share teaching philosophy, classroom rules, procedures and routine; arrangement of the classroom by discussing ST progress; established relationships; providing ST support; and leaving a legacy on the ST’s teaching experience.

Thus, the ST can benefit from the experiences by the cooperating teacher. Kahn (2001) argued that the university community can support CTs by providing improved communication on university expectations, new courses, and in-servicing training. STs were good at developing and organizing instructional materials for their lessons, which made the task simpler for the CTs (Cincioglu, 2011). CTs also found STs to be good at developing teaching and learning materials (Allen & Eby, 2009).

However, Cincioglu (2011) reported that CTs were unhappy with the professional and financial support obtained from the universities. Sinclair, Dowson, and Thifleton-Martin (2006) reported that CTs perceived themselves as ineligible to take STs because of their workload and pressure.
The CTs also thought that the STs were not prepared enough for the practicum. According to Kagan (1992) and Stuart and Thurlow (2000) CTs reported that STs had challenges in handling problems related to class discipline, assessing students’ work and dealing with individual preferences. Affirmatively, Hastings (2006) stated that a large body of research shows that teacher education programmes fail to adequately prepare STs for facing real class situations. Hastings (2006) believed that the training for the CTs should assist them in overcoming challenges during the teaching practice. Mutlu (2014) advocated that the teaching practicum should be turned into an attractive exercise that CTs would like to be involved in. For instance, providing some time off in which CTs can specifically focus on STs’ needs can also enhance the role of CTs (Mutlu, 2014). Mutlu further suggested that CTs should be evaluated at the end of every practice.

There is a need for disciplined, periodical and detailed training for the CTs to orient them on precautions to be taken during the teaching practice period (Kahn, 2001). In addition, Hastings (2006) believed that the training for the CTs should assist them in overcoming challenges during the teaching practice. Mutlu (2014) advocated that the teaching practicum should be turned into an attractive exercise that CTs would like to be involved in. For instance, providing some time off in which CTs can specifically focus on STs’ needs can also enhance the role of CTs (Mutlu, 2014). Mutlu further suggested that CTs should be evaluated at the end of every practice.

The University of Eswatini ensures that STs are attached to CTs at the various cooperating schools. The CTs provide guidance on daily basis while university supervisors visit the STs occasionally (UNESWA, 2018). Some of the CTs’ roles in Eswatini as stated in the Teaching Practice Handbook in Agricultural Education, include the following: involving the ST as part of the staff; providing the ST with access to instructional materials; providing an area of work and personal belongings; demonstrating effective teaching techniques; encouraging the ST to observe and ask questions; providing frequent encouragement; making constructive criticisms; and recognition of success, to name a few (UNESWA, 2018).

Considering the contribution of the CT on the successful training of a teacher in the education programme, it is surprising that “the voices of the cooperating teacher…largely remain absent in the extant literature” (Torrez & Krebs, 2012, p. 486). Sleet and Edwards (2002) argued that CTs perceived the relationship between the ST and the CT as one of the major factors for a successful teaching practice. McBride (1996) found that the CTs perceived the success of the teaching practice as a result of the hard work between the CT and the ST. Garton and Cano (1994) contended that CTs should demonstrate the desired teaching behaviors expected of STs. The ST also works in collaboration with a supervisor and a CT throughout the teaching practice (Garton & Cano, 1994). Shinn et al. (2008), when studying the Armenian Agrarian students’ perceptions and educational aspirations during curriculum reforms, recommended engagement and dialogue with students. Similarly, engagement and dialogue are essential between the cooperating teacher, university supervisor (US) and the ST.

Cincioğlu (2011) reported that CTs complained that the teaching practicum duration (one semester) was inadequate for the STs. This is because the CTs should get to know their STs for easy working. It appears that just when the CTs start getting to know their STs; it is the time when the STs have to leave the school. Also, the STs are expected to know their students by names; but by the time the names become familiar to the ST, it is time to stop the teaching practice, and this ends up not helping the ST in any way during the practice.
no study has been conducted on the experiences of CTs on teaching practice supervision in Eswatini.

