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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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Feature articles focus on philosophy, current or emerging issues, and the methodology and practical application of specific research and appropriate technologies, which have implications for developed and developing countries. For publication in the *JIAEE*, feature articles must pass the *JIAEE’s double blind, referee process*, where peer reviewers evaluate manuscript content and ensure readability. Reviewers are selected from the AIAEE membership. In the double blind, referee process, all references to authors are removed before the manuscript is sent to reviewers. Feature articles may be submitted for peer review a total of three times before they are no longer acceptable for publication in the *JIAEE*. Failure to meet the submission formatting guidelines will result in an automatic first rejection.

**Other Article Types**

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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From the Executive Editor

I am pleased to present volume 24, issue 2 of the *Journal of International Agricultural and Extension Education*. This issue includes studies by seasoned and budding scholars in academia as well as practical use and research from the private sector. You will notice some emerging themes but a lot of diversity in this set of articles, and this issue reminds me of the scope and depth of international agricultural and extension education.

This second issue of volume 24 includes 10 feature articles from inquiries across the globe, including Burundi, Haiti, Honduras, Ireland, Morocco, Nepal, Philippines, Uganda, and the United States. The topics include entrepreneurship, career development, advisory networks, 4-H gardening programs, partnerships in post-conflict settings, student exchange programs, decision-making, developing social capital and leadership skills and utilizing competency assessments. I hope you discover this issue as explanatory, thought-provoking, and produced by researchers with application to your interests.

Do not forget to submit your work to the JIAEE for review. The editorial team enjoys the diverse amount of scholarship that is submitted to the journal on a regular basis. Submission guidelines are located at: [https://aiaee.org/index.php/submission-guidelines](https://aiaee.org/index.php/submission-guidelines). Please remember that we accept submissions for tools for the profession, book reviews, commentaries, and feature articles. The profession wants to learn how you are working to advance agriculture and extension education.

Next year is the 25th anniversary of our journal, and we will be sending information related to a special issue of the *JIAEE* to commemorate this milestone.

Have a great rest of the year!

Sincerely,

Robert Strong Jr.
Executive Editor, *JIAEE*
Challenges to Sustaining University-Community Partnerships in War-Torn, Northern Uganda: Investigating Resistance, Negative Stereotyping, and Gender Bias in Agricultural Students’ Attachments

Richie Roberts
North Carolina A&T State University

M. Craig Edwards
Oklahoma State University

Abstract

Gulu Town (Gulu) served as a site of refuge for many during northern Uganda’s armed conflict that spanned from 1986 to 2006. Since then, Gulu transitioned into a region with sprawling slums and deteriorating social conditions. To combat these trends, the Faculty of Agriculture and Environment (FAE) at Gulu University adopted a development approach emphasizing community transformation. The FAE conceptualizes community transformation as the building of Gulu community members’ capacity to transition from a subsistence agrarian lifestyle to one more economically sustainable. One mechanism the FAE uses to enact their commitment to community transformation are university-community partnerships established to facilitate agricultural student attachments, or internships. Because of the myriad ways university-community partnerships are manifested, we examined the challenges to sustaining such partnerships in this post-conflict region. When interpreting findings through Foucauldian discourse theory, three themes emerged: (a) resistance, (b) reinforcement of stereotypes, and (c) gender bias. Moving forward, we recommend training opportunities be developed to promote more collaborative, contextually grounded strategies to overcome the challenges and enhance the partnerships such that all participants benefit.

Keywords: attachments; gender bias; Uganda; university-community partnerships

Acknowledgement. We wish to acknowledge Oklahoma State University’s Humphrey’s International Travel Fellowship and Robberson Summer Dissertation Fellowship that furnished funding for travel and the collection of data for this article.
Introduction

Gulu Town (Gulu) served as a site of refuge for many during northern Uganda’s armed conflict that spanned from 1986 to 2006 (Branch, 2011, 2013; McKibben & Bean, 2010). Across Uganda’s northern region it is estimated the Lord’s Resistance Army (LRA) and other rebel groups abducted thousands of men, women, and children and killed more than 100,000 civilians (Dolan, 2009). In the early 1990s, the Ugandan military forced more than 130,000 individuals into displacement camps intended to house only a quarter of that number (Dolan, 2009). At the war’s peak, the containment camps accommodated nearly 1 million refugees (Branch, 2009). In the decade after the war’s end, the camps transitioned into sprawling slums with deteriorating social conditions (Branch, 2011, 2013). As a result, Gulu’s new population is relatively struggling and young. Moreover, in the midst of the war, land grabbing arose as a common practice that left a number of displaced Ugandans stripped of their property (McKibben & Bean, 2010). Many northern Ugandan families are now landless and unable to secure a steady income (Sjogren, 2011). The conditions surrounding this disproportionately marginalized population appeared to have also intensified frustration among an increasing number of youth who report feeling ostracized from society (Finnstrom, 2008).

To combat these trends, the Ugandan government passed a statutory instrument, i.e., a legislative act, in 2003 that led to the creation of a public institution, Gulu University, intended to meet the needs of this embattled region (Mugonola & Baliddawa, 2014). The Faculty of Agriculture and Environment (FAE) at Gulu University has attempted to fulfill this mission by adopting a motto emphasizing community transformation (Kalule, Mugonola, Odongo, & Ongeng, 2014). The FAE conceptualizes community transformation as the building of Gulu community members’ capacities to transition from a subsistence agrarian lifestyle to one more economically sustainable (Mugonola & Baliddawa, 2014). One mechanism the FAE uses to operationalize their commitment to community transformation is through university-community partnerships established to facilitate agricultural student attachments, or internships. Mugonola and Baliddawa (2014) outlined three key objectives that guide the program’s design: (a) building smallholder farmers’ capacities, (b) allowing students to acquire essential training and facilitation experience with farmers, and (c) improving the visibility of Gulu University in the local community through viable partnerships. After the program’s inception in 2006, anecdotal evidence reported by faculty, students, and community cooperators, i.e., smallholder farmers, demonstrates its successes. For example, reported outcomes for the program include improved community relationships, enhanced practical and problem-solving skills for students, as well as increased earning potential for community cooperators through value-addition to their agricultural outputs (Mugonola & Baliddawa, 2014). However, these achievements come as the result of more than a decade of difficult labor put forth by developers of and participants in the program. Investigating the challenges of sustaining viable university-community partnerships may hold valuable implications for other post-conflict regions.

Review of Literature

Today, higher education institutions find themselves in need of clarifying and reaffirming their roles to the local communities in which they reside (Tsui & Wong, 2006). This stems from increasing
criticism that the aims of many universities are disconnected from their local communities’ needs, diminished public funding, and discussions about institutions taking on greater responsibilities to research, teach, and serve in their local contexts (Aronowitz, 2000; Checkoway, 2000; Suarez-Balcazar, Harper, & Lewis, 2005). As a result, calls for universities to become more actively engaged in their communities are intensifying (Asifiwe, 2011; Huggins, Tadesse, & Tadesse, 2015; Makkawi, 2013). This position has special resonance for institutions situated in post-conflict contexts (Costandius & Bitzer, 2014; Makkawi, 2013; Tavanti, 2011). Huggins et al. (2015) took this call a step further by arguing that universities’ community engagement efforts should be grounded in collaborative relationships. The literature, however, contradicts a tidy establishment of university-community partnerships (Archer-Kuhn & Grant, 2014; Harkavy & Romer, 1999; Stewart & Alrutz, 2012; Strier, 2011). For example, the cultures of universities often support a privileged stance in which officials adopt a position of power as the experts in their local communities (Bringle & Hatcher, 2002). By transitioning to a position of mutual respect and balance with the local community, Cozza and Blessinger (2015) argued university-community partnerships could be more beneficial for all stakeholders. As discussions foment surrounding the nature of university-community partnerships, VanderDussen (2009) suggested these collaborations might even serve as a way to enact revolutionary change and reform within the institutions of higher education.

One source of potential change is the role of private markets in local communities of developing countries (Keith, 2011; Tsui & Wong, 2006). For example, private markets can translate into economic livelihood opportunities for local citizens while also helping the related partnerships become more relevant and practical. Therefore, universities should strive to attune their objectives to ensure clear linkages can be made likely to stimulate sources of local livelihoods and economic wherewithal (Keith, 2011). Mounting evidence (Barrick, Samy, Gunderson, & Thoron, 2009; Shoulders, Barrick, & Meyers, 2011; Thoron, Barrick, Roberts, & Samy, 2008) in the international agriculture development literature demonstrates these connections may be accomplished through student internships, such as the attachment program investigated. However, Thoron et al. (2008) argued university faculty in developing nations often lack the necessary training to facilitate quality internships. To better prepare agricultural workers in international settings, Barrick et al. (2009) proposed a model that included student internships as a critical element but the model gave little attention to the challenges implicit in forming and sustaining university-community partnerships to ensure successful internship experiences. Another gap in the literature exists in regard to the concept of relationships among faculty, students, and community volunteers through internship experiences. The nature of these partnerships have been shown to be crucial in influencing not only the quality of learning experiences but also the degree to which real-world issues and problems are addressed (Annor-Frempong, Zinnah, & Akumah-Boaten, 2002; Archer-Kuhn & Grant, 2014; Miller, 2007).

The emphasis on relevant conditions in university-community partnerships has different meanings depending on how stakeholders conceptualize their endeavors (Keith, 2015; Sandy & Holland, 2006). Despite the divergences and similarities among conceptualizations, it is apparent universities can no longer ignore the importance of social responsibility and
applicability of partnerships to their local contexts (Keith, 2011). Therefore, contemporary university-community partnerships should be based on citizenship, reciprocal learning and power, ethical responsibility, and social justice (Keith, 2015). These pillars of success for university-community partnerships may be especially true for post-conflict regions, such as northern Uganda, concerning their creation to support the facilitation of student internships (Wallace, 2007). Empirical evidence supports the concept of students gaining work and life skills in the context of their local communities (Kaye et al., 2011). However, Butterwick and Harper (2006) demonstrated university-community partnerships are not as successful as frequently depicted. In fact, sustaining partnerships has been shown to be difficult and messy. A need existed, therefore, to explore the complexities regarding how these partnerships may influence student internships in the context of Gulu University’s surrounding community. To achieve that aim, this investigation sought to situate the challenges of these partnerships within the larger debate surrounding Gulu University’s identity, role, and mission in its post-conflict context.

Purpose
Because of the myriad ways university-community partnerships are manifested, we examined the challenges to sustaining such collaborations in the post-conflict region of northern Uganda. We specifically focused this investigation to examine how actors storied and articulated the multiple ways in which the challenges to community partnerships were experienced.

Theoretical Lens
The current study is epistemologically situated in the critical constructionist perspective (Denzin & Lincoln, 2008). Critical constructionists believe the world is systematically defined by societal norms, which are heavily influenced by systems of power (Denzin & Lincoln, 2008). Therefore, individuals espousing this philosophical perspective challenge the belief that knowledge is an “objective unbiased observation of truth” (Burr, 2003, p. 3). Rather, it is held that society can be transformed if individuals call these norms into question. Then, by bringing awareness to the silences, injustices, and inequities existing in reality, traditions and transactional practices can become more inclusive (Denzin & Lincoln, 2003).

In this study, the researchers challenged the underlying assumptions of university-community partnerships, especially in regard to how power structures mediate such relationships. As a result, the critical constructionist worldview influenced various aspects of this study’s design, including its grounding in Foucauldian discourse theory [FDT] (Foucault, 1972). Foucault (1972) explained that discourse is the construction of knowledge through language and other forms of communication. Therefore, discourse is a subjective glimpse into reality (Foucault, 1972). Nevertheless, it provides crucial insight into both the dominant and concealed views existing in the social world (Foucault, 1972). For example, Foucault (1972) explained that society uses discourse to exert social power, discipline, and control, and some discourses may assist in upholding the status quo while diminishing important aspects of agency for the less powerful.

Discourse is also viewed as an account heavily influenced by a socially classed, raced, and gendered context (Foucault, 1972). In the current study, discourse played a significant role because the way in which the actors chose to story their challenges to sustaining university-community partnerships formed a salient
body of knowledge uniquely shaping the nature of such collaborations. Therefore, through the lens of FDT, the underlying assumption of this study was that university-community partnerships are part of the social world producing the discourse. The actors involved in university-community partnerships contributed to the construction of this discourse, and critiquing their talk in regard to the partnerships holds value for informing the literature and the context under study. These assumptions profoundly influenced our decision-making throughout this investigation.

**Reflexivity**

We developed the reflexivity section to own the biases, assumptions, and perspectives embedded in this study. Because the critical constructionist worldview deeply influenced this investigation, it is important to reveal that our beliefs about inequity and injustice may have influenced resulting interpretations. To that end, we developed the following disclosure to acknowledge our positions in collecting, interpreting, and representing the data.

It is important to acknowledge the lead researcher comes from a relatively privileged background. He is a White male who grew up in middle-class family in the United States. He was employed as a school-based, agricultural education teacher for four years; and, as a consequence, has dedicated a significant amount of thought to teaching and learning in the context of agriculture. Therefore, his gender, race, upbringing, and education greatly influence how he perceives and interacts with the world. His advisor, the other author, mentored him from the study’s early conceptualization. He has conducted
development project’s involving faculty members of Gulu University and visited northern Uganda several times. Both researchers have also worked with and conducted research involving marginalized populations. And, as a result, we believe these experiences influenced our thoughts and ideas in regard to interpreting the data associated with this study.

We are mindful that our experiences and biases influenced this study. However, questioning existing power structures and bringing awareness to important issues are key tenets of critically positioned inquiries (Lather, 1986; Popkewitz, 1999). In fact, critical theorists consider their biases as powerful strengths in the research process, rather than weaknesses (Ladson-Billings, 2000). Nonetheless, it is important to emphasize that ethical decision-making was upheld in this study. To demonstrate, we explicitly outline our methodological influences and also describe the standards for **rigor** and **trustworthiness** designed into this investigation.

**Methodology**

To achieve the purpose of this study, we conducted a systemic inquiry grounded in Stake’s (1995) *instrumental case study* methodology. This qualitative approach provides unique understandings in regard to bounded systems (Stake, 1995). For example, in the current study, Gulu University’s internship program served as the unit of analysis (Stake, 1995). Although most qualitative case studies are not generalizable, we made attempts to ensure the findings may be transferable to other post-conflict contexts by upholding standards of qualitative quality.

**Building Quality into the Study**
Ensuring quality is implemented in qualitative investigations is essential (Miles, Huberman, & Saldaña, 2014; Patton, 2002). Therefore, we sought to provide findings that not only rang-true to practitioners and scholars but were also grounded in ethical and rigorous decision-making. To that aim, we chose to ensure rigor and trustworthiness by using Lincoln’s and Guba’s (1985) four principles of qualitative quality: (a) credibility; (b) transferability; (c) dependability; and (d) confirmability. Credibility refers to the importance of producing trustworthy findings. We strove to achieve credibility through prolonged engagement in the field during an eight-week period. Through this experience, the lead researcher was able to conduct persistent observations, perform member checking, and triangulate emergent findings through multiple sources of data (Lincoln & Guba, 1985). In regard to transferability, or connecting the study’s findings to other contexts, we sought to provide accurate descriptions of participants and the context in which they were situated while also attempting to obtain a diverse sample (Lincoln & Guba, 1985). To ensure dependability, we fully described our roles in the research process and also specified the paradigms influencing the design of this study (Lincoln & Guba, 1985). Further, we only collected data that directly connected to the study’s purpose. The final standard, confirmability, refers to whether the researchers have been explicit about their decision-making (Lincoln & Guba, 1985).

To achieve that aim, we sought to adequately describe the participants, methods, and procedures employed in this study.

Participants
Participants (n = 22) were directly involved with the student internship program at Gulu University. After receiving IRB approval from Oklahoma State University, we used a combination of purposive and snowball sampling procedures to recruit participants (Miles et al., 2014). This process began by contacting Gulu University officials who coordinate the attachment program. We asked the coordinators to recommend faculty, students, and community cooperators whom they perceived could provide diverse and rich insights into this program. In all, six university faculty, six undergraduate students, six program alumni, and four community cooperators agreed to participate. To protect participants’ identities, we assigned each individual a participant number rather than reporting their names. Table 1 offers a profile of the study’s participants.
### Table 1
Profile of Study Participants

<table>
<thead>
<tr>
<th>Participant Number</th>
<th>Gender</th>
<th>Age</th>
<th>Group/Tribal Affiliation(^a)</th>
<th>Length of Involvement</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Male</td>
<td>36</td>
<td>Mukonzo</td>
<td>4 years</td>
<td>Faculty</td>
</tr>
<tr>
<td>2</td>
<td>Male</td>
<td>37</td>
<td>Lango</td>
<td>10 years</td>
<td>Faculty</td>
</tr>
<tr>
<td>3</td>
<td>Male</td>
<td>67</td>
<td>Bantu</td>
<td>10 years</td>
<td>Faculty</td>
</tr>
<tr>
<td>4</td>
<td>Male</td>
<td>41</td>
<td>Bantu</td>
<td>4 years</td>
<td>Faculty</td>
</tr>
<tr>
<td>5</td>
<td>Male</td>
<td>42</td>
<td>Acholi</td>
<td>10 years</td>
<td>Faculty</td>
</tr>
<tr>
<td>6</td>
<td>Male</td>
<td>39</td>
<td>Luo</td>
<td>10 years</td>
<td>Faculty</td>
</tr>
<tr>
<td>7</td>
<td>Female</td>
<td>59</td>
<td>Acholi</td>
<td>5 years</td>
<td>Cooperator</td>
</tr>
<tr>
<td>8</td>
<td>Female</td>
<td>37</td>
<td>Acholi</td>
<td>3 years</td>
<td>Cooperator</td>
</tr>
<tr>
<td>9</td>
<td>Female</td>
<td>35</td>
<td>Acholi</td>
<td>3 years</td>
<td>Cooperator</td>
</tr>
<tr>
<td>10</td>
<td>Female</td>
<td>47</td>
<td>Acholi</td>
<td>7 years</td>
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<tr>
<td>11</td>
<td>Male</td>
<td>26</td>
<td>Muganda</td>
<td>3 years</td>
<td>Alumnus</td>
</tr>
<tr>
<td>12</td>
<td>Male</td>
<td>34</td>
<td>Acholi</td>
<td>4 years</td>
<td>Alumnus</td>
</tr>
<tr>
<td>13</td>
<td>Male</td>
<td>26</td>
<td>Acholi</td>
<td>2.5 years</td>
<td>Alumnus</td>
</tr>
<tr>
<td>14</td>
<td>Female</td>
<td>27</td>
<td>Muganda</td>
<td>2.5 years</td>
<td>Alumna</td>
</tr>
<tr>
<td>15</td>
<td>Male</td>
<td>32</td>
<td>Acholi</td>
<td>3 years</td>
<td>Alumnus</td>
</tr>
<tr>
<td>16</td>
<td>Female</td>
<td>28</td>
<td>Karamajong</td>
<td>2.5 years</td>
<td>Alumna</td>
</tr>
<tr>
<td>17</td>
<td>Male</td>
<td>27</td>
<td>Lango</td>
<td>2 months</td>
<td>Student</td>
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<tr>
<td>18</td>
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<td>21</td>
<td>Buganda</td>
<td>2 months</td>
<td>Student</td>
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<tr>
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<td>Male</td>
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<td>Buganda</td>
<td>2 months</td>
<td>Student</td>
</tr>
<tr>
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<td>25</td>
<td>Buganda</td>
<td>2 months</td>
<td>Student</td>
</tr>
<tr>
<td>21</td>
<td>Male</td>
<td>24</td>
<td>Mutoorro</td>
<td>2 months</td>
<td>Student</td>
</tr>
<tr>
<td>22</td>
<td>Female</td>
<td>23</td>
<td>Mutoorro</td>
<td>2 months</td>
<td>Student</td>
</tr>
</tbody>
</table>

\(^a\)Acholi is the dominant tribe in northern Uganda; however, students from across the country attend Gulu University based on a career placement system coordinated by Uganda’s government.

