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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. Three types of articles are solicited for the JIAEE: Feature Articles, Tools of the Profession Articles, and Book Reviews.

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Commentary articles state an opinion, offer a challenge, or present a thought-provoking idea on an issue of concern to international agricultural and extension education, including a published article in the JIAEE. These articles are invited by the editors. Tools of the Profession articles report specific techniques, materials, books and technologies that can be useful for agricultural and extension educators in a global context and/or in a country/region. Book Reviews provide insight on current books related to international agricultural education.
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Leadership is a funny thing – there are so many necessary leadership roles out there, and it seems not nearly enough interested individuals to do them. This impacts society on a variety of levels, from local village or community, to academic institution, to country and nation. Without individuals stepping into important leadership roles, entire aspects of society would fail to progress.

Fortunately, within the AIAEE, there are many great individuals who continue to step up and take on leadership roles that make a difference in the organization. AIAEE held its annual conference in Merida, Mexico just a few weeks ago. At this conference, there were a variety of great research and applied presentations, professional development opportunities, and local tours. In addition, this was the time for leadership transition within the organization – a time to honor and respect the leaders who are taking leave, as well as for fresh individuals to step into new and exciting leadership roles.

Recently, I have also made a leadership transition, under the auspices of the JIAEE. In January, I moved from being Managing Editor (who handles the submission and review process) to Executive Editor (who is responsible for the creation and publication of each issue). While I enjoy the planning and copy-editing process, developing my first issue has definitely been a learning experience. Leadership, in this case, has required a lot of “behind the scenes” work and a stiff work ethic – something that many of you experience on a daily basis.

Leadership itself can be applied in a variety of contexts. Sometimes leadership is overt and standing in the limelight; sometimes it is more service oriented and is behind the scenes. Whatever the story, leadership plays an important role within society and ultimately should contain three things – influence, a group/community and a shared goal. While reading through this issue of the JIAEE, you will notice leadership being demonstrated in a variety of ways – through the importance of extension professionals learning intercultural sensitivity skills, to professional development for Haitian faculty to address local food security, to innovative communication and advisory systems for communities in Nepal. Clearly, JIAEE authors, practitioners and researchers are providing leadership through their manuscripts, practical applications and research.
Providing leadership is also an essential role of professional organizations – especially professional organizations that service academics and practitioners within the field. As part of the JIAEE Editorial Board meeting that occurred at our annual conference in Mexico, it was decided to change the type of articles accepted for publication in the journal. No longer will we be publishing Tools of the Trade, Commentaries or Book Reviews. Instead, Feature Research Articles (with special encouragement for Feature Articles with Methodological or Theoretical/Conceptual foci) and Research Notes (a shorter, more succinct version of a Feature Research Article) will be the journal’s chosen article formats. These changes haven’t been proposed because we are bored or desire change; they have been undertaken so the journal can remain useful and relevant in an ever-changing world. As a leader, the JIAEE needs to provide the best journal outlet and most relevant space for reading about international ag and extension education issues that it can – and occasionally this changes the way we need to do business.

I know that in whatever context you have taken on leadership roles in your area of the world, you are making a difference. Read on for more leaders who are also making a difference in their own communities. Finally, if you are looking to make a difference and engage in a professional organization, there are always many ways to engage (and provide leadership) within the Association of International Agricultural and Extension Education (AIAEE)!

Warm Regards,

Kristina D. Hains

Kristina D. Hains
Executive Editor, JIAEE
Training for Intercultural Sensitivity Skills: A Case for Agricultural Extension Professionals in Nigeria and Nations Facing Similar Challenges

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Keywords: agricultural extension, intercultural sensitivity, Nigeria, professional skills

Introduction
The agricultural sector is one of the biggest contributors to Nigeria’s economy in addition to being the employer of about 60% of its population (Odoemelam, 2011). In spite of the important role played by agriculture in the nation’s economy, the sector is still underdeveloped. To foster the development of agriculture in Nigeria, agricultural extension and advisory services are being used to transform the practices of farmers, who are still largely subsistence producers. In fact, Anaeto et al. (2012) attributed the slow development of Nigerian agriculture to the failure of its farmers to respond positively to novel ideas or innovations. For farmers to respond positively to such change, they must be properly educated on how best to implement the new ideas or practices on their farms. This is because increased agricultural productivity depends largely on the acceptance of cultural and technological transformations that extension workers bring to the farmers.

Nigeria is a multi-ethnic and culturally diverse nation (Edewor, Aluko, & Folarin, 2014) with more than 250 ethnic groups, hence, agricultural extension professionals must possess intercultural communication skills and multicultural mindsets to design and implement effective programs for their ethnically diverse audiences. The purpose of this tool of the profession paper is to generate support for the critical need to train agricultural extension professionals in Nigeria on intercultural sensitivity. To this end, Washington State University (WSU) Extension’s Navigating Difference Cultural Competency Training model is described and recommended as a potential prototype and guide for the implementation of such training for extension professionals in Nigeria.

Prototype Training Model for Implementation in Nigeria
Officials of WSU Extension recognized the need for intercultural sensitivity amongst professionals in its System and implemented a professional development program to expand the administrators, faculty, and staff regarding intercultural sensitivity. To achieve this aim, WSU developed a five-module training curriculum in 2005, which was the first of its kind worldwide (Deen, Parker, Hill, Huskey, & Whitehall, 2014). The five modules developed include cultural awareness, cultural knowledge, cultural interaction, cultural sensitivity, and cultural understanding. The curriculum uses fundamental adult education theories to foster a safe and friendly environment for all the participants, and their life experiences.
are regarded as an important source of knowledge. The training content addresses topics on privilege and oppression, communication styles and barriers, as well as organizational culture, and stresses active learning activities such as role-play, group discussions, individual reflections and presentations, and case studies to enhance participants' self-awareness and build intercultural skills. According to Deen et al. (2014), the week-long training curriculum is designed to prepare participants to accomplish three behavioral outcomes: First, to be able to engage in culturally diverse settings, initiatives, and programs. Second, to be able to integrate cultural competencies in the planning, implementation, and evaluation of programming. Third, to be prepared to practice strategies for successful intercultural communication in professional settings.

Developers of WSU Extension’s training curriculum conducted an evaluation of the effectiveness of their model on 172 participants who attended nine different trainings during the course of one year (Deen et al., 2014). Results showed that participants had changed specific beliefs and practiced novel behaviors such as integrating cultural competency when planning, implementing, and evaluating programs.

**Conclusion**

No doubt the societal context in which agricultural extension education and leadership is exercised, and the variation in cultural orientation of the farmers in Nigeria, necessitates the need for cultural competence and fluency of agricultural extension professionals (Shehu, McElravy, Matkin, & Balschweid, 2016). To this aim, cultural competence/sensitivity should be considered an essential skill along with communication, facilitation, and program development/evaluation (Deen et al., 2014) for all agricultural extension personnel, and included in the professional development schemes of agricultural extension organizations. In fact, Schauber and Castania (2001) posited that in addition to employing staff that can work efficiently with diverse audiences, Extension can offer continuous cultural competency training that not only orients extension staff to the importance of diversity but also assist to develop comprehensive skills to work across different cultures.

Although very important to note it is impractical to expect the acquisition of extensive knowledge of intercultural skills from a few days of training, participants will likely gain a much better understanding of the fundamental principles for working effectively amidst culturally diverse groups. The curriculum developed by WSU Extension can be used as a prototype for developing similar training curriculum that suits the Nigerian contexts as well as similar settings and is recommended for such use.

**References**


An Innovative Model of Agricultural Education and Training in Guinea: Trending Toward Self-Sustainability

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Abstract
Exploring locally-designed Agricultural Education and Training (AET) programs provides opportunities for the entire system of AET to improve. Recognizing this potential, researchers conducted a case study of the Centre d’Apprentissage et de Formation Professionnelle Post-Primaire (i.e., Center for Post Primary Professional Training [CAFPPP]) located in Macenta, Guinea. The case study was completed in conjunction with a comprehensive program review and participant-engaged strategic planning process. Results illuminate CAFPPP faces significant challenges, including (a) limited funding, (b) insufficient teacher and administrator training, (c) limited curricular scope, and (d) systematic challenges. Additionally, three critical strengths were identified at CAFPPP, (a) utilization of an effective, practice-based educational model, (b) stakeholder support, and (c) access to fertile agricultural land. Considering both strengths and weaknesses, researchers and CAFPPP stakeholders co-created a model to propel CAFPPP toward its stated goal of becoming an “autonomous center of excellence.” The dynamic model envisions a school leveraging its strengths to systematically address identified weaknesses via intersecting approaches to funding, teacher and administrator development, and graduate support. Presentation of the model is supplemented with a discussion of, and recommendations for, application of the model at CAFPPP. Furthermore, opportunities for all AET programs to reflect upon, and evaluate, current strategies in light of the proposed model are discussed.

Keywords: agricultural education and training, Guinea, international development, practice-based education, self-sustainability

Introduction and Review of Literature

Exploring agricultural education and training (AET) models established to address local needs provides a rich opportunity to identify innovative and potentially replicable systems to prepare individuals to contribute to the growth and sustainability of agriculture. One such model is the Centre d’Apprentissage et de Formation Professionnelle Post-Primaire (i.e., Center for Post Primary Professional Training; henceforth referred to as CAFPPP), which offers students who were unsuccessful in traditional schooling, skills-based training in agriculture. The educational system developed at CAFPPP uniquely addresses challenges common throughout sub-Saharan Africa and the world; thus, critical analysis of this educational model increases awareness of educational approaches which could holistically increase the quality of AET.

CAFPPP is located in Macenta, a town in southeastern Guinea, a country found on the western coast of Africa. Guinea gained independence from France in 1958. In 2010, Guinea participated in its first democratic election in which current president Alpha Conde was elected. Within Guinea, 42% of the population are individuals 14 years of age or younger, and the total population is expected to increase by 42.5 million before the end of 2020 (Bloom, 2011; Proctor & Lucchesi, 2012). The Guinean economy also continues to expand; consequently, many Guineans report increased quality of life, including more substantive social roles for women, due to increased access to agricultural goods and services (USAID, 2015).

Agriculture in Guinea

Agriculture plays an essential role in Guinea, as 80% of the working population is employed in agriculture (Ouraih, Lowenberg-DeBoer, Soumah, & Diallo, 2017). Further, agriculture is the fastest growing sector of the economy and is anticipated to be critical to sustainably employing the increasing population (Filmer & Fox, 2014). In fact, employers expect positions requiring postsecondary training in agriculture to double by 2020 (Ouraih et al., 2017). Without question, agriculture has been the key to economic growth in Guinea and will continue to play a leading role in its continued development. According to the USAID (2015), the most common products of Macenta are field crops (i.e., most common are rice, coffee, and maize), small livestock (i.e., most common are goats, chickens, and ducks), forest products (i.e., most common are bush meat, Raphia wood, and tree bark), garden crops (i.e., most common are sweet potato, okra, and cassava), and aquaculture (i.e., most common are tilapia and catfish).

While agriculture is critical to the growth of Guinea, it is not without challenges. Among the challenges is the marginalized role of women; as USAID states, “women in Guinea play a substantial, but usually unrecognized and unsupported, role in agriculture” (2015, p. 5). The lack of support for women in agriculture stems from traditional social norms, with farm systems being controlled by males, who traditionally manage production, while females traditionally manage sales (USAID, 2015). However, the forest region of Guinea, in which Macenta is located, boasts the highest proportion of female-managed farming systems; yet, much less than the number of male-managed systems (USAID, 2015). The limited capacity and support for women in agriculture reduces the decision making autonomy of females and is a critical barrier to continued growth of Guinean agriculture. Additional challenges among Guinean agricultural producers include the increasing risk of desertification brought about by...
climate change and migration of labor (USAID, 2015).

**Agricultural Education and Training System in Guinea**

The AET system in Guinea is comprised of three categories of schools, (a) one public, agricultural university, (b) five public, certificate-level institutes, and (c) vocational training centers, like CAFPPP (Ouraich et al., 2017). The one public agricultural university is the Institute for Agricultural and Veterinary Science, located in Faranah, which provides four-year degree programs in agronomy, agroforestry, rural economy, water, forestry, animal science, engineering, and extension. The public institutions for agriculture and livestock production (i.e., ENAE), located in Macenta, Tolo, Koba, and Kankan, and water and forestry techniques (i.e., ENATEF), located in Mamou, offer three-year certificate programs (USAID, 2015). CAFPPP, which falls under the classification of a vocational training facility, provides students with a one or two-year program in either vegetable production, coffee nursery, or poultry production.

Currently, a gap exists between the AET provided in Guinea and the skills desired among employers (i.e., work experience, communication skills), an issue common to sub-Saharan Africa (Blackie, Mutema, & Ward, 2009; Breazeale, Mangheni, Erbaugh, & Mbow, 2014; Ouraich et al., 2017; Scheltema, Meyer, Ejobi, Tinga, & Tschirley, 2014). The gap in AET training and employer needs results in up to 80% of postsecondary graduates unsuccessful in gaining employment after graduation, many remaining unemployed in formal agricultural positions up to eight years after graduation (Al-Samarrai & Bennell, 2007; Azoh, Weyer, & Carton, 2012; Ouraich et al., 2017). The challenges new graduates experience finding jobs are exacerbated for females or individuals who received training from a vocational school, like CAFPPP, as opposed to the agricultural university (Ouraich et al., 2017). To address the disconnect between AET and agricultural careers, recommendations have been made to increase the use of internships and field trips to better prepare students for careers in agriculture (Adebo & Sekumade, 2013).

The AET system in Guinea offers tremendous opportunities to evaluate models which are evolving to address challenges present in Guinea and elsewhere; yet, little known research has been conducted to elucidate Guinean AET institutions. The current case study focuses on describing the vocational training center CAFPPP. Such analysis provides an opportunity to evaluate the current AET approach at CAFPPP as well as the future potential to address the challenges of the region. Furthermore, explication and evaluation of the CAFPPP model offers similar programs, or regions who experience similar challenges, a starting point for educating individuals to contribute to the growth and sustainability of agriculture.

**Conceptual Framework**

As opposed to a conceptual model for AET in developing regions, authors sought a conceptual framework addressing human and organizational development. Operationalizing a development model for this case study provided a lens which elevated the idea of a dynamic system over one that is static. Furthermore, a lens of development better addressed the aim of this case study, to pair evaluation with strategic planning to help CAFPPP address current and future challenges.

Within human and organizational development models, training-based perspectives, which focus on developing participant skills and knowledge, have
traditionally dominated the landscape. Recognizing an opportunity to expand traditional thinking, USAID (2010) developed the Human and Institutional Capacity Development (HICD) model. The model was developed to better address the spectrum of capacities which incite organizational success, including access to information, availability of resources and tools, utilization of financial and non-financial incentives, development of individual knowledge and skills, increased capacity for all members of an organization, and alignment of member and organizational motivation (Chevalier, 2003). In practice, the HICD model includes the following process: 1) Identify partner organizations; 2) Obtain partner commitment; 3) Form stakeholder groups; 4) Conduct performance assessment; 5) Prepare performance solutions package; 6) Implement performance solutions; and 7) Monitor change in performance.

Feedback from monitoring changes in performance (i.e., step seven) spurs continuous performance assessments (i.e., step four) and the preparation of performance solutions (i.e., step five); thus, creating a cyclical and dynamic process of HICD. The HICD framework is grounded in three principles, (a) organizations are adaptive systems, (b) organizational performance must be viewed systematically, and (c) measureable performance results are the focus. Not only does the HICD model provide a foundation for considering the development of dynamic AET systems, the HICD model provides a process which encourages scholar-practitioners to engage all members of AET systems in the evaluation, planning, and execution of strategies to contribute to the growth and sustainability of agriculture within their region. Given the strengths of this model, it was used in the collection, analysis, and presentation of the current case study.

**Purpose and Objectives**

The overall aim of this study was to help CAFPPP identify and address the current and future challenges of the region, including the challenge of self-sustainability. Therefore, the purpose of this case study was to describe in detail the situation, challenges, and opportunities for self-sustainability related to CAFPPP. To accomplish this purpose, three research objectives guided the work: 1) Identify challenges to self-sustainability within CAFPPP; 2) Identify leverage points to self-sustainability that currently exist within CAFPPP; and 3) Describe a participant-created model for self-sustainability at CAFPPP.

**Methods**

The current study operationalized a case study design (Gall, Gall, & Borg, 2003) to uncover the situation (e.g., challenges, leverage points) at CAFPPP. A case study approach was used because it enabled the researchers to closely examine the data within the specific context of CAFPPP and the individuals directly involved in the operation of the school. Therefore, an exploration of the processes, activities, people, and other factors related to the operation of the school were explored. Data were collected for this case study as part of a comprehensive institutional assessment and strategic planning process.

**Context and Participants**

The study was carried out at CAFPPP in Macenta, Guinea, an agricultural training center created by the Guinean government in 2009 with a goal to strengthen youth employability by providing skills training in agriculture. Macenta and the surrounding towns rely heavily on agricultural production; thus, most people in the region farm. Annual enrollment at CAFPPP fluctuates greatly; recent
enrollment numbers have ranged from 55 to 217 students. The school is managed by five administrators and ten teachers. The administration includes the managing director, director in charge of studies and curriculum, chief of operations, student advisor and counselor, and administrative assistant in charge of finance and administration. The teachers are all local farmers recruited by the school administration to work as partners in training students. A partnership also exists between local farmer organizations (e.g., rice producers, banana producers) which assist in an advisory role, but also take an active role in the recruitment of students and teachers. CAFPPP is financed in part by the Guinean government, but the school also raises money through production of eggs, nursery plants, and vegetables. CAFPPP has limited infrastructure, operating with only two classrooms, a nursery plot, and a chicken coop. CAFPPP infrastructure is owned by the National School of Agriculture and Livestock Management (ENAE) but shared with CAFPPP, which enables them to operate.

Participants of the study were selected by the administration to take part in the strategic planning activities. The sample consisted of 21 participants (female = 5; male = 16), including administrators (2 female; 2 male), teachers (7 male), representatives of local farmer organizations (1 female, 5 male), and students (2 female; 2 male). Participants from the farmer organizations represented various agricultural commodities including bananas, rice, poultry, fish, and diversified livestock. All of the school administrators, except the chief of operations, participated in the case study. Students participating consisted of two students currently enrolled and two students who had recently graduated from CAFPPP.

Data Collection and Analysis

Data were collected using five methods: (a) observations of school infrastructure, teaching, and offsite training facilities, (b) structured written survey responses, (c) one-on-one semi-structured interviews, (d) semi-structured focus-group interviews, and (e) participative inquiry. Data were collected over the course of seven days during the summer of 2017.

Observations enabled researchers to collect data about school infrastructure, teaching, and offsite training facilities. Researchers toured CAFPPP facilities (i.e., classrooms, nursery, chicken facilities, horticulture gardens) as well as offsite training facilities (e.g., poultry, swine, rabbit, tilapia, corn, and rice) that provide student work experiences. Researchers created a written summary for each tour and kept observation notes throughout the data collection process.

Structured written surveys were distributed to individual administrators, teachers, students, and representatives of farmer organizations. Surveys sought participant feedback on the strengths, weaknesses, opportunities, and threats at CAFPPP. Additionally, stakeholder groups completed structured group surveys, answering focused questions elucidating specific knowledge of CAFPPP and Macenta (e.g., What crops are grown in Macenta? What is the graduation percentage of CAFPPP? What does a typical student day look like?).

One-on-one semi-structured interviews were conducted with selected administrators, exploring topics of land use, leadership skills among administrative staff, teacher development, assessment methods, and the future goals for CAFPPP. A semi-structured interview was also conducted with one teacher, a Macenta farmer, analyzing his experiences as an educator at
CAFPPP. The individual interviews lasted between 30 minutes and one hour.

Semi-structured focus group interviews with administrators, teachers, students, and representatives from farmer organizations were conducted. Researchers met with each group separately, exploring their experiences and perceptions of CAFPPP. The interviews consisted of questions addressing various topics about CAFPPP and lasted for one hour each. Broad questions were asked with follow-up questions to elicit more details (Denzin & Lincoln, 2011).

Participative action inquiry is a form of participatory action research, a qualitative research method in which the participants concern themselves with the development of an action plan to transform their organization towards greater effectiveness (Chevalier & Buckles, 2013; Kemmis & McTaggart, 2000). This case study employed participative action inquiry as a way to gather information from participants about perceived strengths, weaknesses, and goals for improvement at CAFPPP. With facilitation from the researchers, participants engaged in multiple activities including brainstorming and small and large group discussions to develop lists of strengths, weaknesses, and strategies for identified challenges at CAFPPP. Additionally, participants engaged in identifying a timeline and responsible individual(s), and engaged in developing action plans for each of the developed strategies. Finally, participants engaged in a collaborative discussion of the mission, vision, and core values of CAFPPP.

Both researchers collected data and kept reflective journals. Participants spoke French while the researchers spoke English, so data collection funneled through a French-English interpreter. Data gathered from the participants were transcribed into English before being analyzed. Because quotes collected from participants were translated, the quotes represented in this manuscript may not be an exact representation of the contributors’ ideas. Researchers employed the constant comparative technique throughout the research process to develop categories and themes. Data were sorted and grouped, enabling the researchers to interpret and reflect on emerging patterns and regularities (Corbin & Strauss, 2008). Researchers utilized the emerging themes and categories to guide the one-on-one and focus group interviews. Themes and categories were also shared with participants (i.e., peer debriefing) enabling participative action inquiry to occur. Through this process, a deeper understanding of the case was achieved and credibility was established. Trustworthiness and credibility were achieved through peer debriefing, the use of reflective journals, participant action inquiry, and triangulation at various stages and from multiple data sources (Denzin & Lincoln, 2011).

Subjectivity Statement

A subjectivity statement is provided so related experiences and beliefs of the researchers may be transparent to the reader. Both researchers in this study are White, middle-class males who live in the United States and who are both employed by land-grant institutions as teacher educators in the field of agriculture, food, and natural resources (AFNR) education. As such, both are directly involved in the process of training students for careers in AFNR and AFNR education. Researchers have conducted, presented, and published research studies on topics related to vocational and career training of students, teacher development, leadership, teacher attrition, and the system of school-based AFNR education. Prior to becoming teacher educators and researchers, authors taught...
AFNR in public schools at the secondary school level for a combined total of nine years. Researchers acknowledge previous experience teaching high school AFNR, which involved running profitable school-based enterprises, managing facilities, equipment, and personnel, and facilitating the instruction and job placements of students, has shaped beliefs and views about vocational AFNR training programs and influenced how data were collected and analyzed.

Findings and Discussion
The purpose of this case study was to evaluate the current system of education at CAFPPP and a path to self-sustainability. To accomplish this objective, current challenges, strengths, as well as a participant-created model of self-sustainability will be described.

Challenges to Self-Sustainability
The first step in considering the potential self-sustainability of CAFPPP is to acknowledge and evaluate the challenges faced by the school. For discussion, the challenges faced by CAFPPP have been concatenated into four themes: (a) funding, (b) skills and training, (c) curriculum, and (d) systematic challenges. To elucidate the four themes, each will be explored, including an analysis of current and future consequences of specific challenges.

Funding. The first challenge to self-sustainability is a lack of financial resources. The lack of resources has led to immediate consequences for the students and community served by CAFPPP. These immediate consequences include lack of accessible farming equipment, medical facilities, and technology which limit the learning potential and safety of the school. Furthermore, inadequate compensation creates tension among teachers who believe in the mission of CAFPPP but struggle to meet basic needs for themselves and their families; as the teachers shared, “for us to remain in the teaching process, we need a salary increase.” In addition to immediate consequences, the lack of funding is a major limitation to the future growth and expansion of CAFPPP. Specifically, limited resources have restricted the administration from making strategic investments in new programs (e.g., pork and aquaculture) and the entrepreneurial ambitions of recent graduates, each of which could increase student numbers and community (i.e., current producers and alumni) support for CAFPPP.