**Theoretical Framework**

The study was framed by the Bronfenbrenner’s Bio-ecological Theory, developed in 1970 (Bronfenbrenner, 1977). The theory postulates that any individual exists in a system or environment that has subsystems. Thus, the theory focuses on the interaction of the individual with the environment at the following levels or subsystems: Individual, Microsystem, Mesosystem, Exosystem, and Macrosystem (see Figure 1).

![Figure 1. Bronfenbrenner’s Bio-ecological Theory.](image)

The core of the Bronfenbrenner’s Bio-ecological Theory is occupied by the person [individual] aspect of the system or the environment. Bronfenbrenner (1995) divided the personal characteristics into three types, namely: demand, resource, and force characteristics. The demand characteristic encapsulates the demographic variables of the individual; such as gender, age, health, and physical appearance. The demand characteristic is relevant to this study in that both gender and age are pertinent variables that may influence the experiences of CTs during teaching practice (Bronfenbrenner, 1979). The resource characteristics entail mental and emotional resources; such as past experiences, skills and intelligence, as well as access to social and emotional resources. Resource availability can also influence the experiences of CTs during teaching practice (Bronfenbrenner, 1979). Finally, the force characteristics have to do with differences of temperament, motivation and persistence (Bronfenbrenner, 1979). Similarly, the temperament, motivation, and persistence also influence the experiences of CTs during teaching practice.
The Microsystem relates to the immediate environment to the individual; such as the family, school, work place, neighborhood, religious community, friends, and so on (Bronfenbrenner, 1979). On the other hand, Mesosystem encompasses the different interactions between the characters of the Microsystem (Bronfenbrenner, 1979). The Exosystem refers to the indirect environment which may moderate the behavior or functioning of the individual such as economic system, educational system, government / political system, industry and media (Bronfenbrenner, 1979). Finally, the Macrosystem entails the abstract environment consisting of attitudes / ideologies of the culture in which the individual lives. In this subsystem, societal and cultural practices or norms have an impact on the individual by setting expectations for his or her behavior (Krause, 2007).

Bronfenbrenner revised the theory; and added the Chronosystem. Bronfenbrenner and Morris (1998) referred to the Chronosystem as the aspect of time. Chronosystem can be viewed in terms of micro-time (what is occurring during the course of some specific activities or interactions), meso-time (the extent to which activities and interactions occur with some consistency in the developing person’s environment), and macro-time (the fact that developmental processes are likely to vary according to the specific historical events that are occurring as the developing individuals are at one stage or another) (Frazer, 2014).

All the sub-systems of the theory are relevant in this study. The Microsystem is relevant to the study as CTs are controlled by the expectations from school administration (workplace). In the Mesosystem, the university through the supervisor facilitates interaction between the CTs, STs, and administration. The Exosystem involves expectations from the Ministry of Education and Training on the student teaching. The Macrosystem relates to attitude and culture about student teaching. Lastly, the Chronosystem - the period of teaching practice is also likely to influence the experiences of CTs on teaching practice.

**Study Purpose & Objectives**

The purpose of the study was to investigate the experiences of CTs on teaching practice supervision in Eswatini. The objectives of the study were to:

1. Describe the respondents by their demographic characteristics and background information;
2. Describe the current University of Eswatini support system to the teaching practice;
3. Identify challenges that the CTs encountered during supervision;
4. Discover lessons that CTs learnt from the teaching practice supervision;
5. Identify ways in which the role played by CTs on teaching practice can be enhanced.