**Data Sources, Methods, and Analysis Strategies**

To understand this phenomenon more intimately, the investigation required direct experience and interaction with the
Internship program and its many actors. As a result, the lead researcher was immersed in the program for an eight-week period. Through this experience, he was able to position himself as a “participant observer” (Patton, 2002, p. 265) during the peak of the program’s activities. As a consequence, he assumed both an insider’s and outsider’s position (Saldaña, 2015). For example, being an outsider of a different nationality, race, and background than the subjects meant he was able to enter the setting with a relatively fresh perspective. Meanwhile, he was also able to assume the role of an insider by participating in the day-to-day activities of the attachment program as well as meetings concerning the program’s organization, design, and revision. Through these experiences, he collected multiple sources of data to gain a rounded view (Patton, 2002) of participants’ perspectives regarding their experiences with the attachment program.

In this study, we analyzed data derived from four sources: (a) interviews, (b) documents, (c) observation/field notes, and (d) photographs. To gain insight into participants’ unique perspectives, the lead researcher facilitated initial semi-structured interviews that ranged from 60 to 85 minutes in length. He also conducted additional follow-up interview sessions with participants to clarify conversations as well as further understand observations from the field. To systematically facilitate observations, we followed procedures outlined by Emerson, Shaw, and Fretz (2011) by which jottings and field notes were recorded. We also collected visual evidence (Pink, 2007) and organizational documents (Linde, 2009) to triangulate findings and ensure data saturation was achieved.

To analyze the data, we grounded procedures in Patton’s (2002) concept of a layered analytic approach. This process began by employing Corbin’s and Strauss’ (2015) constant comparative method through the process of immersion and incubation as we coded, categorized, and created themes. We initiated this technique by employing three levels of coding: (a) open, (b) axial, and (c) selective (Corbin & Strauss, 2015). We began the open coding process by reading data sources line-by-line (Corbin & Strauss, 2015). Then, to view the data through various frames of reference, we employed both descriptive and in vivo coding techniques outlined by Saldaña (2012). By using such an approach, we preserved important layers of context and richness while also making meaning of the data (Saldaña, 2012).

To initiate the second cycle of analysis, we engaged Corbin’s and Strauss’ (2015) axial coding technique in which we scrutinized relationships across the data corpus. In this stage, we were able to collapse the open codes into non-overlapping categories. We also weaved indigenous concepts (Emerson, et al., 2011) into the codes to ensure context and that participants’ meanings were not lost. In the final phase of analysis, we developed evidentiary warrants that aligned with the categories developed through axial coding (Saldaña, 2012). Participants’ words and other accompanying sources supported these warrants. Next, we conducted an alternate reading of the data by “thinking with theory” (Jackson & Mazzei, 2012, p. 6). Therefore, we were able to consider the data through the lens of Foucault (1972) and begin to make sense of how power structures may have influenced the university-community partnerships. To further assess these categories, we deductively scrutinized the concepts against “confirming and disconfirming evidence” (Erickson, 1985, p. 90) in the selective coding phase. Ultimately, through continual analysis and data reduction, we arrived at three
Findings

The analysis of data revealed three major challenges to sustaining university-community partnerships: (a) resistance, (b) reinforcement of stereotypes, and (c) gender bias. Therefore, when interpreting these findings through Foucault’s (1972) lens, it appeared that gender and class seemed to uniquely shape the challenges associated with the partnerships examined in this study. To situate these factors in the northern Ugandan context, the discussion of themes draws on relevant examples from the study’s findings.

Resistance

Although resistance is often conceptualized as existing within macro-structures of power, i.e., where the oppressed struggle against the powerful, Foucault (1972) argued that resistance also may be situated in less visible spaces. For instance, everyday resistance may be hidden, overlooked, and obscured from view. Despite the ambiguousness of micro-resistances, these small acts can provide insight into the silenced views and perspectives of the oppressed, especially regarding the underlying challenges and barriers related to partnerships. In interviews, participants articulated that resistance occurred through actors’ suspicions and skepticisms of both university officials and the internship program in the aftermath of armed conflict in their region. For example, the violent conditions of the Gulu region throughout the 20-year war left many individuals, including farmers, dependent on foreign aid and non-governmental organizations (NGOs). Although the aid was deeply appreciated, it also created unintended consequences in northern Uganda. Participants 1, 2, 3, 5, and 6 described how locals became dependent on hand-outs. Therefore, when Gulu University officials attempted to introduce the internship program, many farmers expected to be paid for their participation. Participant 1, a university lecturer, explained that “farmers were scared of [the] conditions but [also] lazy” because of the aid they had received. Participant 2 provided further insight on the attitudes of farmers regarding the program:

[They would say] here is the university coming and they're not paying people any money. So eventually the farmers started saying, ‘[w]e are not going to help you. We want you to pay us some money.’ There was that resistance. And also being a post-war situation, people were suspicious of us.

However, suspicion and skepticism were not only limited to farmers but also extended to the program’s students. For instance, Participant 5 explained students were suspicious of the program’s value due to its “intensive workload.” Meanwhile, Participant 14, a program alumna, explained that many of her peers complained about being “required to participate.” She continued: “They were skeptical of the program because they felt like they were having to do extra work that students in similar programs were not having to do.” Similarly, Participant 13 expounded that many of his peers were resistant to the program because they did not understand its intent. He further stated that students persistently posed questions such as “‘What is this all about?’ and ‘When will it end?’” The webs of resistance brought forth in the first theme revealed participants’ “reactive acts of opposition” (Foucault, 1972, p. 141) to the internship program in its early phase. Although these acts were ephemeral at times, they continually reappeared well after
the program’s establishment as both community cooperators and students struggled to understand and come to terms with its aims and expectations.

**Reinforcement of Stereotypes**

Participants in this study often voiced the difficulties involved with maintaining university-community partnerships. However, they also articulated the relationship-building phase as worth it because of the many positive outcomes associated with the program. Nevertheless, at times, the internship program seemed to reinforce negative stereotypes regarding agriculture and the university. Foucault (1972) espoused that stereotypes can work as a form of oppression by inscribing negative depictions of people, issues, and traditions in the public’s consciousness. Therefore, negative representations of agriculture and the university arose. For example, Participant 22 expressed that some farmers did not view students as knowledgeable about agricultural practices; rather they are viewed as “free labor.” Therefore, the view that agriculture is only for laborers, and not educated professionals, was reinforced for some students in the program. Participant 22 explained:

> To some of the farmers we are only providing them free labor. We are not able to apply what we are studying because farming is just work. There is not much thinking. You go there, the farmer expects you to weed, to open up land, maybe plant something new. So you ride your bicycle for 10 kilometers and you just work, not think.

Participant 4, a university official, echoed the view that “attitude issues” existed with the program. He stressed that sometimes farmers did not view “students as colleagues.” And, conversely, some students viewed farmers as “simple and unknowing.” Moreover, without forming a deeper, more close-knit bond in the partnership, both students’ and cooperators’ “opinions never change,” according to Participant 1. The extent to which stereotypes were reinforced in the partnerships also extended to the attachment cooperators. For example, several community cooperators viewed the concepts emphasized by the university faculty members were sometimes “not important.” Participant 8, a community cooperator, revealed that some of her negative views of the university were reinforced through her involvement with the program:

> I really enjoy my experience with the [attachment] program. I have learned a lot from the students that attach to me, but some of the information I hear they are learning is not so important. They miss out on important information. The university should focus more on information that will help us survive, not silly things.

As voiced by some participants, certain aspects of the internship program seemed to reinforce the stigmas perpetuated by Ugandan society concerning agriculture and university education as the students and community cooperators engaged with one another. As a result, this unintended reinforcement of negative stereotypes presented a unique challenge to sustaining viable university-community partnerships intended to serve the needs and interests of all stakeholders.

**Gender Bias**

Through field observations, an emergent pattern was the concept of female silence and lack of representation in the attachment program. In 2016, only five of the 36 students in the program were female.
Conversely, roughly 80% of Uganda’s farmers are female (Ali, Bowen, Deininger, & Duponchel, 2015). Foucault (1972) explained that silence is often the result of being oppressed as well as the existing gender rules within a given context. In this regard, we asked participants to express their opinions on this issue during interviews. Participant 6, a faculty member, explained this bias was connected to a “concerning trend” in Ugandan society. Through additional interviews, 15 participants echoed similar views. Participant 3’s explanation is representative:

First of all, there’s a misconception and attitude that agriculture majors are for males. Now, with that attitude, many girls already grow up knowing they’ll go [to school] for arts or nursing. They don’t want to do agriculture, physics, chemistry, math, or biology. They just grow up and they say to Hell with it, it’s for men. Agriculture is for men; I don’t need to do it. I think the main thing is attitude, but also there is a lack of social pressure on the girl child to stay in school. Especially here in Uganda, girls drop out.

University officials, community cooperators, alumni, and students all expressed thoughts concerning the negative stigma associated with women in agriculture. Participant 22, an undergraduate student, explained that while growing up agriculture was regarded as “man’s work” in her family despite the relatively small number of men in the farming profession. As a result, she was encouraged to pursue more “appropriate careers” such as nursing, teaching, or a job in the arts. This gendered issue presents a unique challenge to Gulu University’s attachment program.

Conclusions

This study explored the challenges to sustaining university-community partnerships in a post-conflict context. Three challenges were identified: (a) resistance, (b) reinforcement of stereotypes, and (c) gender bias. The findings illustrate how these challenges are positioned within the existing discourse of university-community partnerships in Gulu, Uganda. By grounding this study in FDT(1972), implicit challenges emerged as associated with power and privilege. Further, the findings may hold valuable contributions to the literature in regard to understanding the complexities of university-community partnerships and their implications for students’ internship experiences. Although internships have been depicted as overwhelmingly positive in international contexts (Shoulders et al., 2012; Thoron et al., 2008), limited attention is given to their potential challenges. To provide additional perspective into how the Foucauldian (1972) lens opened up new insights into this phenomenon, we next provide conclusions based on the study’s major findings.

The first theme, resistance, demonstrated the suspicions (Foucault, 1972) displayed by both community cooperators and students in their early engagement with Gulu University’s attachment program. In particular, this finding provides important insights into the role that perceptions play in shaping university-community partnerships. For example, findings of this study illuminated the importance participants’ contextually situated experiences had in influencing the construction and evolution of the partnerships. We, therefore, conclude that social tensions, relations of power, as well as group dynamics influenced the resistance experienced by stakeholders in their attempts to collaborate through the attachments.
Moreover, the partnerships leading to student internship opportunities in northern Uganda were predominantly depicted and voiced as high-quality experiences. However, in regard to the second theme, findings illustrated the partnerships could also uphold negative stereotypes perpetuated by Ugandan society. For instance, negative views on agriculture and the university’s role in the local community emerged as challenges as amplified by community cooperators’ and students’ lived experiences – a view supported by existing literature (Costandius & Bitzer, 2014; Makkawi, 2013; Tavanti, 2011). Of central importance to this finding is the role of relationships among faculty, students, and community cooperators. Relationships are recognized as factors influencing partnership-building (Annor-Frempong, et al., 2002; Hoyt, 2010), but less attention has been paid to the social and historical features influencing the construction of such collaborations and how that can serve as a basis for preserving negative stereotypes. In this study, relationships seemed to naturalize negative stereotypes of agriculture and the university on the part of students and their attachment cooperators while simultaneously limiting their mutual possibilities.

The dominance of women in agricultural roles throughout Ugandan society (Ali et al., 2015) stands in sharp contrast to existing trends in the student attachment program. Through in-depth ethnographic fieldwork and individual interviews, the silence and lack of representation of women emerged as a challenge to successful university-community partnerships. Participants articulated this trend is connected to broader social issues that often mute the discourses of women in Uganda. Further, women appear to be discouraged from selecting careers related to agriculture because the vocation is considered more appropriate for men – a notion supported by existing literature (Houweling, Christie, & Abdel-Rahim, 2015; Minde et al., 2015). Foucault (1972) suggested that the silence associated with issues of gender exist when one sex lacks agency in their private or professional lives. In accord, findings of this study indicated that women’s sense of agency was limited in both domains. The struggles of women in agricultural careers as well as related academic majors in developing countries has been documented (Beintema, 2006; James & Denis, 2015), and in Uganda in particular (Mukembo, Uscanga, Edwards, & Brown, 2017). However, the challenge of engaging women in university-community partnerships, such as through student internship programs, warrants more attention.

Recommendations, Implications, and Discussion

University-community partnerships are vital to the success of agricultural development in post-conflict areas (Harkavy & Romer, 1999; Stewart & Alrutz, 2012; Strier, 2011). Therefore, it is imperative to understand their complexities more fully. As such, the findings of this study suggest the challenges to partnerships are nested in broader socio-political issues of power, injustice, and inequality (Foucault, 1972). These implications expand possibilities for future research and practice. First, future investigations should examine the intricacies involved with stakeholder resistance throughout the various phases of university-community partnerships. For instance, researchers might explore the extent to which dialogue, co-construction of knowledge, role conflicts, and social tensions shape how stakeholders negotiate the conflicting agendas embedded within partnerships. Other researchers (Hart & Wolff, 2006; Miller, 2007) suggested
university-community partnerships promote egalitarian dialogue and social action. However, when considering the findings of this study, perhaps more attention should be placed on understanding how intersections of tribal affiliation, native language, experiences, and existing relationships, including gendered roles and other norms, promote various forms of resistance. By more deeply understanding the influence of these factors, perhaps Gulu officials can begin to make the necessary adjustments to gain more widespread acceptance of the attachment program’s objectives and thereby facilitate the relationships needed to achieve such.

In this study, university officials developed community partnerships to promote the application of theoretical knowledge while building the capacities of both students and smallholder farmers. However, these partnerships also led to unintended consequences such as reinforcing negative stereotypes. More study, therefore, is needed to determine the extent to which reinforcing negative stereotypes through partnerships may function as a challenge to enacting community transformation. By understanding the boundaries this feature may impose on the partnerships, perhaps the institution could develop approaches to minimize such influence. Therefore, we recommend regular stakeholder meetings be implemented so actors can dialogue, reflect, and pose critical questions concerning how the potential of partnerships may be diminished by their participants’ adherence to negative stereotypes. Further, discussions should also explore how partnerships can begin to move past this particular challenge to alter structures of power and oppression at a macro level (Foucault, 1972) in Ugandan society.

Issues of gender also should be examined to explore ways that a more equitable, inclusive culture can be created in the university-community partnerships facilitated by Gulu University. By silencing and obscuring the roles of women in agriculture, feelings of exclusion and rejection are likely to emerge (Foucault, 1972). However, by questioning the source of this discourse and discovering its structures of power, we can begin to understand how such serves as an impediment to successful and inclusive university-community partnerships. Gendered labels, stigmas, and taboos limit opportunities for women (Foucault, 1972), but by raising awareness of these issues, the same also can be used to stir a doubled consciousness. Britzman (2003) explained that a double consciousness is attained when oppressed individuals are able to “w.atc[h] themselves through the eyes of the powerful” (p. 51). Therefore, we suggest university officials design tailored campaigns aimed at promoting opportunities for women through participation in agricultural internships. Moving forward, we also recommend training be offered to address the three identified challenges by promoting more collaborative, contextually grounded strategies calibrated to preserve while enhancing Gulu University’s community partnerships.

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Building capacity of smallholder


Small-Scale Farmers’ Decision-Making for Crop Selection and Production Practices in Northern Haiti

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Abstract

Decision-making is an essential aspect of farming. The decisions farmers make affect their overall yield and, ultimately, impact their livelihoods. Understanding the different factors impacting farmer decision-making can provide insight for extension providers to improve the quality of service. In Haiti, the vast majority of farms are smallholder farms averaging less than 1.5 hectares (Ministry of Agriculture, Natural Resources, and Rural Development [MARNDR], 2010). The purpose of this study was to determine the decision-making practices of small-scale farmers in Northern Haiti related to crop production. The following research objectives guided the study: (a) identify the factors associated with crop selection, and (b) identify reasons farmers engage in specific practices for crop production. Results from this study found that small-scale farmers in the North Department reported using the following factors to determine crop selection: financial security, familial traditions, concern for family, and availability of financial resources. When determining practices for crop production, farmers relied on the following drivers: financial limitations and previous learning experiences. Recommendations include increasing the availability of resources to the farmers in this region in order to create a solid foundation for behavior adoption and increased farmer capabilities.

Keywords: Haiti, Food Security, Small-Scale, Farmers, Decision-Making
Introduction

Decision-making is an essential aspect of farming. The decisions farmers make affect their overall yield and, ultimately, impact their livelihoods. Decisions can be made on the basis of past experiences, newly presented information, financial pressures, and even imposed regulations (Ilbery, 1978). Extension in the developing world faces increasingly complex challenges; this is particularly true in Haiti (Arias, Leguía, & Sy, 2013; Ponnia, Puskur, Workneh, & Hoekstra, 2008). Rural farmers may base their decision-making on culturally-held beliefs, which may differ from one region to the next. Understanding the different factors impacting farmer decision-making can provide insight for extension providers to improve the quality of service.

In Haiti, the vast majority of farms are smallholder farms averaging less than 1.5 hectares (Ministry of Agriculture, Natural Resources, and Rural Development [MARNDR], 2010). The majority of smallholder farms are polyculture in nature. Producing diverse crops allows the farmer to increase economic benefits by cutting losses (Fuller-Wimbush & Fils-Aimé, 2014). Haiti’s agricultural landscape has gone through changes in the past few years. Despite the reforms instituted by the government, little change has come to the small-scale farmers in Haiti. Haiti’s extension services are barely seen throughout the country (Arias et al., 2013). Although regional agricultural assistance offices do exist within each of the ten departments, services are rarely provided to small-scale farmers (Zelaya, Harder, & Roberts, 2016). With little assistance, many farmers must independently make important decisions which will affect the outcomes of their livelihoods.

The process of making agricultural decisions has been of interest for many years (Asante, Sefa, & Sarpong, 2011; Ilbery, 1977; Öhlmér, Olson & Brehmer, 1998). The decision-making process small-scale farmers use in Haiti is not well documented. By identifying the factors which impact the decisions of farmers in Haiti, extension service providers and nongovernmental organizations (NGOs) can create programming which addresses the current practices of farmers, debunk myths that could have negative impacts on farmer yields, and create learning experiences that affirm the cultural nuances of the farmers while teaching new practices to improve their livelihoods. The focus of this study is to understand small-scale Haitian farmers’ decision-making processes for crop production.

Literature Review

Ilbery (1977) conceptualized the decision-making process in agriculture as being influenced by three categories of factors: socio-personal, economic, and physical. Socio-personal factors included items such as personal risk, free time, personal experience, personal preference, and agricultural training. Economic factors included market/demand, capital, income, labor, or under-used land available. Physical factors included soil type, soil drainage, amount of rainfall, and temperature variations. In Ilbery’s (1977) study, farmers were given a list of 19 factors and asked to rank each factor from irrelevant to essential in their decision-making process. Results indicated farmers felt as though market/demand and income were extremely important influences in their decision-making process. Results indicated farmers felt as though market/demand and income were extremely important influences in their decision-making process, highlighting the “importance of social and personal considerations in the decision-making process” (Ilbery, 1977, p. 71). Therefore, decision-making is linked to the contextual situations of farmers.
Similar factors as the ones identified in Ilbery’s (1977) study can be linked to the decision-making practices of small-scale farmers in developing countries (Asante et al., 2011). Comoé and Siegrist (2015) found that farmers considered their decisions in light of their potential economic benefit in Cote d’Ivoire. The farmers in this study based their decisions on income and potential for financial gain in the future. The climate change perceptions of farmers were also significant factors in the decision to adopt practices that would improve the climate, such as planting more trees on their land (Comoé & Siegrist, 2015). Wealth was a factor impacting farmer decisions in other studies (Sebatta, Mugisha, Katungi, Kashaaru, & Kyomugisha, 2014; Wood, Jina, Jain, Kristjanson, & DeFries, 2014). Farmers were also less likely to participate in new farming practices if the financial resources available were needed for familial responsibilities. This finding highlights an important factor in diffusion practices: monetary constraints will create barriers for small-scale farmers to adopt an innovation (Meijer, Catacutan, Sileshi, & Nieuwenhuis, 2015).