Skills and training. The second challenge to self-sustainability is a lack of skills and training among CAFPPP administrators and teachers. Administrators were placed in their positions without the education or training in specific skills necessary for the success of the school; as the administrators shared, “we need training in computers, grant proposals, marketing agricultural goods, and pedagogy...only two [administrators] have received any training.” Training efforts (e.g., hosted by organizations like Winrock International) provide support in critical areas; however, trainings are reactive and temporary as opposed to proactive and sustainable. The lack of training is also visible among teachers, hired due to their community-recognized proficiency in agriculture, who lack formal pedagogy training. In total, the lack of training is also visible among teachers, hired due to their community-recognized proficiency in agriculture, who lack formal pedagogy training. In total, the lack of skills and training among administrators and faculty yields a culture of focus on addressing daily challenges as opposed to strategic planning, networking, and resource acquisition.

Curriculum. The third challenge to self-sustainability is the curriculum taught at CAFPPP. The curriculum lacks distinction from ENAE Macenta, a certificate-level institution that shares facilities and land with CAFPPP. Program overlap would be
understandable if the scope of agricultural production was limited; however, representatives of farmer organizations stated “in Macenta, farmers produce many, many things,” providing a context for both CAFPPP and ENAE to provide education and training in unique areas of agriculture. While program overlap has some advantages (e.g., shared resources, pooled knowledge), unique programs at CAFPPP would empower graduates to find employment or start new enterprises without being in direct competition with ENAE graduates, who have received more training.

Systematic. The fourth set of challenges are due to the cultural and educational systems at CAFPPP and in Guinea. These challenges include a lack of written contracts between CAFPPP teachers and administrators, weakening the leverage of teaching faculty to spur change. Additionally, the land utilized by CAFPPP is owned by ENAE and CAFPPP lacks a formal agreement ensuring the continued use of these resources. Among students and teachers, however, the most commonly recognized challenge is the distance between the school and city center (i.e., four km), requiring significant time and energy to travel to and from CAFPPP. As the teachers shared, “when it rains, many students do not attend class because of the walk.” The arduous travel is further complicated by extremely poor conditions on the road linking CAFPPP and the city. These systematic issues support a static culture of challenge whereas a dynamic culture of growth and optimism is needed for CAFPPP to become self-sustainable.

Leverage Points to Self-Sustainability

The significant challenges faced by CAFPPP illuminate the question, “how?” Specifically, how can a school facing so many obstacles emerge as a self-sustainable model of AET? To begin answering this question, we must explore the strengths (i.e., leverage points) currently present at CAFPPP. As these strengths are explored, the groundwork will be laid for how the current strengths can be leveraged to overcome the challenges faced by CAFPPP and redirect the school toward a self-sustaining future.

Practice-based education. The first theme of strengths within CAFPPP is the educational approach, which was described as “80% practical, 20% theoretical” by CAFPPP administrators and teachers. The practice-based (i.e., hands-on, in the field) model is appropriate given the mission of the school to provide students with skills necessary for employment. Evidence also emerged of the efficacy of this approach, as one of the producers in the region shared, “students graduate ready to work on my farm.” Equally important, the educational model addresses an important community problem. Previously, CAFPPP students had few educational options and would, therefore, struggle to contribute to the growth of their community. Being positioned to directly address a community need has fostered tremendous support from numerous stakeholders throughout Macenta and the surrounding region.

Stakeholder support. Support for CAFPPP is a strength critical to the self-sustainability of the school. Internally, support is evident in the enthusiasm teachers and administrators express for the work of the school. Externally, support for CAFPPP begins with ENAE, which has provided land, resources, and classrooms to accommodate CAFPPP student learning. Additionally, farmer organizations have continually supported the work of the school, evident in the six organizations represented during the program review and strategic planning. Importantly, local farmers do not see CAFPP graduates as potential competitors; instead, representatives of farmer organizations...
believed in “solidarity,” representing their ideology of, “when my neighbor succeeds, I succeed.” The community need-based model employed at CAFPPP has also engendered support from local political leaders, who expressed consistent enthusiasm and appreciation for the work being done at the school. Lastly, CAFPPP has received financial and training support from international organizations, like Winrock International and the World Bank, which have proven essential to building a foundation for potential self-sustainability.

Production agriculture potential. The third, and final strength essential to the self-sustainability of CAFPPP is the agricultural production and resources available to the school. The climate of Macenta (i.e., moderate temperatures and adequate rainfall) provides an abundance of high-quality, fertile land available for production, accentuated by a river flowing through CAFPPP land, allowing for off-season, irrigated production. Not only is the potential for supplying agricultural products evident, school administrators, teachers, and local farmers indicated high demand for products grown at CAFPPP. As an administrator shared, “we could sell more than ten times the coffee nursery, horticulture, and poultry produced at CAFPPP.”

Model of Self-Sustainability

Collectively, authors and CAFPPP stakeholders envisioned an educational model which could achieve a collective goal for CAFPPP to “become an autonomous center, a center of excellence.” The concept “autonomous” has been renamed “self-sustaining” and is conceptualized as an AET system operating to address identified goals without external financial or administrative support. The model (see Figure 1) of self-sustainability leverages the three identified strengths of CAFPPP (i.e., stakeholder support, production agriculture potential, and practice-based education), indicated by a gray background, to address identified challenges.

Faculty and staff training cycle. On the left side of the model, a process for addressing the limited skills and training of CAFPPP faculty and staff is provided. The cycle starts by pairing CAFPPP faculty and staff with mentoring faculty and staff at ENAE who have received training and education in teaching and school administration. This mentoring relationship will yield faculty and staff development, which will support the use of practice-based education. Additionally, the cycle includes “reflective practitioners,” highlighting the opportunity for CAFPPP teachers and administrators to reflect on their own experiences and share with fellow teachers and administrators at CAFPPP and at ENAE practices found to be effective. This process requires utilization of the critical stakeholder support found at ENAE as well as the self-motivation of CAFPPP faculty and staff to better meet the needs of their students.

Program funding cycle. On the right side of the model, a process for addressing the limited program funding is provided. The cycle starts by leveraging the productive agricultural ground available to CAFPP as well as the high demand for CAFPPP products. Using these leverage points, existing programs (i.e., chicken, vegetable, and coffee nursery) should be expanded. In so doing, opportunities for practice-based learning among CAFPPP students are expanded (e.g., instead of all students tending one coffee nursery, small teams of students could manage their own coffee nurseries). The outcome of expanded production will be an increase in school revenue, which will empower administrators to make strategic investments, including expanding and adding production programs to match the diversity of agriculture in
Macenta, investments in the entrepreneurial ambitions of CAFPPP graduates, and supporting the livelihood of current CAFPPP teachers, ensuring their continued role at CAFPPP. As a long-term goal, the funding cycle described could be leveraged to purchase CAFPPP-owned land, increasing their self-sustainability as a school.

Figure 1. Model of self-sustainability developed for CAFPPP Macenta.

Graduates prepared for the workforce. As noted previously, the practice-based education utilized at CAFPPP yields graduates prepared for the workforce. This relationship is included within the proposed model of self-sustainability at CAFPPP. Additionally, the model recognizes graduates of CAFPPP are a tremendous source of continued stakeholder support; specifically, as graduates find employment, or start their own business, they can support student learning through internships, work experiences, or mentoring. Additionally, strengthening the relationship between CAFPP and graduates provides an opportunity for CAFPPP graduates to share innovative practices in agriculture, which could be implemented at CAFPPP.

Conclusions and Recommendations
Research on the system of AET at schools, like CAFPPP, opens an opportunity to evaluate, modify, and replicate unique educational approaches throughout AET. Operating since 2009, CAFPPP faces a number of challenges, including limited funding, lack of skills and training among administrators and teachers, a curriculum limited in scope, and additional systematic challenges. In the face of these obstacles, CAFPPP has evolved into a program with strengths supporting the education of students in Macenta, including an effective,
practice-based educational approach; tremendous stakeholder support; and opportunities for expansion via large demand for agricultural products and available, fertile land. Working collaboratively, researchers and CAFPPP stakeholders (i.e., administrators, teachers, students, and representatives of local farmer organizations) envisioned a model to help CAFPPP meet their goal to “become an autonomous center, a center of excellence.”

Before discussing the findings and proposed model, however, a discussion of the research limitations is needed. First, participants in the research did not represent the entire stakeholder group at CAFPPP; therefore, the perspectives and experiences are limited to participants. Second, the information shared by participants was communicated in French and had to be translated into English, introducing potential bias or errors due to translation. Finally, data were gathered over seven days. Researchers acknowledge their inability to fully immerse themselves within the case in such a short time frame. However, the research presented is a first glimpse into CAFPPP Macenta and should, therefore, be interpreted as a foundation for which additional knowledge, practices, and research can be built.

The process described within the case study provides a valuable opportunity to reflect upon the Human and International Capacity Development (HICD) model (USAID, 2010). In fact, the first five steps of the HICD model are evident, by design, in the work described in this study (see Table 1). The remaining components (i.e., implement performance solutions and monitor change in performance) await implementation and evaluation of the solutions package via the model of self-sustainability.

The AET system in Guinea is facing an impending challenge to train an influx of youth to fill an agricultural workforce expected to grow in congruence with the population (Bloom, 2011; Filmer & Fox, 2014; Proctor & Lucchesi, 2012). Awareness of this expansion suggests self-sustaining educational systems, as opposed to government-dependent systems, provide a more responsive system of AET. Therefore, the model of self-sustainability illuminated in the current study, while developed specifically for CAFPPP, could be operationalized as a starting point for developing self-sustaining AET schools throughout Guinea. The question then becomes, where does a community start in implementing this model? From a replication standpoint, ensuring the three strengths (i.e., stakeholder support, practice-based education, and production agriculture potential) is a critical first step. Importantly, these critical pillars of a self-sustaining educational system, using this model, influence (a) transparent selection of who is involved in the establishment of a school to increase broad community support, (b) the development of curriculum grounded in practice, and (c) locating the school for maximum agricultural production and, if possible, near a source of teacher and administrator mentoring.
Table 1

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<tr>
<th><strong>Comparison of HICD Model and CAFPPP Case Study</strong></th>
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<tr>
<td><strong>HICD Model(^1) Components</strong></td>
<td><strong>CAFPPP Case Study</strong></td>
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<tr>
<td>Identify partner organizations.</td>
<td>Representation from local farmer organizations present during the case study.</td>
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<tr>
<td>Obtain partner commitment.</td>
<td>Participation in the case study by administrators, teachers, students, and local farmer organizations.</td>
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<tr>
<td>Form stakeholder groups.</td>
<td>Focus groups and discussions facilitated among administrators, teachers, students, and local farmer organizations.</td>
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<tr>
<td>Conduct performance assessment.</td>
<td>Identification of strengths and weaknesses at CAFPPP.</td>
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<tr>
<td>Implement performance solutions.</td>
<td>Dependent on application of self-sustaining model.</td>
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\(^1\)USAID, 2010

In addition to the implementation of the model, pragmatic recommendations emerged for programs similar to CAFPPP regarding the operation of the school. First, schools must conduct transparent practices related to the operations of the school; especially when attempting to engender external community support. Second, schools must engage in shared decision making, ensuring the voices of students, teachers, local stakeholders, and administrators are valued throughout the process; especially when attempting to engender internal support. To facilitate this transparency and shared decision making, regularly scheduled opportunities for stakeholders to come together is highly recommended. Third, given the hiring preference for university-trained students, practice-based educational institutions like CAFPPP, should train students in skills different from curriculum at the university level. A tremendous opportunity for differentiation is value-added agriculture (e.g., canning, food preservation, service, sales).

The foundation of knowledge gleaned from this case study opens the door for research to build the scope of knowledge regarding AET in CAFPPP, Guinea, Africa, and globally. First, and foremost, research is recommended to follow-up with CAFPPP stakeholders to evaluate implementation of the proposed self-sustainability model. To facilitate these investigations, the remaining steps of the HICD model (USAID, 2010) provide a template for work. Furthermore, case study evaluations of similar schools (i.e., developed to address local challenges and leverage local strengths) provides opportunities for the broader AET community to learn from, and consider
applying, innovative strategies for teaching and learning agriculture. Additionally, the self-sustaining model illuminated in the current analysis provides an intervention for future AET development. Specifically, research is recommended evaluating the impact of model adoption on student learning, internal support, and community support for the school.

Any AET system is comprised of locally-adapted models which provide innovations potentially replicable within schools and programs in the broader AET system. The current study sheds light on an innovative, community-based model for AET in Macenta, Guinea. Our hope is this case study illuminates the practices, and future potential, of AET at CAFPPP as well as provides an opportunity for current and future AET programs to reflect upon, and evaluate their own approach. In order for AET to meet the myriad challenges ahead, learning from the approaches employed at peer institutions is critical.

References


Haitian Agricultural Faculty Preparation for Their Academic Roles

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Abstract
Food insecurity is widespread in Haiti. The tertiary agriculture institutions have the great challenge of educating the future professionals who will help in meeting the growth needs of the Haitian agriculture sector. The extent that faculty are prepared for the teaching roles is unknown. This study examined this topic using a basic qualitative study that consisted of interviews with 37 lecturers working at five leading agricultural universities in Haiti. Data were analyzed using a basic thematic analysis. Results revealed the majority of participants generally felt well-prepared for their academic roles. The institutional climate for professional development is variable across the universities represented by the participants of this study. Incentives for participating in professional development were primarily intrinsic. There were 56 specific topics suggested by participants for professional development trainings.

Keywords: professional development, higher education, Haiti, faculty
Introduction

Food security is a concern in developing countries. According to the Global Hunger Index (GHI) in 2016, seven countries still have an alarming level of hunger and as many as 43 others fall under the serious level of hunger (Von Grebmer et al., 2016). Most countries in the Latin America and the Caribbean (LAC) region have a low or moderate GHI, but a few still have serious (Guatemala) and alarming (Haiti) levels of hunger (Von Grebmer et al., 2016).

The definition of food security, according to the 1996 World Food Summit is the “physical and economic access to sufficient safe and nutritious food that meets [people’s] dietary needs and food preferences for an active and healthy life” (FAO, 2003, p. 28). This definition underlines the four dimensions of food security, which are (a) food availability determined by the level of production, (b) household access to food through sufficient income and physical accessibility, (c) utilization of safe food for optimal nutritional status, and (d) the stability of these three dimensions over time. If these dimensions do not occur simultaneously, there is food insecurity (FAO, 2008). Food insecurity is either chronic or transitory. The real concern is chronic food insecurity, which is persistent over time.

Education is linked to food security in that universities play a role in the supply of knowledge and skills to ensure sustainability of food production and throughout the entire value chain (Mutimba, Knipscheer, & Naibakelao, 2010; Pierre, María Eugenia, Liberio, Gladys, & Oliverio, 2014). The necessary knowledge and skills are diverse, and agricultural education must emphasize on curricular revisions that target the rapid scientific and technical changes as well as the need for a review of educational processes (Pierre, 2015; Van Crowder, Lindley, Bruening, & Doron, 1998). However, who is to make those changes? Are faculty members from developing countries capable and empowered to deliver the new curricular content? From 1981 to 2006, the number of agricultural researchers in the LAC region has increased 1.4% per year with significant differences across countries (Stads & Beintema, 2009). The same study found only 33% of researchers in a 15-country sample from the LAC region were PhD-qualified, 32% were trained to the MSc level, and 34% held a bachelor’s degree. Generally, researchers from Central American countries have less qualified staff than neighboring Mexico and other South America countries and the smaller countries in the region generally depend external researchers (Stads & Beintema, 2009). The need to respond to higher enrollment demand has caused the academic profession and qualifications of lecturers to decline in many countries; with half of the world’s university teachers only earning a bachelor’s degree (Altbach, Reisberg, & Rumbley, 2009). Further complicating the situation, in Latin America approximately 80% of university faculty are employed part-time (Altbach et al., 2009). Although some data exists about the LAC region as a whole, little is known about Haiti. This study will help fill that gap and better understand the efforts of Haitian educational institutions to provide agricultural education that prepares students to enter the workforce and effectively address the food security needs of the country.

Literature Review

Teachers’ experiences include a wide range of activities that may increase knowledge and skills while improving teaching practices and contributing to personal growth (Desimone, 2009). Not all of this teacher experience, however, qualifies as professional development
(Desimone, 2009). Many terms are used interchangeably to refer to this increased knowledge and skills such as: (a) faculty development; (b) instructional development; and (d) professional development. However, organizational, career, and personal development are terms used when the emphasis is put on the institutions or the teachers themselves (Camblin & Steger, 2000). Faculty development’s objective is to continually improve the education system; but defining how to deliver for developmental needs of diverse faculty is challenging (Camblin & Steger, 2000). It is sometimes believed that faculty members could self-educate, but that assumption is not taking into account the recent rapid knowledge advancement (Camblin & Steger, 2000). Institutionalized faculty development therefore becomes crucial.

According to an analysis of nine studies in teacher development, professional development varies more in content and substance than in form (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). Fortunately, there seems to be a research consensus about what main outcomes of professional development may be relevant: teachers’ changes in knowledge and practice have been identified and to a lesser extent student achievement (Desimone, 2009). There is a consensus about what is critical to reaching these professional development outcomes. The most critical factors are (a) subject matter’s content focus, (b) opportunities for teachers to engage in active learning, (c) coherence between teacher learning and teachers’ beliefs and knowledge, (d) collective participation, and (e) sustained and intensive duration of faculty development activities (Desimone, 2009). All of these factors influence teachers’ behavior change in knowledge, practice and student achievement while recognizing that faculty development is an evolving plan that is linked to both the faculty and the institution (Camblin & Steger, 2000).

Spindler and Ogwo (2014) emphasized the importance of developing professional development programs that “emerge from the ranks of the participants in ways that eliminate a top down expression of preconceived concepts” (p. 44).

In the LAC region, tertiary education has been mostly public but with the recent higher demand from students, new private universities in the region have emerged (Torres & Schugurensky, 2002). Most higher education institutions do not conduct research and do not offer graduate-level education. Although this expansion may increase the overall capacity in a country, they are not necessarily conducive to high quality education as the proliferation of privatized institutions have not been properly regulated and the requirements for setting up a higher education program in not always respected in these countries (Torres & Schugurensky, 2002; Urzúa, 2002).

LAC’s contribution in the scientific and scholarly publication worldwide is modest; most of it comes from the Spanish/Portuguese-speaking larger and richer countries as opposed to the smaller French/English-speaking countries in the region (Delgado & Weidman, 2012). As a complicating factor, many of the professors in these new private universities are either also working in the public colleges or are practicing professionals who want to teach on the side. Therefore, the quality of the education given to these accrued numbers of students remains a major challenge (Urzúa, 2002). As mentioned by a study in the LAC, when the concept of quality is viewed from the institutional or educational system’s perspective, it is multidimensional and includes efficacy and efficiency of teaching, research, and extension (González González & Santamaria Ambriz, 2013). The requirement for a quality shift in LAC’s agricultural higher education is undeniable,
as shown by the strong need for transformation of the agricultural sector which includes technological improvements both human and material (Alcortaa & Peresb, 1998; Kendall & Petracco, 2009).

Haiti’s situation on higher education is quite similar. Each year 28,000 students enroll in the Université d’État D’Haïti (UEH) and only 12,000 in the private institutions (Wolff, 2008). Quality seems to be a major issue also, as suggested by the enrollment ratio in Haiti being one of the lowest in the world, and the fact that the students with educational qualifications and funding for higher education choose to study in other countries (Wolff, 2008). Very little information exists about Haiti’s tertiary agriculture institutions. The Caribbean Council for Higher Education in Agriculture (CACHE) lists six main universities with agriculture programs. Anecdotal evidence shows at least nineteen are recognized by the national Ministry of Education and Professional Training, and perhaps many more operate without accreditation. Very little research has been conducted on these institutions, so there much unknown about the faculty and the curriculum. Two recent studies did begin to explore these institutions. The first one analyzed the curriculum of the main public college of agriculture (Faculté d’Agronomie et de Médecine Vétérinaire; FAMV) and a private university (Université Caraïbe; UC). This study concluded a curricula change was needed to lead to sustainable agricultural development in Haiti. This study also acknowledged public policies needed revisions to reach this goal (Pierre, 2015). The second one examined the social capital of teaching faculty comparing those that teach at one university with those who teach at multiple universities (Albert, 2016). There were no differences observed.

Purpose and Objectives
The purpose of this study was to explore the preparation of Haitian agricultural faculty for their academic roles. Specifically, we sought to (a) understand how faculty were prepared for their duties, and (b) explore opportunities for professional development with these faculty.

Methodology
This study was implemented as a part of a larger USAID funded development project. This study used a basic qualitative design (Flick, 2007). Interviews were conducted with Haitian faculty using a semi-structured interview guide with eight open-ended questions. The interview guide was developed based on the literature review and on expertise of the research team. The interview guide was then translated to French and back-translated to English by a second translator to ensure the translated version maintained content validity. A panel of experts familiar with the Haitian context reviewed the instrument and it was revised as needed for cultural appropriateness. The lead Haitian researcher facilitated two practice interviews with Haitian faculty and made additional revisions to improve clarity and the overall quality of the data obtained. All activities in this study were approved by the University of Florida IRB.

Participants
Based on goals of the larger project, five agricultural universities were identified for this research based on their membership in the Caribbean Council for Higher Education in Agriculture (CACHE). These included (a) Université d’État d’Haïti - Faculté d’Agronomie et de Médecine Vétérinaire (FAMV), (b) American University of the Caribbean (AUC), (c) Université Caraïbe (UC), (d) Université Notre Dame d’Haïti (UNDH), and (e) Université Quisqueya (UNIQ). At that time
of data collection these institutions employed a total of 277 lecturers, of which 61 were full-time and 216 were part-time. Over half of the full-time lecturers worked at FAMV.

A snowball sampling technique was used to identify individual lecturers to interview (Merriam, 1998). The Deans at each institution provided an initial list of lecturers and each participant was invited to nominate additional peers. Recruitment of participants continued until redundancy in the data was achieved (Merriam, 1998). In total, 37 lecturers were interviewed, 11 from FAMV, seven from AUC, one representing UC, and nine from both UNDH and UNIQ.

It is not uncommon for faculty in Haiti to work for more than one institution simultaneously and our sample was no exception to this norm. Only a third (32%) of participants were employed with just one institution at the time of our research, 35% worked for two institutions, 24% for three institutions, and 8% worked for four different educational institutions.

Participants were coded by their primary institution of employment (U1, U2, U3, U4, or U5) and assigned a number in the order they were interviewed. The majority of participants were male (75%) and approximately 30% held an administrative appointment in addition to their teaching roles.

**Data Collection**

Data was collected using face-to-face interviews at locations determined by each participant. Interviews collected data for this study and a related study. The portion of the interviews pertaining to this study lasted approximately 20 minutes and the entire interviews lasted approximately 1 hour. Interviews were conducted in French by a Haitian researcher. A research assistant was also present. The researcher and research assistant took detailed field notes during the interview. Following each interview, the researcher created a detailed case file. The research assistant verified accuracy of the case file. Once the case file was finished, it was sent to each participant to review as a form of member checking (Merriam, 1998).

**Data Analysis**

Guided by the purpose of the research, data was analyzed using a basic thematic analysis approach using line-by-line coding (Gibbs, 2007). A constant-comparative approach (Glaser & Strauss, 1967) was used to identify initial codes (sub-themes) and then organized in larger themes of related codes. To improve reliability of the analysis, two researchers collaborated on the initial analysis, the Haitian research who facilitated the interviews and an American researcher working on the project as well (Lincoln & Guba, 1985). Each researcher analyzed the same 10 case files, one in French and the other in translated English versions. Results were compared after each case file was analyzed to refine the coding techniques until the two researchers were coding nearly identical.