**Methodology**

The study was a descriptive survey targeting a census of CTs (N=46) who supervised Agricultural Education STs during teaching practice in the 2015/16 academic year from the University of Eswatini. A self-administered, close-ended questionnaire was developed from literature, and used for data collection. The questionnaire was divided into five sections, namely: teaching practice support system [14 items]; teaching practice challenges [15 items]; teaching practice lessons [5 items]; suggestions on teaching practice [4 items], and demographic characteristics and background information [8 items – sex, marital status, highest level of education,
position, teaching practice exposure, class size, school location and school type]. A numerical scale, using the following ranges: 1=low; 2=moderately low; 3=moderate; 4=high; and 5=very high, was used to measure the support provided by the university during teaching practice. A six-point Likert-type scale, having the following ranges: 1=strongly disagree; 2=slightly disagree; 3=disagree; 4=agree; 5=slightly agree; and 6=strongly agree, was used to measure the challenges, lessons, and ways in which CTs could be assisted during teaching practice. The questionnaire was validated by three experts from the Department of Agricultural Education and Extension at the University of Eswatini and two agriculture teachers. The experts removed irrelevant statements and added missing statements in the questionnaire. The questionnaire was field-tested with three agriculture teachers who had served as CTs in previous years. The inter-item reliability established using Cronbach’s Alpha revealed that the questionnaire was 78% reliable.

The researchers collected data from November 2016 until late January 2017. The questionnaires were delivered personally by the researchers to the CTs, and were collected a fortnight later. In addition, cell numbers of the CTs were requested so that the researchers could remind the respondents about the questionnaires prior to collection. Letters seeking permission to conduct the study were written to the school principals and the respondents; and permission was granted. To ensure confidentiality, the questionnaire was formulated such that respondents’ names were concealed. The hand delivering of the questionnaires and cell phone numbers did not affect confidentiality, as nothing linked the questionnaires with the respondents. The questionnaires were only accessible to the researchers. Descriptive statistics, such as frequencies, percentages, means and standard deviations, in the Statistical Package for Social Sciences (SPSS) version 20, were used for analyzing the data.

Findings

Background Information & Demographic Characteristics

Table 1 presents the background information and demographic characteristics of the CTs for agricultural education STs during the 2015/16 academic year in Eswatini. The findings of the study revealed that most of the CTs were males (n=27, 58.7%). Most of the respondents were from semi-urban areas (n=22, 47.8%). A majority of the CTs (n=31, 67.4%) held a Bachelor of Science degree in Agricultural Education and were mainly classroom teachers (n=24, 52.2%).

<table>
<thead>
<tr>
<th>Demographics</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>27</td>
<td>58.7</td>
</tr>
<tr>
<td>Female</td>
<td>19</td>
<td>41.3</td>
</tr>
<tr>
<td><strong>School location</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>11</td>
<td>23.9</td>
</tr>
<tr>
<td>Semi-Urban</td>
<td>22</td>
<td>47.8</td>
</tr>
<tr>
<td>Urban</td>
<td>13</td>
<td>28.3</td>
</tr>
<tr>
<td><strong>Qualification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>1</td>
<td>2.2</td>
</tr>
</tbody>
</table>
University of Eswatini Support System during Teaching Practice

Table 2 reveals that the university supports CTs and STs through: availing the handbook during teaching practice (\(M=4.98, SD=0.15\)), university supervisor discussing ST’s performance together with CT (\(M=4.87, SD=0.34\)), university supervisor providing ST with written evaluation of observed lessons (\(M=4.83, SD=0.38\)), university supervisor developing clear and strong lines between ST and him/herself (\(M=4.80, SD=0.40\)), university supervisor observing ST teaching during his/her visits (\(M=4.67, SD=0.47\)); university supervisor giving constructive feedback to ST in the assessment sheet (\(M=4.67, SD=0.47\)) and providing detailed contents of the handbook (\(M=4.26, SD=0.44\)).