In addition to money, access to information emerged as a significant factor in Sebatta et al.’s (2014) study on small-scale farmers’ decisions to participate in the potato market in Uganda. Small-scale farmers who had limited access to information sources, or who were further away from central markets, experienced deficits in effective practices in crop production. The impacts of social interactions in the decision-making process of farmers are seen through Sebatta et al.’s study (2014). Farmers were more likely to adopt practices if they were a part of farmer organizations (Sebatta et al., 2014).

Although these findings are similar to Valente’s (1996) findings of social thresholds, connection to information sources is also significant for decision-making processes. Social thresholds refer to the extent to which a particular innovation is diffused through a social system (Valente, 1996). Farmers who are a part of organizations have more contact with peers who may use different practices and may therefore base decisions on previous knowledge of farmers’ peer successes (Meijer et al., 2015). The social capital achieved through these contacts impacts farmers’ practices.

The previously discussed factors leading to farmers’ decisions can be perceived in different ways by service providers. Local knowledge can often be seen as backwards or contrary to popular practices (Beckford, Barker, & Bailey, 2007). However, the importance of local knowledge in the decision-making practices of small-scale farmers has been noted in the literature (Beckford et al., 2007; Nyong, Adesina, & Elasha, 2007; Segnon, Achigan-Dako, Gaoue, & Ahanchédé, 2015). Masere and Worth (2015) found small-scale farmers in Zimbabwe were more likely to consider adopting computer-based modeling for crop production when they believed indigenous systems were no longer sufficient.

Findings from a study by Kiros-Meles and Abang (2008) led to recommendations for extension agents to use farmers’ indigenous knowledge and practices associated with local knowledge of crop disease management in future programs. Similarly, a study by Obetta and Asogwa (2013) found farmers were better able to apply sustainable agricultural practices in Nigeria when agricultural training incorporated indigenous knowledge practices. Saito, Linquist, Keobualapha, Shiraiwa, and Horie (2006) studied farmers’ knowledge of soils in relation to cropping practices. In their study, Saito et al. (2006) found farmers’ indigenous knowledge could help “facilitate collaboration between
farmers, extension workers, and researchers to improve crop production” (p. 64). Indigenous knowledge related to production has an impact on farmer decision making. By utilizing this knowledge in future programming, farmers in developing nations may adopt different practices in the future (Saito et al., 2006).

**Purpose and Objectives**

The purpose of this study was to determine the decision-making practices of small-scale farmers in Northern Haiti related to crop selection and production. The following research objectives guided the study: (a) identify the factors associated with crop selection, and (b) identify reasons farmers engage in specific practices for crop production.

**Methodology**

This qualitative study sought to explore the experiences and practices of small-scale farmers in the North Department of Haiti using a constructivist approach. Constructivism holds to the belief that individuals reconstruct “understandings of the social world” (Lincoln, Lynham, & Guba, 2011, p. 92) in order to build their own knowledge. Therefore, a constructivist approach was appropriate because the small-scale farmers in the North Department of Haiti hold knowledge which they have constructed through their interactions and experiences in the social world and use this knowledge as a basis for their decisions.

**Population**

Haiti is separated into ten departments, which are large areas of land with distinct characteristics. The participants of this study were located in the North Department of Haiti. The North Department is approximately 251 kilometers by road from the nation’s capital, Port-au-Prince. The distance between the North Department and the capital, compounded by poor road conditions, creates a unique situation for the Northern farmers due to the separation they face from centralized resources located in Port-au-Prince.

Each department in Haiti is further separated into **arrondissements** or districts. Within the North there are seven arrondissements. The arrondissements in this study were Cap-Haïtien, Acul-du-Nord, and Grand Rivière du Nord. Farmers from the following communes within the arrondissements participated in the study: Milot, Limonade, and Grand-Riviere du Nord. These areas were selected for the study on the recommendation of a local Haitian agronomist on the basis of each area’s agricultural productivity and accessibility to the target populations.

The population for this study was comprised of small-scale farmers in the North Department of Haiti. For the purposes of this study, small-scale refers to farmers who have two or less hectares of land (United States Agency for International Development, 2011). The distinction of two or less hectares of land was selected for this study in order to include more participants within the study. The parameter of small-scale was chosen due to the current farming demographics in Haiti. The majority of farmers in Haiti fall into the category of small-scale (Philius, 2013).

Specific descriptive statistics for the agricultural sector in Haiti are very limited. The lack of information is also true of specific information about the North Department of Haiti. According to a 2014 report conducted by MARDNR, 49% of the population resided in rural Haiti. There were approximately 1,018,951 farms in Haiti, 74.35% operated by men and 25.3% operated by women (Philius, 2013). Over half (52%) of farmers were between the ages of 35 and 54 years old (Philius, 2013). In 2014, 38.1% of the farmers in Haiti grew
grain crops and 26.5% of farmers grew legumes. Together, grain crops and legumes make up the majority (64.6%) of agricultural vegetation in Haiti.

**Sampling Methods**

A combination of convenience and snowball sampling (Ary, Jacobs, Sorensen, & Walker, 2014; Merriam, 1998, 2009) were used to recruit participants for the study. In order to accomplish the task of gaining access to the population and based on lessons learned from prior experience interviewing farmers in the North Department, a native Haitian male research assistant was employed to conduct interviews. Initial contact was first made with a willing farmer and an interview was conducted. Then, the farmer would physically walk the research assistant to the next potential participant. The farmer would then introduce the research assistant to the new farmer and initiate friendly conversation. The research assistant would then commence the interview with the new farmer. Using peers to gain access to other small-scale farmers increased trust and allowed for greater ease in interviewing.

**Interview Guide**

The semi-structured interview method was selected in order to allow for greater interaction between the interviewer and farmer as well as to allow for added information which would supplement the data. The interview guide used for this study was conceptually framed based on the decision-making factor categories suggested by Ilbery (1977): economic, socio-personal, and physical. Open-ended questions covered choice in farming practices related to crop selection and production, familial and communal responsibilities, barriers faced, and underlying reasons for making specific choices on their land. Close-ended questions gathered demographic information, while the open-ended questions explored farmers’ decision-making processes. The interview guide was then given to a Haitian agronomist, who was consulted about the specific experiences of small-scale farmers in the North of Haiti. Following consultation, the questions in the interview guide were revised to reflect the cultural and contextual nuances of the North Department in Haiti. For example, many older people in Haiti struggle to identify the year they were born. As an alternative, it was suggested to ask who Haiti’s president was when they were born.

**Sample Size**

According to Merriam (1998), sample size for a qualitative study relies on the purpose of the study, the type of data being collected, and the resources available. For this study, a sample size was determined based on the extent of saturation within the data, following Lincoln and Guba’s (1985) guidance that redundancy (e.g. farmers repeatedly mentioning the same factors influencing their decision-making) is a cue that saturation has been reached. The sample size for this study was 14 small-scale farmers spread throughout the three arrondissements of interest. Participants in the study were males between the ages of 32-67 years old. Eleven participants were married. All members in the sample had children. The farmers in this study engaged in polyculture and farmed combinations of plantains, corn, pigeon peas, sugar cane, black beans, cassava, sweet potatoes, rice, and malanga.

**Data Collection**

Data collection occurred in two stages. The first stage was in March 2016 and the second stage occurred in June 2016. Data were collected in two stages due to time constraints which limited the amount of interviews conducted in March 2016. Data
were collected through semi-structured personal interviews with small-scale farmers. The interviews were conducted on the farms of the participants. The interviews ranged from 10 - 24 minutes and were conducted in Haitian-Creole. As non-Haitians, the authors did not accompany the research assistant to the interviews due to the potential to influence participant responses. Previous experience conducting research with farmers in the North Department showed cultural beliefs held towards members outside of the native Haitian community created potentials for biases in responses and limited participation in the study if an outsider was present. The research assistant audio recorded the interviews with participant permission.

The research assistant was a current student at a local university in his third year studying agronomy. The lead researcher trained the research assistant through modeling exercises to conduct the semi-structured interviews. The research assistant was also trained in appropriate probing questions. The semi-structured interviews were conducted by first explaining the purpose of the study and the rights of the participant. A time for participant questions about the study was allowed. Following the introduction to the study, the interviewer began asking questions from the interview guide.

Subjectivity and Bias

Since the researcher is a critical element of qualitative research (Merriam, 2009), a certain level of subjectivity may occur within a study. The experiences and perspectives of the researchers lead to certain interpretations of the data which may conflict with the intended viewpoints of the participants. The potential biases present within the researchers should be addressed.

The lead researcher had spent considerable time within the North Department of Haiti through involvement in a local non-governmental organization (NGO). The lead researcher’s involvement with the NGO has allowed for extensive experience with individuals who have not received outside help from governmental agencies, including extension service providers. Leading in to this particular study, the lead researcher believed the lack of resources available to small-scale farmers would cause them to rely on cultural practices in crop production. One of the researchers in this study had over 10 years of experience in U.S. Extension. The third researcher in this study had significant experience in Agricultural Education and had been involved in capacity development in Haiti.

The research assistant was an agronomy student at a local university in the North Department. He grew up working on his parent’s small-scale farm in Cap-Haitian. His experiences brought a depth of knowledge to the study as well as certain biases which come from experiencing the work of his parents. Additionally, as a male, his presence may have impacted the willingness of females to participate in the study.

Data Analysis

Data were analyzed using the constant comparative method (Merriam, 2009). Glaser and Strauss (1967) described the four stages of the constant comparative method as including comparing incidents, integrating categories, delimiting the theory, and writing the theory (Glaser & Strauss, 1967). Since the study was not conducted to develop grounded theory, only the first two stages of the constant comparative method were used.

The recordings of the interviews were transcribed into Haitian-Creole by an English professor in Haiti. After the interviews were transcribed, recognizable
information was removed in order to protect the identities of the participants. The lead researcher is proficient in Haitian-Creole and analyzed the data in their original language. Selected quotes within this paper were translated in the analysis. The analysis was then confirmed with the transcriber to confirm the accuracy of the analysis with the audio transcription.

The lead researcher aimed to become well-acquainted with the data (Ary et al., 2014). To accomplish this task, the lead researcher read the transcriptions several times. After achieving a substantial level of comfort with the data, the lead researcher began to use phrase-by-phrase open coding. This means that when a sentence ended, a code was assigned to the phrase (Strauss & Corbin, 1990). These open codes formed the basis of the initial categories. Once the initial categories were created for all transcriptions, the lead researcher created a digital spreadsheet of the initial categories and quotes which applied. This spreadsheet was used to compare the data and create larger categories and subcategories. The data was analyzed using coding a total of three times.

Trustworthiness

Lincoln and Guba (1985) established the concept of trustworthiness for quality measures in qualitative studies. The concepts that make up trustworthiness in qualitative studies are credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). In this study, credibility was achieved through the triangulation of data through multiple sources of data collection. Data were collected using interviewer notes, pictures, and audio recordings. After the data were transcribed the lead researcher consulted with the Haitian research assistant who conducted the interviews in order to establish accuracy in the transcription. Peer debriefing among the researchers was also helpful in establishing credibility. The methods used for establishing credibility can also be used to establish dependability. In order to establish transferability, the researchers used thick description to explain the results of the study. Confirmability was accomplished through an audit trail consisting of notes, reflective practices, and analysis.

Results

Themes identified from the interviews were categorized into two major categories: factors related to crop selection and factors related to crop production. Coding was used for direct quotes from the farmer interviews. Participant interviews were assigned pseudonyms in order to protect their privacy.

Factors Related to Crop Selection

Financial security. Farmers in the study were concerned with their financial security. The amount of financial uncertainties they faced caused many of the farmers to feel as though they were at the “mercy of God” (Andrel) and had “no assurance” (Ronal) for the outcome of their current harvest. These uncertainties drove farmers to find ways in which to ensure some vestige of security with their harvest. When speaking of the decision to choose maize as the main crop for their land, Jean stated “other crops take too long, maize I wait three months and it is ready.” Jean went on to describe how the quick turn-around from the maize allowed him to gain more money than other crops.

The quick turn-around times were not the only factors leading to crop selection as many farmers also stated they knew they could “make the most money” (Julio, Isaac, Yves) from investing in sugar cane. One farmer, Isaac, also stated being “obligated” to take the market prices into consideration.
when selecting what to plant in a particular season. Farmers were conscious of what their neighbors were planting and would decide to “buy the same [seed] in order to also make a gain” (Joslen). In the same way, farmers avoided the risk of planting crops which they were not confident in the outcome, choosing to rely on familiar crops which they knew how to plant. As Andrel stated, “I know how to plant the pigeon peas so I chose to plant them again.” Andrel went on to explain, “I know I made money with [the seeds] in the past.” Another farmer, Joslen, noted that if his “crop did not succeed enough, all the food” would go to feed his family and he would not make any money.

**Familial traditions.** When asked about reasons for selecting certain crops to plant, farmers readily mentioned what their family or community typically produced (Ronal, Isaac, Stenio, Mytto). Stenio stated, “my parents have always grown corn so I grow corn.” Another farmer, Luckson, boasted of growing crops which he had grown since being “a child watching” his parents. Farmers expressed a sense of pride in their adherence to familial practices (Ronal, David) and desired to continue these practices into the future (Mytto). Pride was seen in the following comment made by Mytto, “you see me, I grew up learning from my parents, I do this now the way my parents did.”

**Concern for family welfare.** In addition to citing familial traditions as sources for decision-making, farmers also referenced the size of their families as drivers for crop selection. Farmer families, within this study, ranged in size from 4-14 members. Farmers claimed nutritional responsibility for these family members by addressing who they fed on a daily basis. Farmers continually mentioned the “responsibilities” (Andrel, Isaac, Getro, Luckson) of feeding their family members. One farmer, Julio, stated that he “plants enough for his family and a little to sell.” Similarly, Andrel stated, “the size of my family makes a big impact, the amount of food you need to eat, you cannot find.” Delekson stated the need to choose crops which had high yields to ensure his “family had food to eat.” In addition to providing food for their families, some farmers mentioned the responsibility for sending their children to school. Yves mentioned, “I have two children in school now, I must have money for them to go to school.” The concern for the future of their families weighed heavy on Yves who said, “I want my children to learn and I have to make sure they are able [to learn].”

**Availability of financial resources.** The scarcity of some resources influenced farmers’ crop selection in this study. The vast majority of farmers cited money as one of the most influential factors in crop selection (Jean, Stevenson, Mytto). The lack of money influenced the type of seeds the farmers selected. One farmer, Yves, stated, “I did not have the money to buy sugar cane this year” since it was more expensive for him. Ronal noted, “if I don’t have the money, I don’t buy” excess seeds. Isaac also noted the difficulty of finding enough money to “buy yam plants to grow.” When asked why he selected to grow cassava in a particular area on his land, Stenio mentioned, “if I have only this money, I cannot do anything else. I must grow what I can with my money.”

**Drivers Related to Crop Production**

**Financial Limitations.** In addition to money directly affecting the type of crops farmers selected, farmers also noted the difficulty of hiring help with limited money. Jean noted, “if God gives me the money, I
can pay for three people to help me.” Jean continued to explain how the amount of workers impacts how well he can clean the land and prepare the land for production. One farmer, Mytto, mentioned how sometimes he does not have time to maintain his crops so he needs “pay someone to come and help.” The money Mytto could have used for tools or irrigation, was instead used “to find workers.” Lack of money directly impacted access to specific resources, such as water. When asked about their irrigation practices, an overwhelming majority of farmers stated that they had “no practice” (Jean, Ronal, Julio, Stenio). When probed further, Julio noted, “well, I wait for the rain” and described how the weather was his only source of water. With the lack of money to provide irrigation sources, Stevenson noted “the rain is our water.” Another farmer, Andrel, went on to say that lack of money made him “live at the mercy of the rain.”

Previous learning experiences. Farmers regularly mentioned learning from their parents when asked to explain where they learned the practices they implement on their land (Ronal, Stenio, Getro, Delekson). Getro explained how his mother and father taught him all the practices he currently uses and said he “always holds on to” what they taught him. When describing the method he used to clean the land prior to planting, Stenio mentioned “my father woke up every morning and I worked with him, he taught me.” Additionally, when probed further to describe the practices they learned from their parents, Delekson stated, “the way I am now is how my parents worked.”

Farmers also mentioned different sources of information for how they grow their crops. Andrel said he learned how to diversify his land from his personal networks by finding “people that have the knowledge to give me the information.” Farmers noted working with other groups of farmers with whom they share information on how to grow their crops (Isaac, Luckson, Stevenson). The data revealed a lack of learning experiences from NGOs or other organizations, including the government. Joslen stated, “I am by myself, the only information I have is from my hands.”

Conclusions, Implications, and Recommendations

The Haitian farmers in this study based their decision-making on a variety of factors. These factors include needs for financial security, familial traditions, concern for family welfare, availability of resources, financial limitations, and previous experiences. The factors identified in this study were consistent with previous research conducted with other small-scale farmer populations in developing countries (e.g. Ilberry, 1997; Meijer et al., 2015; Sebatta et al., 2014; Wood et al., 2014).

Many of the farmers in this study were the main income earners in their homes. The pressures to meet their families’ needs were a driving force for decision-making. Farmers thought critically about how their money was spent and what benefits their crop selection would reap to meet the financial responsibilities of their families. In addition to feeding the family, the farmers were responsible for sending their children to school and having enough resources to ensure their futures. The connection to family as a driver for decision-making is not surprising for the Haitian community where the culture emphasizes familial financial responsibility and familial tradition (Smith, 1963).

Ilbery (1978) stated “an individual farmer makes decisions with respect to the available resources at his disposal” (p. 454). Farmers in this study had difficulty acquiring the necessary funds to purchase all the seeds which they would require, could not pay for irrigation technologies, and
lacked funds to hire adequate help during the production cycle. These findings are consistent with Comoé and Siegrist’s (2015) assertion that financial resources impact farmer decisions. The financial limitations of small-scale farmers are evident; 80% of individuals in rural areas in Haiti live in poverty (World Bank, 2013). Rural development practitioners focused on improving the livelihoods of small-scale farmers in Haiti’s North Department should take into consideration financial constraints when planning interventions.

In Haiti, the reliance on God to bring about successful crops is an example of a strong indigenous knowledge system (Beckford et al., 2007). These strongly held beliefs are valued within Haitian culture (Drexler, 2008) and permeate the agricultural atmosphere. Similarly, adherence to traditional family crop production practices was noted. In order to fully address the needs of small-scale farmers, service providers must acknowledge the tightly held beliefs and offer suggestions to increase farmers’ perception of control (Obetta & Asogwa, 2013). Connecting new information to local indigenous knowledge would help to increase adoption rates (Saito et al., 2006).