**Trustworthiness**

The trustworthiness of this research was established through multiple measures. First, a thick-rich description of participants is provided (Lincoln & Guba, 1985). Second, member checking was accomplished by allowing participants to review the case files from their interviews (Merriam, 1998). Dependability was established by using two researchers to establish the coding process (Lincoln & Guba, 1985). Finally, credibility was established through regular peer debriefing between the Haitian researcher collecting and analyzing the data with the remaining research team in the U.S. (Lincoln & Guba, 1985).
Subjectivity Statement

This research and manuscript was developed, implemented, and written by a large team of researchers. This research was funded by a USAID project. Interviews were conducted by a Haitian researcher employed by the project. This researcher had previously worked at one of the universities featured in this study completed previous research on two of the universities. This researcher conducted the data analysis, in cooperation with another researcher from the U.S. The researcher in the U.S. had no prior interactions with these universities, but had extensive experience in faculty development in higher education. Other researchers on the team who contributed to the writing and interpretation of the data included a Haitian graduate student funded by the USAID project attending school in the U.S., and two additional researchers from the U.S. The final members of the team included a U.S. researcher who serves as the overall USAID project director and a Haitian researcher employed by the project who had previously worked at one of the universities in this study. The last two members of the team were not involved in the implementation of this study, but helped make initial contacts to make the study possible. Collectively, we believe enhancements in the higher education system in Haiti will have positive impacts on the long-term food security of the country. Having a large team with diverse backgrounds allowed us to interpret the data in a way that minimized the influence of any one person’s biases.

Findings

Academic Preparation

Homegrown satisfaction. Twenty-two interviewees (60%) graduated from the institution where they currently work (U5-001-002-003-004-005, U1-009-010-014-015-017-018-019-020-021-022, U3-011, U2-016-026-027-035-036, U4-037). Most of them believe their institution adequately prepared them to do their job. As some examples, U4-037 believed his institution trained him very well to be the academic secretary at the college of agriculture, especially skills related to scientific reading and research. This was also true for U2-036 who believed his institution taught him everything he needed, particularly learning to learn. Another U2 graduate (U2-035) indicated his institution has adequately prepared him to perform his current job duties. It taught him some skills like leadership, communication, confidence, and self-esteem. For U4-033, her institution taught her communication, leadership, and professional ethics. As an indicator, she shared she was managing 400 students at the time of the interview. U1-021 affirmed too that, in general, this college of agriculture prepared him adequately to do his actual job. He learned to be hardworking and patient. He also learned a sense of duty. U3-011 worked at the institution where he graduated and today has become the Dean. He believed that his institution trained him adequately. However, he recognized that there were some weaknesses on which they needed to work.

Cross-institutional satisfaction. Fifteen interviewees (40%) graduated from other institutions in Haiti or abroad (U5-006-007-008-012-013, U4-023-024-025-029-030-032-033-034, U2-028-031). For instance, U4-034 graduated from a university in Venezuela. For him, his institution prepared him very well to do his job. He specifically mentioned the leadership skills he learned were very valuable for his current job. U4-032 earned his diploma from a university in Italy. He also completed some additional studies in education in Paris. He was very complementary about what he learned from these institutions. He specifically talked
about how they helped him develop a pragmatic philosophy, focusing on the usefulness of education. He was pleased with how those institutions helped him develop his research skills and the ability to organize his thoughts. U2-031 graduated from a university in Cuba with a degree in Economics. She later earned her master’s degree from a research institute in Costa Rica and received a diploma in gender. She believed these institutions adequately prepared her for her professional duties. Other examples are U4-030 graduated from a non-agriculture university in Haiti and thought that his institution did a good job. He specifically recalled how he learned professional ethics. This was the same case for U5-013, who graduated from U1 and was generally complementary. However, he recognized thought that U1 only partially contributed to his education because he has received additional trainings from other institutions, especially in aviculture and small mammals.

Inadequate preparation. Not all participating faculty were satisfied with their preparation. U1-015 affirmed that it was difficult to say if his institution prepared him adequately to do his actual job. According to him, it would be better to ask this question to the people he works with. U5-006, graduated from U1 and works at U5. He was very clear that U1 did not adequately prepare him for his current professional responsibilities. He was dissatisfied with the curriculum and pedagogy at U1. He shared this experience was a primary motivator for trying to change things at U5. U5-004 believed his institution provided him the bare minimum in terms of skills needed to perform his current duties. He took it upon himself to continue learning. U5-003 also believed his prior education gave him the minimum skills to fulfill his professional responsibilities. He went on to share about the contribution of his family as an additional source of professional growth.

Cultural understanding (apply values and good principles such as honesty, respect, etc.) and critical thinking (establish strategic partnerships, networks and manage stakeholders) were some skills he learned from his family that were helpful to him in his professional responsibilities.

Mentorship. Evidence of mentorship was not prevalent in this study, but was important for at least one of the participants. Overall U1-014 believed his institution did a really good job. Although he did share that he learned to teach on the job when he worked as a new Assistant Professor. At that time, he had a mentor who helped him, a Professor with whom he worked. This mentorship helped him learn the basics of teaching and his mentor gradually gave him additional tasks and more responsibilities as time passed. His mentor used a laisse-faire approach, but was present to correct and to clarify. Depending on how he progressed, he would let him practice with the students until he was able to manage a classroom by himself.

Institutional Climate for Professional Development

No institutional priority. Many lecturers complained their institution did not formally or systematically offer professional development programs (U5-001-002-003-004). Some of these faculty had participated in programs from other institutions, but their institution had not helped with the costs. They all agreed that those programs were important to their personal and professional development. U5-001 complained her institution did not offer any improvement programs and continuing education to its employees at the executive level. She further lamented about the institution not recognizing the increased value of faculty after receiving more training. For example, she shared that if an employee got a master’s
degree and returned to his or her initial position at the university there would be no increase to his or her pay. An increase in pay would be applied only if that employee got a higher position when he or she came back. She thought there should be better pay for an employee who seeks to improve his or her professional competence. Lastly, she exclaimed with better pay the employee would be more motivated.

**Outside opportunities.** U5-002 indicated his institution had no official professional development programs. His colleague U5-004 criticized that those programs were generally left at the employees’ personal initiative while they could have a positive impact on their development and their institution. U3-011 benefited from a two-month professional improvement program at a university in the Virgin Islands where he learned about leadership. For him, this was really helpful because he used this skill every second, every minute. Indeed, according to him, every second we need to constantly make a decision. He learned to think, to listen and to understand before making a decision. U1-008 confirmed that his institution offered professional development programs. He had previously participated in a previous faculty development program that had positive impacts on his teaching methods. He learned how students received information, transmission, and agricultural entrepreneurship.

U1-009 participated too in an excellent program in France. He benefited from a scholarship on professional placement. He learned enough skills and competencies from that program to be able to advise graduating students and helped them to be ready for employment. An integrated model had been developed in this program. This model was designed based on the institutional structure in order to place the students of Montpellier on the job market. He confessed that a U1 faculty might not be rewarded for participating in development program. However, they could be supported by a partner institution that could cover the cost. For him, the stipend helps meet some basic needs. But, even without that, they might still participate. U1-010 thought the same too. He talked about a two-month program he participated in Israel with great satisfaction. The program was about *integrated pest management*. Since then, he shaped his work as a plant pathologist. He loved the relativistic method used to perceive the reality. In fact, he insisted that the same causes do not always lead to the same outcomes. U1-010 did not have financial resources to help cover living expenses. He thought it was important for this college of agriculture to gain the financial resources to help cover living expenses for professors.

Another interviewee (U1-014) thought that even with limited resources, his institution supported those who wanted to participate in a professional development activity. He remembered participating in a program in Jamaica on tissue culture. He explained that there are some plants, like roots and tubers, whose quick multiplication is difficult. He saw direct connections between his professional development and food security in Haiti.

U1-018 explained very well that his institution did not systematically offer those programs; usually this is an opportunity. At a university in the U.S., he remembered having participated in a program on plant biological nutrition. By that time, they should develop *leguminosae* in Haiti. By the mercy of this program, he had his laboratory. He learned from this program to manage some tools and instruments that he did not know to manage before. That helped him a lot. With his students, he got more to say or to teach. He made more contacts with other colleagues. All this was to say that
participating in those programs help him to have new knowledge and tools of analysis. This is the same thing for U1-019 who thought that those programs were really important for a professional to recharge his battery, to go deeper in their knowledge. An example of how it is important to participate in professional development program is given by U1-022. She participated in a program in Belgium on Electrochemistry. As a result of this training, she improved the chemistry lab of her institution which ultimately impacted the larger community in Haiti.

U2-026 believed that his institution supported professional development training. He participated in some training on agroforestry and in a seminar on extension and morphologic characteristic of the cacao in Grand’Anse in Haiti. But, he loved the last one the most because he loved this field. He learned how to renew cacao plantation, particularly the canopy.

Faculty Incentives for Participating in Professional Development Activities

Reward. U5-002 shared faculty were not rewarded for taking part in any enrichment program. He or she might gain the skills to move to a new position after a training or enrichment program, but this change did not automatically come with monetary compensation. He stressed that both the economic aspect and professional development had to be considered. U5-003 did not even know if his institution usually rewarded its personnel for participating in professional development programs. U5-004 believed that even without reward, faculty might be interested in participating to professional improvement training. U5-005 thought attending a training was more important than any reward for attendance. For him, even without money or any kind of rewards, faculty would participate in a professional development program. U3-011 believed the skills learned, the exchange, and the participation were the most important. In fact, he felt strongly that he represented his institution and his country. So, even without financial support, he believed faculty would participate in such programs. U4-032 suggested an institution might support faculty would be the opportunity for internal advancement. But, he believed he would still participate in professional development without reward from his institution. U4-023 said with or without support, it was important to participate in professional development because “we never finish learning.” But his colleague, U4-034 thought that being supported for participating in training created enthusiasm to participate.

Financial compensation. Many of the faculty would still attend professional development training even though compensation was not offered. U5-011 thought that participating in a program, even without compensation, might be a way to learn new competencies. For U5-012, it was important to take in account faculty who had to leave their families to attend a professional development program. Expenses incurred to attend a training may be especially difficult for faculty with families. If the institution is not capable of providing compensation, the organizers of the training should consider assisting. U1-014 thought that it was important to support all faculty to participate because everyone incurs expenses. Although he acknowledged for some trainings, a faculty might choose to participate without any support. U1-015 thought one solution could be cooperation (Jumelage in French) between some colleges of agriculture in Haiti and abroad. U1-017 and U1-018 indicated their institution should consider a per diem for faculty. U1-018 recalled the ministry of agriculture assisting with travel costs in the past, but no longer assists. U3-011 reported
his institution does provide compensation in the form of an airline ticket and up to $100 USD a day to encourage participation in a professional improvement programs. According to U2-016 and U2-026, their institution provided financial support for professional development programs. Depending on the duration of the training, they might receive up to 5,000 Gourdes (less than $100 USD) per day. For U2-026, the benefit of attending the training was the only thing that counts. She believed that even without financial support, she would participate. U4 faculty reported receive 750-1000 Gourdes per day if the training was in Haiti, which was typically not enough to cover expenses (U4-024, U4-025, U4-032). Regardless, U4-024 and U4-025 believed the training was more important than financial compensation. U4-032 also added they could receive up to $120 USD if a training was abroad.

**Specific Professional Development Topics**

Faculty expressed interest in many specific topics. This is summarized in Table 1 below. In social sciences, 14 different topics were suggested by 14 different participants. Human resource management (5 participants) and leadership (4 participants) were the most frequently suggested topics. For plant science/production, 11 participants suggested 15 topics. Soils and plant pathology were the most frequent suggestions with three participants suggesting both topics. Environmental science/natural resources had ten topics suggested by seven faculty. Climate change, environmental protection and environmental protection each was suggested by two participants. For research methods and approaches, eight topics were suggested by six faculty. Only biometry was suggested by more than one participant. Food science, safety, and nutrition had four topics identified by four faculty. Food safety was the most suggested topic (three participants). For animal production topics, three participants suggested five topics. Only animal feeding was suggested by more than one participant.

**Conclusions and Discussion**

Several conclusions can be drawn about the preparation of this group of Haitian agriculture lecturers. Conclusions and discussion are organized around the identified themes of academic preparation, institutional climate, incentives, and specific topics.

Related to academic preparation, the majority of participants generally felt well-prepared for their roles whether they received their degrees from the institution they currently work (60% of participants) or another institution (40% of participants). A few participants stressed they had recognized deficiencies and sought out additional learning opportunities. The role of informal (on-the-job) learning was mentioned many times. It appears many of the participants are exhibiting information seeking behaviors expected from adult learners (Knowles, Holton, & Swanson, 2015). Given that many lecturers work at multiple universities (Albert, 2016), it is unclear as to how their perceptions might differ. Future research could examine this topic. Additionally, with 60% of the participants working at the institution in which they studied, it is plausible they may not have sufficient perspective to recognize deficiencies. Additional research should examine this phenomenon. Additional research should also examine the extent to which teaching-related topics are addressed in graduate programs in Haiti.
Table 1

*Specific Professional Development Topics Identified by Haitian Faculty*

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Sciences (14 topics; 14 faculty)</strong></td>
<td></td>
</tr>
<tr>
<td>• human resource management (U5-002; U4-023; U4-024; U4-025; U4-032)</td>
<td>5</td>
</tr>
<tr>
<td>• leadership (U5-002; U2-035; U2-036; U4-024)</td>
<td>4</td>
</tr>
<tr>
<td>• agricultural extension (U5-003; U5-005; U2-035)</td>
<td>3</td>
</tr>
<tr>
<td>• teaching methods (U2-016; U2-035)</td>
<td>2</td>
</tr>
<tr>
<td>• curriculum development (U1-021; U2-035)</td>
<td>2</td>
</tr>
<tr>
<td>• communication (U2-016; U4-024)</td>
<td>2</td>
</tr>
<tr>
<td>• agricultural entrepreneurship (U4-033; U4-037)</td>
<td>2</td>
</tr>
<tr>
<td>• career management (U5-002)</td>
<td>1</td>
</tr>
<tr>
<td>• organizational behavior (U4-025)</td>
<td>1</td>
</tr>
<tr>
<td>• ethics (U2-036)</td>
<td>1</td>
</tr>
<tr>
<td>• gender and agricultural development (U2-031)</td>
<td>1</td>
</tr>
<tr>
<td>• agricultural economics (U4-037)</td>
<td>1</td>
</tr>
<tr>
<td>• enterprise management (U4-023)</td>
<td>1</td>
</tr>
<tr>
<td>• marketing (U5-003)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Plant Science/Production (15 topics; 11 faculty)</strong></td>
<td></td>
</tr>
<tr>
<td>• soils (U2-026; U4-032; U1-008)</td>
<td>3</td>
</tr>
<tr>
<td>• plant pathology (U4-006; U2-026; U4-033)</td>
<td>3</td>
</tr>
<tr>
<td>• improvement of crop varieties (U5-004; U1-014)</td>
<td>2</td>
</tr>
<tr>
<td>• genetics (U2-027; U1-017)</td>
<td>2</td>
</tr>
<tr>
<td>• crops production (U1-008)</td>
<td>1</td>
</tr>
<tr>
<td>• horticulture (U1-014)</td>
<td>1</td>
</tr>
<tr>
<td>• green house management (U1-017)</td>
<td>1</td>
</tr>
<tr>
<td>• bio fertilizer (U1-018)</td>
<td>1</td>
</tr>
<tr>
<td>• plant nutrition (U2-027)</td>
<td>1</td>
</tr>
<tr>
<td>• plant biotechnology (U1-018)</td>
<td>1</td>
</tr>
<tr>
<td>• agroecology (U1-018)</td>
<td>1</td>
</tr>
<tr>
<td>• phytopathology (U4-032)</td>
<td>1</td>
</tr>
<tr>
<td>• nematology (U2-026)</td>
<td>1</td>
</tr>
<tr>
<td>• agricultural machinery (U4-006)</td>
<td>1</td>
</tr>
<tr>
<td>• fruticulture, (U1-021)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Environmental Science/Natural Resources (10 topics; 7 faculty)</strong></td>
<td></td>
</tr>
<tr>
<td>• climate change (U2-031; U1-008)</td>
<td>2</td>
</tr>
<tr>
<td>• environmental management (U5-001; U1-008)</td>
<td>2</td>
</tr>
<tr>
<td>• environmental protection (U5-001; U1-008)</td>
<td>2</td>
</tr>
<tr>
<td>• environment and biodiversity (U5-001)</td>
<td>1</td>
</tr>
</tbody>
</table>
The institutional climate for professional development is variable across the universities represented by the participants of this study. None of these universities seem to have organized professional development for their faculty. However, many participants had been encouraged and had participated in professional development offered through a variety of sources, including those sponsored by universities outside Haiti and some organized international development agencies. A common thread mentioned by participants was their personal stories about how much they had learned and the impacts these opportunities had on them. Spindler and Ogwo (2014) discussed the importance of seeking input from faculty in developing appropriate faculty development programs. It is unclear how current professional development programming for Haitian faculty are developed. Future programs should begin by assessing the needs of faculty. Results of the current study can begin to serve this purpose and should be shared widely.
Incentives for participating in professional development were primarily intrinsic. Receiving additional training did not automatically result in any additional recognition or financial reward. Several participants emphasized that the opportunity of attending a professional development program was itself a form of reward. Participants were generally encouraged by their institution to attend professional development. However, they were not typically provided sufficient financial support to cover all the expenses. Intrinsic motivation for professional development is consistent with adult learning theory (Knowles et al., 2015). Despite the intrinsic motivation, lack of financial support appears to be a barrier. Institutions should examine models for providing lecturers with resources to participate in professional development.

There were 56 specific topics suggested by participants for professional development trainings. The most topics ($n = 15$) were in plant science/production. The most faculty ($n = 14$) suggested topics in the social sciences. The two most suggested topics were human resource management ($n = 5$) and leadership ($n = 4$). Thirty-nine topics were suggested by only one participant. Only three lectures suggested professional development on curriculum development or teaching methods. A focus on technical content only partially captures what a professional development program should deliver (Desimone, 2009). These topics do, however, provide some direction for future professional development programs.

This study only captured perceptions of lecturers. Additional research should examine the perceptions of students about their experiences as students. Another study should examine employers’ perceptions of the preparedness of graduates. Collectively, this data could be triangulated to provide a comprehensive look at the curriculum and teaching at these universities.

References


A Change in Perspective: Agriculturally-Based Study Abroad Experience for Nicaraguan Students

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Abstract

Study abroad experiences serve to enrich students’ educational experiences, granted these programs must be evaluated to assess educational effectiveness. The purpose of this qualitative study was to examine Nicaraguan students’ perceptions of agriculture and future aspirations, before and after engaging in a four-day agricultural-based program. Graphic elicitation and arts-based projective techniques served as metrics to assess students’ perceptions. Four major themes, with six sub-themes emerged from the data: a) perceptions of agriculture (i.e., previous agriculture); b) strength through unity (i.e., unity; and ripple effect); c) aspirations (i.e., importance of education); d) value of experience (i.e., learning new things; and thankfulness). Overall, the Nicaraguan students indicated the study abroad experience broadened their perspective of agriculture, having a direct impact on their career aspirations.

Keywords: Study abroad, graphic elicitation, agriculture, youth development, 4-S

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Introduction

The academic (i.e., language skills, problem solving, and geographical knowledge), professional (i.e., professional contacts, sense of responsibility, and future career choices), personal (i.e., personal identity, confidence, and appreciation), and intercultural (i.e., interest in culture, cultural sensitivity, and diminished ethnocentrism) competencies of students are typical areas which may be enhanced in a study abroad experience (Michigan State University, 2004).

Although positive attributes have been associated with international experiences, the need to measure the learning outcomes of students—participating in study abroad programs—is needed (Van de Berg, 2001). Gillespie (2002) indicated the need for qualitative or quantitative assessments for every study abroad program. In the present study at Texas Tech University, the effects of a four-day agricultural-based program on Nicaraguan 4-S members’ academic, professional, personal, and intercultural competencies, was assessed by arts-based projective techniques and graphic elicitation. These qualitative techniques allow participants to reflect on their international experience (Gauntlett, 2007). Furthermore, arts-based projective and graphic elicitation techniques are commonly used in cross-cultural research to accommodate participants who struggle to express their thoughts verbally (Bagnoli, 2009). The students who participated were part of the Nicaraguan agricultural group, 4-S, equivalent to 4-H in the United States. Students were part of a youth organization that serves poor rural areas in Nicaragua to empower underserved children and their families. The United Nations has highlighted youth as the key to address existing world challenges and achieving the sustainable development goals. On the other hand, most of the world youth lives in developing countries where they face challenges that may limit their growth as contributing individuals of society, such as poverty and hunger. Therefore, there is a need to support youth in developing countries to help them reach their full potential (United Nations Volunteers [UNV], 2018). A multitude of previous studies have evaluated international students’ study abroad experiences in the United States (Lee & Rice, 2007; Yang, Webster, & Prosser, 2011), and many studies have assessed the impact of study abroad experiences on American Students (Czerwionka, Artamonova, & Barbosa, 2015; Mohajeri Norris & Gillespie, 2008). However, there has been a limited research focus on United States-based study abroad experiences of international students from developing countries. Lee and Rice (2007) emphasized the limited existence of literature on international students’ experiences in United States host institutions.

Conceptual Framework

The use of reflection in the educational setting has been commonplace for many years. John Dewey (1958) indicated that reflective thinking “transforms confusion, ambiguity and discrepancy into illumination, definiteness and consistency” (p. 67). Moreover, reflection plays an integral role in the experiential learning process, by which an individual reflects on an experience to gain insight (Daly, 2007). Boud, Keogh, and Walker (1985) defined reflection in the educational context as the “intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understandings and appreciations” (p. 19).
In attempt to conceptualize educational reflection, Boud et al. (1985) posited the Model of Reflection in the Learning Process, which consisted of three parts: (1) experience(s); (2) reflective process; and (3) outcomes (see Figure 1).

The first part of the model encompasses the learner’s experiences, previous engagement in behaviors, and the learner’s ideas and feelings they have experienced (Boud et al., 1985). In this study, major milestones were considered an important piece to explore previous experiences, ideas, and feelings. The second part of the model, reflective processes, comprises three stages: (1) cognitively recollecting the events, (2) assessing the negative and positive feelings associated with the experience, and (3) re-evaluating the experience based on previous knowledge, personal intent, and new knowledge gained from the experience (Daly, 2007). The outcomes of this reflection process could potentially involve a new perspective on learning and a decision to augment or not augment future behaviors. In the present study, the Model of Reflection in the Learning Process (Boud et al., 1985) served as a framework to conceptualize the educational experience(s) of the Nicaraguan students, their reflections on the experience(s), and served as a mean to examine the students’ new perspectives or intentions to augment behavior based on their experience.

Furthermore, this study was approach from an ontological belief through a social constructivism interpretative framework where “multiple realities are constructed through our lived experiences and interactions with other” (Creswell, 2013, p. 36). Through this approach, researchers aim to understand the participants’ views of the world while considering their background, historical and cultural settings, and how their views change through time by social interactions (Creswell, 2013).

**Purpose and Research Questions**

The purpose of this qualitative study was to examine Nicaraguan students’ perceptions of agriculture and future aspirations, before and after engaging in a four-day agricultural-based program. Four research questions guided this study:

1. What are the major life milestones perceived by Nicaraguan students?
2. What are Nicaraguan students’ perceptions of future aspirations after the international experience?
3. How do Nicaraguan students perceive the field of agriculture?; and

4. What are Nicaraguan students’ conceptualization of agriculture after the international experience?

Methods

The participants in this study were 20 Nicaraguan students, who traveled to Texas Tech University for a workshop focused on enhancing their knowledge of agricultural practices in the United States. Twelve (60%) were male and eight (40%) were female. The students’ ages ranged from 12 to 21, with an average age of 17.