<table>
<thead>
<tr>
<th>Support system</th>
<th>(M)</th>
<th>(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handbook is made available to CTs during teaching practice</td>
<td>4.98</td>
<td>0.15</td>
</tr>
<tr>
<td>University supervisor discusses ST’s performance together with CT</td>
<td>4.87</td>
<td>0.38</td>
</tr>
<tr>
<td>University supervisor provides ST with written evaluations of observed lessons</td>
<td>4.83</td>
<td>0.38</td>
</tr>
<tr>
<td>University supervisor develops clear and strong lines of communication between him/herself and the ST</td>
<td>4.80</td>
<td>0.40</td>
</tr>
<tr>
<td>University supervisor observes ST teaching during his/her visits.</td>
<td>4.67</td>
<td>0.47</td>
</tr>
<tr>
<td>University supervisor gives constructive feedback to ST in the assessment sheet</td>
<td>4.67</td>
<td>0.47</td>
</tr>
<tr>
<td>University supervisor makes adequate visits to the ST</td>
<td>4.65</td>
<td>0.48</td>
</tr>
<tr>
<td>The format for lesson plan is in line with those used in the school</td>
<td>4.52</td>
<td>0.51</td>
</tr>
<tr>
<td>The roles for the CT are clearly stated</td>
<td>4.50</td>
<td>0.51</td>
</tr>
<tr>
<td>Handbook provides adequate information on how to guide ST</td>
<td>4.26</td>
<td>0.44</td>
</tr>
<tr>
<td>University supervisor sits with ST for a pre-evaluation conference</td>
<td>3.83</td>
<td>0.42</td>
</tr>
<tr>
<td>University supervisor develops clear and strong lines of communication between him/herself and the cooperating teacher</td>
<td>2.78</td>
<td>0.42</td>
</tr>
<tr>
<td>The format for scheme book in the handbook is in line with that used in the school</td>
<td>2.52</td>
<td>0.51</td>
</tr>
<tr>
<td>University supervisor frequently contacts the school principal about the progress of the ST</td>
<td>1.83</td>
<td>0.38</td>
</tr>
</tbody>
</table>

Rating scale: 1=Low, 2=Moderately Low, 3=Moderate, 4=Medium, and 5=High

These findings are inconsistent with Cincioglu (2011)’s assertion who reported that universities were not supportive both professionally and financially. Engagement and dialogue between the cooperating teacher, university supervisor, and the ST are essential, as suggested by Shinn et al. (2008), in a study on perceptions and
educational aspirations of Armenian Agrarian students during curriculum reforms. The findings are related to the Mesosystem of the Bronfenbrenner’s Bi-ecological Theory, as the university provided support through the supervisors and the Teaching Practice Handbook.

Challenges Faced by CTs during Teaching Practice

Table 3 shows that the challenges faced by CTs during teaching practice include: head teachers never making visits to observe ST teach (M=4.98, SD=0.15) and STs having difficulties in instilling discipline to students (M=4.46, SD=0.50). Similar findings that STs were challenged with class discipline were reported by Kagan (1992) and Stuart and Thurlow (2000). The challenges faced by the CTs are related to the Mesosystem of the Bronfenbrenner’s Bi-ecological Theory.