Additional research is needed to expand upon the localized findings of this qualitative study in order to determine the extent to which other small-scale farmers in Haiti consider the same factors when making decisions regarding crop selection and production. In particular, the frequency with which this study’s farmers felt constrained by financial limitations warrants further investigation into how these constraints influence Haitian farmers’ willingness to adopt new crop varieties or production practices. Understanding decision-making practices is an essential part of the broader goal to improve farmer livelihoods in the North Department and achieve increased food security in the region.

References


Building Social Capital and Leadership Skills for Sustainable Farmer Associations in Morocco

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Abstract

Agricultural development in Morocco relies on the economic strength of the country’s rural regions. Recently, government programs have focused special attention on actions encouraging farmer associations and strengthening value-chains for agricultural commodities. Small rural producers, however, lack the leadership skills and strategic planning capabilities to accomplish this initiative. The Morocco Rural Leadership Program connects University of Minnesota Extension staff with faculty at the National School of Agriculture, Meknès (ENA) in Morocco to co-design and teach a leadership cohort program for farmers. Its intent is to build social capital for sustainable value-chain development. Program evaluation revealed that the program not only increased leadership capacity but also grew farmers’ social capital and led to behavioral and procedural change in farmer associations.

Key Words: social capital, networks, leadership, sustainability, farmer associations, value chains, Morocco
Introduction

In Morocco, as in many countries, agricultural development relies on the economic strength of its rural regions. During the past several decades, the emphasis on agricultural development in Morocco and beyond has shifted from commodity production to value-chain development (USAID, 2013). A value chain is a model developed by Michael Porter (1985) used to describe the series of activities by which businesses receive raw materials, add value to the raw materials to create a finished product, and then sell the end product to customers. The value chain approach emphasizes the relationships among the chain of organizations that add value to raw agricultural products. The transition to supporting value-chain development accompanied a programmatic shift to positioning farmers for export markets. The Morocco Green Plan (Agence pour le Développement Agricole, 2013) strengthens value-chain efforts by aggregating small-scale farmers into cooperative associations, as well as integrating commodity production with the processing and marketing industries of local commodities. As a result of this plan, rural systems were restructured, creating the formation of more than 250 farmer-based, value-chain associations in rain-fed areas across the country. In December 2013, the 12,022 cooperatives in the country mobilized 440,372 individuals.

Through collective action, farmer associations and cooperatives can be highly successful at leveraging resources, cutting input costs, accessing financial and marketing services, and solving common challenges. The difficulty in achieving success for these associations, however, is a lack of leadership, planning, and collective decision-making skills.

The Morocco Rural Leadership program was designed to strengthen the leadership and strategic planning capabilities of farmer associations in several value chains in the Meknès-Tafilalet region. The program connected University of Minnesota Extension staff with faculty at the National School of Agriculture, Meknès (ENA) in Morocco to co-design and teach a leadership cohort program for farmers to build social capital for sustainable value chain development. The leadership program developed a cohort of trainers, as well as a cohort of decision makers with common responsibilities to govern, manage, and operate strong associations and affiliated enterprises. Funding for this program was supported by the U.S. Agency for International Development (USAID) and supported through the John Ogonowski and Doug Bereuter Farmer-to-Farmer Program through the Volunteers for Economic Growth Alliance (VEGA).

The context for this program is built on the relationship between the University of Minnesota and higher education and research institutions in the Kingdom of Morocco. Over four decades, Moroccan citizens were educated through a program coordinated through the University of Minnesota that focused on agricultural sciences. A network of alumni provided a link for continued collaboration in the country, including a 30-member cohort group of Minnesota citizens visiting Morocco as a part of their own leadership training program in March 2011.

In support of the Morocco Green Plan to establish and develop a value chain approach across the agriculture sector, continued growth has occurred in farmer associations and cooperatives. The long-term viability of the associations was important for sustained development of agriculture. From this initiative, the Morocco Rural Leadership Program was proposed.
This article presents a literature review examining the scholarly influences of the program, a detailed description of program design, including implementation and evaluation efforts, and evaluation results. The study concludes by highlighting the implications and applications of this type of leadership program for international Extension professionals.

**Literature Review**

The Morocco Rural Leadership Program is a new type of international Extension program informed by, and contributing to, literature on the role of farmer associations in sustainable development, leadership development, and social capital. The literature influencing this approach to agricultural development differentiates from much of the existing literature, which has tended to emphasize the role of NGOs and the private sector in agricultural development (Swanson & Samy, 2002), workforce development (Barrick, Samy, Gunderson, & Thoron, 2009), and internationalization of agricultural and Extension education curriculum (Ricketts & Morgan, 2009).

**Sustainable Development**

While multiple perspectives of sustainable development exist, this rural leadership training program was developed to build capacity within farmer associations in Morocco. This effort was intended to contribute to long-term sustainable development through skill development to strengthen rural associations and cooperatives. According to the Food and Agricultural Organization (2007), farmer-based associations (FBAs) are instrumental in promoting empowerment and equitable development. Through FBAs, farmers can strengthen their political power as a group and ensure that their needs and voices are heard by policymakers and the public (Birchall, 2004; IFAP, 2004; Marsh, 2003).

Unfortunately, until recently, the social dimension has been widely perceived as "the weakest ‘pillar’ of sustainable development" (Lehtonen, 2004, p. 199). For a long time, sustainable development was thought to address mostly environmental issues regarding the integration of environmental concerns into economic decision-making. Socio-political and economic changes in the past two decades, however, have created a renewed interest in the role of the social dimensions of development (Woolcock, 2001; Lehtonen, 2004).

According to Lay (2007), sustainable development has two main pillars; "learning for sustainability" and "leading change towards sustainability" (p. 1052). For an organization to prosper and have a sustainable future, it must be purposefully managed rather than spontaneous. A critical part of accomplishing this is to involve a group of social actors who internalize sustainability, life preservation, and survival as the ultimate value and special interest. They also systematically "feed themselves with new knowledge" (p. 1053).

More recently, Missimer and Connell (2012) discussed social learning within education for the sustainable development field based on the idea that we learn best through learning with and through others. They argue that, “When people learn together, the collective knowledge and skill are far greater than what can be achieved by an individual” (p. 174).

**Leadership Development and Social Capital**

Community leadership development literature influenced the design of the program, specifically its emphasis on the importance of both human and social capital in leadership development. Human capital
refers to the collective power of individual knowledge, skills, abilities, and social competencies. Communities can enhance their human capital by improving the skills of individual leaders. Social capital, on the other hand, refers to the collective power of relationships, connections, and networks among and between people. Individuals and communities acquire social capital through relationship-building among people who are similar, people who are different, and people with varying levels of political power (Rasmussen, Armstrong & Chazdon, 2011).

Aspects of human and social capital are also central to the distinction between “leader” and “leadership” development. Day (2000) asserts that leader development emphasizes human capital—the skills and abilities of individuals associated with formal leadership roles. Leadership development, on the other hand, focuses on resources that are embedded in relationships, bearing more resemblance to social capital. Day notes, “The primary emphasis in leadership development is on building and using interpersonal competence” (p. 585). According to Day, interpersonal competence has two distinct skill sets: (a) social awareness, which includes empathy, political awareness, and service orientation and (b) social skills, which includes the ability to collaborate, manage conflict, and catalyze change. Bantilan and Padmaja (2008) support this notion of leadership development by stating: “…social capital plays an important role in fostering the social networks and information exchange needed to achieve collective action and sustain a social and institutional environment that is ready to adapt and change” (p. 63).

When reviewing the literature on social capital, the distinction between bonding, bridging, and linking social capital is also relevant. Bonding networks refer to strong connections among individuals and groups with similar backgrounds, while bridging networks refer to weaker connections among individuals and groups with diverse backgrounds. Organizations with strong bonding but weak bridging networks tend to exclude new or non-traditional leaders. The potential drawback of emphasizing bonding over bridging social capital is also highlighted in several articles about farmer associations that point out the limited benefits they provide to smaller producers. A small group of larger producers tend to control and benefit the most from the associations (Attwood, 1987; Fox & Hernandez, 1989; Lele, 1981).

Chamala and Shingi (1997) argue that, “The traditional approaches to organizing farmers and forming cooperatives need to be revised to meet the development challenges of the twenty-first century” (p. 193).

In addition to bonding and bridging networks, linking networks are crucial in rural development contexts. Based on the work of Szreter and Woolcock (2004), linking networks are defined as “networks and institutionalized relationships among unequal agents” (Szreter, 2002, p. 579). Compared with bridging networks, which connect individuals who are not alike yet are more or less equal in terms of status or power, linking networks are based on explicit “vertical” power differentials. Linking networks are considered strong when residents trust leaders of public and private institutions and are able to engage with those leaders. Leadership programs, therefore, should focus on the strengthening of bridging, as well as linking networks by promoting wider engagement among program participants with stakeholders (Abbey, Tomlinson, & Branston, 2016).

**Purpose and Objectives**

The purpose of the Morocco Leadership Program was to increase networks and social capital among farmers while also providing leadership skill training.
to build leadership competencies. The intention to build social capital was to help Moroccan farmers learn about working cooperatively as a way to strengthen value chains and enhance their incomes. By linking a large number of small farms to market as a group, small producers would be able to sell to a national or even international market.

Specific objectives that were measured and evaluated in building social capital and the leadership capacity of the farmers were:

1. Increase of networking capacity among the members of farmer associations;
2. Increase of effective communication between members of different associations;
3. Increase of leadership competencies of individual farmers; and
4. Increase of leadership capacity of farmer associations through project implementation.

Although not evaluated for this article, it is important to note that a train-the-trainer model was used for the purpose of ensuring the program’s sustainability. The objective was to develop the leadership skills and capacity of the ENA faculty in order for them to lead and sustain future cohorts. Furthermore, the give and take discussions following the sessions with the farmers promoted mutual cultural understanding between Minnesota educators and ENA faculty.

Methods

Cohort Model

The Morocco Rural Leadership program was based on a cohort model that also takes into consideration the context of small, rural Moroccan cooperatives. The cohort model is preferred for leadership development programs because, both explicitly and by design, it helps achieve learning and social capital building goals. For one, knowledge and skills are more efficiently acquired and readily retained when information is distributed over spaced time intervals rather than disseminated all at once. This was especially helpful with the long-distance logistical nature of the program. Additionally, a cohort model encourages exploration and exchange of views with others while also enabling people to develop broader individual networks. This was magnified in the program, as each individual farmer also represented a network of individuals connected through their association. These connections, both pre-existing and formed in the cohort environment, make it easier for participants to move outside of their comfort zone and further engage in the program material. Cohorts also build the trust and support necessary for the depth of group reflection and meaning-making following disorienting dilemmas that individuals experience in these kinds of programs. Along with these benefits for program participants, the cohort model encourages the sustainability of the program as a whole.

While using the cohort model for structure, the program applied an integrative leadership content model that included four core competency areas to build both leadership skills and social capital: Linking Engagement, Contextual Understanding, Leader Attributes, and Relationship Building. Twelve specific leadership competencies were identified to integrate throughout the training to reinforce the four core areas. Table 1 lists the themes and competencies woven throughout the three sessions.

Program Design

The program design was developed using an iterative, three-tiered process. The first tier involved University of Minnesota Extension educators preparing drafts of
agendas and activities to present to the team of four faculty from the National School of Agriculture, Meknès (ENA).

The second tier was a train-the-trainer component in which Extension educators and alumni from the Minnesota Agriculture and Rural Leadership (MARL) program provided training and shared farmer association experiences with four Moroccan professors from ENA. This process included both virtual and in-person working sessions to develop the curriculum. Working together, Minnesota educators and Moroccan faculty incorporated Moroccan examples (i.e., educational videos, field trips, and local guest speakers) to ensure that concepts were introduced in the correct order and reinforced throughout the training.

The third tier of the program design was the give-and-take that occurred when ENA professors delivered the curriculum to farmers. The 22 farmer participants represented 17 different associations across eight value chains: honey, milk, apples, olives, seeds, dates, medicinal plants, and meat. The training sessions were delivered in Arabic and Berber. Members learned and practiced a number of tools, including group decision-making, preparing and facilitating a meeting agenda, creating a shared vision, and developing action steps to reach their vision. Between the workshops, cohort members were given assignments to practice the tools they learned, including the application of a strategic planning process to lead their cooperative or association.

Training Sessions

The program was conducted during three consecutive sessions implemented over nine months: June 2014, October 2014, and February 2015. The same scheduling format was used for each session. The first three days focused on Tier 2 of the design process. Through a collaborative process, the University of Minnesota and ENA faculty revised the agenda and activities to better target the farmer participants. The following three days focused on Tier 3 in which the ENA faculty implemented the training for participants. After each set of six days, there was a debriefing to identify what was working well and what needed to be changed for future sessions. Table 1 presents an overview of the content and focus of each of the program sessions.

<table>
<thead>
<tr>
<th>Date</th>
<th>Theme</th>
<th>Learning objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 4-6, 2014</td>
<td>Introduction to Leadership and Mapping the Environment</td>
<td>To understand cohorts and get to know one another</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To develop ground rules and shared values</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To better understand the association’s strengths, problems, opportunities, and threats</td>
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<tr>
<td></td>
<td>What is Leadership and the Value of Vision</td>
<td>To analyze the characteristics of leaders</td>
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<tr>
<td></td>
<td></td>
<td>To explain the importance of a group having a clear vision</td>
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<tr>
<td></td>
<td></td>
<td>To learn a process of developing a vision for the association</td>
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<tr>
<td></td>
<td></td>
<td>To identify action steps for change</td>
</tr>
<tr>
<td>Event</td>
<td>Title</td>
<td>Objectives</td>
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<td>----------------------------------------------------------------------</td>
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</tbody>
</table>
| October 15-17, 2014                                                  | Creating a Vision and     | To understand the skills needed for effective planning  
|                                                                      | Steps for Action          | To identify high-level strategies and actions steps for reaching a shared vision  
|                                                                      |                            | To use a process to gather facts and reactions of others to a group’s vision and strategies                                                                                                   |
|                                                                     | Reconnecting with the     | To understand different communication styles  
|                                                                     | Leadership Cohort         | To build communication with others, mindful of individual talents and strengths  
|                                                                     |                            | To understand and practice having a focused conversation (or construct questions that encourage responsibility for action)  
|                                                                     |                            | To determine how to will move forward with 5 Bold Steps                                                                                                                                           |
|                                                                     | Mapping Your Strategy     | To analyze what information or tasks are needed to achieve a goal – one of the 5 Bold Steps  
|                                                                     |                            | To practice improving communication and listening skills  
|                                                                     |                            | To compare and contrast various principles of leadership and management                                                                                                                         |
|                                                                     | Meetings that Work        | To understand some group decision-making methods  
|                                                                     |                            | To understand principles of effective facilitation  
|                                                                     |                            | To apply techniques for making meetings productive  
|                                                                     |                            | To plan an effective meeting agenda                                                                                                           |
| February 4-6, 2015                                                  | Communicating Your        | To analyze what information or tasks are needed to achieve a goal  
|                                                                      | Strategies                | To identify leadership strengths and opportunities for growth  
|                                                                      |                            | To seek out different perspectives to be informed                                                                                                                                               |
|                                                                     | Leading Group Decision    | To practice using various decision making processes  
|                                                                      | Making                   | To determine the value of working with a diverse group of people  
|                                                                     |                            | To practice conflict management skills                                                                                                                                                    |
|                                                                     | Taking the Next Step      | To use a critical thinking tool to seek out different perspectives  
|                                                                      |                            | To identify immediate next steps in order to take action  
|                                                                      |                            | To practice the skill of reflection to build new insights  
|                                                                      |                            | To celebrate accomplishments                                                                                                                                                                      |

During each session, educational content and activities were used to teach both leadership skills and strategic planning while also taking into consideration the context of the Moroccan farmers and the area’s small rural cooperatives. Because of challenges raised by language and cultural differences, the curriculum was taught using creative teaching methods rather than traditional ones (i.e., PowerPoint presentations, handouts, or lectures). Content delivery was selected based on simplicity, use of graphic illustrations, experiential learning, and applicability to the farmers’ small rural
cooperatives. The flexible, interactive nature of the tiered design process was vital to ensure materials developed by Extension staff were translated and presented in an accessible way to the Moroccan farmers.

**Program Evaluation and Results**

The evaluation of the Morocco Rural Leadership Program was designed to measure achievement of leadership competency outcomes, changes in behavior among farmers in their associations, and changes in bridging networks among farmer associations. Evaluation data based on a mixed methods design were collected at three points in time during and after the program. One key component was a leadership capacity survey administered to each farmer participating in the program. The survey included 14 Likert-scale survey items measuring leadership competencies across each of the four core focus areas of the program curriculum. These competencies and the questions used to address them are listed in Table 2.

Table 2

**Leadership Competency Scales and Associated Survey Items**

<table>
<thead>
<tr>
<th>Competency scale</th>
<th>English translation of competency statement</th>
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<tbody>
<tr>
<td>Linking engagement</td>
<td>I am comfortable approaching local authority representatives.</td>
</tr>
<tr>
<td>Linking engagement</td>
<td>I have people in my community who look to me for advice.</td>
</tr>
<tr>
<td>Linking engagement</td>
<td>I actively participate in other organizations in my community.</td>
</tr>
<tr>
<td>Contextual</td>
<td>I identify key developments and trends that are likely to have an impact on my organization.</td>
</tr>
<tr>
<td>Contextual</td>
<td>I plan and take strategic action to move my association forward.</td>
</tr>
<tr>
<td>Contextual</td>
<td>I break down large projects into manageable tasks.</td>
</tr>
<tr>
<td>Leader attributes</td>
<td>I seek and invite different ideas from others.</td>
</tr>
<tr>
<td>Leader attributes</td>
<td>I encourage leadership by women in my community.</td>
</tr>
<tr>
<td>Leader attributes</td>
<td>I communicate a positive image about my association.</td>
</tr>
<tr>
<td>Leader attributes</td>
<td>I encourage leadership by men in my community.</td>
</tr>
<tr>
<td>Relationship</td>
<td>I adapt how I communicate to different audiences.</td>
</tr>
<tr>
<td>Relationship</td>
<td>I serve as an effective group member.</td>
</tr>
<tr>
<td>Relationship</td>
<td>I am good at dealing with conflict in group situations.</td>
</tr>
<tr>
<td>Relationship</td>
<td>I support others in identifying and using their strengths.</td>
</tr>
</tbody>
</table>

**Leadership Competency Change**

Leadership competency data were collected during the baseline session in June 2014, at the final session in February 2015, and at the one-year after program completion in February 2016. Figure 1 shows the farmers’ self-reported leadership skills at the three points in time. During the baseline session, the strongest area of self-reported leadership skill was in Relationship (see
Table 2 for the specific items used to measure these competencies). The weakest self-reported skills were Linking Engagement competencies. At the end of the program, the strongest area of self-reported skill was in Leader Attributes, which likely reflected the leadership content of the program. Interestingly, self-reported skills in Contextual Understanding fell from the baseline measurement, suggesting the farmers may have overestimated their understanding of the larger strategic environment affecting their cooperatives.

One year after the program, all four competency areas showed marked improvement from the baseline measurement. Linking Engagement skills increased from a mean of 4.2 to a mean of 5.4 (a 29% increase in the mean). Contextual skills increased from a mean of 4.5 to a mean of 5.6 (a 25% increase in the mean). Relationship skills increased by 14% from the baseline measurement to the one-year follow up. Self-reported Leadership skills leveled off between the end of the program and the one-year follow-up but still increased by 13%.

Association Network Change

Along with collecting information on individual leadership capacity, surveys also evaluated the capacity and social networks of the participants’ FBAs. Social Network Analysis (SNA) is a method for focusing on relationship patterns and potentially patterns over time. It helps visualize, as well as quantify, the depth and breadth of relationships within or among organizations (Borgatti, Everett, & Johnson, 2013; Durland & Fredericks, 2006). A SNA survey was conducted to examine the relationships and information flows among the various FBAs represented in the program. The survey asked farmers about the frequency of their contact with representatives from other farmer associations, as well as the frequency of their contact within their own association.