The design of the qualitative study was an intrinsic case study. A case study is an in-depth description and analysis of a bounded system. Some characteristics of case studies as qualitative research are: (1) searches for the meaning and understanding, (2) the researcher as the primary instrument of data collection and analysis, (3) an inductive investigation strategy, and (4) the end product is richly descriptive (Merriam, 2009). Case studies are particularistic (focus on a particular situation or phenomenon), descriptive (thick description of the phenomenon under study), and heuristic (illuminate the readers’ understanding of the phenomenon) (Merriam, 2009). In this study, the unit of analysis was the Nicaraguan 4-S members, affiliated with the Fabretto, who participated in a short-term study abroad. Credibility and dependability were achieved through triangulation and peer debriefing. Based on recommendations from previous literature (Creswell, 2013; Lincoln & Guba, 1985), drawings (pre-post), short interviews, and observations were used to triangulate the study. Peer debriefing included coding of drawings and interviews by three members of the research team until achieving a level of agreement on the interpretation of the findings. In essence, the peer debriefing served as a form of inter-rater reliability (Onwuegbuzie & Leech, 2006). Transferability of the findings to other contexts/settings was done through a thick rich description by merging drawings with interviews scripts to obtain a detailed description, providing detailed information of the methods, participants’ background, and activities conducted during the study abroad experience. These rich, thick descriptions allowed the findings to be transferred to other context (Onwuegbuzie & Leech, 2006).

Students’ illustrations (i.e., graphic elicitation and arts-based projective techniques) served as the means for data collection in this study. According to Bagnoli (2009), applying these drawing methods when conducting an interview can allow participants to open up to the interpretations of questions, and at the same time allow a creative way of interviewing through participants’ own meanings and associations. Different levels of experience can be accessed and represented using non-linguistic dimensions, generating new ways of interrogating and understanding the social aspects of human behavior (Bagnoli, 2009). Arts-based and graphic elicitation methods allow participants to reflect on issues being explored (Gauntlett, 2007).

At the beginning of the program, students were asked to create two illustrations (in black ink): (1) their view of agriculture and (2) major milestone timelines for their lives. Over a three-day period, participants were taken to agriculturally-related tours on campus (e.g., meat lab and seed generation plant), the surrounding areas (e.g., dairy tour and humanitarian relief tour), and had a leadership field day hosted by the local 4-H chapter. At the conclusion of the program, the illustrations were returned to the students. They were given 10 minutes to
make any desired augmentations/additions (in blue ink) to their initial drawings. Then a five-minute interview was conducted with each student to inquire about their illustrations. These interviews provided a rich description of the data, which aided in the interpretation and confirmation of the findings. Grounded theory methods were used (i.e., open coding and axial coding) to identify emerging themes in the analysis of interviews and illustrations. Interviews were conducted in Spanish. They were recorded, transcribed, and translated into English. The interviews and the text which accompanied illustrations were translated by two non-professional translators. Non-professional translators can serve as a good option if they are sociolinguistically competent in the language and are native speakers from the same country of origin as the participants (Squires, 2008). The two translators were doctoral students from Nicaragua and Honduras, had previously earned degrees from a Central American University, and Spanish is their native language. Interviews were matched to their illustration and analyzed concurrently to identify the emerging themes. Drawings were coded based on the drawing itself and the description the participant provided of the drawing during the interview. Different parts of the drawing were given codes that represented the themes that emerged. Close attention was given to the details of the drawing to make sure there was no missing information from the interview description. NVIVO© software was used for coding. The translators and research team independently analyzed the drawings and interviews to increase trustworthiness and reach data saturation.

Research Subjectivity Statement

It is important for researchers to position themselves in their writings, where the researcher is conscious of potential biases that he/she may bring to the qualitative research study (Creswell, 2013). The research team had previously worked with the Nicaragua 4-S leaders on other projects, but had no previous experience with the 4-S members who participated in the workshop. Of the six-member research team, two individuals were from Central America, another member had previously lived and worked in a Latin America. The aforementioned researchers have formerly engaged in a multitude of international agricultural leadership projects in Latin America. Half of the research team was involved in the design and execution of the study abroad program and the remaining half, who were native Spanish speakers, conducted the data collection and analysis of the study. There was inherent positive view of the study abroad program and its potential positive impact in the participants’ future attitudes, perceptions and behaviors towards agriculture. Conducting interviews allowed a deeper exploration of participants’ experiences and interpretation of the art-based graphic elicitation. Self-conscious exploration allows the researcher to express how these experiences may potentially have shaped the findings, conclusions, and interpretations of the study (Creswell, 2013).

Results

Four themes (Perceptions of Agriculture, Strength through Unity, Aspirations, and Value of Experience) and six sub-themes (Previous Agriculture, Unity, Ripple Effect, Importance of Education, Learning New Things, and Thankfulness) emerged from interviews and drawings provided by participants. Themes represent students’ reflections based on their own experiences, background, and how the study abroad provided them a unique experience.
Perceptions of Agriculture

The perceptions of agriculture theme refers to the Nicaraguan students’ conceptualization of the agricultural industry, based on their knowledge, experience(s), and background in agriculture. This theme can be divided into two lenses, preconception (i.e., perceptions before attending program) and retrospective (i.e., perceptions after attending the program).

The students’ initial perceptions of agriculture were related to production agriculture (e.g., plants and livestock). For example, Cristina said “in Nicaragua we see agriculture as cattle, horses, poultry, and the product we harvest, you can see grass, a corn plant, banana, horses, cows, coffee, oranges, and pineapples.” The students’ augmentations to their initial drawings regarding their view of agriculture included the crop diversification and agricultural technology. Figure 2 depicts the augmentation of a student perspective of agriculture and the addition of agricultural technology by illustrating a tractor (i.e., agricultural technology) with the caption “The machine to harvest product faster.” This illustration reflects the participant’s new perspective on the importance of efficiency in the agricultural industry.

Strength through Unity

The strength through unity theme referred to the importance of individual and collective efforts to attain a better life, country, and world for current and future generations. The name of the theme, strength through unity, was derived from a common Nicaraguan saying “la unión hace la fuerza”, which means we are stronger together. Along with the participants’ indications of striving for unity, they also provided illustrations and comments that pertained to their plans for bolstering their communities. Therefore, the sub-theme ripple effect emerged—describing their intentions/motivations to transfer educational and agricultural knowledge to their family, peers, and community.

In describing the importance of unity, one participant mentioned his participation in Nicaragua 4-S club has served as a platform to unite the members of their community. Specifically, Mario said, “The most amazing thing in my life has been getting to know people, becoming friends, and having good community development.” This sentiment was also shared by Jose and Benjamin, who described the importance of creating unity within their families.

Participants reflected on the shared responsibility of environmental care. Juan stated he wanted to “defend resources such as water and environment, all around the world there is waste of resources.” Moreover, Juan said, “when doing a project not only focus on one thing but on diversity, we need to take into consideration that in the world there are crises, droughts, deforestation, and unnecessary animal death.” As a part of environmental stewardship, participants discussed the implications of neglecting the environment and natural resources. Juan said, “Without agriculture there is not product, without product there is no food, without food we die, so it is fundamental in our lives - agriculture.” The participants also took ownership in improving the conditions of their families and communities, which was also part of the sub-theme ripple effect. In describing her intentions to improve her community, Martha said “today I added that I have new expectations for the center where I study, to teach students what I learned here, also teach members of my community what I did here so they can put it into practice.”
Initially, Martha’s illustration only included a house and a tree (in black ink), but after the program Martha added the title vivir bien which means to live well. Martha also added community members to her drawing, such as friends and family members who she intends to impact upon returning to Nicaragua (see Figure 3).

Aspirations

The aspirations theme refers to the participants’ future plans in general, such as having a family, and related to career goals in agriculture. The sub-theme education was closely related to their aspirations, serving as an enabling or inhibiting factor in achieving their aspirations.

Antonio mentioned, “I have in my future getting married, being a great farmer, my future is to be the owner of a farm.” Benjamin indicated he was “excited about focusing on working at the farm.” Many participants offered comments regarding the importance of education. Elena said, “What I love the most is...getting the opportunity to study.” In Elena’s illustration of major milestones in her life, it was interesting to see how most of her comments related to educational achievements, such as “the year my mom taught me to read” and “learn more, progress in school, and get good grades” (see Figure 4). In contrast, Jairo offered a different perspective on how the lack of support from his family towards the importance education served as a limitation.
to achieving his goals. Jairo reported “my parents sent me to elementary, then I had…let’s say they did not help me to continue the process…it was a challenge I had, otherwise I would be at another level of education today.” Offering a reason for the lack of education, Abel posited, “many times [Nicaraguan students] just study elementary and quit, even though education is very very important.”

Figure 4. Student’s illustration of major educational milestones

Value of Experience

The value of experience theme refers to the participants’ perceptions of the educational value associated with the study abroad program and the appreciation they hold for the opportunity to take part in the experience. Regarding the educational value, participants reported learning about new technology and receiving personal development. For example, Nelson said, “I have learned a lot about agriculture, for example cotton, I did not know anything about that, now I know a lot, how to work with it, how long it takes to grow.” With a similar sentiment, Mario exclaimed, “I learned about corn, cotton, and livestock. We have learned a lot of things that we never learned about in Nicaragua.” Mario’s illustration depicts his initial knowledge of agriculture, which included crops such as corn, rice, beans, banana, cassava, cacao, tomatoes, and cucumbers. Then, he augmented his view by adding crops observed and studied during the study abroad program such as wheat, cotton, and grass for animal feed (see Figure 5).

The sub-theme of thankfulness was also tied to the participants’ perceptions of the study abroad program. The participants indicated being thankful for their experience in the United States, and the unique opportunities they encountered during the program. For example, Cristina added an airplane to her drawing, and commented, “I drew an airplane, it was my first time to fly on one, and for me it was a great experience, because I never had the opportunity to do it” (see Figure 6). Moreover, Cristina added she was “very thankful and full of joy for being here, I have learned a lot.”
Conclusions/ Recommendations/ Implications

Based on the students’ illustrations and comments on their perceptions of agriculture, which mainly included plants and animals, it is implied that their conceptualization of agriculture was limited to their local agricultural experiences in Nicaragua. Their changes to the drawings after the program, along with comments provided in the interviews, indicated the changes to their perceptions of agriculture, due to their experience in the four-day agricultural program. The students’ visits at local agricultural entities (e.g., seed regeneration plant, dairy, and farms) seemed to have an influence on their view of the agricultural industry. In relation to the model of reflection in the learning process (Boud et al., 1985), the students’ perceptions of agriculture would fall in the experience and reflective processes. Specifically, the previous perceptions of agriculture constitute their former ideas, experiences, and prior engagements related to agriculture. After evaluating their prior experiences, and participating in the program, many students reported additions and augmentations to
Students’ engagement in reflective processes were also observed regarding the value they associated with the learning experiences. Their previous agricultural experiences, coupled with the reflective processes of the new learning experiences, had an influence on their aspirations and desire to make meaningful changes in their communities (i.e., ripple effect). In support of this implication, Kauffmann, Marint, Weaver, and Weaver (1992) posited that study abroad experiences aid in the intellectual development of students by allowing students to change their perceptions of the host culture, their home culture, and global understanding. Moreover, agricultural development is a powerful tool for enabling economic development and reducing global poverty (The World Bank, 2012).

Innovations are key to promoting agricultural development that may improve productivity, competitiveness, and enable economic growth. At the same time innovations play an important role in creating jobs, thus reducing poverty and contributing to social development (The World Bank, 2012). The 4-S members’ changes in perspective, due to their participation in the educational program, signify their engagement in reflective processes. The students’ augmentations/ additions made to their drawings at the end of the program, indicate they re-evaluated their experience, based on previous experiences, personal intent, and knowledge acquired from the new experience (Daly, 2007). Although this study provided insight into the reflective processes of the Nicaraguan students, the study lacked metrics to measure changes in behavior or commitment to action.

The agriculturally-based study abroad constitutes a potential diffusion of innovation of the 4-H model and transfer of agricultural technology. During the study abroad program, students were able to interact with 4-H members and learn more about the 4-H program, allowing students to explore aspects of compatibility of the two models. Landini (2016), highlights that Latin America as a region presents low adoption rates of innovations due to constraints in the existing extension services of the region. Generally, young and more educated farmers follow innovative agricultural practices and adopt new technologies (Chi & Yamada, 2002; De Souza, Young, & Burton, 1998; Feder & Umali, 1993). These students are likely to become future farmers that may adopt new technologies and practices in their farms facilitating the diffusion of innovations in their communities.

Students in some way were persuaded by the attributes of the agricultural technology observed, mainly by exploring the relative advantage of innovations, and seeing it in action through observability (Rogers, 2003). Subsequent studies should investigate the outcomes (e.g., commitment to action or change in behavior) of the program on the students themselves, and the 4-S students’ secondary impact on their family and community members’ agricultural practices.

Aside from perceptions of agriculture, this study also focused on the future aspirations (e.g., career and family) of the students. Future research is needed to determine the program’s impact on the 4-S students’ aspirations, will the students decide to stay on their family’s farm, or choose a profession outside of agriculture? Zhai and Scheer (2002) indicated that students who study abroad develop favorable attitudes toward the country they visit, accompanied with criticisms of their home country. Will this international experience possibly enhance the Nicaraguan students’ desire to pursue careers outside of the country? Will this study abroad create a
negative perspective toward their home country?

In the process of developing and implementing the agricultural program at Texas Tech University, many faculty members and students (undergraduate and graduate level) were closely engaged with the Nicaraguan students. Stephenson (1999), who studied impacts of study abroad experiences on three groups (study abroad students, host families, and university professors at hosting institutions), indicated the study abroad experience affected not only the students themselves, but also had an impact on the individuals who hosted them. Specifically, the hosts and professors indicated the program provided social and cultural benefits to them (Stephenson, 1999). Hence, it is important to understand the two-way impact of the Texas Tech University agriculturally-based program. Future Texas Tech University international programs should incorporate measures to assess the study abroad students’ impact on the faculty and students involved in the program.

References


Effectiveness of Agricultural Extension Wildlife Mitigation Strategies on Human-Wildlife Conflict Among Small-Scale Maize Farmers in Laikipia County, Kenya

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Abstract
Agriculture is critical in the achievement of food security, employment of creation opportunities, steering economic growth, and also a source of raw materials for agricultural industries in many Sub-Saharan countries. However, farmers face various challenges which negatively affect farm productivity and production. Human-wildlife conflict is one of the most pressing challenges that smallholder maize farmers experience in some parts of Kenya. It arises from either people’s encroachment on wildlife habitats or the movement of wildlife from their natural habitat into neighboring farmland. Small-scale farmers use various agricultural extension strategies to mitigate the conflict. However, the effectiveness of the agricultural extension mitigation strategies adopted by smallholder maize farmers in Laikipia County had not been investigated and information on the same was inadequate and poorly documented. This study sought to determine the effectiveness of the agricultural extension wildlife conflict mitigation strategies adopted by smallholder maize farmers in Laikipia County. Whereas a document review guide was used to collect secondary data, semi-structured questionnaires were used to collect primary data from maize farmers and extension agents. Descriptive statistics were used to analyze primary data. It was established that crop damage was very severe, even up to 70% per cropping season although farmers used mitigation strategies such growing of unpalatable plants, live fences, hairy crops, and digging trenches. This study concluded that the Agricultural Extension Mitigation Strategies used were not effective. It was recommended concerted efforts between stakeholders in the conflict to realize the benefits of synergies so as to stem crop damage and give small-scale farmers a chance to be food secure.

Keywords: human-wildlife conflict, maize, mitigation strategies, smallholder farmers, Kenya
Introduction

The agriculture sector is critical for achieving food security (Alliance for a Green Revolution in Africa, 2013). It also employs more than two billion people besides contributing significantly to the world’s Gross Domestic Product (GDP) and economic growth (Hanson, 2013). The sector also employs about 65% of the total African workforce (Huho & Kosonei, 2013). In developing countries, growth of the agricultural sector significantly increases income generation in addition to reducing poverty levels (World Bank, 2012). It is therefore considered pivotal in achieving sustainable development goal (SDG) 1, which seeks to reduce the level of poverty in the world (United Nations, 2015). In the developing countries such as Kenya, agriculture provides food, income and also accounting for 65% of the total national export, 18% of formal employment and 70% of informal employment (Biwott & Muriu, 2013).

Although agriculture contributes significantly towards achieving food security, economic development and employment creation, smallholder farmers in different parts of the world experience various challenges. Smallholder farmers in Africa suffer from effects of wildlife problem (Lamarque et al., 2009). Smallholder farmers in Kenya, including Laikipia County also experience the problem of human-wildlife conflict (Government of Kenya, 2010; 2012; Ministry of Forestry & Wildlife, 2012). Human-wildlife conflict is a phenomenon experienced in different parts of the world where wildlife and people compete for limited resources as well as share boundaries (Eniang, Igeomah, Okeyoyin & Uwatt, 2012; Musimbi, 2013). An occurrence of human-wildlife conflict results in injury or death of livestock or even humans, loss of crops, damage to infrastructure or disease transmission.

To mitigate human-wildlife conflict, farmers adopt various Agricultural Extension Wildlife Mitigation Strategies (AEWMS) after being trained by agricultural extension service providers. Extension workers in the Ministry of Agriculture, Livestock and Fisheries (MoALF) promote growing of crops that are unpalatable to wildlife such as chili, pyrethrum and tobacco and growing of hairy or spiked crop varieties. Other strategies include growing of tightly covered maize cobs/husks, construction of trenches around the farm to form a barrier against wildlife and also growing of live fences around the farm using mauritius thorn, kai apple or sisal. Although the Kenya Wildlife Service (KWS) is mandated to conserve wildlife, it also promotes extension wildlife conflict mitigation strategies such as construction of trenches round the farm to serve as barriers against wildlife entry (Kenya Wildlife Service, 2016). However, the effectiveness of the agricultural extension wildlife mitigation strategies being used by smallholder maize farmers in Laikipia County had not been studied and the information about the same was inadequate and poorly documented.

Theoretical Framework

The study was informed by the conflict theory and the functionalist theory. The conflict theory was propounded by Karl Marx and Herbert Spencer while Robert Merton proposed the functionalist theory. A conflict is a disagreement between individuals over differences in goals and values (Hammer, 2007). Competition for resources results in conflicts by ensuring that only the individuals of a species that are fit in the niche survive. Unequal distribution of scarce resources in a community increases chances for a conflict (Adu-Febri,
2012). This means that conflicts will arise from a clash in interests held by individuals due to their differences or incompatibility. Further, a conflict can arise when individuals are motivated to pursue their interests, needs and resources that they consider important and desirable. Therefore, a society is in perpetual conflict due to competition for limited resources since it holds groups who are competing for power and resources. Thus, based on the conflict theory, people and wildlife in Laikipia County continually compete for scarce resources resulting in human-wildlife conflict.

In contrast to the conflict theory, the functionalist theory views a society as a complex unit having different parts working together harmoniously with the aim of promoting solidarity and stability. A society is a unitary system comprising different parts that are interconnected but working harmoniously to maintain a state of balance and social equilibrium (Mooney, Knox & Schacht, 2007). The different parts of a social system are interdependent. A society is functional only if its constituent parts are functional, thus contributing to social stability, and if they are dysfunctional then the society also becomes dysfunctional (Ritzer, 2007).

Conflict theory provides insight into the possible causes of a conflict in a society by showing that a conflict results from competition for limited natural resources to satisfy needs, goals and interests which could be different and incompatible. This could mean that always there shall be a conflict due to competition for the limited resources among members of a society, as they seek to satisfy their incompatible needs, interests and goals. On the other hand, a functionalist theory informs this study by showing that a society resembles a social system which is composed of different parts that are interconnected and interdependent.

Further, for a social system to function well and benefit its members, each part of the system must perform its functions well, resulting in social stability and equilibrium. In Laikipia County, wildlife and people compete for scarce natural resources resulting in human-wildlife conflict. This leads to ecosystem change, injury or even death of humans and displacement of wildlife. The Laikipia County ecosystem includes farmers, forests, and rivers, organizations like the Kenya Wildlife Service, Ministry of Agriculture & Fisheries, community-based organizations and Non-Governmental Organizations (NGOs). These elements of the ecosystem play a role in the maintenance of balance and social equilibrium. If any of these elements of the ecosystem is dysfunctional, then eco-social balance and stability will be disrupted. For instance, if forests are dysfunctional, or depleted and do not meet the requirements of wildlife’s survival, then wildlife will move out of the forest in search of pasture and water. Similarly, if land is scarce due to rapid human population increase, people will encroach forests in search of agricultural land. This will destabilize the forest ecosystem resulting in human-wildlife conflict.

**Statement of the Problem**

Agriculture is important in Kenya’s economic development, generation of income and employment and provision of raw materials for agricultural industries. However, the agriculture sector faces various challenges, one of them being human-wildlife conflict. It results from human encroachment on wildlife habitats and or movement of wildlife out of their unprotected habitats such as Rumuruti Forest or protected areas into areas surrounding farmland. When wildlife move into the neighboring farming areas, they cause damage to crops, injure or kill
livestock or even people. Although farmers experience significant human-wildlife conflict, the government of Kenya considers the tourism industry as one of the key engines for economic development, with wildlife being the base for the industry. Available information on how much effective Agricultural Extension Wildlife Mitigation Strategies used by smallholder maize farmers were was inadequate and poorly documented. This could mean that farmers will continue using the strategies that are not effective, thus, remain susceptible to the conflict. This study sought to avail the information to policy makers and agricultural extension service providers to enable them plan better on how to reduce human-wildlife conflict among smallholder farmers.

**Purpose and Objectives of the Study**

This study sought to establish the effectiveness of Agricultural Extension Wildlife Mitigation Strategies used by smallholder farmers in Laikipia County, and then make it available to extension service providers and policy makers who will use it to plan better on how to mitigate the conflict. The following objectives guided this study:

1. Determine the Agricultural Extension Wildlife Mitigation Strategies used by smallholder maize farmers;
2. Establish the severity of crop damage among smallholder maize farmers in Laikipia County; and
3. Investigate the effectiveness of the Agricultural Extension Wildlife Mitigation Strategies used by smallholder maize farmers.

**Methodology**

During this study, a cross-sectional survey research design which was descriptive in nature was used among smallholder maize farmers bordering Rumuruti Forest in Laikipia County. The smallholder farmers comprise majority of farmers in Laikipia County. Public extension agents were also involved because they promote various wildlife mitigation strategies. Simple Random Sampling (SRS) was used to select 203 smallholder farmers for administering a farmer’s questionnaire while purposive sampling was used in selecting 10 extension agents for administering extension agent’s questionnaire. Semi-structured questionnaires were used for primary data collection from both farmers and extension agents. The questionnaires collected both qualitative and quantitative data on the severity of crop damage, extension mitigation strategies used and their effectiveness so as to address study objectives. A document review guide was used for secondary data collection. The questionnaires and document review guide were developed by the researcher and validated by five Agricultural Education and Extension experts of Egerton University. Primary data were collected for years 2012 to 2015, with 2012 serving as the baseline. Data were analyzed using mean, mode and frequencies using Statistical Package for Social Sciences (SPSS).

**Results and Discussion**

**Agricultural Extension Wildlife Mitigation Strategies (AEWMS) Adopted by Farmers**

In Laikipia County, the major wildlife which attack maize includes monkeys, elephants, buffalo, squirrel, porcupine, hippopotamus and birds. Smallholder maize farmers use a combination of various AEWMS strategies against wildlife attack, with the growing of a live fence, growing of unpalatable crops and digging of trenches being the commonly used strategies, as shown in Table 1.
Table 1

Extension Mitigation Strategies Adopted

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Targeted Wildlife</th>
<th>Farmers Adopting (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growing unpalatable crops</td>
<td>Monkey, elephant, zebra</td>
<td>38.7 (n=79)</td>
</tr>
<tr>
<td>Growing a live fence</td>
<td>Monkey, elephant, buffalo, zebra</td>
<td>45.3 (n=92)</td>
</tr>
<tr>
<td>Digging a trench as a barrier</td>
<td>Elephant, hippopotamus</td>
<td>21.7 (n=44)</td>
</tr>
<tr>
<td>Dressing seeds with pesticides</td>
<td>Squirrel</td>
<td>0.5 (n=1)</td>
</tr>
<tr>
<td>Achieving optimal plant population</td>
<td>Porcupine</td>
<td>0.5 (n=1)</td>
</tr>
<tr>
<td>Growing hairy or spiked crops</td>
<td>Weaver &amp; quelea quelea birds</td>
<td>8.4 (n=17)</td>
</tr>
<tr>
<td>Growing resistant crop varieties</td>
<td>Birds</td>
<td>9.5 (n=19)</td>
</tr>
</tbody>
</table>

Crops that are unpalatable to monkeys such as sunflower, beans and pyrethrum can be integrated in a crop rotation cycle. About 2-3 lines of chili can also be grown around the main crop to act as a repellant. Crops such as chili, tobacco, pyrethrum and sunflower that are unpalatable to elephants can be grown around a main crop to serve as repellants. Unpalatable crops such as sunflower and pyrethrum can also be grown as main crops or around the main crop to repel zebra. Mauritius thorn can be grown as a barrier against monkeys, elephants, buffalo and zebra. Trenches measuring 6 feet wide and 6 feet deep can be dug around the farm to form a barrier against elephant and hippopotamus. Dressing of seeds with pesticides before planting makes them unpalatable and poisonous to squirrels. Achieving optimal plant population through using correct spacing for a maize crop ensures that stems are strong enough to resist bending and lodging. This reduces attack by porcupines.