<table>
<thead>
<tr>
<th>Challenges</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head teacher never makes visits to observe ST teach.</td>
<td>4.98</td>
<td>0.15</td>
</tr>
<tr>
<td>STs have difficulty instilling discipline to students</td>
<td>4.46</td>
<td>0.50</td>
</tr>
<tr>
<td>Agriculture teachers are given an order to supervise STs</td>
<td>3.43</td>
<td>0.50</td>
</tr>
<tr>
<td>Heavy workload to accommodate ST supervision</td>
<td>2.46</td>
<td>0.50</td>
</tr>
<tr>
<td>ST engaged in love affairs with regular staff</td>
<td>2.20</td>
<td>0.62</td>
</tr>
<tr>
<td>The ST asks every piece of information from me</td>
<td>2.13</td>
<td>0.69</td>
</tr>
<tr>
<td>ST hardly brings own methods for conducting lessons</td>
<td>2.13</td>
<td>0.69</td>
</tr>
<tr>
<td>Cannot cope with assisting ST while teaching other classes</td>
<td>1.85</td>
<td>0.36</td>
</tr>
<tr>
<td>STs not well prepared for the practicum</td>
<td>1.43</td>
<td>0.50</td>
</tr>
<tr>
<td>Classes are not suitable for a ST</td>
<td>1.43</td>
<td>0.50</td>
</tr>
<tr>
<td>STs have difficulty assessing students’ work</td>
<td>1.41</td>
<td>0.50</td>
</tr>
<tr>
<td>ST absents him/herself from school without prior notice</td>
<td>1.37</td>
<td>0.61</td>
</tr>
<tr>
<td>ST engages in love affairs with students</td>
<td>1.17</td>
<td>0.38</td>
</tr>
<tr>
<td>STs do not take suggestions from the cooperating teacher</td>
<td>1.07</td>
<td>0.25</td>
</tr>
<tr>
<td>STs having weak rapport with the cooperating teacher</td>
<td>1.04</td>
<td>0.20</td>
</tr>
</tbody>
</table>

Rating scale: 1= Strongly Disagree, 2= Disagree, 3=Slightly Disagree, 4= Slightly Agree, 5= Agree, and 6= Strongly Agree

Lessons CTs Learned from the Teaching Practice

The following were lessons learned by CTs during teaching practice: importance of rapport between the CT and ST (M=5.91, SD=0.29), and STs are very good at developing and organizing instructional materials (M=5.83, SD=0.383) (see Table 4). The CTs also learned that the eight weeks period of teaching practice was not enough (M=5.09, SD=0.41). The findings that STs were good in developing and organizing instructional materials for their lessons are confirming those by Allen and Eby (2009) and Cincioglu (2011).
Table 4
*Lessons that CTs Learnt from the Teaching Practice*

<table>
<thead>
<tr>
<th>Lessons</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapport between the CT and ST is important during teaching practice</td>
<td>5.91</td>
<td>0.29</td>
</tr>
<tr>
<td>STs are good at developing and organizing teaching materials (aids)</td>
<td>5.83</td>
<td>0.38</td>
</tr>
<tr>
<td>The eight weeks is not enough for effectiveness to the ST</td>
<td>5.09</td>
<td>0.41</td>
</tr>
<tr>
<td>The success of teaching practice is a result of the CT’s hard work.</td>
<td>3.15</td>
<td>0.42</td>
</tr>
</tbody>
</table>

*Rating scale:* 1= Strongly Disagree, 2= Disagree, 3= Slightly Disagree, 4=Slightly Agree, 5 =Agree, 6 = Strongly Agree

Also, Cincioğlu (2011) reported that CTs lamented that the teaching practice duration was short, which is consistent with the findings of this study. Findings on the importance of rapport between the CT and ST are in line with the Microsystem of the Bronfenbrenner’s Bio-ecological Theory, which emphasizes the importance of interaction between the individual and people in the immediate environment, e.g. the work place. The finding on the duration of teaching practice being short relates well with the Chronosystem of the Bronfenbrenner’s Bio-ecological Theory, as it basically focused on the aspect of time.

Table 5
*Suggestions on Enhancing the Role of CTs*

<table>
<thead>
<tr>
<th>Suggestions</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providing incentives</td>
<td>5.76</td>
<td>0.43</td>
</tr>
<tr>
<td>Evaluation of CTs</td>
<td>4.83</td>
<td>0.53</td>
</tr>
<tr>
<td>Relieved CT from other duties to focus on STs</td>
<td>2.59</td>
<td>0.69</td>
</tr>
<tr>
<td>Provide detailed training on the roles of a CT</td>
<td>1.59</td>
<td>0.59</td>
</tr>
</tbody>
</table>