During the final two evaluation periods, an additional measure of behavior change was also included. While the first two areas focused on capacity building, the third focused on how farmers and associations were using this increased capacity in their work.

Figure 1. Farmer self-reported leadership skills at three points in time, by category (n=22)
The SNA survey visually displays the increase in network connections among the FBAs. Using the same points in time as the other assessments, participants were asked to rate the frequency with which they connected with members of other associations. Their options included the following: never, once or twice per year, about quarterly, about monthly, and weekly or more often. The network diagrams in Figure 2 show the relationships reported by members of 17 different associations in June 2014 at the beginning of the program, in February 2015 at the end of the program, and in February 2016 one-year after the program. The lines between the names represent reported connections between participants, and the thickness of the lines reflects the frequency of exchanges. The thinnest lines represent once or twice per year, thicker lines represent quarterly to monthly, and the thickest lines represent weekly exchanges. For example, in the baseline network, APPM indicates an infrequent connection to Difat Ziz.

Comparing the initial and final SNAs, it is clear the density of the network and the thickness of lines are important metrics to measure program impacts. At the baseline measurement, the association network had a density of 20%. This means about 80% of the possible connections among associations either did not exist or were not reported. In the post-survey, the density of the network rose to 51%, and at the one-year follow up, the density had increased to 60%. In addition to an increase in density, analysis of the three network

![Figure 2](image-url)
diagrams shows an increase in the number of connections and the frequency of exchanges that cut across value-change and size of associations—an indicator of an effective leadership cohort. Along with the connection lines, the squares that anchor each of the association names are also an important metric. Square size is based on an association’s strategic importance (Eigenvector centrality) in the association network. Eigenvector centrality specifically measures how well an association is connected to other well-connected associations in the network.

In addition to questions about external connections with other associations, the SNA survey asked participants to report the frequency of contact with members of their own cooperatives. As with the other surveys, these questions were asked at three points in time to document changes. Figure 3 shows the change in frequency of internal connections during the evaluation periods. At the baseline measurement, a substantial percentage of internal contacts were infrequent—only once or twice per year. At the end of the program, only 0.6% of internal connections were this infrequent, with more than 80% of connections occurring weekly or more often. At the one-year follow up, some of this frequency diminished but more than 85% of connections were still monthly or more often.

**Behavior and Association Changes**

Changes in individual behavior were measured at two points in time. The first time was at the end of the last session in February 2015. Farmers were asked to answer the following three questions on a blank card: 1) What is one thing you learned? 2) How will you apply it/use it? 3) What are some next steps? The majority of farmers stated they learned how to be a better leader as a result of gaining skills in strategic planning, listening, conflict management, and decision making.

![Figure 3. Frequency of contact with members of their own Cooperatives during the past twelve months (n=17)](image_url)
The cards were collected and then mailed to the farmers three months later as a reminder of their commitment to action.

One year after the program, in-person interviews were conducted with the farmers in Arabic and French to measure individual, organizational, and cohort impact, as well as the training process and content. Table 3 shows the questions that were asked to evaluate these impacts.

Table 3
Interview Questions for One-Year Post-Training Evaluation

<table>
<thead>
<tr>
<th>Impact</th>
<th>Questions</th>
</tr>
</thead>
</table>
| Individual   | • How have you applied what you learned during the past 12 months?  
• Within the association, what different activities are you doing since you completed the program?  
• What do you think has changed most about you after participating in the farmer-to-farmer rural leadership training? |
| Organizational | • As a result of your leadership training, what, if any, procedures does your cooperative or association do differently now?  
• What change do you see in how your cooperative or association makes decisions? |

Results revealed that individual changes among farmers centered on their individual self-awareness and abilities, critical thinking, and communication skills. The majority of farmers indicated improved communication skills, specifically listening. After improved communication, the farmers identified the following changes in order of frequency: better understanding of the importance of a strategic plan, seeking different points of view, and meeting management. A few farmers also indicated an increase in their confidence. One farmer said, “I am less shy than before; before I did not share my opinion in front of people and now I can talk easily and spontaneously.”

During the follow-up interviews, changes were reported in procedural matters as well. Farmers reported a change in how their association communicates, makes decisions, and solves problems. The number one change concerned meeting management, specifically in creating agendas, encouraging members to participate, and recording meeting minutes. One participant explained, “There is a change in attitude; there is an importance. I plan for meetings now.”

Individual and organizational changes converged for many farmers who mentioned that after the leadership program, there was a major change in the decision-making process their association uses. Reflecting on the application of critical thinking and leadership skills, farmers reported an increased participation in meetings via discussion and active listening. Of the farmers interviewed, 15 of the 20 stated a change in discussion among members. A common sentiment was, “Everyone participates in discussions. This is a big change.” If they could not reach a consensus by discussion, many organizations voted on the matter at hand. This reflects an entirely new way of making decisions, because for many associations, decision-making power used to rest in the hands of presidents and boards of directors. Making this change required an increase in organizational and member leadership.
capacity to absorb a new way of doing business.

**Educational Importance, Implications, and Application**

The importance of this program rests on concrete outcomes identified above. Farmers are making changes in their organizations and associations due to increased leadership capacity developed in the Morocco Rural Leadership program. This targeted program accomplished its objectives while also bridging the gap across culture and language to introduce curriculum and experiences that allowed farmers to grow in their leadership and strategic planning capacity. The leadership program also created an environment, through the use of a cohort model, that resulted in increased social capital both within and across the associations represented in the program. The focus on building social capital will certainly have long-term impacts as these networks continue to be used by farmers going forward.

As a whole, this model of leadership and sustainable economic development is one of the first of its kind. The success of this initial cohort suggests implications for other Cooperative Extension Services and international Extension partnerships going forward. The Morocco Rural Leadership program was successful, and a large part of its success rested on the three-tiered design process. Curriculum was developed based on best practices that University of Minnesota Extension had developed in their domestic community leadership programs, which was collaboratively adapted and then passed on to participants and faculty at ENA. Not only did this ensure material was culturally applicable, it also created a built-in method of sustainability for ENA faculty to provide this kind of training for other farmers in Morocco.

More study and development is needed in this area moving forward. One area for further research is refining the curriculum design and adaptation process. The cross-cultural, three-tiered process evolved naturally throughout the course of this project. More research into the theory and best practices for international cross-cultural curriculum development would bring clarity and introduce a stronger model for this process. Along with process-focused research, additional output-focused research would be useful, specifically on the economic impact of this program. Follow-up studies demonstrated that leadership capacity and social capital remained higher than the baseline measurement even one year after the program was completed. It is unknown at this time, however, how that increased capacity translates into the economic output of the farmers’ associations.

Without the addition of future research, though, this study is immediately applicable to other international Extension professionals. An observation from the program revealed that similar tools can be used in both domestic and international leadership programs, so long as they are adapted for local culture and context. Furthermore, the tools used in both settings increased leadership and strategic planning capacity among individuals and organizations. Along with building specific skills, this kind of model also creates and strengthens social capital among individuals in one association, as well as across different associations and organizations. Extension professionals from both countries contributed key roles in facilitating this process, and by working together with the targeted population, are ultimately able to strengthen the capacity of the agricultural sector in rural regions. Furthermore, the same strategies created and implemented in the Morocco leadership program can be
modified to work in multiple cultures around the globe.

References


Woolcock, M. (2001). The place of social capital in understanding social and economic outcomes. *ISUMA*
Evaluation of an International Entrepreneur Exchange Program: Impacts, Lessons Learned, and Implications for Agricultural Development

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Abstract

This study evaluated a two-way, visitor exchange project for entrepreneurship development between three African countries and the United States. The study’s purpose was to determine outcomes, understand lessons learned, and derive implications for international agricultural development. Findings of the study confirm visiting African Entrepreneur Fellows (AEFs) developed entrepreneurial knowledge, gained business skills, and acquired positive attitudes toward U.S. business and culture. The majority of AEFs had applied acquired knowledge and skills to improve their businesses and promoted open economic ideals, business ethics, and human rights in their businesses. As a result, AEFs were able to expand their business into new ventures, improve customer services, establish communication networks, and serve their communities. Visitor exchange, entrepreneurship-building programs are effective strategies in contributing to development efforts in developing countries. Paying due attention to the selection and matching of U.S. mentors with the business interests and learning needs of international fellows is necessary to ensure their learning expectations are met. It is important to assign international participants with suitable mentors for longer periods of time to increase the likelihood of receiving more in-depth learning experiences and develop lasting professional relationships to further collaboration. Realization of the potential of entrepreneurship-focused, visitor exchange programs between nations as a strategy for international agricultural development is the major implication of this study.

Keywords: entrepreneurship development; Sub-Saharan Africa; visitor exchange programs
Introduction

“Entrepreneurship is a dynamic process of vision, change, and creation. It requires an application of energy and passion towards the creation and implementation of new ideas and creative solutions” (Kuratko & Hodgetts, 2004, p. 30). Four characteristics of an entrepreneur include (a) motivation, (b) opportunity identification, (c) willingness to take risks and accept uncertainty, and (d) the ability to network (Rigley & Rönqvist, 2010). Entrepreneurship education is a necessary strategy to cultivate business development culture for creating jobs, increasing incomes, and achieving economic development in a country (Mkala & Wanjau, 2013). Nations that have promoted entrepreneurship reduced unemployment and achieved economic development (Alakbarov, 2010). Entrepreneurship development can contribute to job creation, innovation, and economic development (Kuratko, 2003).

Due to the development potential associated with entrepreneurship, a trend has emerged to use entrepreneurship training programs as a development strategy (Canziani, Welsh, Hsieh, & Tullar, 2015). More attention has been paid to entrepreneurship than ever before due to the effects of globalization (Şeşen & Pruett, 2016). Swanson (2006) asserted shifting attention from production-focused extension policies toward the entrepreneurship development of small farmers is needed for achieving the agricultural development expectations of developing countries. A study conducted in Nigeria found farmers lacked the entrepreneurship knowledge and skills necessary for selecting appropriate agribusinesses (Esiobu, Onubuogu, & Ibe, 2015). Another study conducted in Zimbabwe with farmers revealed that entrepreneurial agriculture improves farmer participation in income-generating activities (Mujuru, 2014).

According to Kuratko and Hodgetts (2007), entrepreneurs are both thinkers and doers and their entrepreneurship can be improved through learning experiences. Entrepreneurship education requires a unique pedagogy for balancing both theory and experiential learning to develop “reflexive practitioners” (Greene & Rice, 2007, p. xix). Further, Rae (1997) asserted entrepreneurship education programs should focus on building skills related to effective communication and persuasion, creativity, critical thinking, leadership, negotiation, problem-solving, social networking, and time-management to achieve the desired learning outcomes. To develop these competencies, educators should create learning environments that change the way participants learn and reinforce the development of such competencies (Kirby, 2002).

Lack of international cooperation is considered one of the major challenges to overcome in achieving global agricultural development in the 21st century (Acker, 1999). The U.S. Department of State sponsored a grant proposal competition called the Professional Fellows Program in 2013 to address this challenge: “A two-way, global exchange program designed to promote mutual understanding, enhance leadership skills, and build lasting and sustainable partnerships between mid-level emerging leaders from foreign countries and the United States” (ECA/PE/C-13-01, p. 2). The objective was to enable economic empowerment of young entrepreneurs in selected regions of the world, including Sub-Saharan Africa (SSA). To achieve that aim, a proposal was funded to create professional collaborations and learning experiences between mid-level, emerging entrepreneurs from Kenya, South Africa, and Uganda and U.S. entrepreneurs.
as part of a two-way exchange program. Most of the African Entrepreneur Fellows (AEFs) had an agricultural focus or business interests in allied sectors. The project facilitated entrepreneurship development of 23 AEFs in the United States for four weeks and provided international business experience for 11 U.S. participants in SSA during a two-week period.

Canziani, Welsh, Hsieh, and Tullar (2015) investigated the effectiveness of different pedagogical methods for teaching entrepreneurship and found that experiential learning methods are effective in fostering entrepreneurial motivation. This finding highlights the need for using experiential learning concepts and opportunities when designing training programs for professionals working in agricultural development (George, Edwards, Sitton, Cartmell II, Blackwell, & Robertson, 2014), including entrepreneurs. The AEFs’ training program was mainly designed based on experiential learning concepts to achieve its desired outcomes.

Description of the International Exchange Program

Funded by the U.S. Department of State, this project facilitated experiences for learning and collaboration among emerging agricultural and allied sector, mid-level Kenyan, South African, and Ugandan entrepreneurs, i.e., AEFs, and U.S. business leaders as part of a reciprocal exchange. Numerous opportunities for enhanced education and cross-cultural exchanges with U.S. citizens were also provided to the AEFs. The project was guided by six goals ranging from delivery of professional leadership and entrepreneurial training to facilitating three-week internship/job shadowing experiences to building capacity among the AEFs, their U.S. mentors, and other interested parties.

The program supported AEFs from each of three countries visiting the United States during one of two Fellowship cycles (12 in cycle one; 11 in cycle two) and a total of 11 U.S. citizens visiting Kenya, South Africa, and Uganda over two cycles. In May of 2014, the first group of 12 AEFs trained in Oklahoma for four weeks and a second group of 11 participated during October of 2014. Each of the AEFs’ groups received a fifth week of professional development in Washington, DC. While in the U.S. capitol, they interacted with 200-plus Fellows from more than 40 countries and territories and “worked together to address issues of mutual importance, develop[ed] new insights into professional approaches to common issues, and broadened their understanding of foreign working environments, practices and society” (Harrison, Cecchini, Aabye, & Ettinger, 2014, p. 5).

AEFs’ U.S. Experiences in Regard to Entrepreneurship

During the five-week U.S.-based fellowships, the AEFs were initially engaged in an intensive five-day training program focused on a variety of topics, including enhancement of their understanding of entrepreneurial venture development; successful business planning, practices, and skills; ethical business leadership principles; applications of new media in various entrepreneurial settings; and propositions of venture financing, among others. In addition, a three-week internship or series of job shadowing experiences were specifically tailored to the AEFs’ entrepreneurial goals, aspirations, and resources. More than 60 internship providers from agricultural enterprises, educational institutions, entrepreneurial ventures, government entities, and non-profit organizations voluntarily participated as mentors for the 23 AEFs.

Team teaching jointly by academicians and successful entrepreneurs
is a recommended practice for entrepreneurship education (McMullan & Gillin, 2001). The project team used this pedagogical strategy in planning the educational program. The focus of this evaluation study was to ascertain the outcomes of a two-way, visitor exchange, entrepreneurship development project and determine ways to improve similar programs in the future.

Conceptual Framework
This international entrepreneur exchange training program was developed based on Kolb’s (1984) experiential learning conceptual model. “Learning is the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 38). Experiential learning is a transformative adaptation process involving four phases: (a) concrete experience, (b) reflective observation, (c) abstract conceptualization, and (d) active experimentation (Kolb, 1984). Experience plays a central role in the experiential learning process and leads to successively creating reflective observation, abstract conceptualization, and active experimentation phases through a cyclic process. Concrete experiences will lead to reflective observations on such. Then, reflective observations will augment abstract conceptualizations of what was learned. If the experiential learning is conducive, this phase will foment active experimentation contributing to the learner apprehending and more deeply understanding the meaning of their experiences (Kolb, 1984). The entrepreneur exchange program was designed to facilitate the four phases of Kolb’s (1984) experiential learning model by providing hands-on learning internship/job shadowing placements to gain concrete learning experiences, discussions to facilitate reflective observations, lectures to stimulate conceptualizations, and opportunities to engage in active experimentation of learned concepts.

Evaluation of the outcomes of this entrepreneur exchange program was conceptualized based on Donald Kirkpatrick’s evaluation framework emphasizing four levels of training outcomes (Kirkpatrick & Kirkpatrick, 2006): (a) participants’ levels of satisfaction with the program; (b) changes in participants’ knowledge, attitudes, skills, and aspirations; (c) changes in participants’ professional behavior and practices; and (d) institutional impacts of participants’ behavior changes. The study focused on these four levels of outcomes. Level one and two outcomes were direct results of the training and expected to manifest immediately after the training. If level one and two outcomes were accomplished then level three outcomes would materialize. Achievement of level three outcomes would contribute to the occurrence of level four outcomes. The level four outcomes included improvements and changes in participants’ business institutions and workplaces. The level four outcomes are referred to as institutional impacts in this evaluation study.

Purpose and Objectives
The study’s purpose was to evaluate the program implementation process and outcomes of the international exchange program designed to empower young entrepreneurs to increase economic development in SSA. Four objectives guided this study: (a) determine immediate, intermediate, and long-term outcomes of the project; (b) describe factors that contributed to successful implementation of the project; (c) determine lessons learned to improve similar projects in the future; and (d) discuss implications for international agricultural development.

Methods
This was a descriptive evaluation study. A mixed-method approach was used to collect evaluation data. Mixed-methods employ quantitative and qualitative approaches to data collection for complementing the weaknesses of each method with strengths of the other method (Creswell & Clark, 2011). Survey instruments, focus group interviews, reflections, and observations were used to collect evaluation data. Survey instruments included quantitative data collection scales as well as open-ended narrative type questions for gathering qualitative information. Focus group interviews, reflections, and observations were employed to collect qualitative data.

A pre and posttest, quasi-experimental design was used to determine immediate outcomes. Evaluation survey tools were developed with scales for measuring participants’ levels of satisfaction, knowledge, attitudes, skills, and aspirations. The satisfaction measure consisted of four items and a four-point Likert-type scale (1, not satisfied to 4, very satisfied). AEFs’ knowledge improvement was assessed using a retrospective pre and posttest instrument containing nine items and a 5-point Likert scale (1, very low to 5, very high). If the concepts taught were new to the group, and participants had limited knowledge about such, testing the AEFs at the beginning may not have been valid (Rockwell & Kohn, 1989). This notion rationalized the use of a retrospective pre and posttest design for determining changes in participants’ knowledge.

Pre and posttest instruments were used to determine changes in AEFs’ attitudes and skills. The skill assessment instrument included six items related to business and a 5-point Likert scale (1, not confident to 5, very confident). Attitudes toward U.S. culture and businesses were recorded on a 10-item instrument with a 5-point Likert scale (1, strongly disagree to 5, strongly agree). Participants’ levels of aspirations (readiness to apply what they learned in their work) were recorded using nine potential practices with four possible responses. Participants were asked to indicate whether they intended to implement each of the nine practices as a result of completing the training program using four possible answers: 1) no, 2) maybe, 3) yes, and 4) already doing. Validity of the scales was established by a panel of experts. Cronbach alpha reliability estimates for the scales measuring knowledge, attitudes, and skills were .85, .67, and .90, respectively. The pretest was administered to AEFs on the first day of their program in the U.S. and the posttest was given at the program’s end.

In addition to survey instruments, focus group interviews were conducted with the AEFs at the conclusion of their respective cohort’s program. (The AEFs came to the U.S. in two groups during 2014: 12 and 11, respectively.) A three-month, follow-up survey instrument was developed to assess participants’ practice changes and administered online using Qualtrics. Continuous communication was maintained with the participants for tracing long-term outcomes.

Quantitative data analysis was done by using IBM SPSS 24®. Descriptive statistics and paired samples t-tests were used to analyze the study’s quantitative data. Post-hoc analysis of Cronbach alpha reliability estimates was done for the scales measuring knowledge, attitudes, and skills.