On the other hand, growing maize varieties which have tightly covered husks and cobs reduces attack by birds. Growing hairy or crops which have spikes such as some varieties of sorghum reduces attack by birds. These findings concur with those of other studies which showed that small-scale farmers in African countries grow unpalatable crops such as chili to mitigate elephants (Hockings & Humle, 2009; King, Douglas-Hamilton, & Fritz-Vollrath, 2011). Chili is also used in Queen Elizabeth Park Area (QEPA) in Uganda (Babaasa, Akampulira, & Bitaribo, 2013). Live fences are used in Kibale and Bwindi areas of Uganda against elephants, baboons and gorillas while trenches are used against elephants and buffaloes in Kibale and QEPA regions.

Severity of Crop Damage

Through primary data collected, this study established that maize crop damage among smallholder farmers in Laikipia County is severe. It occurs even up to 70% per acre per cropping season, as shown in Table 2.

Table 2

Degree of Crop Damage per Acre (n=203)

<table>
<thead>
<tr>
<th>Year</th>
<th>Degree of damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>68 (n=167)</td>
</tr>
<tr>
<td>2013</td>
<td>69 (n=174)</td>
</tr>
<tr>
<td>2014</td>
<td>70 (n=187)</td>
</tr>
<tr>
<td>2015</td>
<td>69 (n=182)</td>
</tr>
</tbody>
</table>

These findings match with those of a study in Nigeria which showed that crop
damage by wildlife in some cases is as high as 98% per acre per year (Eniang et al., 2011) and 65% of maize crop per year in Tomboro area of Cameroon (Eyebe, Dkamela, & Endomana, 2012). These high crop damage values mean that the agricultural extension mitigation strategies adopted by smallholder farmers are not effective.

Effectiveness of Agricultural Extension Wildlife Mitigation Strategies Used by Farmers

In this study, the term effectiveness was used to mean the degree to which the AEWMS could reduce crop damage by at least 10%. The AEWMS were rated on a five-point Likert-type scale by both sampled farmers and extension agents. Farmers rated the degree of effectiveness of each strategy they had used on their farms on a scale. Further, extension agents who had trained the farmers on extension mitigation strategies and also observed the strategies as they were being adopted by farmers rated the mitigation strategies on the degree of effectiveness. The sum of the values of the rates by farmers and extension agents were used to estimate the rate of the effectiveness of the mitigation strategies. This study established that the AEWMS used by maize farmers in Laikipia County have low rate of effectiveness as summarized in Table 3.

Table 3

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Target Wildlife</th>
<th>Rate of Effectiveness (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growing unpalatable crops</td>
<td>Elephant</td>
<td>25.0 (n=53)</td>
</tr>
<tr>
<td></td>
<td>Monkey</td>
<td>30.0 (n=64)</td>
</tr>
<tr>
<td></td>
<td>Zebra</td>
<td>31.6 (n=68)</td>
</tr>
<tr>
<td>Growing a live fence barrier</td>
<td>Elephant &amp; buffalo</td>
<td>25.0 (n=53)</td>
</tr>
<tr>
<td></td>
<td>Zebra</td>
<td>27.3 (n=58)</td>
</tr>
<tr>
<td></td>
<td>Antelope/Gazelle/Impala</td>
<td>26.1 (n=55)</td>
</tr>
<tr>
<td>Digging trenches as a barrier</td>
<td>Elephant/Impala/Gazelle</td>
<td>33.3 (n=70)</td>
</tr>
<tr>
<td></td>
<td>Hippopotamus</td>
<td>28.6 (n=62)</td>
</tr>
<tr>
<td>Dressing seeds with pesticides</td>
<td>Squirrel</td>
<td>45.0 (n=96)</td>
</tr>
<tr>
<td>Growing hairy or spiked crops</td>
<td>Weaver/quelea bird</td>
<td>11.8 (n=26)</td>
</tr>
<tr>
<td>Growing resistant crop varieties</td>
<td>Weaver bird</td>
<td>33.3 (n=70)</td>
</tr>
</tbody>
</table>

For instance growing a live fence against elephants is 25% effective, growing unpalatable crops such as sunflower, chili, pyrethrum or tobacco against elephants is 25% effective while digging trenches to serve as a barrier against elephants is 33.3% effective. Results of this study showed that the agricultural extension mitigation strategies used by smallholder farmers in Laikipia County have low rate of effectiveness, as low as 25%. The average effectiveness of all the extension mitigation strategies is just about 33%. The low rate of effectiveness means that the extension mitigation strategies used by smallholder farmers in Laikipia County are not effective. This is because farmers are not using the strategies as recommended by extension agents. This was evidenced by a large proportion (87.5%) of farmers who were found to have a negative attitude towards the mitigation strategies promoted. This results
from their failure to accept the agricultural extension mitigation strategies for instance, chili, sunflower, sorghum and pyrethrum. Further, the system of land tenure especially, leasehold which is common among a significant proportion (50%) of smallholder farmers hinders adoption of some mitigation strategies such as trenches, planting of sisal and Mauritius thorns. These plants take long to grow and fully establish to serve as mitigation strategies. In addition, most farmers (75%) indicated that they had inadequate knowledge and skill on the available extension mitigation strategies and their usage.

For instance, they had inadequate knowledge on available crops that are unpalatable to wildlife found in the County. They also had inadequate knowledge on the propagation and maintenance of some plants especially Mauritius thorn. This study further established that inputs such as seeds for AEWMS, for example, Mauritius thorn, are expensive. This affects a significant (50%) proportion of farmers who cannot afford them. This fact was supported by the fact that most (81%) farmers earn kshs. 60,000 or less annually. This affects the effectiveness and sustainability of AEWMS used. Farmers were therefore likely to experience significant crop losses resulting from wildlife attacks hence the high crop damage as shown in Table 2. However, a study in the Greater Virunga Landscape (GVL) showed that live fences such as growing Mauritius thorn are effective against baboons, gorillas and bush-pigs (Andama, 2009; Babaasa et al., 2013). This is possible only when it is planted and maintained as recommended, particularly, planted and placed in 3 rows, 30cm apart, when branches are layered and intertwined to form an animal-proof barrier.

If the AEWMS were effective, wildlife would be restricted from accessing farmland and people prevented from encroaching wildlife habitats, chances of an outbreak of human-wildlife conflict would be reduced and the rate of severity of crop damage will be low. This agrees with the conflict theory which indicates that as members of a society pursue their interests and seek to meet their needs, they are bound to be in conflict, and in this case it is the human-wildlife conflict. On the other hand, if the AEWMS are effective, elements of a society which is in the form of an ecosystem will be restricted to their niches. The different species of organisms will therefore not compete for limited natural resources, thus help to alleviate a conflict situation. This means that all parts of a society will remain interconnected as functional, as postulated by the functional theory.

**Conclusions, Recommendations and Implications**

In Laikipia County, wildlife is conserved in Rumuruti Forest which is not a protected area or gazetted wildlife habitat. Furthermore, humans are settled and are also allowed to undertake farming in areas bordering unprotected wildlife habitats. Wildlife therefore moves out of their habitats into farmland neighboring their habitats thereby damaging crops. This study established that small-scale maize farmers use various agricultural extension wildlife mitigation strategies promoted by agricultural extension agents concurrently. About 38.7% of farmers grow crops that are unpalatable to wildlife such as chili, pyrethrum, sunflower and tobacco as main crop and growing of unpalatable crops as barrier to the main crop. At least 45.3% of farmers construct trenches around the farm to form a barrier against wildlife entry, 1.8% grow maize crop varieties which have tightly covered cob or husk.

The low percentage of farmers using the extension mitigation strategies was attributed to the fact that farmers did not
have adequate knowledge about the strategies or they were not willing to adopt the strategies. Farmers can also not afford using the strategy or the strategies were not sustainable. Further, farmers might have realized that the strategies are not effective and therefore abandoned them. Thus, only a few farmers were using them. This could mean that smallholder farmers will continue experiencing significant crop losses, thus affecting crop production, productivity and household food security. This study also found that smallholder farmers experience severe crop losses of up to 70% per acre per cropping season due to wildlife attack even with the use of AEWMS. Additionally, this study established that AEWMS used by small-scale farmers have a low rate of effectiveness. For instance, unpalatable crops are 30% effective, live fences are 27%, digging trenches 33%, seed dressing with pesticide 45%, growing spiked crops 11.8% while growing resistant crop varieties are 33% effective. The low rate of effectiveness for the mitigation strategies implies that the mitigation strategies promoted by extension service are not effective. Consequently, smallholder farmers will continue experiencing high crop losses. It was therefore concluded that smallholder maize farmers in Laikipia County are using agricultural extension mitigation strategies that are not effective, hence the high crop losses experienced. Farmers therefore continue suffering from the effects of human-wildlife conflict. An investigation should be conducted to find out the causes of the low effectiveness of AEWMS among smallholder farmers.

References


Building Evaluation Capacity within an Agricultural NGO using SWOT Analysis

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Abstract
Evaluation capacity building (ECB) aims to create a learning organization committed to increasing evaluation knowledge and skills among employees (Fitzpatrick, Sanders, & Worthen, 2011). ECB framework was used to determine the scope of monitoring and evaluation activities within an international agricultural non-governmental organization (NGO) using a strengths, weaknesses, opportunities, and threats analyses (SWOT). The objectives were to analyze current practices, capacity for evaluation activity at the project and organizational level, and propose a model for building evaluation capacity within the NGO. Existing documents and artifacts were content analyzed (Krippendorff, 2004) and 44 NGO employees, donor agency representatives, and similar NGO representatives were interviewed regarding their evaluation practices. Results indicated that project-level evaluation staff had sufficient training and expertise to conduct evaluation within the scope of their projects (strength). However, ECB and organizational learning from evaluation efforts were not institutionalized (weakness). The NGO lacked evaluation expertise and leadership at headquarters level due to staff attrition and lacked technology to capture data for aggregation purposes to report on progress made toward mission between projects and over time (threat). Opportunities included promoting an Evaluation Specialist to lead efforts by recruiting from within the NGO and advancing the individual’s knowledge and skills through pursuit of a doctoral degree in evaluation. The NGO is advised to adopt a knowledge management system to capture and aggregate data between projects and over time to communicate better overall mission accomplishments to stakeholders and donors.

Keywords: evaluation capacity building, international agricultural development monitoring and evaluation
Introduction

Agricultural non-governmental organizations (NGO) are important for increasing food security globally through research, extension, and education projects. Educating farmers about modern agricultural practices is a fundamental role of agricultural NGOs and government-sponsored extension services (Strong & Harder, 2011). There are over 10 million NGOs worldwide who receive funding from governments and private donations to support project activities (Nonprofit tech for good, 2017). Donors require accountability for expenditures through a process of monitoring and evaluation (M&E). NGO and extension staff should possess program planning, needs assessment, and evaluation skills to be effective in their roles (Shinn, Wingenbach, Bliers, Lindner, & Baker, 2009; Strong & Harder, 2011). Gaining M&E skills is a process of formal education, on-the-job training, and support from employers through evaluation capacity building continuing education (Ghimire & Martin, 2011).

Evaluation capacity building (ECB) is a subset of evaluation practices separate from M&E functions. ECB aims to create a learning culture within an organization by “increasing knowledge, skills, and attitudes about evaluation among employees” (Fitzpatrick, Sanders, & Worthen, 2011, p. 238). ECB ideally leads to organizational learning and better decision making and was predicted to become the “next evolution of the evaluation profession” with the potential to transform organizations into dynamic learning systems (Preskill & Boyle, 2008, p. 457). However, challenges to building evaluation capacity among staff remain due to situational and environmental barriers such as lack of leadership, lack of staff training, and lack of a community of practice to reinforce skills amid more urgent organizational needs.

United States Agency for International Development (USAID) noted ECB should be a necessary practice among NGO staff to transition organizations from donor-centric external evaluation (accountability) to internal self-directed learning (monitoring) practices in the 1960’s (Schaumburg-Müller, 1996). NGOs have shifted from externally-driven expertise-oriented evaluations such as those reported by Baker, Bassey, Jimoh and Akande (2015) to internally-driven program-oriented evaluation practices and capacity building. However, program-oriented evaluations are limited by an overemphasis on objective achievement and outcome reporting; missing opportunity for organizational learning that is a central theme of participant-oriented and capacity building evaluation frameworks (Fitzpatrick et al., 2011).

In the 1990s, USAID decreased internal staff by 37% and increased funding to NGOs by 57%, shifting responsibility to NGOs to manage most aspects of international development, including M&E (Kock & Weeks, 2015). However, NGO staff competencies have not kept pace with required evaluation activities. ECB continues to be a challenging endeavor for NGOs as staff are limited by a lack of evaluation competencies. Evaluation was seen as an important and top-rated skill for NGO and agricultural extension staff (Conner, Roberts, & Harder, 2013; Ghimire & Martin, 2011; Kock & Weeks, 2015; Shinn et al., 2009; Strong & Harder, 2011); however, it was often positioned as a rear-view mirror activity to meet donor-reporting requirements before moving onto the next project.

The need for this study was to investigate current ECB practices within an international agricultural NGO. The research reported here details the extent of evaluation
capacity at NGO and makes
recommendations for institutionalizing best
practices for organizational learning while
improving staff capacity for evaluation.

**Conceptual Framework**

Evaluation capacity building (ECB)
was defined as “a context-dependent,
intentional action system of guided
processes and practices for bringing about
and sustaining a state of affairs in which
quality program evaluation and its
appropriate uses are ordinary and ongoing
practices within and/or between one or more
organizations/programs/sites” (Stockdill,
Baizerman, & Compton, 2002, p. 8). ECB is
realized when an organization invests in
upgrading and maintaining employees’ skills
regarding evaluation competencies (Carman
& Fredericks, 2010; Stevahn, King, Ghere,
Minnema, 2005), resulting in
institutionalized evaluation practice for
systematic learning and improvement. ECB
has reached maturity when employees
understand that evaluation is ‘the way we do
things around here’ and is a necessary
component of projects and contributes to
organizational learning.

Quality program evaluation
protocols have been summarized by
Fitzpatrick et al. (2011) and Stufflebeam
(2001). They recommend that projects begin
with a project theory of change (typically
depicted as a logic model) outlining how the
project will accomplish its goals within its
unique context, situation, priorities,
necessary inputs, expected outputs, and
protocols for capturing short, medium, and
long-term outcomes and impacts. An
organization that embodies ECB views the
evaluation staff as integrated team members
who apply evaluation logic, processes, and
practices to co-create effective programs
while capturing lessons learned throughout
the life of the project. ECB begins with
valuing organizational learning and is a
never-ending commitment to improving
knowledge-management, quality, and
cycling lessons learned into future projects
(Stockdill et al., 2002).

Competencies for evaluators include
a broad taxonomy including professional
practice, systematic inquiry, social science
research methods, situational analysis,
project management, and reflective practice
(Conner et al., 2013; Kock & Weeks, 2015;
Shinn et al., 2009; Stevahn et al., 2005).
Ghimire and Martin (2011) reported that
extension staff require skills in assessing
learning experiences and outcomes,
evaluating program results, assessing
program impacts, and using impact data for
planning future programs.

**Purpose and Objectives**

The purpose of the study was to
evaluate the scope of M&E activities within
an agricultural NGO, including capacity
building, through a strengths, weaknesses,
opportunities and threats (SWOT) analyses.
The objectives were to analyze M&E
activity within the organization (strengths
and weaknesses), identify threats, and
propose opportunities for building
evaluation capacity within the NGO.

**Methodology**

SWOT analyses is a study
undertaken by an organization using social
science research methods to evaluate
strengths, weaknesses, opportunities, and
threats for improvement (Gill, Ricciardi,
Bates, & James, 2017; Helms & Nixon,
2019; Osita, Onyebuchi, & Justina, 2014).
The four elements are operationalized as
internal (strengths and weaknesses) and
external (threats and opportunities) factors
that are favorable or unfavorable for the
organization to achieve its mission. Strategic
fit occurs when the internal situation
matches the external situation and the
organization is well positioned to achieve
and produce desired results. SWOT analysis can be used in a variety of contexts such as strategic planning, exploring new solutions to challenges, marketing, organizing, identifying barriers to success, or in crisis mode.

The NGO under study is a public international organization (PIO) with nonprofit status. It is headquartered in the US while most work is carried out in Africa and South Asia. The NGO has over 800 employees and strives to increase smallholder farmer income in developing countries. USAID is a major donor with European governmental equivalents and foundations accounting for additional funding.

Data were collected to analyze strengths and weaknesses of the NGO’s current M&E system, identify threats to building evaluation capacity, and propose opportunities for the NGO to become a leading-edge evaluation practitioner among peers.

Archival documents (memos, reports, 13 funding proposals, six evaluation reports, eMails, and NGO Strategic Evaluation Plan for 2012-2015) related to institutionalizing M&E and the scope of M&E activity proposed were analyzed using content analysis methods (Krippendorff, 2004) to identify protocols and techniques applied to M&E practice. Salient themes were distilled regarding quality, depth, and breadth of M&E practices organization-wide. A systematic reading of texts and artifacts was conducted and extensive notes were taken to summarize themes for the SWOT analysis. The frame for content analysis was defined by best practices in evaluation according the American Evaluation Association (2004) and summarized by Fitzpatrick et al. (2011) and Stufflebeam (2001).

A comprehensive evaluation plan should include a theory of change (depicted as a logic model) explaining how project activities will result in an improved state of affairs for beneficiaries, plans for capturing short, medium, long-term outcomes and impacts by outlining a detailed strategy for data collection, analysis, reporting, timeline, identification of M&E personnel, and sufficient budget for M&E activity. The evaluation plan is typically juxtaposed to the project methods plan to display not only the intervention but also the intention of the organization to capture data for organizational learning and accountability.

The researcher interviewed 44 people including 21 NGO employees during the summer of 2016, two M&E specialists from two similar NGOs, and five representatives from donor agencies. The researcher conducted 16 interviews with NGO employees winter 2017 to gather additional data in-field (Accra and Tamale, Ghana, and Lomé, Togo). These interviews served as triangulating evidence to the 2016 data and to gain a deeper understanding of M&E practices at the project level. Interviewees included the Headquarters leadership, Director of Global Field Programs, Country Directors, Deputy Directors, Agronomists, Grants and Contracts Officers, Chiefs of Party, M&E Specialists, and donor agency representatives.

The 44 interviews were conducted face-to-face at NGO and donor agency headquarters or via telephone for some international staff. Participants were identified by the NGO President and Division Directors as having a leadership role within the organization or directly involved in M&E practice. All participants were solicited via eMail by the researcher following an letter from the NGO President to introduce the study. Participants were informed of their human subject rights as study participants. Those that chose to participate were engaged in a long interview.
(average one hour each) that was audio-taped, transcribed, and shared back for member-checking purposes (Merriam, 1998). All interviews followed a semi-structured interview protocol that was developed in consultation with the NGO leadership team. The transcripts were cleaned and loaded into a qualitative data analysis software program, ATLIS.ti® (Scientific Software Development, 2017). The program allowed the researcher to organize and categorize the data through a process of coding, memoing, reduction, synthesis, and generation of themes (Creswell & Poth, 2018).

Strategies for enhancing trustworthiness (Tracy, 2010) included triangulating participants’ claims with archival documents and other interviewees, member checking by sharing interview transcripts and the final report with participants, peer-review and member-reflection of study findings with leadership, and conceptualizing the study with participants to ensure the results were accurate, practical, and applicable (Merriam, 1998). Procedural, situational, relational, and exiting ethics were practiced throughout the study (Tracy, 2010). All participants were ensured protection of their rights as human subjects, privacy and confidentiality were safeguarded, and reciprocity in reporting to apply findings was guaranteed to build evaluation capacity at NGO.

Results

M&E activity was overseen by three division directors (West Africa, East Africa, and Asia). Ninety-six staff were employed to carry out M&E from 15-100% time. The efforts were directed toward project-level M&E and staff reported to their respective Chief of Party. M&E execution began after the project was funded. Chief of Party hired one to three internal M&E staff and external consultants to conduct project-level studies. M&E staff managed all M&E activity including establishing indicators, developing data collection instruments, managing data collection and analysis, and contracting with communication specialists and external consultants for composing donor-required reports.

The general M&E protocol consisted of preparing a preliminary M&E plan and theory of change (logic model) at proposal inception. After the project was approved for funding, the Chief of Party hired one to three M&E staff that were responsible for creating a more extensive Performance Monitoring Plan (PMP) and establishing indicators based on donor agency guidelines. Project-level M&E staff analyzed and synthesized the data, and wrote reports. Reports were sent to headquarters for storage in the archival system.

The most common methods for collecting M&E data were paper surveys administered to beneficiaries and head of household; focus groups and one-on-one interviews with beneficiaries; photographs; videos; key informant data sources such as business owners who in turn worked with farmers in private-public partnership projects; GIS/GPS for mapping farms; mobile devise administered surveys; and voucher systems that allowed tracking of agricultural inputs purchases from beneficiary farmers.

Much of the data was collected by the implementing business owners of agricultural inputs who worked directly with beneficiary farmers after receiving a sub-award from NGO. As part of the sub-award expectations, business owners gathered primary data from farmers and gave it to M&E specialists who entered it into Excel or Access database for analysis and reporting. New tools were being developed such as electronic vouchers that allowed NGO to track agricultural input sales and...
distribution directly from farmers to link to business owner outputs.

There were several threats to data aggregation over time and between projects. Data, instruments, and reports were stored on local computers used by M&E staff. Primary data and documents were not transmitted to Chief of Party or headquarters staff, only finished reports. There was no system in place to collect project data for aggregation purposes. The only form of aggregation was in the written narratives of the reports (Word or PDF format), which was unusable for cross-project statistical analysis. Specific data points were not stored or shared in Excel/Access format, which would have allowed for the creation of a master database for data aggregation. In addition, high staff turnover resulted in some historical data and records being lost as computers were reformatted in-between users.

M&E staff met requirements for monitoring project activities and outputs, collected sufficient data based on established indicators, and submitted timely reports to donors. Donor agencies reported receiving frequent reports on project outputs based on established indicators. M&E staff had adequate training and skills for the required tasks. M&E staff focused primarily on monitoring function. However, the overall M&E program lacked a deeper examination of the data to move the effort toward comprehensive evaluation, learning, and sharing across projects over time.

Challenges to advancing M&E included a lack of leadership at headquarters level to direct organization-wide M&E implementation due to staff attrition. Much effort had gone into planning for and institutionalizing M&E through a 2011 M&E strategy session, a 2012 team meeting, a 2012 strategic plan, and hiring an evaluation specialist in 2015 (resigned after one year). However, little of the sound advice documented in the notes was adopted; thus, institutionalization of M&E did not gain traction. Barriers for effective M&E implementation included “isolation, duplication, little capacity for roll-up, and failure to integrate systems” (2011 meeting notes, p. 14). In addition, frequent staff turnover undermined successful M&E implementation for long-term organizational learning.