*Rating scale:* 1=Strongly disagree, 2= Disagree,3= Slightly Disagree, 4= Slightly Agree, 5= Agree and 6= Strongly Agree

Suggestions on Enhancing the Role of CTs

Table 5 indicates that the roles of CTs can be enhanced through: providing incentives (M=5.76, SD=0.43) and evaluation on the CTs (M=4.83, SD=0.53). Similarly, Hastings (2006) and Kahn (2001) concluded that the role of a CT during teaching practice can be improved by providing disciplined, periodical and detailed training. Mutlu (2014) recommended that the teaching practicum should be turned into an attractive work experience, and the CTs should be evaluated at the end of every practice. The suggestions on how the role of CTs could be enhanced have policy implications. These findings touch on the Exosystem, and Macrosystem of the Bronfenbrenner’s Bio-ecological Theory.

Conclusions & Implications

The University of Eswatini-Department of Agricultural Education and Extension supports the CTs through the University supervisors, who communicate or visit them, and the provision of a teaching practice handbook. Head teachers at the teaching practice schools were not making visits to observe the STs. STs also had problems with disciplining students. The Department of Agricultural Education and Extension is providing adequate training to
the STs on the development and usage of instructional materials.

The provision of a teaching practice handbook reaffirms the individual level–resource characteristics of the Bronfenbrenner’s Bio-ecological Theory (Bronfenbrenner, 1979). Also, the suggestion by the CTs that they should be provided with detailed training is form of motivation (force characteristics - individual level of Bronfenbrenner’s Bio-ecological Theory) as they will acquire skills necessary to supervise the teaching practice (Bronfenbrenner, 1979).

The findings of the study confirmed all the subsystems of the Bronfenbrenner’s Bio-ecological Theory: Microsystem, Mesosystem, Exosystem, Macrosystem, and Chronosystem. The Microsystem was confirmed as it stresses the importance of interaction between the individual and people in the immediate environment e.g. the work place (Bronfenbrenner, 1979), which encompasses the findings on the importance of rapport between the CT and ST. The Mesosystem was re-affirmed, as it entails the different interactions between the characters of the microsystem (Bronfenbrenner, 1979) reiterated in this study by the findings that the university provided support through the supervisors and the Teaching Practice Handbook. The Exosystem and Macrosystem were confirmed through the suggestions made by the CTs as they have policy implications. The Exosystem relates to the indirect environment moderating the behavior or functioning of the individual, while the Macrosystem entails the abstract environment, consisting of attitudes / ideologies in which the individual lives (Bronfenbrenner, 1979). Finally, the Chronosystem was confirmed by the finding that the duration of teaching practice was short, as it basically focused on the aspect of time (Bronfenbrenner & Morris, 1998). The findings of the study imply that CTs internationally, should have rapport with the STs and the university should collaborate with the cooperating school for the success of the teaching practicum.

**Recommendations**

The Department of Agricultural Education and Extension should improve the role played by the CTs by providing workshops, seminars, and conferences. A course on ST supervision must be introduced to equip prospective CTs with requisite mentorship skills. CTs should be provided with incentives (such as allowance) to enhance the effectiveness of the teaching practice exercise. In order to produce quality agriculture teachers globally, student teaching supervisors and teaching training institutions should collaborate with the CTs. This could be done by providing detailed relevant feedback to the student’s performance on their progress throughout the teaching practice exercise. Also, a sound relationship between the CT and the ST must be established and maintained, otherwise, the teaching practice may be jeopardized. Further research must be conducted on experiences of teachers, STs, school administration, and learners regarding the teaching practice in the Kingdom of Eswatini. Similar studies must be conducted globally.

**References**


nature and design. Cambridge, MA: Harvard University Press.


student teachers’ beliefs and practices. Teaching and Teacher Education, 28(8), 1196–1205. doi:10.1016/j.tate.2012.07.008

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