Trustworthiness of qualitative data gathering and analysis for this study was established by using the qualities of credibility, transferability, and confirmability procedure specified in the literature (Berg, 2004; Dooley, 2007; Lincoln & Guba, 1985). We used three different methods to establish the credibility
of qualitative data collection and analysis. These methods were (a) prolonged engagement with participants to understand the situation accurately (Lincoln & Guba, 1985), (b) persistent observation to explore the situation realistically (Lincoln & Guba, 1985), and (c) triangulation of the situation through multiple methods of data collection (Berg, 2004).

The researchers engaged with participants extensively for nearly one month and thereafter continued communication through information technology for more than six months, thus, enabling the research team to develop a better understanding of the AEFs and gain their trust which led to sincere and credible feedback. This study achieved triangulation by using three different methods for collecting information: (a) surveys with open-ended questions, (b) semi-structured interviews, and (c) document analysis that allowed the researchers to compare information to triangulate the data and gain a deeper understanding of the findings that emerged during data analysis (Berg, 2004). Qualitative data also underwent content analysis (Hsieh & Shannon, 2005) and thematic coding to identify major emergent themes (Creswell, 2007).

**Findings**

The findings of outcome evaluation were organized under the four levels specified in Kirkpatrick’s evaluation model (Kirkpatrick & Kirkpatrick, 2006). These levels were participants’ levels of satisfaction with the program; changes in knowledge, attitudes, skills, and aspirations of the participants; changes in participants’ professional practices or behaviors; and the changes participants’ made in their institutions or workplaces, i.e., institutional impacts.

**AEFs’ Levels of Satisfaction with the Overall Exchange Program in the United States**

The AEFs indicated they were either satisfied or very satisfied with the program for all four items measured. Table 1 summarizes their responses. All of the AEFs indicated the program met their learning expectations.

### Table 1

**AEFs’ Levels of Satisfaction with the Training Program (N = 23)**

<table>
<thead>
<tr>
<th>How satisfied are you with:</th>
<th>Percentage of AEFs said</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not Satisfied</td>
</tr>
<tr>
<td>The professional interactions with the U.S. participants?</td>
<td>0</td>
</tr>
<tr>
<td>The relevance of experience to your business needs?</td>
<td>0</td>
</tr>
<tr>
<td>The usefulness of your learning experience in the U.S.?</td>
<td>0</td>
</tr>
<tr>
<td>The overall experience you received during this program?</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note. Scale: 1 = Not Satisfied, 2 = Somewhat Satisfied, 3 = Satisfied, and 4 = Very Satisfied*

The interviews conducted with the AEFs and their U.S. mentors revealed the project’s leadership team had paid special attention to address individual interests of
the AEFs when assigning them to respective mentors and internship/job shadowing experiences. For example, a female participant from Uganda interested in the textile and clothing apparel industry was assigned to a faculty member in the Design, Housing, and Merchandising Department of Oklahoma State University. The matching of each AEF with the appropriate U.S. mentor(s) based on the AEFs’ entrepreneurial interests contributed to their high-level of satisfaction with the program. However, the AEFs expressed the desire to have additional time with their mentors to gain more in-depth experiences and build lasting professional linkages.

Changes in Participants’ Knowledge, Attitudes, Skills, and Aspirations

According to the evaluation’s framework, the second level of outcome evaluation focused on documenting changes in knowledge, attitudes, skills, and aspirations of the AEFs.

Changes in knowledge. Responses to nine items in the instrument’s knowledge recording scale were aggregated to calculate an overall knowledge score. The overall knowledge score could range from 9 = very low overall knowledge to 45 = very high overall knowledge. The comparison of pre and posttest overall scores for each AEF indicated all were able to improve their entrepreneurial knowledge as a result of the training. The overall entrepreneurial knowledge of the AEFs was slightly above low level before the program. After completing the program, their overall knowledge was between high and very high indicating the program was effective in building the participants’ entrepreneurial knowledge (see Table 2). Estimated effect size was 3.99, which, according to Cohen’s convention, is a large effect size.

Table 2
Comparison of AEFs’ Aggregated Knowledge Score Before and After Completing the Training Program (N = 23)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean Before</th>
<th>Mean After</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregated knowledge score</td>
<td>20.1</td>
<td>36.6</td>
<td>12.5</td>
<td>0.000*</td>
</tr>
</tbody>
</table>

Note. *p ≤ .05; Aggregated Scale: 9 = Very Low, 18 = Low, 27 = Moderate, 36 = High, and 45 = Very High. Effect size: Cohen’s $d = 3.99$

Changes in attitudes. Table 3 displays a comparison of AEFs’ attitudinal mean scores before and after completing the program using paired sample t-test. Data indicated the AEFs’ overall mean attitude score did not change significantly. Their pre-training view was already somewhat positive. However, when comparing the overall attitudinal score of each AEF before and after completing the program, it was found that 8 of 23 (35%) of the AEFs developed even more positive attitudes toward U.S. business and culture after completing the program.
Table 3
*Comparison of AEFs’ Overall Attitudes toward U.S. Business and Culture Before and After Completing the Training Program (N = 23)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean Before</th>
<th>Mean After</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall attitudinal score of AEFs</td>
<td>38.9</td>
<td>38.0</td>
<td>0.93</td>
<td>0.36</td>
</tr>
</tbody>
</table>

*Note.* Attitudinal Scale: 10 = *Very Negative* attitudes toward U.S. Business and Culture, 50 = *Very Positive* attitudes toward U.S. Business and Culture

**Changes in skills.** As described in the methods section, skill development was evaluated by measuring the AEFs’ confidence to apply six specific business skills. Responses to the six-item recording scale were aggregated to calculate the overall skill of AEFs before and after completing the program. Table 4 compares the overall mean score of skills before and after completing the program. AEFs’ overall business confidence score was between somewhat confident and confident before the program. Their overall business confidence score was between confident and very confident after completing the program. The estimated effect size was 0.52, which, according to Cohen’s convention, is a medium effect size. The comparison of overall pre and posttests mean scores indicated the AEFs’ entrepreneurial skills developed significantly during the training program. When comparing the aggregated skills score of each AEF before and after completing the program, it was found that 12 of 23 (52%) reported developing additional entrepreneurial and business skills as a result of completing the program.

Table 4
*Comparison of AEFs’ Aggregated Skills Score Before and After Completing the Program (N = 23)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean Before</th>
<th>Mean After</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregated skills score</td>
<td>23.2</td>
<td>25.4</td>
<td>2.07</td>
<td>0.05*</td>
</tr>
</tbody>
</table>

*Note.* *p* ≤ .05; Aggregated Scale: 6 = Not Confident, 12 = A Little Confident, 18 = Somewhat Confident, 24 = Confident, and 30 = Very Confident. Effect size: Cohen’s *d* = 0.52

**Entrepreneurial aspirations.** At the end of their program, the AEFs’ intentions to apply nine entrepreneurial practices related to the training were evaluated. Data presented in Table 5 confirmed that more than 90% of the AEFs said *Yes* they intended to apply or were already applying those entrepreneurial practices. More than 52% of the AEFs indicated they had already strengthened professional linkages with U.S. partners using social media such as electronic mail, Facebook, and LinkedIn profiles. The remainder of the AEFs (48%) reported they would strengthen professional linkages with U.S. partners using social media. In addition, more than 78% of the AEFs said they would apply entrepreneurial ideas learned in the U.S. after returning to their home countries (see Table 5).
Table 5
AEFs’ Readiness to Apply Learned Entrepreneurial Practices (N = 23)

<table>
<thead>
<tr>
<th>As a result of this program, do you intend to:</th>
<th>Percentage of AEFs said:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Apply entrepreneurial ideas you learned in the U.S. when you return to your home country?</td>
<td>0</td>
</tr>
<tr>
<td>Strengthen professional linkages with the U.S. partners using social media such as e-mail, Facebook, and LinkedIn profiles?</td>
<td>0</td>
</tr>
<tr>
<td>Promote open economic ideals in your business?</td>
<td>0</td>
</tr>
<tr>
<td>Apply learned business ethics in your business?</td>
<td>0</td>
</tr>
<tr>
<td>Promote human values and rights in your workplace?</td>
<td>0</td>
</tr>
<tr>
<td>Expand your business into new ventures?</td>
<td>0</td>
</tr>
<tr>
<td>Share your learning experience with co-workers?</td>
<td>0</td>
</tr>
<tr>
<td>Advocate against all forms of discrimination at your workplace?</td>
<td>0</td>
</tr>
<tr>
<td>Develop a business plan to collaborate with U.S. participants?</td>
<td>0</td>
</tr>
</tbody>
</table>

**Overall learning outcomes.** The analysis of qualitative data indicated the AEFs gained new business ideas and knowledge; broadened their vision for business; developed confidence for expanding their businesses; and aspired to expand their businesses. For example, one AEF said: “I gained an insight about how to efficiently run a dairy enterprise.” Another African Fellow stated: “I was able to broaden my vision and perspective of the [organic] composting activity.”

When AEFs were asked how the overall learning experience and networking impacted them professionally, the most frequent responses were building entrepreneurial capacity by improving their motivation, vision, confidence, knowledge, skills, communication, work ethics, and business ideas. For instance, one AEF said: “With this experience, I feel inspired to achieve more, invest more, and multiply my efforts.” AEFs indicated they were exposed to new knowledge and skills for business expansion. For example, one AEF said: “I was exposed to GAP (Good Agricultural Practices) that have not been applied in my country by the smallholder farmers. I was able to understand business management skills and expansion.” The AEFs also learned how to use communication technology for business improvement. To that point, one AEF explained: “I understand business communication and marketing will take you ahead in business.”

AEF s also said they were inspired to apply learned business concepts, new ideas, work-related ethics, and technology to improve their businesses, especially in regard to efficiency. In accord, one AEF stated: “I will introduce drip irrigation system to the food garden team members there I work with, I will also teach them how to plant using a tractor.” Another AEF
Eighteen AEFs responded to the three-month follow-up evaluation survey conducted online. Table 6 summarizes their responses. The three-month follow-up evaluation data indicated a majority of the responding AEFs had applied gained knowledge to improve their businesses; promoted open economic ideals, business ethics, and human rights in their businesses; shared their learning experiences with co-workers; and advocated against discrimination at their workplaces. These findings indicate that the visitor exchange program resulted in positive impacts on the entrepreneurial practices of the AEFs as well as their institutions and communities.

### Table 6

**AEFs’ Entrepreneurial Practice Improvements after Three Months**

<table>
<thead>
<tr>
<th>Practice</th>
<th>No</th>
<th>%</th>
<th>Yes</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applying entrepreneurial knowledge to improve your business?</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>100</td>
</tr>
<tr>
<td>Sustaining communication linkages with the U.S. partners?</td>
<td>4</td>
<td>22</td>
<td>14</td>
<td>78</td>
</tr>
<tr>
<td>Promoting open economic ideals through your business?</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>100</td>
</tr>
<tr>
<td>Promoting business ethics in your business?</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>100</td>
</tr>
<tr>
<td>Promoting human values and rights in your workplace?</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>100</td>
</tr>
<tr>
<td>Expanding your business in new ventures?</td>
<td>1</td>
<td>6</td>
<td>17</td>
<td>94</td>
</tr>
<tr>
<td>Sharing your learning experience with co-workers?</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>100</td>
</tr>
<tr>
<td>Advocating against all forms of discrimination at your workplace?</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>100</td>
</tr>
<tr>
<td>Establishing any collaborative partnership with the U.S. participants?</td>
<td>8</td>
<td>47</td>
<td>9</td>
<td>53</td>
</tr>
<tr>
<td>Using of social media such as e-mail, Facebook, and LinkedIn profiles for communicating with your business partners?</td>
<td>2</td>
<td>13</td>
<td>14</td>
<td>88</td>
</tr>
</tbody>
</table>

The AEFs acknowledged the application of business concepts, communication skills, and networking skills gained during the training program as important changes in their daily workplace practices.

### Institutional Impacts

For the purpose of this study, institutional impacts were the changes or improvements AEFs made in their business organizations or workplaces as a result of the program’s learning experiences.
addition programs and created employment opportunities for two youths along the value chain.”

An additional institutional impact was expanded business networks of the AEFs due to improved communication. For instance, an AEF said: “I am more fluent and efficient in communication, and my people relations have improved.” Planning to develop business collaborations between Africa and the U.S. was another important institutional impact. To that aim, an AEF shared: “I shadowed my U.S. mentor. I am working on hosting him in two years in Uganda, for him to experience agri-business in this part of the world, and give him an appropriate stage to share.” This statement reflects the strengthening of business linkages between the AEFs and their U.S. collaborators as a result of the exchange program.

A strong professional network had been developed among the AEFs and with the project’s U.S. participants. This professional network represents an expansion of social capital for the AEFs and their U.S. counterparts which supports an ongoing exchange of ideas on business, research, and development work. In addition to the AEFs’-U.S. participants’ network, the AEFs alumni members have developed a professional network called Partnership for African Youth in Agriculture (PAYA) to support youth development in their countries. One AEF said: “We constantly consult regarding our work, and encourage each other to grow our collaborations with our U.S. counterparts, as well as the other Fellows from Africa.”

Improved customer service in AEFs’ businesses was another institutional impact. To this point, an AEF described his view: “The fellowship experience has increased my capacity to understand the dynamics in my business that I little knew. A case in point was the application of customer care techniques to community members I serve.” Another notable impact was enhanced service to their communities. For example, an AEF said: “I have opened my project to my community as a learning center for women to acquire design skills with the intent that they will become entrepreneurs.” These findings highlight that the exchange program contributed to expanding the AEFs’ businesses; improving their business communications, including ongoing networking with other AEFs; improving their customer service; enhancing service to their communities; and establishing business linkages with their U.S. contacts.

**Conclusions**

**Outcome Evaluation**

Conclusions related to outcomes were organized under four headings, including (a) levels of satisfaction; (b) changes in knowledge, attitudes, skills, and aspirations; (c) practice and behavior improvements; and (d) institutional impacts, as specified in the study’s outcomes evaluation conceptual framework.

**Levels of satisfaction.** The overall program was well-received by AEFs acknowledging it was effective in facilitating their achievement of learning needs and expectations.

**Learning.** Comparison of pre and post evaluation data confirmed the AEFs developed entrepreneurial knowledge, gained business skills, and acquired positive attitudes toward U.S. business and culture. The AEFs acquired new business ideas and learned about aspects of U.S. work ethics, such as being punctual and a service orientation when dealing with customers, and broadened their entrepreneurial capacity and vision, which helped them develop the confidence needed for expanding their businesses. Learning assessment data further
confirmed the program was effective in inspiring AEFs to apply learned business concepts, new ideas, work ethics, and technology to improve the efficiency of their businesses.

**Practice and behavior improvements.** The review of three-month follow-up evaluation data leads to conclude a majority of AEFs had applied gained knowledge and skills to improve their businesses and customer service; promoted open economic ideals, business ethics, and human rights in their businesses; shared their learning experience with co-workers; and advocated against discrimination at their workplaces. Qualitative data further confirmed that the AEFs became more customer-focused, transparent, humble, and community service-oriented. Some of the AEFs reported plans to build business collaborations with their U.S. contacts. The findings confirmed the program had positive impacts on the AEFs’ entrepreneurial behaviors and practices.

**Institutional impacts.** According to the Kirkpatrick (2006) evaluation framework, the fourth level of program outcome was focused on determining the institutional impacts of the training. Analysis of the AEFs’ responses to a follow-up evaluation and other feedback received after returning home confirmed their application of learning acquired during the training program. The most notable institutional impacts were AEFs’ expanding their current businesses, starting new ventures, improving customer services, establishing communication networks, and serving their communities. George et al. (2014) reported similar impacts related to communication and community outreach from an exchange program involving food security fellows representing Kenya and Uganda. The communication network established by the AEFs represents their attempt to leverage significant social capital to augment the exchange of ideas between them and U.S. contacts regarding additional business, research, and development opportunities. The AEFs, as fellowship alumni members, creation of the Partnership for African Youth in Agriculture (PAYA) organization to support youth development in and for the agriculture sectors of their respective countries was another significant social impact resulting from the exchange program. (The organization’s name was later modified to Glo [i.e., Global]–PAYA.)

A review of this evaluation study’s findings lead to conclude the “Empowering Aspiring Entrepreneurs for Economic Success in Sub-Saharan Africa: A Professional Fellows Program for Kenya, South Africa, and Uganda” project was successfully implemented and achieved all of its major goals and objectives. Accomplishment of these objectives confirms the visitor exchange program was effective in contributing to development efforts in SSA by further developing young entrepreneurs in the context of agriculture and its allied sectors.

**Recommendations and Implications**

An entrepreneurship-focused, visitor exchange program was an effective strategy for contributing to agribusiness development in developing countries such as Kenya, South Africa, and Uganda. Such programs can be used to develop knowledge, skills, and attitudes supporting the expansion of agricultural businesses and serving rural communities in developing countries. Literature (Mujuru, 2014; Swanson, 2006) emphasizes the pressing need to enhance the entrepreneurial knowledge and skills of smallholder farmers and allied agribusiness operators if the agriculture development goals of lesser-developed countries are to be achieved. Experiential learning methods are
effective in fostering entrepreneurship development (Canziani, Welsh, Hsieh, & Tullar, 2015). Therefore, it is important to use experiential learning methods, such as job shadowing and internship placements, in designing entrepreneurship development programs likely to achieve the desired learning outcomes.

The AEFs’ suggestions can be used to make important recommendations for improving similar exchange programs in the future. First, it is important to pay due attention to the selection and matching of U.S. mentors with the business interests and learning needs of international participants to ensure their learning expectations are met. Second, the participants, based on their entrepreneurial interests, should be assigned mentors for longer periods of time to increase the likelihood of receiving more in-depth learning experiences and develop lasting professional relationships. Third, it is worth doing additional follow-up with the program’s participants to determine whether they achieve their expected, long-term results from participating in an exchange program on entrepreneurship in the United States.

Entrepreneurship education is a tested development strategy effective in creating jobs, alleviating poverty, improving living standards, and achieving economic development (Alakbarov, 2010; Mkala & Wanjau, 2013; Smith & Paton, 2011). This study’s findings highlight the potential of two-way, entrepreneurship-themed exchange programs between developing countries and the U.S. as a comprehensive strategy for building entrepreneurial capacity and linkages to address agricultural development challenges. Therefore, it is important to use entrepreneurship-focused exchange programs between lesser-developed countries and developed nations as a comprehensive strategy to overcome the agricultural and rural development challenges facing Kenya, South Africa, Uganda and alike.

References


International Agricultural Concepts through the Eyes of School-Based Agriculture Education Students

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The University of Tennessee

Abstract
As demands to participate in a global economy increase, American students, who have limited knowledge of international agriculture concepts, must be better educated in terms of international awareness and understanding. The purpose of this study was to identify the attitudes, beliefs, understanding, and desired instructional methods of Tennessee school-based agricultural education students in regards to international agriculture. A descriptive questionnaire comprised of 46 items, which measured four constructs, was used to collect data. The summated means of all students for attitudes, beliefs, understanding, and instruction were 3.81 (SD = .46), 3.81 (SD = .57), 3.76 (SD = .51), and 3.76 (SD = .47), respectively. Findings indicated students hold positive attitudes and beliefs toward international agricultural concepts. In an effort to remain a global leader in science and innovation and to meet the needs of the agricultural employers, State Departments of Education should consider providing resources for the development, testing, and implementation of internationalized curricula. If not currently internationalized, other countries should also consider internationalizing their curricula and determine how best to equip students with the skills and knowledge necessary to work in a globalized economy.