The most significant threat to organizational learning was a lack of M&E expertise and leadership at headquarters level to institutionalize evaluation practices. An M&E specialist is needed who understands projects across the organization, operating in 23 nations, and is able to create a systematic M&E protocol for gathering information and aggregating data to report on the degree NGO is addressing its primary goal: increasing global food security through small holder farmers. There is a need for a common set of indicators that are collected across all projects. Indicators should match donor agency criteria and be able to tell NGO success stories. Many individuals (University faculty, external evaluation consultants, and internal scientists) were collecting and reporting data; however, the reports and articles were infrequently shared organization wide. Organizational learning was also hampered by a lack of infrastructure to standardize, harmonize, and aggregate data across projects and time. There is an opportunity in adopting a robust knowledge management system (KMS) to collect, analyze, visualize and store outputs from all projects.

Analysis of Capacity for M&E at the Project Level

Thirteen funded and unfunded proposals were reviewed to determine the degree of M&E activity contained within. M&E activity included project goals, objectives and major evaluation activities
designed to capture short, medium, and long-term outcomes, and impacts. A complete plan included target indicators, data collection and analysis protocols, and a reporting strategy. In addition, a theory of change (logic model) for the overall project should be presented. Theory of change is an explanation of how project activities will result in an improved state of affairs for project beneficiaries or the cause and effect mechanism of activity upon outcomes and impacts (Fitzpatrick et al., 2011).

An evaluation plan should include a process for capturing impacts beyond the life of the project. Impact evaluation measures the changes attributed to the intervention and answers the question: How were participants’ lives changed as a result of the project? What was the additionality of the project toward social good? Counterfactual data analysis is typically required (control and treatment groups) to fully understand the impacts of a project on a community.

Seven of 13 proposals (54%) did not include an M&E plan containing a data collection strategy, data analysis protocol, or reporting beyond promising a technical report required by donor agencies. Six of 13 proposals (46%) promised M&E activity; however, data collection protocols were not provided. Funding for M&E was included in one of 13 proposals for independent consultants. Overall, organizational integration, ownership, and commitment to M&E activity was absent from most proposals.

Six evaluation reports were reviewed to assess adherence to best practices in evaluation protocol (Fitzpatrick et al., 2011; Stufflebeam, 2001). Most reports provided a summary of findings, background of the project, and project outputs, for example number of people served, workshops offered, and acres planted. The methods for collecting data were infrequently mentioned. Evaluative judgements or answering the question: did the project accomplish its stated goals and objectives? were provided as targets reached. The reports did not go beyond listing outputs and provided few lessons to contribute to organizational learning.

None of the reports contained information related to American Evaluation Association (2004) standards for quality control. None of the reports provided authorship, a management plan for conducting the evaluation, a budget to explain costs related to M&E activity, or timelines for major M&E activities as recommended by the majority of evaluation models (Stufflebeam, 2001).

Opportunities for improvement: Many of the findings exceeding targets, some by as much at 669%. For example, 200 field days were promised and 1,338 were delivered. With such successes, case studies could be done to document methods for achieving success to contribute to organizational learning. It should also be explained how exceeding targets were financially supported given available funding for the project. For example, the project budgeted for 200 field days and offered 1,338. How were the additional 1,138 field days paid for? Best practices in M&E goes beyond capturing outputs to fully understanding and documenting project activities, success, and failures to contribute to organization learning. When project staff exceeds targets, there is great value in documenting success as separate case studies and publishing results on how such successes were achieved.

Staff and donor agency representatives reported many weaknesses to effective M&E efforts at NGO. Institutional level leadership for M&E was lacking. M&E efforts were decentralized and driven by regional directors and Chief of Party. Division level staff created M&E reports...
that were shared with donors, headquarters, host governments, division directors, managers, Chief of Party, regional agribusiness coordinators, and other stakeholders; however, M&E activity was not contributing to organizational learning or building evaluation capacity. One of the most important weaknesses was a lack of a knowledge management system (KMS) to collect, archive, and aggregate data for system-wide reporting across projects and time.

Donors agencies noted that NGO evaluation reports were timely and well written; however, contained minimal data on impact, lacked a systematic data collection strategy, lacked archival data, and lacked aggregated data. They suggested the NGO develop systematic evaluation protocols; discuss targets in proposals; and create indicators for each project that matched donor indicators.

**Conclusions and Recommendations**

To build evaluation capacity, the NGO should implement M&E activity - from program inception to close out - and engage in systematic organizational learning and continuous improvement. Evaluation’s role is to improve an organization’s performance by “instilling new ways of thinking” (Fitzpatrick et al., 2011, p. 14) using social science methods to collect and analyze data about overall program implementation, fidelity, and performance. Internal evaluation expertise can serve as subject matter experts for organizational learning by providing a continuous stream of feedback about project activities and short-term outcomes that aid implementation fidelity to keep the project on track.

NGO has an opportunity to transform evaluation activity into meaningful organizational learning and continuous improvement to accomplish their mission. Torres and Preskill (2001, p. 388) defined organization learning as “a process of continuous growth and improvement that (a) uses information or feedback about both process and outcomes (i.e. evaluation findings) to make changes; (b) is integrated with work activities, and within the organization’s infrastructure (e.g., its culture, systems and structures, and leadership and communication mechanisms); and (c) invokes the alignment of values, attitudes, and perception’s among organizational members.” Alaimo (2008) noted that “evaluation becomes a part of organizational learning when it is institutionalized as part of the organization’s information, power structure, processes, and systems that influence decision making and action” (p. 77).

Unfortunately, many NGOs have found evaluation activity disappointing and ineffective for organizational learning (Hoole & Patterson, 2008) as reports are generated for donor agencies to meet requirements, yet contribute little to program effectiveness. In addition, donor agencies often do not use evaluation findings to help organizations make programmatic changes. Organizations that engage in evaluation as an honest, transparent, and ongoing discussion rather than as a bureaucratic process become learning cultures driven by leadership who is willing to learn from mistakes, reward good ideas, and encourage staff toward continuous improvement (Hoole & Patterson, 2008).

Alaimo (2008) found that CEOs who encouraged evaluation activity as program-driven and outcome-focused (versus donor agency accountability driven) 1) hired staff dedicated to evaluation, 2) used evaluation results to improve programs, and 3) demonstrated a long-term commitment for program evaluation.

**Build Evaluation Capacity System-Wide**
NGO should engage in long-term evaluation capacity building (ECB) to institutionalize evaluative logic, processes, practices, and enhance practitioner’s skill at every stage of project development, from ideation (Brown & Kelsey, 2016) to development and implementation. ECB has reached a state of maturity when employees understand that evaluation is ‘the way we do things around here’ and is a necessary component of projects.

**Engage in Impact Reporting**

NGO evaluation teams should engage in impact evaluation as requested by donor agencies. Impact evaluation goes beyond counting numbers of participants; kilos of products delivered; number of workshops offered. It strives to systematically unpack the key variables underlying change. The World Bank and other international development organizations emphasized impact evaluation and the use of randomized controlled trials to establish cause and effect mechanisms for change (Mertens & Wilson, 2012).

**Adopt a Knowledge Management System**

Organizational learning was a primary weakness of M&E at NGO. A knowledge management system (KMS) should be identified and adopted along with identifying an M&E specialist and building M&E infrastructure. The M&E specialist needs a functional KMS to implement successful M&E protocols, engage in evaluation capacity building, and engage in rigorous data collection and accurate reporting across projects and time.

**Promote an M&E Leader from Within the NGO**

NGO should identify an internal M&E specialists that possess tacit knowledge of donor agency requirements, practical field experience, appropriate educational background (bachelor of science and Master’s degrees), and aspirations for doctoral studies to become the M&E leader. The individual would oversee donor agency reporting requirements as well as create a framework to capture long-term and systematic data for organizational learning and sharing. The framework should include:

1) Developing strategic indicators from NGO’s mission and donor agency expectations;
2) Select and customize a USAID and International Aid Transparency Initiative (IATI) compliant and approved database to unify data collection into one global system;
3) Develop a system to archive data that is centralized and cloud-based;
4) Engage in reflective practice to incorporate learning and sharing from data into future agricultural development activity, leading to a better understanding of the causal variables for making progress toward advancing agriculture practices to enhance food security;
5) Provide training and professional development to all project-level M&E staff; and
6) Create a community of practice among M&E staff by organizing frequent professional development meetings to build evaluation capacity and a culture of cross-talk and learning.

**Evaluation Team Organizational and Reporting Structure**

M&E activity has two key functions – organization learning and accountability to stakeholders and donor agencies. To maintain appropriate accountability functions, the evaluation specialist should
report directly to a subcommittee, or Evaluation Advisory Group (EAG) appointed from the NGO Board of Directors.

References


Communicating Agriculture and Nutrition: Opportunities for Agricultural Extension-Communication and Advisory Services in Nepal

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Abstract
Meeting the dual goal of improving income and enhancing the nutrition status of Nepal’s rural residents is the mandate of the Integrating Gender and Nutrition within Agricultural Extension Services (INGENAES) project, which is supported by the United States Agency for International Development’s (USAID) Feed the Future initiative. A landscape study that provided an overview of Nepal’s agriculture and the status of the country’s agricultural extension system (AES) threshed out a primary target audience—rural women. How can they be reached with nutrition information through the existing AES? The landscape study also identified 11 organizations as INGENAES collaborators. What opportunities do they offer to advance INGENAES objectives? Following Rice and Foote’s (2001) systems-theoretical approach, this formative evaluation study drew from the insights of project and program managers and coordinators, communication officers, representatives of non-government organizations (NGOs), extension officers, and editors and journalists of farm publications who work in the intersection of agriculture and nutrition in Nepal. Data were gathered from a survey of the chief communication and/or extension officers of these 11 partner agencies. Additional data were collected from evaluation questionnaires completed by project managers and communication officers of 12 government and non-government agencies who participated in a seminar-workshop on how to improve gender and nutrition communication. These two methods brought to light opportunities that can be used to enhance the communication and/or extension of nutrition-enriched agricultural information, especially to rural women. Recommendations for future communications work are offered.

Keywords: Extension and advisory services, Nepal, gender-sensitive nutrition communication, gender and nutrition in extension, rural women

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Introduction and Objectives

Being one of the least developed countries in the world, Nepal faces persistent food insecurity and threats to human health due to interwoven risks factors and vulnerabilities. While the national poverty rate stands at 25.2% (2011 estimate), which means that around a quarter of the population lives on less than $1.90 a day, this figure rises to 45% in the Mid-Western and 46% in the Far-Western regions (Asian Development Bank, 2017). Poverty prevails in rural areas where agricultural production remains under optimal levels and few income-generating opportunities exist. According to Bishokarma and Amir (2014), inadequate nutrition and sanitation practices undercut public health, and meager public investments in infrastructure, health, nutrition services, and disaster management hamper economic growth.

About two out of three Nepalis are engaged in agriculture, mainly growing crops on small plots of land using basic farming methods. Yet, many in rural communities still do not have enough nutritious food to eat. Poor access to high-quality seeds, fertilizer, irrigation facilities, and markets makes earning a living an ardent struggle. As a result, more than half a million seek work outside the country, 95% of them male (Bishokarma & Amir, 2014). Climate change makes these already marginalized people even more vulnerable. Strong patriarchal social structures and an enduring caste system restrict the status and contributions of rural women (Jha, 2014).

Meeting the dual goal of improving income and enhancing the nutrition status of those who rely on agriculture for their livelihood is the mandate of the Integrating Gender and Nutrition within Agricultural Extension Services (INGENAES) project, which is supported by the United States Agency for International Development (USAID) as part of the presidential Feed the Future initiative. INGENAES seeks, among other objectives, to integrate nutrition in agricultural extension services, reduce gender gaps in the delivery of these services, and thus empower women farmers. In a given country, INGENAES works with a variety of stakeholders. These include farmers, producer groups, cooperatives, policy makers, technical specialists, development NGO personnel, and donors (Thapa, 2015).

One of INGENAES’ target countries is Nepal where undernutrition is a chronic public health problem across the country’s three main geographic regions, the terai (or the plains) to the south, the hill region in the middle, and the Himalayan Mountain region to the north. The Nepal Demographic and Health Survey conducted by the Ministry of Health (MoH) in 2016 reported that 36% of the country’s children under five were stunted, and 10% were too thin for their height (wasted), which is indicative of acute malnutrition. The survey also found that a little more than half (53%) of children 6-59 months old are anemic. Four in ten women 15-49 years of age also were anemic (MoH, 2016). According to Prakash (2017), “socio-economic, geographic, and educational factors, along with regressive gender norms, contribute to the poor health status of Nepalis, particularly women and children” (p. 2).

Against this backdrop, this study was conducted with three objectives. The first was to characterize INGENAES partner organizations in Nepal that will help alleviate this sub-optimal health status. What is their capacity to communicate agriculture and nutrition information, especially to rural women? The second objective was to determine the extension and communication approaches and activities that these organizations have developed and implemented relevant to INGENAES goals.
What have they done so far so that rural communities are able to access gender-sensitive agriculture and nutrition information? The third objective was to identify the opportunities for infusing nutrition information into the existing agricultural extension and advisory systems so that the information needs of rural residents are served. What strategies and tactics have been successful in reaching those in the countryside?

Rigorous programs typically conduct formative and summative evaluation of strategies and tactics. In formative evaluation, programs or projects are assessed during their development or early implementation phase to provide information about how best to revise and modify activities and operational structures. Summative evaluation, on the other hand, involves making judgments about the efficacy of a program at its conclusion. The present study was based on formative evaluation results. It answers the foregoing research questions by drawing from the insights of project and program managers and coordinators, communication officers, local representatives of non-government organizations (NGOs), government extension officers, and editors and journalists of farm publications and the agriculture media who work within the spheres—and the intersection—of agriculture and nutrition in Nepal.

The recommendations emanating from this research identified opportunities and constraints expected to inform current and future government and private sector efforts to build robust gender-responsive and nutrition-sensitive extension and advisory services. The Nepalese experience in reaching out to those who live in some of the most remote locations in the world is expected to offer insights into how rural residents can get their taste of James Hilton’s (1933) shangri-la.

**Literature Review and Conceptual Framework**

This study subscribes to the definition of agricultural extension services (also known as agricultural advisory services) offered by Meinzen-Dick, Quisumbing, Behrman, Biermayr-Jenzano, Wilde, Noordeloos, Ragasa, & Beintema (2011). The term, according to them, refers to “the range of information, advice, training, and knowledge related to agriculture or livestock production, processing, and marketing provided by governments, NGOs, and other sources that increase farmers’ ability to improve their productivity and income. Delivery may take the form of individual or group visits, information and communication technologies (ICTs), organized meetings, use of information and communication technologies, or teaching through the use of demonstration plots, model farms, or farmer field schools” (p. 62). The related but separate field of agricultural communication, on the other hand, examines communication processes among various actors and entities both within and outside the food and agriculture complex. Because communication is integral to the extension process, the present study uses the term “extension-communication” to describe activities that have the goal of reaching out and engaging diverse stakeholders in joint problem solving and opportunity seeking to benefit the rural areas of Nepal.

**The Challenge of Reaching Rural Women**

Policy analysts (e.g., Gartaula, Niehof, & Visser, 2010) report that 65.6% of Nepal’s entire population (about 29 million) derive income directly or indirectly from agriculture. Of this figure, 72.8% are female (Asian Development Bank, 2017). Largely due to male labor out-migration, the role of women in agriculture has deepened as they take full responsibility for household
survival and take charge of farm operations (Lastarria-Cornhiel, 2008). Their access to extension remains generally poor. For those lucky enough to gain access, the quality of such a service and the appropriateness of the information provided are subject to gender bias. Whatever they learn finds limited application because women farmers often have limited access to resources including land, cash, and labor (Quisumbing et al., 2015).

Exploring gender relations and women’s assets in four agricultural interventions in South Asia and Africa south of the Sahara, Quisumbing et al. (2015) observed that rural women, in general, have more “informal” roles that are often smaller in scale, localized, and less conspicuous. This suggests to communicators and extension agents that reaching rural women requires a tailored approach. According to O’Donnell (2012), women access information through informal channels, and are less likely to use technology due to cultural barriers, lower literacy levels, and less disposable incomes.

The Challenge of Infusing Agricultural Extension with Nutrition Information

Integrating nutrition into the AES presents a number of challenges. At the core of the challenge is extension’s long-standing focus on crops and food, and to a certain level, on livestock and natural resources conservation and management. Extension agents do not typically perform nutrition- or health-related activities (Fanzo et al., 2013). At the most, conventional extension approaches have concentrated on improving the nutrition content of crops.

Like most community workers, extension agents are stretched beyond their capacity. Adding the delivery of nutrition information will exacerbated their already heavy work portfolio. A confluence of factors serve as additional depressors. Among others, they receive meager training on how to implement nutrition activities that suffer from a deficit of resources. Mobility is limited, and communication channels to community leaders are scarce. For the extension service to serve as a viable platform for the communication of nutrition principles and practices, the context and mechanisms for delivery must be clear, and incentives to the senders and receivers of information alike, must be in place (Fanzo et al., 2013).

A Systems-Theoretical Approach to Evaluation

To account for the breadth of potential variables that may have a bearing on the impact of extension-communication initiatives, Rice and Foote (2001) posited a systems-theoretical approach to evaluation. This approach includes seven stages: “(1) specifying the goals and underlying assumptions of the project, (2) stipulating the process model at the project level, (3) identifying prior states, system phases, and system constraints, (4) postulating immediate as well as long-term intended post-states, (5) specifying the process model at the individual level, (6) choosing among research approaches appropriate to the system, and (7) assessing implications for design” (p. 152). The basic assumption is that project inputs intended to improve prior states are influenced by a set of constraints and opportunities within a system. As some inputs are transformed into outputs, a new “post state” evolves (Rice & Foote, 2001).

As part of INGENAES formative evaluation efforts, the present study focuses on the first four stages of Rice and Foote’s (1989) systems-theoretical approach and infers individual-level processes of actual exposure, awareness, knowledge and attitude change, and trial and adoption of recommended practices (Stage 5). The findings are expected to inform the choice of
research approaches (Stage 6) and point to potential ramifications for project design (Stage 7), which are the purview of summative evaluation works. Thus, the present study poses the following research questions:

RQ1: What is the capacity of INGENAES partner organizations to communicate agriculture and nutrition information, especially to rural women?

RQ2: What have these partner-organizations done so far so that rural communities are able to access gender-sensitive agriculture and nutrition information?

RQ3: What strategies and tactics stand a good chance of reaching those in countryside with nutrition-infused agricultural information?

Methods

This study applied a mixed methods approach. The first method involved personal interviews with the chief communication or extension officers of INGENAES’ 11 partner organizations in Nepal. For this, the interviewers used a structured questionnaire. The purpose of this first method was to ascertain the characteristics of these organizations, especially those attributes that have a direct bearing on their ability to conceptualize and implement extension-communication activities that cater to rural women (Objective 1). This method also was used to and identify and evaluate extension strategies and tactics these agencies have implemented that can be replicated to expand the dissemination of agriculture and nutrition information to farmers and farm families (Objective 2). The results of questionnaire pretests showed that agencies assign different meanings to communication terms (e.g., they need to be reminded of the difference between a strategy and a tactic, product vs. message, interpersonal vs. mediated channels; what the term “nutrition” encompasses) and use different terminologies to describe communication products (e.g., billboards vs. “flexboards”; TV soap operas vs. television drama series) activities and operations. To assure the equivalence of terms used, the researchers opted for face-to-face interviews. This method also enabled interviewees to clarify questions and interviewers to explain the type of responses expected of them.

The second method made use of self-administered questionnaires distributed to the participants of a seminar-workshop on “Communication Strategies to Reach Rural Women with Nutrition Messages.” The purpose of this method was to identify previous and current activities and approaches that can be strengthened or expanded to reach rural women with agriculture and nutrition information (Objective 3).

All research activities were approved by the university’s Institutional Review Board before participants were recruited (IRB# 17046).

The Interviews

The chief communication and/or extension officers of partner agencies were interviewed face-to-face. These individuals were selected as interviewees because they are most knowledgeable about the organization’s extension-communication activities and initiatives. They were identified by the INGENAES in-country coordinator who secured their permission to be interviewed. Before the interviews, they were asked to sign an informed consent form by graduate student interviewers from the Kathmandu-based Master’s in International Cooperation and Development program of the Midwestern University of Nepal. Four graduate students were trained on the nature and objectives of the project,
the questionnaire, the interviewing protocols, and the preparation of reports following each interview. The participants were interviewed in the locale of their choosing; many opted to do so at their place of work.

The structured questionnaire was divided into five parts. The first part asked about organizational characteristics, including the organization’s nature and scope, the total number of employees who work in Nepal, the number of people who perform extension-communication functions, and the percentage of females in the extension force. Respondents also were asked the number of volunteers they attract in an average year. The second part asked whether the organization implemented programs that incorporated gender equity and nutrition information into agricultural extension, and the frequency with which their organization performed 10 gender-sensitive practices (e.g., Extension-communication activities are planned keeping in mind gender issues and concerns) and five nutrition-sensitive practices (e.g., We consider the nutrition requirements of farmers and farm families when we plan extension activities). These items are listed in Table 2. The responses to these Likert-scale items ranged from 1 (never) to 5 (always). The respondents were then asked to identify specific programs or projects that incorporate gender equity and nutrition information as part of their extension function; the methods, activities, and procedures used to incorporate these information into extension; and the messages that were conveyed within a project. The fourth part solicited the communication materials the organization has produced that incorporated nutrition into agricultural information, and the frequency with which the agencies used mediated and interpersonal communication channels to disseminate such information. The fifth part consisted of five open-ended questions that asked the interviewees for the challenges they have experienced in planning for and implementing gender-sensitive activities, and in incorporating nutrition information into extension activities in general. The respondents were also asked to recall the difficulties male and female extension agents have experienced when communicating with rural women, and the skills they think can stand improvement and are therefore the likely focus of future training. Thus, the interviews produced both quantitative and qualitative data.

Each interview lasted from 1.5 to 2 hours. They were audio recorded and transcribed for analysis and future reference. The respondents were contacted to clarify conflicting answers. Descriptive statistics were used to analyze the responses.

The Evaluation Questionnaires

The other method employed in this study involved evaluation questionnaires distributed to the participants of a one-day seminar-workshop on “Communication Strategies to Reach Rural Women with Nutrition Messages” conducted in Kathmandu. The workshop was attended by 25 individuals from 12 agencies. They were project or program managers and coordinators, communication officers, and local representatives of NGOs and government entities working in the sphere of agriculture, nutrition, or both; government extension officers; and editors and journalists of farm publications.

The two-page questionnaire, which produced mainly qualitative data, asked the participants the following questions: (1) What has your organization done that show the greatest potential of reaching women with agriculture and nutrition information? (2) What nutrition-related communication materials have been produced so far as part of your extension work? (3) What
constraints have you encountered in reaching and communicating with rural women? (4) What constraints have you encountered in disseminating information about nutrition? (5) What can be done in the short- and long-term to alleviate these constraints?

The open-ended responses gathered through the evaluation questionnaire were examined using thematic content analysis (TCA) to tease out the manifest and latent opportunities for the expansion and improvement of future extension-communication work. TCA detects the thematic content of interview transcripts (or other texts) by identifying common themes (Anderson, 2007). These themes were then distilled and grouped from the texts. The themes were named based on the actual words used by participants. Interpretation was kept to a minimum. Three methods were adopted to enhance validity, including first tier triangulation of researchers, a documented audit trail of materials and processes, and respondent verification (Miles & Huberman, 1994).

Results

RQ1: The Organizations, their Characteristics, and their Communications Capacity

The chief communication or extension officers of all 11 partner organizations agreed to be interviewed for this study. These organizations, their scope of work, the number of their employees who work in Nepal, the number of their employees who perform extension-communication functions, the percentage of the extension-communication workforce that is female, and the number of volunteers they attract each year are shown in Table 1.