Keywords: Globalization, International Agriculture, School-Based Agriculture Education
Introduction/Literature Review

The United States faces the daunting reality that many high school students are not adequately prepared to successfully meet the demands of a global economy (Jackson, 2008). In the early 1900s, agricultural education in the United States was a means to educate farmers on basic production and efficiency, but modern agricultural education must focus on educating producers to solve larger, global issues (Mercier, 2015). As outlined by Mercier (2015), the biggest challenges in the future of agriculture are to “meet future demand for food, conserve and enhance water, soil, and habitat, improve nutrition and public health, and strengthen farms and communities to improve livelihoods.” (p.1). According to predictions by the Food and Agriculture Organization of the United Nations (FAO; 2009), today’s world population will grow by over a third by 2050. An estimated 9.1 billion humans will inhabit Earth, and worldwide agriculture will be required to raise overall food production by 70% in order to meet the new demands set forth by the projected population (FAO, 2009). Moreover, 70% of the world’s population will live in metropolitan areas by 2050 as developing counties rapidly build larger, more populated cities (FAO, 2009). FAO posited the move to metropolitan areas will leave smaller labor forces to work towards an increase in production. Furthermore, FAO suggested the following are prerequisites to global food security: (a) increased investments in developing country agriculture through the public and private sectors; (b) priority given to agricultural research, development, and extension; and (c) effectively functioning global markets.

According to the Center for International Understanding (CIF; 2005), “all fields – from agriculture to auto repair, banking to biotech, medicine to manufacturing, teaching to transportation – are increasingly reliant on international business relationships,” (p. 3). Young adults entering the workforce will have to collaborate, sell, and purchase products with people from around the world and compete at a global level to meet future agricultural challenges (CIF, 2005). Acker and Scanes (1998) stated, “international trade is increasingly becoming the economic engine responsible for improving standards of living at home and overseas” (p.61), and agriculture is the driving force for the betterment of our entire world and its increasing population. Agricultural growth around the world directly correlates to reduced poverty (Acker & Scanes, 1998) and the creation of a larger class of people that can afford a better quality of life (FAO, 2009). Agriculture, on the global level, must increase to meet increased demands from the new larger middleclass (FAO, 2009) and “increases in the movement of finance, inputs, output, information, and science across vast geographic areas,” (FAO, 2003, p.99).

To meet global demands, investments are needed in education surrounding agriculture – from production to logistics (FAO, 2003). Stewart (2009) purported American students are not being properly prepared to work and thrive in a globalized society. Students in the United States have less knowledge of world issues than students in other industrialized countries (Stewart, 2009). This lack of knowledge places students at a disadvantage for jobs and our country at a disadvantage for economic growth (Stewart, 2009). Furthermore, students in the United States rarely learn the world’s most spoken languages and are expected to foster respect for different cultures less than any other industrialized country (Stewart, 2009). Moreover, young Americans lack basic geographical knowledge and struggle to
identify states or countries on a map, and are therefore, unprepared to work on a global scale (Roper, 2002).

In order for the United States to produce graduates that are competitive in the workplace and for schools in the United States to increase their quality of education, globalization must be an active factor in their mission (Acker & Scanes, 1998). To compete in a global economy, the United States educational system should focus on internationalizing the curricula (Stewart, 2009). Stewart (2009) proposed an educational response that appears early in a child’s education. Instead of superficial cultural aspects like “food, fun and festivals,” (Stewart, 2009, p.185), education should focus on global economic trends, cultural connections and international trade. Congruently, the National Research Council (2009) challenged academic institutions to update curricula to keep pace with the globalization of agriculture and produce graduates capable of addressing issues in the world’s systems of food and agriculture. The National Research Council (2009) also indicated how teaching and learning occurs should be improved and opportunities should be provided that allow faculty and students to “learn about the complexities of agriculture and grapple with its evolution and change” (p. 3).

Furthermore, three recent studies support the need for an internationalized school-based agricultural education curriculum in the United States by documenting attitudes and beliefs towards international agricultural concepts (Elliot & Yanik, 2004; Heinert, Lavery, & Roberts, 2014; Radhakrishna, Leite, & Domer, 2003). Elliot and Yanik (2004) found American students did not hold a high value for concepts at the international level. To address this issue, Elliot and Yanik proposed more attention be given to international concerns by incorporating them into curriculum to help student understand the importance of international issues. In Radhakrishna, Leite, and Domer’s (2003) study, American students agreed they needed more information concerning international agricultural concepts. These students desired to know more about the world market in order to be prepared and obtain future employment in a more globalized world (Radhakrishna, et al., 2003). Heinert et al. (2014) found attitudes and beliefs among United States students were also positive towards international concepts.

This study seeks to build upon these early works and explore the attitudes, beliefs, understanding, and desired instructional methods of Tennessee school-based agricultural education students in regards to international agriculture. Results from this study could serve as a first step in understanding, establishing, and improving instruction of international agricultural concepts in Tennessee.

Conceptual Framework
Awareness and understanding of international agricultural concepts can be influenced by a number of factors, and with that in mind, Radhakrishna et al.’s (2003) conceptual framework for global awareness and understanding of international agriculture (Figure 1) framed this study.
Radhakrishna et al. (2003) stated “global awareness and understanding of international agricultural concepts by high school and college students can be linked to several factors — international experience and participation, school characteristics, and demographic characteristics, knowledge assessment, and attitude and beliefs toward international agricultural concepts” (p. 542). Referring to the global illiteracy of even the best of agricultural students as a “crisis” (Radhakrishna et al, 2003, p. 558), Radhakrishna et al. purported the only solution is more education and exposure. Exposure to international agriculture can come through a variety of experiences: “study abroad programs, travel, including intercultural field trips, foreign language skills, hosting foreign exchange students, international foreign youth exchange, and courses in international agriculture” (Radhakrishna et al, 2003, p. 551).

A preliminary study, concerning factors leading to awareness of international agricultural concepts in secondary students, suggested demographics of students and schools had an effect on students’ awareness and understanding of international agricultural concepts (Harbstreit & Welton, 1992). While “high school agriculture student awareness about international agriculture in the areas of agricultural products, agricultural policy, geography, and people and cultures is limited,” (Harbstreit & Welton, 1992, p. 15) continuing in agricultural classes allows for the student to be exposed to and gain a deeper understanding for the topics. Harbstreit and Welton (1992) found “the longer a student is a part of a high school agricultural program and involved with a supervised occupational experience, awareness about international agriculture increases,” (p. 15). Grade point averages, year in secondary school, and involvement in supervised occupational experiences (known as supervised agricultural experiences today) were positively correlated to levels of awareness (Harbstreit & Welton, 1992). Furthermore, attitudes and beliefs play a large role in the understanding and awareness of any concept (Silva, 2015), including those regarding international agricultural. When students feel interest (Hidi, 2001) or even awe (Stewart, 2009) towards a subject, in the form of positive attitudes and beliefs, they
are more likely to retain information in a deeper, fuller capacity (Silva, 2015).

**Purpose and Objectives**

The purpose of this study was to identify the attitudes, beliefs, understanding, and desired instructional methods of Tennessee school-based agricultural education students in regards to international agriculture. The objectives of the study were to:

1. Determine the attitudes of students toward international agricultural concepts.
2. Determine the beliefs of students toward international agricultural concepts.
3. Determine student’s understanding of international agricultural concepts.
4. Determine student’s views of desired instructional methods for learning international agricultural concepts.
5. Determine if attitudes, beliefs, understanding, and desired instruction methods toward international agriculture concepts differ based on gender and school.

**Methods**

This descriptive study utilized an instrument that Radhakrishna et al. (2003) adapted from Elliot and Yanik (2002). The instrument was comprised of 46 items, which measured four constructs and used a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*) and contained demographic questions. Reliability of the constructs were assessed post-hoc for this study: attitudes (14 items, \( \alpha = .83 \)), understanding (6 items, .78), attitudes toward instruction (13 items, .86), and beliefs (13 items, \( \alpha = .78 \)).

Three school-based agricultural education programs were purposively selected to participate in this study based on the size of the school and their rural or urban location. The researchers wanted to represent both rural and urban schools in Tennessee. School 1 and 2 have approximately 2000 students each and are located in urban communities. The school-based agricultural education programs at both school 1 and 2 are comprised of two agriculture teachers. Whereas, school 3 has approximately 300 students and is located within a rural community with only one agriculture teacher. The school-based agricultural education program at school 1 consisted of 105 students, and thirty-eight of the students participated in the study. School 2 had 128 students in their school-based agricultural education program, and 61 of the students participated in the study. School 3 had 75 students in their school-based agricultural program, and 24 of the students participated in the study. The total response rate for this study was 40%. The lack of returned parental consent forms prevented some of the students from participating. The informed consent forms were delivered in person to an agriculture teacher at each of the selected schools. The agriculture teacher introduced the potential student participants to the opportunity to participate in the study and passed out the informed consent forms. The students took the consent forms home in order to seek their parent’s permission to participate in the study. If the student was 18 years of age, parental consent was not required per Institutional Review Board requirements. After each agriculture teacher collected the informed consent forms, the lead researcher or the high school agriculture teacher administered the pen and paper instrument. The data were analyzed using SPSS 22, and descriptive statistics were reported.

Demographic information on the students surveyed are presented in Table 1. The majority of the students surveyed were males (54.5%) and located in a rural location (72.6%). Despite a large percentage of
students attending school in a rural location, only 35.5% of the students lived on a farm.

Table 1
Demographic Profile of Students

<table>
<thead>
<tr>
<th>Variable</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>55</td>
<td>45.5</td>
</tr>
<tr>
<td>Male</td>
<td>66</td>
<td>54.5</td>
</tr>
<tr>
<td>Class Standing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>37</td>
<td>30.1</td>
</tr>
<tr>
<td>Sophomore</td>
<td>31</td>
<td>25.2</td>
</tr>
<tr>
<td>Junior</td>
<td>24</td>
<td>19.5</td>
</tr>
<tr>
<td>Senior</td>
<td>29</td>
<td>23.6</td>
</tr>
<tr>
<td>School Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>85</td>
<td>72.6</td>
</tr>
<tr>
<td>Urban</td>
<td>32</td>
<td>27.4</td>
</tr>
<tr>
<td>Live on Farm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>43</td>
<td>35.5</td>
</tr>
<tr>
<td>No</td>
<td>78</td>
<td>64.5</td>
</tr>
</tbody>
</table>

Results

Objective 1: Determine the attitudes of students toward international agricultural concepts.

The attitudes of students toward international agricultural concepts were generally agreeable and positive, and majority agreement was recorded on all attitude items (Table 2). The summated mean for attitudes was 3.81 ($SD = 0.46$), and 89% of students agreed or strongly agreed with the statement, *I should understand about agriculture and its importance to the world economy*. However 12.2% and 11.4% of students disagreed or strongly disagreed with the statements *I should know more about the cultures of other countries* and *learning more about agriculture in other countries will help me understand future changes in world agriculture*, respectively.
<table>
<thead>
<tr>
<th>Item</th>
<th>Strongly Disagree %</th>
<th>Disagree %</th>
<th>Neither Agree or Disagree %</th>
<th>Agree %</th>
<th>Strongly Agree %</th>
</tr>
</thead>
<tbody>
<tr>
<td>I should understand about agriculture and its importance to the world economy.</td>
<td>0.0</td>
<td>0.0</td>
<td>10.6</td>
<td>43.9</td>
<td>45.1</td>
</tr>
<tr>
<td>I should understand more about the differences between developing and developed countries.</td>
<td>0.8</td>
<td>4.1</td>
<td>41.5</td>
<td>42.3</td>
<td>11.4</td>
</tr>
<tr>
<td>I should know more about other countries as markets for U.S. agricultural products.</td>
<td>1.6</td>
<td>4.9</td>
<td>35.0</td>
<td>47.2</td>
<td>11.4</td>
</tr>
<tr>
<td>I should have a better understanding about how politics affect world agriculture.</td>
<td>1.6</td>
<td>6.5</td>
<td>26.8</td>
<td>45.5</td>
<td>19.5</td>
</tr>
<tr>
<td>I should know more about the cultures of other countries.</td>
<td>3.3</td>
<td>8.9</td>
<td>32.5</td>
<td>40.7</td>
<td>14.6</td>
</tr>
<tr>
<td>I should understand how the culture of other countries impact agriculture in those countries.</td>
<td>1.6</td>
<td>6.5</td>
<td>30.1</td>
<td>48.0</td>
<td>13.8</td>
</tr>
<tr>
<td>Learning more about agriculture in other countries will help me understand future changes in world agriculture.</td>
<td>4.1</td>
<td>7.3</td>
<td>22.0</td>
<td>50.4</td>
<td>16.3</td>
</tr>
<tr>
<td>I need to know more about world agriculture.</td>
<td>1.6</td>
<td>1.6</td>
<td>32.5</td>
<td>46.3</td>
<td>17.9</td>
</tr>
<tr>
<td>I should know more about how world events affect local agriculture in my community.</td>
<td>0.0</td>
<td>2.4</td>
<td>22.0</td>
<td>55.3</td>
<td>20.3</td>
</tr>
<tr>
<td>I should know more about how world agriculture affects food prices in the local grocery store.</td>
<td>0.0</td>
<td>1.6</td>
<td>18.0</td>
<td>53.3</td>
<td>27.0</td>
</tr>
<tr>
<td>Marketing U.S. agricultural products to other countries will help the U.S. economy.</td>
<td>2.4</td>
<td>4.9</td>
<td>36.6</td>
<td>39.8</td>
<td>16.3</td>
</tr>
<tr>
<td>Coming changes in world agriculture will have some impact on me in the future.</td>
<td>0.0</td>
<td>5.7</td>
<td>17.1</td>
<td>53.7</td>
<td>23.6</td>
</tr>
<tr>
<td>World events have some impact on agriculture in my community.</td>
<td>0.0</td>
<td>5.7</td>
<td>24.4</td>
<td>51.2</td>
<td>18.7</td>
</tr>
</tbody>
</table>
Objective 2: Determine the beliefs of students toward international agricultural concepts.

A majority of students provided positive agreement with statements regarding international agricultural concepts (Table 3). The statements below yielded a summated mean of 3.81 ($SD = 0.57$). A majority of students agreed or strongly agreed (88.5%) *agriculture involves more than farming*. When questioned about where they could learn more about world agriculture, students predicted they would be exposed to concepts, indicated by agreeing or strongly agreeing, through fairs and trade shows (74.4%), audio-visual materials (72.9%), and guest speakers (62.5%). While these items could be considered as supplements to classroom teachings, they are also seen as opportunities for students to see real-world examples outside of the classroom.

Table 3

<table>
<thead>
<tr>
<th>Items</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree or Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture involves more than farming.</td>
<td>0.8</td>
<td>2.5</td>
<td>8.2</td>
<td>28.7</td>
<td>59.8</td>
</tr>
<tr>
<td>Natural disasters affect the price of food in my local grocery store.</td>
<td>0.8</td>
<td>2.5</td>
<td>22.1</td>
<td>45.9</td>
<td>28.7</td>
</tr>
<tr>
<td>The U.S. should help other countries with food aid in times of famine.</td>
<td>3.3</td>
<td>4.9</td>
<td>30.3</td>
<td>36.9</td>
<td>24.6</td>
</tr>
<tr>
<td>U.S. trade partners (customers) help U.S. agriculture.</td>
<td>1.6</td>
<td>4.1</td>
<td>24.6</td>
<td>50.0</td>
<td>19.7</td>
</tr>
<tr>
<td>Competition with other producers worldwide help keep food prices rather reasonable.</td>
<td>4.1</td>
<td>6.6</td>
<td>30.6</td>
<td>42.1</td>
<td>16.5</td>
</tr>
<tr>
<td>An understanding of other cultures will help U.S. food producers to market their products abroad.</td>
<td>1.7</td>
<td>4.1</td>
<td>40.5</td>
<td>42.1</td>
<td>11.6</td>
</tr>
<tr>
<td>An understanding of international political issues will help U.S. producers market their products abroad.</td>
<td>1.7</td>
<td>5.8</td>
<td>40.0</td>
<td>43.3</td>
<td>9.2</td>
</tr>
<tr>
<td>That guest speakers who are knowledgeable regarding international events would help me learn more about world agriculture.</td>
<td>0.8</td>
<td>5.8</td>
<td>30.8</td>
<td>45.0</td>
<td>17.5</td>
</tr>
<tr>
<td>That variety of audio-visual materials (websites, slides, videos, films, etc.) would help me learn more about world agriculture.</td>
<td>2.5</td>
<td>3.3</td>
<td>22.3</td>
<td>51.2</td>
<td>20.7</td>
</tr>
<tr>
<td>That computer programs that are internationally oriented would help me learn more about world agriculture.</td>
<td>2.5</td>
<td>7.4</td>
<td>32.2</td>
<td>39.7</td>
<td>18.2</td>
</tr>
<tr>
<td>That I can learn about world agriculture from watching selected television programs.</td>
<td>4.1</td>
<td>4.1</td>
<td>28.9</td>
<td>46.3</td>
<td>16.5</td>
</tr>
</tbody>
</table>
That I can learn about world agriculture from listening to selected radio programs.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree or Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Major regions in the United States.</td>
<td>2.5</td>
<td>0.8</td>
<td>18.0</td>
<td>54.9</td>
<td>23.8</td>
</tr>
<tr>
<td>Location of states and major regions in the United States.</td>
<td>0.0</td>
<td>4.1</td>
<td>23.0</td>
<td>49.2</td>
<td>23.8</td>
</tr>
<tr>
<td>The seven continents in the world.</td>
<td>1.7</td>
<td>1.7</td>
<td>31.4</td>
<td>41.3</td>
<td>24.0</td>
</tr>
<tr>
<td>Location of countries in the world.</td>
<td>2.5</td>
<td>2.5</td>
<td>32.0</td>
<td>49.2</td>
<td>13.9</td>
</tr>
<tr>
<td>Major waterways used in shipping agricultural products.</td>
<td>0.8</td>
<td>3.3</td>
<td>26.2</td>
<td>50.8</td>
<td>18.9</td>
</tr>
<tr>
<td>Countries that are the most densely populated.</td>
<td>4.1</td>
<td>3.3</td>
<td>39.8</td>
<td>38.2</td>
<td>14.6</td>
</tr>
</tbody>
</table>

**Objective 3: Determine the understanding of geography in relation to international agricultural concepts in students.**

The summated mean for understanding geography mirrored the generally agreeableness of prior constructs ($M = 3.76; SD = .51$; See Table 4). However, most students were more concerned with geography only related to the United States – 78.7% and 73% of students respectively agreed or strongly agreed with a need to understand major regions in the United States and location of states and major regions in the United States. The average percentage of students agreeing or strongly agreeing to the importance of geography related to the seven continents in the world, locations of countries in the world, major waterways used in shipping agricultural products, and counties that are the most densely populated was 62.7%.