Table 1

<table>
<thead>
<tr>
<th>Organization</th>
<th>Nature and scope</th>
<th>Number of employees</th>
<th>Extension-communication employees</th>
<th>Female extension employees (%)</th>
<th>Volunteers per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>AICC/MOAD</td>
<td>National government</td>
<td>40</td>
<td>25</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>BBP Pariwar</td>
<td>Local NGO</td>
<td>14</td>
<td>5</td>
<td>100</td>
<td>15</td>
</tr>
<tr>
<td>CSISA/CIMMYT</td>
<td>International research</td>
<td>45</td>
<td>15</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Heifer International</td>
<td>International development</td>
<td>58</td>
<td>23</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>HKI</td>
<td>International development</td>
<td>270</td>
<td>25</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>IDE</td>
<td>International development</td>
<td>75</td>
<td>20</td>
<td>50</td>
<td>2</td>
</tr>
<tr>
<td>KISAN</td>
<td>National NGO</td>
<td>261</td>
<td>200</td>
<td>23</td>
<td>122</td>
</tr>
<tr>
<td>PAHAL</td>
<td>National NGO</td>
<td>241</td>
<td>202</td>
<td>37</td>
<td>0</td>
</tr>
<tr>
<td>Sabal</td>
<td>National NGO</td>
<td>155</td>
<td>55</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Suaahara</td>
<td>National NGO</td>
<td>130</td>
<td>44</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>YPARD</td>
<td>International youth network</td>
<td>37</td>
<td>37</td>
<td>50</td>
<td>600</td>
</tr>
</tbody>
</table>
Note. The acronyms stand for the following organizations: AICC/MoAD—Agricultural Information and Communication Centre, Ministry of Agricultural Development; BPP Pariwar—Boudha Bahanupati Party Pariwar; HKI—Helen Keller International; IDE—International Development Enterprises; CSISA-CIMMYT—Cereal Systems Improvement for South Asia, a project of the International Maize and Wheat Improvement Center; KISAN—Knowledge-based Integrated Sustainable Agriculture and Nutrition; PAHAL—Promoting Health, Agriculture and Alternative Livelihoods Program; SABAL—Sustainable Action for Resilience and Food Security; YPARD—Young Professionals for Agricultural Development.

Of these 11 organizations, only one respondent reported not having a project with a gender-sensitive or nutrition component. The majority (9) said they implement projects with gender and nutrition dimensions. How often do they implement gender- or nutrition-sensitive best practices? The responses suggest that most of the organizations that participate in INGENAES implement such projects “very often” to “always” (Table 2).

Table 2

Frequency with which Partner Organizations Implement Gender- and/or Nutrition-Sensitive Best Practices

<table>
<thead>
<tr>
<th>Practices</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender-sensitive practices</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. We plan extension-communication activities with the goal of giving attention to the needs of both men and women.</td>
<td>4.83</td>
<td>0.389</td>
</tr>
<tr>
<td>2. Extension-communication activities are <em>planned</em> keeping in mind gender issues and concerns.</td>
<td>4.66</td>
<td>0.651</td>
</tr>
<tr>
<td>3. Extension-communication activities are <em>implemented</em> keeping in mind gender issues and concerns</td>
<td>4.66</td>
<td>0.492</td>
</tr>
<tr>
<td>4. Our extension-communication personnel work with female farmers.</td>
<td>4.50</td>
<td>0.798</td>
</tr>
<tr>
<td>5. We disseminate information and technologies that are appropriate to the needs of female clients.</td>
<td>4.17</td>
<td>1.337</td>
</tr>
<tr>
<td>6. We collect gender-disaggregated data for program monitoring.</td>
<td>4.17</td>
<td>0.996</td>
</tr>
<tr>
<td>7. We evaluate projects based on their differential impact on men and women.</td>
<td>4.08</td>
<td>1.240</td>
</tr>
<tr>
<td>8. Our extension-communication personnel work with male farmers.</td>
<td>3.92</td>
<td>0.996</td>
</tr>
<tr>
<td>9. We disseminate information and technologies that are appropriate to the needs of male clients.</td>
<td>3.83</td>
<td>1.642</td>
</tr>
<tr>
<td>10. We train extension-communication personnel to conduct gender-sensitive extension activities.</td>
<td>3.75</td>
<td>1.288</td>
</tr>
</tbody>
</table>

**Nutrition-sensitive practices**
1. We consider the nutrition requirements of farmers and farm families when we plan extension activities.  
2. We train extension personnel on how to incorporate nutrition topics in agricultural extension activities.  
3. We evaluate the impact of nutrition-related extension activities.  
4. We produce communication materials that discuss nutrition together with agriculture information.  
5. We promote equal food access within families in all our programs.

Response options range from 1 (never) to 5 (always).

RQ2: Extension-communication Activities

The respondents listed a wide range of communication materials they produce and/or disseminate to fulfill their functions. These include an array of print media products (brochures, booklets, manuals, pamphlets, fliers, fact sheets, flip charts, bimonthly magazines, crop calendars, posters or hoarding boards, and agricultural reference guides), radio and TV broadcasts, videos, interpersonal interaction sessions (mainly through field demonstrations and annual fairs), folk media (specifically street dramas and role-playing scenarios), and online outlets (social media) and mobile apps. These materials carry a variety of agriculture-related messages, including information about how to use technologies, good production practices (e.g., integrated pest management, soil fertility management, how to grow high yielding crop varieties, how to raise livestock), lemon production, and micro-irrigation.

Nutrition- and health-related messages include kitchen gardening, hand washing, serving a balanced diet, good housekeeping, improved shelter, the nutrition benefits of locally grown food products such as pulses, organic fruits and vegetables, the nutritional benefits of poultry products, crop and animal diseases and their prevention, breastfeeding techniques, and the roles and responsibilities of family members in improving agricultural production and nutrition in the household.

What communication channels do they use, and how often? Table 3 summarizes the frequency with which the respondents use interpersonal and mediated means of communication to perform their functions. The results suggest a strong propensity to rely on interpersonal communication channels, but the organizations depended heavily on local opinion leaders to spread the word. Mass media use was significantly low, except for community radio.

Respondents were queried as to whether they tailor their project’s messages based on specific audience characteristics. Findings show a keen awareness of the need to fine-tune messages based on audiences’ geographic location, the major agricultural activities they perform, their perceived health status, gender, and ethnicity. Organizations were least concerned about differentiating messages by age.

Asked to rank their training needs, the respondents indicated they would like to improve their (1) facilitation skills, (2) gender analysis and sensitivity skills, (3) ability to work with individual farmers, (4) ability to work with farmer groups, and (5) managerial skills, in that order.
Table 3

Frequency of Using Interpersonal and Mediated Means of Communication in Project Activities

<table>
<thead>
<tr>
<th>Channels</th>
<th>Mean 1</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interpersonal channels</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extension agents</td>
<td>4.33</td>
<td>0.985</td>
</tr>
<tr>
<td>Influential farmers, role models, opinion leaders</td>
<td>4.25</td>
<td>1.215</td>
</tr>
<tr>
<td>Government officials (other than extension agents)</td>
<td>4.00</td>
<td>0.953</td>
</tr>
<tr>
<td>Animal health workers</td>
<td>4.00</td>
<td>1.000</td>
</tr>
<tr>
<td>Agricultural input dealers</td>
<td>3.33</td>
<td>1.230</td>
</tr>
<tr>
<td><strong>Mass media channels</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio</td>
<td>4.08</td>
<td>1.311</td>
</tr>
<tr>
<td>TV</td>
<td>1.80</td>
<td>1.686</td>
</tr>
<tr>
<td>Newspapers</td>
<td>2.00</td>
<td>1.095</td>
</tr>
<tr>
<td>Magazines</td>
<td>1.80</td>
<td>1.316</td>
</tr>
<tr>
<td>Online sources</td>
<td>2.50</td>
<td>1.715</td>
</tr>
<tr>
<td>Mobile phones</td>
<td>2.83</td>
<td>1.835</td>
</tr>
<tr>
<td>Videos</td>
<td>3.00</td>
<td>1.044</td>
</tr>
<tr>
<td><strong>Combination of interpersonal and mediated</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field demonstrations</td>
<td>2.66</td>
<td>1.537</td>
</tr>
</tbody>
</table>

1 Response options range from 1 (Never) to 5 (Always).

How do they evaluate the impact of the extension or advisory services they provide? Three respondents mentioned that they conduct baseline and endline surveys following the standards set by the Bureau of Food Security, Food for Peace, or the Gender Equity and Social Inclusion (GESI) framework prescribed by USAID. Baseline, midline and endline data are gathered quarterly or annually. Three organizations reported disaggregating the data they collect by gender. For example, they said they take stock of the number of women they served, ascertain what percentage of female farmers adopted a new technology, and determine the number of hectares placed under a new production practice by both men and women. One organization stressed that it follows USAID monitoring and evaluation guidelines, while another said that its project personnel visit communities to observe women’s control over household income and savings. They also check the performance of influential residents they call “social mobilizers.” An agency representative reported a mandatory target of 40% female and 20% male beneficiaries. Another mentioned that the organization analyzes the minutes of community group meetings to assess progress, while two said they measure progress by the number of women who assume leadership roles in community groups. An extension officer reported conducting small case studies for qualitative assessment.

RQ3: Opportunities to Improve and Expand Extension-communication Work

The seminar-workshop participants who answered the evaluation questionnaire were fully cognizant of the constraints that limit extension’s ability to reach rural areas.
Often cited were cultural and language barriers, the difficulty of selecting appropriate social mobilizers, traditional gender inequities (e.g., the wife performing a subservient role within the extended family structure), geographical remoteness and the punishing topography, time constraints on women, deeply ingrained family behavioral patterns (e.g., it is taboo for women to converse with strangers, particularly men), varying notions of what constitutes “good nutrition,” and women’s lack of decision-making power.

An analysis of their answers to the five open-ended questions teased out the following opportunities that can be tapped to strengthen the extension-communication of nutrition-enriched agricultural information in the remotest parts of the country. These opportunities fall under the following themes:

**An audience-centric perspective that recognizes the constraints to female inclusion.** Rural Nepal is now feeling the brunt of the male migration to the Middle East Gulf states for employment, which has rendered the agriculture sector practically female-dominated. Thus, the communication challenge is to reach a female rural audience whose members have low literacy and not enough time on their hands to fulfill their expanded roles in the absence of the male heads of household. They also receive multiple messages, not necessarily consistent, from many sources although they have limited access to cell phones and other ICTs. A heightened awareness of these constraints has made extension-communication personnel more sensitive to ways of reaching rural women without impinging too much on their time.

**A consortium of NGOs that offer pluralistic advisory services in a cooperative and coordinated manner.** INGENAES partner organizations in Nepal have the advantage of being part of a dynamic consortium of development actors. For example, the USAID-funded Suahara (good nutrition) project is led by Save the Children, with Helen Keller International, the Johns Hopkins Center for Communication Programs, Nepal Water for Health, Jhpiego, Nutrition Promotion and Consultancy Services, and the Nepali Technical Assistance Group. The Departments of Water Supply Sewerage and Agriculture and Livestock Services contribute to this project that uses an integrated approach (including nutrition-specific intervention, agriculture, water, sanitation and hygiene or WASH, and health service promotion) to confront malnutrition at the household level (USAID, n.d. a & b.). It focuses on changing behavior by promoting actions and initiatives within people’s means (e.g., adding animal-source protein to traditional dishes or maintaining a backyard poultry and/or vegetable garden).

**Within the INGENAES consortium are national and international research centers, which give the project structural connectedness to the best available sources of technical agriculture information.** An example is the Cereal Systems Initiative for South Asia (CSISA) under the auspices of the International Maize and Wheat Improvement Center (CIMMYT), which promotes high-yielding and climate-resilient rice, lentil and maize as well as small-scale mechanization to reduce farm labor.

The Agricultural Information and Communication Center (AICC), INGENAES’ direct link to the Government of Nepal via the Ministry of Agricultural Development (MoAD), is a professional wing charged with identifying, packaging and disseminating agricultural information to farmers, traders, entrepreneurs, and professionals through the conventional and new media. Its flagship publication, the *Krishi Diaries*, is published annually to
serve as a reference guide for frontline extension agents. The *Diaries* is a compendium of facts and recommended crop and livestock production practices. Its introductory part, for example, details the agro-climatic characteristics of Nepal’s varied regions, including rainfall patterns and soil characteristics. Other contents include land use patterns, the extent of cultivable land, demographic characteristics of farmers, the national agriculture policy, how to secure crop and livestock insurance, newly developed crop varieties and the most suitable areas to grow them, soil fertility management techniques, how to control diseases in fisheries, seed quality management, integrated pest management, and the contact information of partner agencies and offices.

The *Diaries* practically beg for nutrition information. A short section that describes the nutritional value of locally grown foods, the symptoms of common diseases and the dietary recommendations to prevent them, proper food preparation methods, and information on food groups for dietary diversity are examples of what can be added to this widely distributed annual publication. The Center also wants to release the *Diaries* in 16 of the most widely spoken local languages in the country. (The *Diaries* are published exclusively in Nepalese).

There are other AICC capabilities INGENAES can exploit. On the broadcast front, it disseminates daily radio clips that feature success stories and agriculture dialogues. In late February 2016, it launched a Kisan (farmer) Call Center through which retired agriculture technicians, experts, and university researchers field questions from farmers who telephone for assistance with problems on the fields (Samatar Samiti, 2016). This panel of respondents could easily include nutrition experts.

Nepal has a wealth of folk media and traditional ways for communicating with the masses that can be harnessed in the service of agriculture and nutrition education. Another means of lending women greater access to information is by embedding agriculture and nutrition messages in “edutainment” programs, those that both educate and entertain or amuse. Examples of these are local radio soap operas or dramas in a rural setting, and simple radio spots akin to public service announcements in the western media lexicon. Women can be assembled to form soap opera listening groups that discuss agriculture and/or nutrition topics with the help of a facilitator after exposure to edutainment programs. The Knowledge-based Integrated Sustainable Agriculture and Nutrition (KISAN) project produces broadcast spots, which they plug into local radio programs to educate farmers on how to control *Tuta absoluta* (Lepidoptera: Gelechiidae), a highly destructive insect pest that damages tomato and other plants in the Solanaceae family. INGENEAS partner agencies can explore more creative ways of tapping the full potential of radio.

Nepalese culture is steep in the use of folk media to announce news and available services. Examples are the *katwal karaune*, akin to the African town criers, in which a person (the *katwal*) shouts out messages to villagers. Another is the *gandharva gaune*, in which an ethnic group, the *Gandharva*, is paid in cash or kind to deliver messages in the form of song. In the *jhyali pitne*, a drummer uses his instrument to call villagers to gather at the town square for special announcements. These traditional forms of sharing news and entertainment can be buttressed with agriculture and nutrition messages. They can thus fulfill the entertainment and information needs of rural residents without taking up much of women’s time.
Nepal has had successful experiences in implementing communication interventions that have an “infotainment” bent. The most popular was Bhanchhin Aama (Mother Knows Best), a campaign that used community radio and theater to improve the health and nutrition status of women and children during the 1,000 days—from when a woman becomes pregnant to the child’s second birthday—in 25 underserved districts. The plots of this radio serial drama revolved around the character of an aama, a regular Nepali mother-in-law, who modeled and promoted nutrition and sanitation behaviors. This character also hosted a live call-in show, Hello Bhanchhin Aama, in which listeners shared experiences and discussed a range of topics, including agriculture and nutrition. The show, broadcast twice weekly in three different languages, achieved critical success, receiving more than 200,000 calls throughout the campaign, or an average of 1,600 calls per episode. The aama character is also featured in project videos, printed materials, billboards, and other campaign media.

A dynamic group of NGOs with clear nutrition mandates has made a mark on the ground. INGENAES’ scoping study immediately identified several NGOs whose continued presence in the field have made them highly visible to a rural audience. Their strong profiles are largely due to their aggressive communication units. Among them is KISAN, a five-year $20 million effort to improve the availability of quality farm inputs such as seeds, plant protection chemicals, organic fertilizers, and irrigation systems. It targets households with incomes below $1.25 per day. More relevant for INGENAES, KISAN trains private and public sector change agents to deliver extension services (USAID, 2016).

The Promoting Agriculture, Health, and Alternative Livelihoods (PAHAL) project is a five-year, $37 million initiative that seeks to “strengthen livelihoods, improve nutritional status, and increase the capacity of vulnerable households to mitigate, adapt to, and recover from shocks and stresses in rural communities,” particularly those in the vulnerable populations of the hill and mountain regions of Midwestern and Far West Nepal (USAID, 2016b). Mercy Corps leads the PAHAL consortium, which seeks to provide 160,000 households in 14 food-insecure districts access to financial services, markets, safe water and sanitation facilities.

The Sustainable Action for Resilience and Food Security (Sabal) is a five-year, $59 million project that works in 11 Central and Eastern districts to improve food production and nutrition (USAID, 2016c; Sabal, 2015). Its activities include supporting female community health volunteers and mothers’ groups.

Suaahara is a five-year, $46 million endeavor that focuses on better maternal and child health services. It has introduced home-based gardening in 20 districts, and uses smartphones to track its coverage of disadvantaged households. Since it was launched in 2011, Suaahara has been credited for increasing the practice of exclusively breastfeeding babies under six months old and giving children in 25 districts access to improved diets (Save the Children, 2014). Suaahara has launched communication interventions that have gained a strong rural following. These include radio discussion groups, celebrations of key life events such as a rice feeding ceremony during the 1,000 days, the national breastfeeding day, cooking demonstrations, radio jingles, and mothers group meetings (USAID, n.d.b).

Helen Keller International (HKI) works with farmers and farming communities to establish model farms and field schools where women are trained in
gardening, farm management, and farming practices. Its programs promote the consumption of iron-rich green leafy vegetables, fruits high in vitamin A, and animal-source proteins from poultry, goats, and fish. Women also are trained to sell surplus produce at local markets.

The Young Professionals in Agricultural and Rural Development (YPARD) is an international movement that encourages young people to pursue agriculture-related careers (YPARD, 2014). For INGENAES, YPARD practically guarantees a cadre of young people in tune with the needs of rural residents and to the resources that can be harnessed in the service of rural areas.

Boudha Bahanupati Project (BBP) Pariwar (or “family” in Nepalese) is an independent, non-profit networking and service organization that offers micro-credit loans to rural women. The organization started as the implementing arm of the Friends of Nepal Pariwar Foundation, which paid for the salaries and the in-service training and transportation expenses of nurse-midwives in rural clinics. Each nurse-midwife provides reproductive health services to an average of 1,400 residents per year.

Heifer International conducts projects that generate income and assets from the goat and dairy value chains by strengthening farmers’ cooperatives and business hubs. It is behind the Strengthening Smallholders in Livestock Value Chain project, which supports 138,000 families in raising goats so that the importation of live goats is reduced by 30% and milk production is increased by 10% (Heifer International, 2017).

The International Development Enterprises (IDE) implements projects on gender equity, nutrition, food security, and climate change resilience with private sector partners and donors (IDE, n.d.).

The presence of a robust local or community broadcast infrastructure throughout the three major regions and the need to bridge the literacy divide point to radio as the mass medium of choice. Over the past decade, development organizations have been exploring ways of harnessing mobile phones to improve farmers’ access to information. In parts of Africa, cell phones have been deployed to enable farmers to track the prices of select farm products, transact business, and bring rural folks into the financial system. While such mobile methods are yielding encouraging results in some parts of the globe, our interview and evaluation results suggest that, at least for now, the impact of mobile phones on agricultural and nutrition practices in Nepal has been minimal.

Radio, on the other hand, has been historically the most popular mass medium in the country (UNESCO, 2013). Radio Nepal, the state-run broadcasting system, reaches over 85% of the total population through its nationwide broadcast network and FM relay stations across the country (Acharya, 2015). According to the Ministry of Information and Communication, 360 FM radio stations were in regular operation by the end of 2013. Of these, private commercial interests own 40%, 40% are owned by NGOs, and about 15% are run by cooperatives (Ministry of Information and Communication, 2013).

The general communication environment points to radio as an enduring and effective information conduit. Survey respondents and workshop participants cited radio most frequently as a source of information about farming and nutrition issues. Extension agents, friends, and family stood out as major delivery channels of practical and technical information, but radio was the clear leader. INGENAES partners can thus capitalize on community-
based radio stations and news groups by supplying them with much needed content.

To make headway in the broadcasting field, there must be some uniformity in the terms commonly used to describe nutrition concepts, necessitating multi-lingual official translations. A dictionary will be most useful, especially for community broadcasters who may be unfamiliar with how scientific terms translate to the most commonly spoken local languages.

More images in communication materials resonate better with a highly visual culture. The literacy divide can be further bridged by capitalizing on more pictorial means of communication such as illustrated billboards (locally called “flexboards”), posters, and manuals. Nepal has a highly personal and visual culture in which pictorial depictions are better understood and liked, and line drawings resonate more with the local ethos. Familiarity, realism, and simplicity are important components of successful visual depictions, especially of the science behind recommended agriculture and nutrition practices. To fully exploit people’s propensity for the visual, however, communicators need to understand ways of ascribing value (“good” or “bad,” for example) to a pictorial rendition, know the “vocabulary” of local signs, and capitalize on the values attached to colors within the culture.

Ubiquitous informal mechanisms of information exchange, especially places where women congregate, can be tapped for agriculture and nutrition purposes. In every Nepalese village are small stores that sell a variety of everyday consumer items. At the end of the day, local residents congregate in these micro-commercial spaces to catch up on events and discuss issues. Women have been known to gather in nooks within marketplaces in what may be called rural Nepal’s version of “social media.” Interpersonal communication channels offer the best push toward the adoption of recommended practices. Communicators and extension agents can capitalize on these informal information centers (e.g., local gathering places such as communal laundry sites, Internet hubs) to expand reach.

Conclusions
While the constraints to agricultural extension-communication services in many parts of the developing world have long been recognized, the opportunities for growth are often overlooked. The findings of this study suggest that a consortium of highly responsive government entities, NGOs, and national and international research centers has already paved the way—and promises to sustain efforts—to effectively infuse agricultural extension with nutrition messages in Nepal. These groups have produced a wide range of communication materials and have communicated to their audiences through interpersonal and mediated means. Interview responses indicate, however, that they used interpersonal channels more in the course of their assignments.

An analysis of respondents’ open-ended answers to personal interviews and evaluation questionnaires teased out eight concrete opportunities that can advance the extension and/or communication of nutrition-enriched agricultural information in the country. The opportunities that stand out resonate with the nature of Nepalese culture. For example, the use of radio and illustrated billboards transcends the literacy barrier and finds a good fit with a culture that is highly personal and visual. That these media can be accessed at any time allows women the flexibility to be exposed to messages despite a grinding daily schedule. Extension agents also can tap the wealth of
folk media and traditional ways of communicating agriculture and nutrition to those in rural areas. To further offset constraints on women’s time, agriculture and nutrition messages can be embedded in “edutainment” (educational entertainment) programs such as local radio soap operas, theaters, and dramas. Ubiquitous informal mechanisms of information exchange, especially in places where women congregate, also can be exploited for agriculture and nutrition purposes. Communicators can capitalize on informal interaction spaces (e.g., communal laundry sites, small variety stores, women’s corners in marketplaces, Internet hubs) to offer more personalized instruction. With more than a hundred languages spoken as mother tongue in the country, there is a constant need to translate nutrition concepts and terms. A multi-language dictionary will be most helpful, especially for those who report for TV and radio.

The findings of this study were distilled from the responses of extension-communication officers and/or program directors of 11 INGENAES partner agencies. This roster does not include government instrumentalities with direct public health mandates and those who seek to elevate people’s nutrition status albeit as secondary or tertiary goals. While attempts were made to validate answers through follow-up interviews, the study’s external validity can be bolstered by matching the results against the outcomes of more quantitative summative evaluation efforts. A survey of intended beneficiaries will enable a comparative analysis of impact across regions.

References


College of Agricultural, Food, and Life Sciences International Education: Students’ Preferred Location of Travel and Perceptions of Benefits and Barriers

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Maggie Jo Hansen
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Abstract
The University of Arkansas has a campus-wide goal of 25 percent of students participating in an international program prior to graduation. This created concern because only three percent of Dale Bumpers College of Agricultural, Food and Life Sciences (Bumpers College) students participated in an international program prior to 2012. For five years, the Bumpers College International Programs Office (IPO) has assessed students to determine their perceived benefits, barriers, and needs in an effort to design international programs of interest and increase student participation. In this study, Bumpers College students were surveyed to determine perceived benefits and barriers to participating in an international program and identify the countries of interest in visiting. Instruments were administered via paper form to 1,165 students enrolled in large section courses in fall 2016. Using a six-point Likert-type scale, students’ believed international program participation “looks good on a resume” with a mean of 5.46 (SD = 0.77). The least important statement was “increased employability” with a mean of 4.92 (SD = 1.00). Students slightly agreed or agreed to all questionnaire benefit statements. The barrier statement “costs too high” was identified as the most important with a mean of 4.79 (SD = 1.12). The least important statement was “an international program will not have an impact on my future career” with a mean of 2.12 (SD = 1.21). About 72% of students were willing to participate in an international experience in a European country. Recommendations for practice and research are discussed and identified limitations are provided.

Keywords: international experiences, international program benefits and barriers, countries of interest, study abroad, study abroad preferences
Introduction

Over the past decade, higher education in the United States has noted international education program participation increase. Study abroad programs offer opportunities for students to immerse in cultures, foreign languages, and varying lifestyles (Clarke, Flaherty, Wright, & McMillen, 2009). Study abroad program benefits include increases in intercultural awareness, social proficiency, interdisciplinary study, perceptions of globalization, and intercultural communication (Clarke et al., 2009; Lewis & Niesenbaum, 2005).

Study abroad experiences for students in United States have been a common theme in higher education since the 1970s (Hachtmann, 2012). These experiences have diversified over the years, starting as a general education model focused primarily on sending mostly female students to Western European countries for cultural and language training (Hachtmann, 2012). Most study abroad experiences focus on preparing students for a global market, and the typical experience is not easily defined (Hachtmann, 2012). Research notes that international programs serve as an enhanced educational experience (Hachtmann, 2012) and prepare students for a globalized workforce (Andreasen, 2003). Recently, student participation in study abroad experiences in the Bumpers College has increased.

Engaging in international experiences provides students with many educational opportunities and instances to develop professionally and personally (Estes, Hansen, & Edgar, 2016; Kitsantas & Meyers, 2001; Roberts & Edwards, 2016). The Institute for the International Education of Students (IES) surveyed 3,400 alumni who studied abroad from 1950 through 1999. The results showed participating in an international program was a defining event that continues to impact the individual’s life long after the program is over, no matter where the individuals studied or the length of their program (Norris & Gillespie, 2009). Students’ interest and motivation to participate in an international experience are mostly due to the effects it could have on their future, including: a) increasing awareness of diversity, b) developing a global perspective, c) improving job marketability, and d) creating lifelong friendships (Estes et al., 2016; Kitsantas & Meyers, 2001). In addition, when selecting an international program, students engage in assessing the pros and cons of participating before committing (Estes et al., 2016). By understanding students’ perceived needs, barriers, and benefits efforts can be focused on increasing student participation in international experiences (Danjean, Bunch, & Blackburn, 2016). Research also links the accumulation of culturally relevant knowledge gained from study abroad experiences to creative thinking processes (Lee, Therriault, & Linderholm, 2012). However, little research exists for where students want to study abroad and their motivations to participate in an international education experience (Anderson, Hubbard, & Lawton, 2015).

Within the framework of a global knowledge-economy, universities provide and advertise study abroad experiences that are thought to equip students with the skills, abilities, and mindsets “needed to deal with the realities of globalizing markets, greater job insecurity, and the likelihood of continual occupational mobility throughout their lives” (Barnick, 2010, p. 21). In 2010, the University of Arkansas set a goal for twenty-five percent of graduating seniors to complete an international experience by 2020 (University of Arkansas Annual Report, 2013). However, the current rate of
graduating seniors in the Bumpers College completing an international experience ranges from three to five percent annually. Bumpers College students have shown positive perceptions to international program participation and participation rates have recently began to increase (Estes et al., 2016). Additionally, by understanding where students want to study abroad, more targeted efforts can be placed on building programs in student areas of interest.

**Theoretical and Conceptual Framework**

The conceptual framework of this research was based on College Choice Theory. College choice theory maintains three decision-making stages that can be used in the context of selecting study abroad programs; namely, 1) study abroad intent, 2) program search, and 3) location selection (Salisbury, Umbach, Paulsen, & Pascarella, 2009). To tie the theory of college choice theory (conceptually) to the described processes that occur during a study abroad experience (Conner, 2013), social cognitive theory was utilized to ground the theoretical framework. The learning stages of symbolizing and forethought in the social cognitive theory (Bandura, 1986) are particularly important in students’ decision to participate in and prepare for engaging in an international learning experience, like their ability to symbolize. Symbolizing capability allows individuals to adapt and alter their surrounding environment and assign meaning to that experience; it is also the first capability learners must negotiate (Bandura, 1986; Conner, 2013). Students who decide and prepare to engage in international experience must first navigate this capability if they desire to attribute meaning to the change in their environment, which in this case is an international learning experience. Forethought capability allows learners to think about the consequences that their actions will create before they engage in the behaviors (Bandura, 1986). Understanding action consequences is important for students who are making the decision to study abroad, because they must weigh the consequences or barriers of an international experience before choosing to engage in the experience.

The expectancy-value theory has been used for decades in an effort to understand motivation (Eccles, 2013). This comprehensive model synthesizes multiple theoretical perspectives and captures key components of motivation in an effort to explain a wide range of achievement-related behaviors (Barron & Hulleman, 2014). The model focuses on understanding the subjective-task value, and was built on work associated with decision-making, achievement theory, and attribution theory (Crandall, 1969; Weiner, 1979). The expectancy-value theory model was used to identify an individual’s likely decision based on two beliefs: 1) an individual’s expectation for success and 2) the importance or value the individual placed on the activity/task. Eccles (2013) noted: “We believe that the conscious and non-conscious choices people make about how to spend time and effort lead, over time, to marked differences between groups and individuals in lifelong achievement-related patterns” (p. 106). Researchers have noted that the critical issue is the relative personal value an individual places on the choice options they face (Barron & Hulleman, 2014; Crandall, 1969; Eccles, 2013; Weiner, 1979). For this research, those choice options were focused on study abroad experiences.

Study abroad programs cultivate global awareness and competency (Norris & Gillespie, 2009; Salisbury et al., 2009). To review, students perceive study abroad benefits that may include various culture exposure, participation noted on curriculum vitae or résumé, and the identified
opportunity to study academic areas not available locally or within their degree programs (Anderson et al., 2015; Danjean et al., 2016; Doyle, Gendall, & Meyer, 2010; Estes et al., 2016; Lee et al., 2012). The most common perceived barrier is focused on financial concerns (Anderson et al., 2015; Danjean et al., 2016; Doyle et al., 2010; Estes et al., 2016; Lee et al., 2012). Again, little research exists to determine where students are interested in studying abroad. This research was an attempt to assess students enrolled in a college of agriculture to understand their perceived barriers, benefits, and location interests if choosing to study abroad.

**Purpose and Objectives**

This study assessed students enrolled at the University of Arkansas in the Dale Bumpers College of Agricultural, Food and Life Sciences to understand their perceived benefits of and barriers to participating in an international educational experience. The study also sought to identify participants study abroad location interests. Three objectives guided this study:

1. Describe students’ perceived benefits of participating in an international program.
2. Describe students’ perceived barriers of participating in an international program.
3. Identify students’ preferences for location when choosing an international program.

**Method**

This study used descriptive survey methodology. The survey population consisted of a random stratified sample of courses by academic department (Trochim, 2001) of large-enrollment (more than 50 students) fall 2016 undergraduate courses in the Bumpers College (N courses identified = 26). Of the courses selected to participate, fifteen course instructors agreed to have their students participate in this study. Students were provided paper instruments, and they were distributed during a regularly scheduled class meeting for each course. Prior to instrument distribution, a brief statement was read explaining the purpose and voluntary nature of the study and asking students to complete the instrument only once. According to official course rosters, 1,694 (potentially duplicated) undergraduate students were enrolled in these 15 courses; usable data were collected from 1,165 students for a 68.8% response rate.

The instrument consisted of 34 questions that assessed students’ perceived benefits and barriers to participating in an international experience, and gathered information regarding their location preferences for an international learning experience. Part I of the instrument assessed students’ perceived benefits to participation in an international experience; participants answered these questions on a six-point Likert response scale, ranging from *strongly disagree* (1) to *strongly agree* (6). In this section, the instrument also assessed students’ perceived barriers to engage in international experiences; participants also answered these questions on the same six-point response scale, *strongly disagree* (1) to *strongly agree* (6). The benefits and barrier options used in this research were based on research studies by Edgar and Edgar (2009), Estes et al. (2016), and Wingenbach et al. (2003). Part II of the instrument focused on preferred areas of international study. Respondents had the opportunity to make additional comments in open-ended responses. Part III of the instrument focused on students’ demographics and willingness to participate in an international experience as well as provided them space for written comments. Instrument face and content validity was assessed and deemed acceptable by faculty representatives who
serve on the Bumpers College International Programs Committee. This committee consists of one faculty member from each of the 10 academic units in the college. Each of these individuals had international experience.

Data was entered into Excel™ for compilation and analyzed with SPSS© version 23. Data analyses consisted of descriptive statistics, including the computing of frequencies, means, standard deviations, and percentages. Categorization of the open-ended responses occurred first and then they were counted to determine frequency.

**Results**

Of the students who reported their classification \((n = 1,142)\), 39.9% were sophomores, 27.7% were juniors, 19.3% were seniors, and 13.1% were freshman. Students \((n = 1,059)\) reported if they were interested in participating in an international program, with 71.8% reporting they were interested, 19.2% were not interested, 8.1% had previously participated in an international program, and less than 1% were unsure of their interest. Of all participants, 78.9% \((n = 836)\) were willing to participate in an international program.

Students’ responses to the international program benefits, outlined in this research, noted they “slightly agreed” to “agreed” with all statements. The most supported statements were that international programs help build my résumé \((M = 5.46, SD = 0.77)\), have a life changing impact on my life \((M = 5.45, SD = 0.81)\), and participation impact will last a lifetime \((M = 5.41, SD = 0.84)\). Participants were less likely to agree with statements such as an international experience will increase their level of employability \((M = 4.92, SD = 1.00)\) and an international experience would assist them in learning more about their academic field \((M = 4.96, SD = 1.02)\). Table 1 contains a complete list of students’ perceived benefits.

**Table 1**

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Count</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study abroad participation looks good on a résumé</td>
<td>1,163</td>
<td>5.46</td>
<td>0.77</td>
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<tr>
<td>Life-changing opportunity</td>
<td>1,163</td>
<td>5.45</td>
<td>0.81</td>
</tr>
<tr>
<td>Impact will last a lifetime</td>
<td>1,161</td>
<td>5.41</td>
<td>0.84</td>
</tr>
<tr>
<td>I can make new friends outside of my comfort zone</td>
<td>1,160</td>
<td>5.31</td>
<td>0.85</td>
</tr>
<tr>
<td>Important aspect of personal growth</td>
<td>1,161</td>
<td>5.29</td>
<td>0.89</td>
</tr>
<tr>
<td>Participation sets me apart when applying for graduate school or jobs</td>
<td>1,162</td>
<td>5.25</td>
<td>0.91</td>
</tr>
<tr>
<td>Change my perspective on life</td>
<td>1,163</td>
<td>5.21</td>
<td>0.96</td>
</tr>
<tr>
<td>Positive impact on my future career</td>
<td>1,163</td>
<td>5.20</td>
<td>0.88</td>
</tr>
<tr>
<td>Become a more well-rounded citizen</td>
<td>1,163</td>
<td>5.12</td>
<td>0.94</td>
</tr>
<tr>
<td>International program participation is a very effective way to build job skills</td>
<td>1,161</td>
<td>5.12</td>
<td>0.91</td>
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Opportunity to work/live abroad after the international program  

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<tr>
<td></td>
<td>1,162</td>
<td>5.03</td>
<td>1.02</td>
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</table>

Enables me to tolerate ambiguity  

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<tbody>
<tr>
<td></td>
<td>1,160</td>
<td>5.03</td>
<td>0.95</td>
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Learn more about my academic field  

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<tr>
<td></td>
<td>1,162</td>
<td>4.96</td>
<td>1.02</td>
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Increased employability  

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<tbody>
<tr>
<td></td>
<td>1,163</td>
<td>4.92</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note. Scale used was 1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Slightly Agree, 5 = Agree, 6 = Strongly Agree.

There was more variability in participants’ responses to perceived international program barriers with responses varying between “disagree” and “slightly agree”. Costs ($M = 4.79, SD = 1.12$), work ($M = 4.35, SD = 1.17$), and school commitments ($M = 3.91, SD = 1.49$) were the most readily identified barriers of international program participation. Students disagreed with the statements: “an international program will not have an impact on my future career” ($M = 2.12, SD = 1.21$), “an international program will not help me become more employable” ($M = 2.15, SD = 1.17$), and “an international program will not help me academically” ($M = 2.25, SD = 1.27$). Table 2 contains a complete list of students’ perceived barriers.

Due to the nature of the instrument, students could identify multiple continents or countries of interest. There were 969 participants who noted areas of preferred travel for international experiences. Students interested in participating in international program opportunities preferred to travel to European countries ($n = 1,991$), followed by Oceania ($n = 353$), Asia ($n = 199$), South America ($n = 169$), Africa ($n = 159$), North America ($n = 107$), and the Caribbean ($n = 22$).

Of the Europe region interests, Italy ($n = 417$) was most preferred, followed by Spain ($n = 288$), France ($n = 223$), the United Kingdom ($n = 209$), Greece ($n = 159$), Ireland ($n = 148$), Europe ($n = 138$), Germany ($n = 132$), Scotland ($n = 71$), Sweden ($n = 43$), Switzerland ($n = 31$), Netherlands ($n = 20$), and Austria ($n = 19$). There were 26 countries identified as locations of interest in Europe.

Of the Oceania region, Australia ($n = 246$) was most preferred, followed by New Zealand ($n = 102$). Bora Bora, Brunei, Fiji, and Nauru were all listed once as possible locations of interest in the Oceania region. The third most identified area of interest was Asia. In this region, Japan ($n = 48$) was most preferred, followed by China ($n = 39$), and India ($n = 30$), Thailand ($n = 25$), Asia ($n = 10$), Vietnam ($n = 7$), Korea ($n = 5$), Russia ($n = 5$), South Korea ($n = 5$), and United Arab Emirates ($n = 4$). There were 25 countries in the Asia region identified as areas of international program travel interest by Bumpers College students.

Of the South America region, Brazil ($n = 62$) was most preferred, followed by Argentina ($n = 30$), Costa Rica ($n = 22$), South America ($n = 21$), Chile ($n = 11$), Peru ($n = 10$), Columbia ($n = 5$), Bolivia ($n = 4$), and Ecuador ($n = 3$). There were 12 countries in the South America identified as areas of interest.
Table 2

<table>
<thead>
<tr>
<th>Students’ Perceived International Program Participation Barriers (n = 1,159)</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>International program costs are too high</td>
<td>1,159</td>
<td>4.79</td>
<td>1.12</td>
</tr>
<tr>
<td>I’m too busy with school</td>
<td>1,158</td>
<td>4.35</td>
<td>1.17</td>
</tr>
<tr>
<td>I’m too busy with work</td>
<td>1,154</td>
<td>3.91</td>
<td>1.49</td>
</tr>
<tr>
<td>I am unable to participate, because there are not enough funding opportunities for me</td>
<td>1,147</td>
<td>3.80</td>
<td>1.40</td>
</tr>
<tr>
<td>International program courses offered do not fit into my degree plan</td>
<td>1,148</td>
<td>3.20</td>
<td>1.48</td>
</tr>
<tr>
<td>I am not aware of international program opportunities</td>
<td>1,151</td>
<td>3.08</td>
<td>1.40</td>
</tr>
<tr>
<td>I am unable to participate, because I have a lack of support from my parents</td>
<td>1,152</td>
<td>2.66</td>
<td>1.48</td>
</tr>
<tr>
<td>My academic department does not encourage international program participation</td>
<td>1,146</td>
<td>2.55</td>
<td>1.31</td>
</tr>
<tr>
<td>An international program will not help me academically</td>
<td>1,153</td>
<td>2.25</td>
<td>1.27</td>
</tr>
<tr>
<td>I do not want to participate in an international program</td>
<td>1,152</td>
<td>2.18</td>
<td>1.37</td>
</tr>
<tr>
<td>An international program will not help me become more employable</td>
<td>1,156</td>
<td>2.15</td>
<td>1.17</td>
</tr>
<tr>
<td>An international program will not have an impact on my future career</td>
<td>1,154</td>
<td>2.12</td>
<td>1.21</td>
</tr>
</tbody>
</table>

Note. Scale used was 1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Slightly Agree, 5 = Agree, 6 = Strongly Agree.

The fifth most identified area of interest was Africa. In this region, Africa (n = 61) was most preferred, followed by South Africa (n = 58), and Kenya (n = 7), Mozambique (n = 7), Egypt (n = 6), Ghana (n = 4), Morocco (n = 4), Nigeria (n = 4), and Uganda (n = 3). There were 14 countries in Africa identified as areas of interest by Bumpers College students.

Of the North American region, Mexico (n = 25) was most preferred, followed by Belize (n = 22), Canada (n = 14), the United States (n = 12), Panama (n = 11), Central America (n = 5), Guatemala (n = 5), and Honduras (n = 5). There were 13 countries in the North America listed.

The final region was the Caribbean. Of the Caribbean region, The Bahamas (n = 4) and Caribbean (n = 4) were most preferred, followed by Cuba (n = 3), Jamaica (n = 3), Haiti (n = 2), and Puerto Rico (n = 2). There were 10 countries in the Caribbean region identified as locations of interest.

Conclusions, Implications, and Recommendations

More than one-half of the participants (71.8%) in this study were interested in participating in an international program. Students’ responses to the potential international program participation...
benefits outlined in this research noted they “agreed” with all statements. The most identified benefits were international programs help build their résumés ($M = 5.46$, $SD = 0.77$) and can have a life-changing impact ($M = 5.45$, $SD = 0.81$). This research supports previous findings by Danjean et al. (2016), Doyle et al. (2010), and Estes et al. (2016), and mirrors benefits noted in previous research including increased awareness of diversity, developing a global perspective, improving job marketability, and creating lifelong friendships (Kitsantas & Meyers, 2001).

However, there was more variability in responses for barriers. Costs ($M = 4.79$, $SD = 1.12$), work ($M = 4.35$, $SD = 1.17$), and school commitments ($M = 3.91$, $SD = 1.49$) were the most identified barriers to the lack of international program participation. This mirrors previous research that identified costs and career as limiting factors when choosing to study abroad (Danjean et al., 2016; Estes et al., 2016; Salisbury et al., 2009).

This research is not without limitations. The students in our study were from one mid-south region land-grant university. As a result, the findings cannot be generalizable beyond those who participated in this research or this university. Additional research on student benefits, barriers, and interest areas for studying abroad is important. One potential research question related to location is whether students perceived costs vary by geographical region. In addition, these results are limited to construct validity of the scale.

In spite of the limitations, this research supports previous research by Estes and colleagues (2016) and identified benefits and barriers to studying abroad. By understanding students’ perceived barriers and benefits to studying abroad colleges of agriculture will be able to support international program efforts focused on increasing student participation (Danjean et al., 2016). Researchers have noted the need for colleges of agriculture to put more emphasis on international experiences and the learning afforded through them (Estes et al., 2016; Kitsantas & Meyers, 2001). A key concept of learning when viewed through a social cognitive theory lens is students must be able to alter their environment and assign meaning to an experience (Bandura, 1986); however, students cannot begin to do that unless opportunities are afforded to them. Therefore, this study was an important step forward in understanding students’ international experience interests, needs, and locations of study. This research was the first step in understanding student needs and location preference in one college of agriculture.

In an effort to expand student forethought, key to learning (Bandura, 1986), Bumpers College must understand students’ needs (outlined as benefits and barriers) to tailor communication messages about the opportunities associated with international experiences and build programs in countries where students have interest. With shrinking institutional budgets and the desire to serve students in all educational areas, it is important to focus international programming areas on student needs and interests (Estes et al., 2016). Better understanding students’ perceived needs can benefit institutions of higher learning in the following areas: a) allow targeted, promotional efforts to outline benefits and reduce barriers when possible, b) create a more concise strategy to develop international programs in regions and countries of student interests, and c) create increased understanding of student needs that can assist with targeting additional funding.

At the University of Arkansas, the call for increased numbers of students
engaged in international educational experiences may change; however, continued efforts to create high-caliber international programs that meet student needs will not. This research may provide insight for other colleges of agriculture interested in creating more targeted programs that can reduce time and funding allocations on these initiatives. Findings from this study will be used to guide the Bumpers College International Programs Office international program development over the next few years. With budget cuts, increased global unrest, and pressure from administration to create and fill international programs, there is a need to focus international programming areas on student needs and interests and, where possible, reduce barriers. Program assessments continue to be critical to understand an ever-changing student base and to create successful international programs.

It is obvious that students enrolled in the Bumpers College were most interested in programs in Europe. There are numerous reasons regarding why this might be the case, including: a) years of experience creating programs on this continent, b) students’ perceived ease of communicating (as most countries in this area speak fluent English), and c) ease of travel (Estes et al., 2016). It is also likely that this selection occurred due to this continent being the primary focus for previous Bumpers College international programs (Estes et al., 2016). If colleges of agriculture are able to address students’ monetary and work concerns, while increasing the visibility and accessibility of international program experiences in areas of their preference, increased participation rates may occur. This research also brought to light that educating college students about the diversity and variety of travel, international program funding opportunities available, and benefits of participation in study abroad could encourage students to apply for a program of interest. Additional assessment regarding students’ perceived benefits, barriers, and needs regarding international programs participation is recommended to sustain and increase international program growth, especially in colleges of agriculture.

References


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The JIAEE is the official refereed journal of the Association for International Agricultural and Extension Education (AIAEE).

General Requirements
Microsoft Word files only may be submitted. All manuscripts must indicate the type of article—Feature; Commentary; Tools of the Profession and Book Review—on the title page of the manuscript. All manuscripts must be submitted online at: http://jiaee.ft.expressacademic.org.

Manuscripts cannot be published or be under consideration for publication in another journal. The Journal of International Agricultural and Extension Education (JIAEE) follows the standards set forth in the Publication Manual of the American Psychology Association (6th ed.). Online manuscript submission guidelines are posted at http://www.aiaee.org/guidelines.html. Authors must follow these formatting requirements prior to submitting manuscripts to the JIAEE.

Feature Articles
A title page with manuscript title, authors’ names, institutions, and city/state/country is required. The manuscript must include an Abstract (a succinct idea of the article’s content) not exceeding 250 words, followed by 5-7 Keywords (selected from a list of topics available on the submission log on page), Introduction, Theoretical/Conceptual/Operational Framework, Purpose and Objectives, Methods, Findings/Results, Conclusion, Recommendations/Implications, and References, or similar appropriate headings. There is no fee charged for submitting a feature article. Feature Articles cannot be longer than 20 double-spaced (12 point font) pages (not including the title page) with one-inch margins on all sides, excluding references.

Commentary Articles
Commentary Article manuscripts are submitted online. A title page with manuscript title, authors’ names, institutions, and city/state/country is required. The article must include an Abstract not exceeding 250 words. Please include 5-7 Keywords (selected from a list of topics available on the submission log on page) to describe your manuscript. Commentary Articles should be no longer than eight double-spaced (12 point font) pages (not including the title page) with one-inch margins on all sides, excluding references.

Tools of the Profession and Book Review Articles
Tools of the Profession Article manuscripts are submitted online. A title page with manuscript title, authors’ names, institutions, and city/state/country is required. Please include Keywords (about seven) to describe the manuscript. Tools of the Profession Articles should be no longer than four double-spaced (12 point font) pages (not including the title page) with one-inch margins on all sides, including references. If you wish to submit a book review, policies and guidelines are available online http://www.aiaee.org/files/BookRevGuide.pdf.

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($20.00 for non AIAEE members) fee assessed to the corresponding author if accepted for publication after the peer review process.