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**Objective 4: Determine student’s views in desired instructional methods in learning international agricultural concepts.**

When asked about more specific instructional topics, students agreed on the propositions in Table 5 with an average score of 3.76 ($SD = 0.47$; See Table 5). Instruction on major agriculture products produced in my country, and global agriculture and the effects on American agriculture yielded the most agreeable results with 70.5% and 69.1%, respectively, agreeing and strongly agreeing. In addition, 55.8 % of students agreed or strongly agreed that lessons in international agriculture would help me function better as citizens in a global society.
Table 5
Attitudes Towards Instruction for Understanding International Agricultural Concepts

<table>
<thead>
<tr>
<th>Items</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree or Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am more likely to understand global agriculture if given instruction about:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major agricultural products that are produced in my country.</td>
<td>0.8</td>
<td>5.7</td>
<td>22.8</td>
<td>51.6</td>
<td>18.9</td>
</tr>
<tr>
<td>What happens to local products once they leave the community?</td>
<td>0.0</td>
<td>4.2</td>
<td>28.3</td>
<td>46.7</td>
<td>20.8</td>
</tr>
<tr>
<td>How the U.S. works with other countries on economic issues</td>
<td>3.3</td>
<td>4.1</td>
<td>33.1</td>
<td>45.5</td>
<td>14.0</td>
</tr>
<tr>
<td>How the U.S. works with other countries on political issues.</td>
<td>1.7</td>
<td>10.0</td>
<td>35.0</td>
<td>38.3</td>
<td>15.0</td>
</tr>
<tr>
<td>How the U.S. works with other countries on humanitarian issues.</td>
<td>2.5</td>
<td>4.1</td>
<td>30.3</td>
<td>49.2</td>
<td>13.9</td>
</tr>
<tr>
<td>Global agriculture and the effects on American agriculture.</td>
<td>0.0</td>
<td>4.9</td>
<td>26.0</td>
<td>48.0</td>
<td>21.1</td>
</tr>
<tr>
<td>A proposed set of lessons on international issues should:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not be too complex for me.</td>
<td>0.8</td>
<td>6.5</td>
<td>31.7</td>
<td>42.3</td>
<td>18.7</td>
</tr>
<tr>
<td>Provide me with an appreciation of the interdependency of nations around the world.</td>
<td>1.6</td>
<td>4.9</td>
<td>36.1</td>
<td>45.9</td>
<td>11.5</td>
</tr>
<tr>
<td>Prepare me for future changes in global agriculture.</td>
<td>0.8</td>
<td>0.0</td>
<td>23.1</td>
<td>54.5</td>
<td>21.5</td>
</tr>
<tr>
<td>Provide an opportunity to interact with people in other parts of the world</td>
<td>1.6</td>
<td>6.6</td>
<td>31.1</td>
<td>41.8</td>
<td>18.9</td>
</tr>
<tr>
<td>Help me understand global agricultural marketing systems.</td>
<td>1.6</td>
<td>3.3</td>
<td>26.2</td>
<td>53.3</td>
<td>15.6</td>
</tr>
<tr>
<td>Help me function better as citizens in a global society.</td>
<td>4.1</td>
<td>5.7</td>
<td>34.4</td>
<td>44.3</td>
<td>11.5</td>
</tr>
<tr>
<td>Prepare me for future changes in global agriculture.</td>
<td>1.6</td>
<td>2.5</td>
<td>27.0</td>
<td>47.5</td>
<td>21.3</td>
</tr>
</tbody>
</table>

Objective 5: Determine if attitudes, beliefs, understanding, and desired instruction methods toward international agricultural concepts differ based on gender and school.

Variance of attitudes, beliefs, understanding and instruction among schools and gender showed slight trends but no significant differences. Among schools, School 1 showed higher summated means among attitudes, beliefs, understanding and instruction. School 2 and School 3 were tied or within 0.03 points of each other on 75% of the constructs. As far as gender, similar results were recorded. Females achieved a slightly higher summated mean on three of the four constructs and tied on the other construct with males.
Table 6
Variance of Attitudes, Beliefs, Understanding and Instruction Among Schools

<table>
<thead>
<tr>
<th></th>
<th>School 1</th>
<th></th>
<th>School 2</th>
<th></th>
<th>School 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Attitudes</td>
<td>3.88</td>
<td>0.35</td>
<td>3.77</td>
<td>0.49</td>
<td>3.80</td>
<td>0.52</td>
</tr>
<tr>
<td>Beliefs</td>
<td>3.91</td>
<td>0.42</td>
<td>3.70</td>
<td>0.50</td>
<td>3.70</td>
<td>0.50</td>
</tr>
<tr>
<td>Understanding</td>
<td>3.91</td>
<td>0.56</td>
<td>3.76</td>
<td>0.61</td>
<td>3.78</td>
<td>0.48</td>
</tr>
<tr>
<td>Instruction</td>
<td>3.83</td>
<td>0.42</td>
<td>3.76</td>
<td>0.56</td>
<td>3.64</td>
<td>0.49</td>
</tr>
</tbody>
</table>

Note. Scale was 1 = strongly disagree to 5 = strongly agree.

Table 7
Variance of Attitudes, Beliefs, Understanding and Instruction Among Gender

<table>
<thead>
<tr>
<th></th>
<th>Females</th>
<th></th>
<th>Males</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Attitudes</td>
<td>3.83</td>
<td>0.45</td>
<td>3.79</td>
<td>0.47</td>
</tr>
<tr>
<td>Beliefs</td>
<td>3.82</td>
<td>0.43</td>
<td>3.72</td>
<td>0.50</td>
</tr>
<tr>
<td>Understanding</td>
<td>3.83</td>
<td>0.57</td>
<td>3.80</td>
<td>0.57</td>
</tr>
<tr>
<td>Instruction</td>
<td>3.72</td>
<td>0.46</td>
<td>3.72</td>
<td>0.55</td>
</tr>
</tbody>
</table>

Note. Scale was 1 = strongly disagree to 5 = strongly agree.

Conclusions
The purpose of this study was to identify the attitudes and beliefs of school-based agricultural education students in Tennessee in regards to international agriculture. We found the generally agreeable and positive beliefs and attitudes were consistent with prior research (Yanik & Elliot, 2002; Radhakrishna, et al., 2003; Heinert, Lavery & Roberts, 2014.). When surveyed about their general attitude toward international agricultural concepts, a majority of students agreed or strongly agreed with all attitude items, which reinforces both Elliot and Yanik (2002, 2004) and Radhakrishna et al. (2003).

In addition, students portrayed agreeableness in their beliefs of the importance of international agricultural concepts. Students conveyed positive responses in both beliefs of international agriculture as well as where they may encounter international agriculture. Furthermore, in the case of geographical understanding, students tended to be overwhelmingly positive about the United States’ geographical features, while they were only generally interested in global geography. This is consistent with Roper (2002), who suggests United States’ students are lacking in global perspectives.

Finally, students provided insight into their desired instructional methods in learning international agricultural concepts. This information may be valuable to the development of appropriate curricula in the future. Students believed lessons should show how the United States works with other countries and how global agriculture effects the United States, which may be a way of making the concepts more concrete rather than abstract for the students. Students indicated with strong agreeableness that they wish to see how countries, including their own, work together to overcome agricultural issues.

In regards to differences among school characteristics and gender, slight difference were found. Demographically, School 1 and School 2 were more similar in the fact that they were large urban schools, while School 3 was a small rural school;
however, School 2 and School 3 achieved more similar results. Differences in gender seemed negligible as well. While females achieved a higher summated score for three of the four constructs, the difference was minimal. This suggests negligible or no differences exist in attitudes, beliefs, understanding, and instruction in regards to international agriculture concepts among the students in this study.

**Recommendations for Practice**

State Departments of Education should consider providing resources for the development, testing, and implementation of internationalized curricula. Curriculum writers should use information from this study and others to gather concepts that should be included in school-based agricultural education curricula. Educators should work towards collaboration between school-based agricultural education, agricultural companies and organizations, and higher education to enhance the school-based agricultural education student experience in regards to international agricultural attitudes, beliefs, understanding, and instruction.

Furthermore, if not currently internationalized, other countries should consider internationalizing their curricula and determine how best to equip students with the skills and knowledge necessary to work in a globalized economy. Additionally, curriculum writers in the United States should look at curricula from other counties to understand which concepts are being taught.

**Recommendations for Further Research**

Further research should be conducted to identify specific concepts that should be included in an internationalized school-based agricultural education curricula. Furthermore, replication of this study should be done in order to represent other regions of the United States and investigation of how and if other countries internationalize their curricula would be beneficial.

**References**


United States and Latin American Undergraduate Students’ Knowledge, Attitudes and Perception of Global Agricultural Issues

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M. Todd Brashears
Cindy Akers
Jaime Malaga
Texas Tech University

Gary Wingenbach
Texas A&M University

Abstract

Global trends are demanding agricultural students have a broader perspective of agriculture and competitiveness and they become responsible global citizens. This study compared United States and Latin American undergraduate students’ knowledge, attitudes, and beliefs regarding international agricultural issues, as well as their attitudes about global citizenship. Overall, students’ results indicated a lack of knowledge regarding international agricultural issues, with only 3.6% obtaining a score above 60%. Students’ recorded positive attitudes and beliefs about international agricultural issues but had mixed feelings regarding global citizenship attitudes. Scores on all constructs were found to be significantly different between the studied academic institutions (p < .05). The stepwise multiple linear regression indicated the predictors of university of enrollment and students’ attitudes and beliefs about international agricultural issues were significantly related to their global citizenship attitudes: F (3, 1194) = 83.04, p = .01, explaining 17% of the variance in the model. The obtained results suggest students hold positive and open-minded attitudes and beliefs regarding international agricultural issues. These attitudes should be balanced by academic institutions with the knowledge needed by students to meet the demands of the agricultural industry. A global understanding can potentially enable future professionals to succeed in both local and global settings, and furthermore, help them become global citizens.

Keywords: international agricultural issues, global citizenship, knowledge, undergraduate education.
Introduction

The interaction between globalization and agriculture continues to increase as interrelations among countries and regions expand. For example, large agribusinesses have a presence in multiple countries and employ large numbers of people, especially agriculturalists. Therefore, it is not surprising agribusinesses expect college and university graduates to be prepared for global competence within their fields (Whigham & Acker, 2003). Conversely, the global agricultural system faces many issues, ranging from climate change, reduction in soil fertility, reduction in biological diversity, and a rapidly growing world population (McIntyre, Herren, Wakhungu & Watson, 2009). The proceeding literature highlights the many ways agriculture is connected to the global community (Bruening & Shao, 2005).

Current pressing world issues have led countries, business leaders, and educators to discuss the need for schools to meet the needs of globalization and prepare students for international work (Spring, 2008; Olson & Evans, 2007). Students may potentially fill work positions worldwide that require international knowledge and awareness (Anthony, Bederman, & Yarrish, 2013). The 2011 – 2015 National Research Agenda of the American Association for Agricultural Education (AAAE) indicated in order to meet global food, fiber, and energy needs, it is essential to prepare new scientists and professionals in the appropriate academic settings (Doerfert, 2011). The 2016 – 2020 AAAE National Research Agenda expanded on this, indicating agricultural graduates will be required to function in global settings. Therefore, the agricultural curricula should incorporate international topics in order allow students to explore agriculture matters from multiple perspectives and in a global setting (Stripling & Ricketts, 2016).

Scholars have suggested a primary goal of universities should be to globalize undergraduate education (Bruenning & Shao, 2005; Bruening & Frick, 2004; Acker & Scanes, 2000). The most effective way to add a global component to undergraduate studies is through the use of study abroad programs (Brooks, Frick, & Bruening, 2006). Even though several studies have evaluated the significance and impact of study abroad programs (Klein & Lawver, 2007; Brooks et al., 2006; Kitsantas, 2004; Opper, 1990), less than two percent of students majoring in agricultural sciences participated in study abroad programs during the 2013-2014 academic year (Institute of International Education, 2015). This level of involvement has been similar in previous years suggesting more effective ways should be explored to internationalize students’ curriculum in agricultural sciences.

In recent years an emphasis has been placed on education regarding global citizenship that aims to engage citizens in the understanding and resolution of social, cultural, and political issues worldwide (The United Nations Educational, Scientific and Cultural Organization [UNESCO], 2013). Indicators of global citizenship have existed since the year 450 (Carabain, Keulemans, Van Gent, & Spitz, 2012). Currently, the term is widely used in international education and various others disciplines (ReySEN & Katzarska, 2013; Morais & Ogden, 2011), but an “agreed definition is yet to be developed” (UNESCO, 2013, p. 3). Morais and Ogden (2011) pointed out global citizenship is “rarely conceptually or operationally defined” (p. 445, 2011). Some have used the term to describe a human condition of belonging to the global community and a feeling of responsible for the world that goes beyond borders, nation-states, and even cosmopolitanism (UNESCO, 2013). For the purpose of this study, the definition established by Morais
and Ogden (2011) was used, which indicates global citizenship is a multidimensional construct built from the interaction and display of three major components: social responsibility, global competence, and global civic engagement.

Academic institutions and their faculty members must take a pro-active role to effectively teach students how to contribute to the solution of issues around the world (Bruening & Shao, 2005). Elting (2001) recommended the undergraduate education curriculum in agricultural sciences should aim to prepare aware and knowledgeable students for a global context. Additionally, Wingenbach et al. (2003) suggested an agricultural curriculum needed to expand students’ knowledge of international agriculture issues and understanding of “policies, products, people, and cultures to prepared students for their careers (2003). Furthermore, an adequate internationalization of the agricultural curriculum will most likely foster positive attitudinal change in students, thus increasing their international awareness (Moriba, Edwards, Robinson, Cartmell, & Henneberry, 2012).

Theoretical Framework
This research study is based on the Theory of Planned Behavior (Ajzen, 1985), which explains “individuals’ intentions to perform a given behavior; intentions are assumed to capture the motivational factors that influence behavior” (Ajzen, p. 181). According to Ajzen (1991), the elements of this theory have been found to accurately predict a person’s behaviors.

In addition, this research study is supported by the Theory of Human Capital applied to education by Schultz in 1961, which indicates “individuals and society derive economic benefits from investments in people” (Sweetland, 1996, p. 341). This theory suggests “[the] pursuit of education leads to individual and national economic growth” (Sweetland, 1996, p. 356). Moriba (2011) proposed investments in the educational systems by governments and stakeholders have taken place to prepare students with international awareness and global competence. This leads to national productivity and prepares future professionals for a globalized world.

Purpose and Objectives
The purpose of this study was to compare United States (U.S.) and Latin American (L.A.) students’ knowledge, attitudes, and beliefs toward international agricultural issues and their attitudes to engage in society as global citizens. The following research objectives were created to guide this study: (a) describe undergraduate students enrolled in agricultural sciences in Texas Tech University (TTU) and The Panamerican Agricultural University, Zamorano (EAP); (b) assess undergraduate students’ knowledge of international agricultural issues in TTU and EAP; (c) determine undergraduate students’ attitudes regarding international agricultural issues in TTU and EAP; (d) determine undergraduate students’ beliefs about international agricultural issues in TTU and EAP; (e) assess undergraduate students’ attitudes toward global citizenship in TTU and EAP; and (f) establish the relationship between undergraduate students’ global citizenship and the students’ university of enrollment, gender, and their knowledge, attitudes, and beliefs about international agricultural issues.

Methods
This study design was causal – comparative; which is used to identify cause and effect relations, with the critical feature of an independent categorical variable (Gall, Gall, & Borg, 2007). To evaluate students’ knowledge and attitudes toward global
agricultural issues and their attitudes to engage in society as global citizens, we used modified versions of the International Agricultural Awareness and Understanding survey instrument by Wingenbach et al. (2003) and Hurst (2013), and the Global Citizenship Scale by Morais and Ogden (2011). Knowledge items that were outdated were replaced with others addressing the main issues highlighted by the Food and Agriculture Organization of the United Nations (FAO) in 2014, in the post-2015 development agenda, and the Millennium Development Goals (MDG). Remaining items regarding the students’ attitudes toward global agricultural issues and global citizenship were revised and changed for applicability to the target population. Items not applicable were removed. The final instrument quantified the student’s knowledge, attitudes, and beliefs about international agricultural issues, their attitudes toward global citizenship, and demographics. A non-probabilistic convenience sample of students in classes with large numbers of enrollment was taken at TTU and EAP. We used this procedure to ensure participants response rate. Other benefits of this sampling procedure included low cost and collecting data in a short period of time (Ary, Jacobs, Sorensen, & Walker, 2013).

The sample size was determined based on Cochran’s formula as suggested by Bartlett, Kotrlik, and Higgins (2001). An alpha level of .05 was established a priori. The sample size was determined to be 310 students at TTU and 294 students at EAP, for a total sample of 604. However, taking into consideration the findings by Sax, Gilmartin, and Bryant (2003) regarding low response rates among college students, we over-sampled the population following the recommendations by Bartlett et al. (2001). We estimated a response rate of 50% considering the low response rates found by Sax et al. (2003), 22% on paper-only surveys and 17% on web surveys. The increased sample helped compensate potential non-response and ensure an adequate sample to conduct the study.

Data collection procedures in this research study were specific to the sub-sets of the targeted population, TTU and EAP, nonetheless general procedures were established to maintain as much consistency as possible between the groups. Data collection at both academic institutions was gathered within the initial three weeks of the semester, fall 2014 in TTU and the 2014 third regular period in EAP. Students from all academic standings were recruited in both academic institutions. Students had the option to accept or decline participation in the study. Those participating completed the paper instrument after a regularly scheduled class period. A total of 1,300 students voluntarily completed the instrument. This included 659 students from TTU and 641 students from EAP. Instruments with less than 90% completion were considered invalid and eliminated resulting in 1,218 valid instruments; 612 from TTU and 606 from [L.A. University]. Students who opted not to participate in this research study were considered non-respondents. Based on enrollment records at both academic institutions, an overall response rate of 90% was obtained. Those in more than one class were considered duplicates and were asked not to complete the instrument more than a single time. No control for non-response error was implemented as participants were part of a convenience sample with no way to contact the non-respondents given IRB constraints.

Data collected from the paper instruments were entered into an Excel® spreadsheet, coded according to each section, and transferred into a SPSS® for Windows database. Items negatively worded on the global citizenship scale (SR 1.1, SR
1.2, and SR 1.3) were reverse-coded as established by the authors (Morais & Ogden, 2011) prior to conducting the statistical analysis.

About 1% of missing data was found. Missing values can decrease the statistical power, however less than 2% of missing data is considered a minimal loss to the dataset (Roth, 1994). To address the missing values in the knowledge section, the researcher considered any unanswered question as incorrect answers as the correct answer was not identified. Meanwhile, missing values in the Likert scale sections of the global citizenship, attitudes and beliefs about international agricultural issues were mitigated using mean substitution, which allows using the mean value of the variable in place of the missing data point. Even though this technique can alter variance estimates, it is a simple technique worth considering when missing data is less than 10% such as in this case (Donner, 1982).

The final instrument was pilot tested to assess the internal consistency and compared it to the reported reliability coefficients by the instruments authors and other researchers. A post-hoc reliability analysis was also conducted. Findings of the reliability analysis were consistent, and considered acceptable, in the pilot test and at post-hoc for the international agricultural awareness and understanding survey sections of: attitudes ($\alpha = .94$; $\alpha = .96$), beliefs ($\alpha = .81$; $\alpha = .90$) and knowledge (KR = .23; KR = .14). Knowledge reliability results were considered understandable considering interdependence of items tend to reduce reliability coefficients (Frisbie, 1988). Findings in the global citizenship scale section were lower than the reported reliability coefficients by the authors in the pilot test and at post-hoc: social responsibility ($\alpha = .69$; $\alpha = .26$); global competence ($\alpha = .59$; $\alpha = .79$); and, global civic engagement ($\alpha = .68$; $\alpha = .79$). The majority of these were considered acceptable for newly developed instruments (Nunnally & Bernstein, 1994). The obtained data was analyzed based on the research objectives established in the study using descriptive and variability statistics, independent t – test, and a linear multiple regression. An alpha level of .05 was established a priori.

**Findings/Results**

The purpose of this study was to compare U.S and L.A. students’ knowledge, attitudes, and beliefs toward international agricultural issues, and their attitudes to engage in society as global citizens. U.S. participants were represented by undergraduate students enrolled at TTU in an undergraduate program of the College of Agricultural Sciences and Natural Resources (CASNR), while L.A. participants were represented by undergraduate students enrolled at EAP, an agricultural university located in Honduras.

Research objective (a) sought to describe participating students of both academic institutions. Students’ demographic characteristics collected in this study included gender, academic standing, and ethnic background. The majority of the participants were males ($n = 644$) in contrast to the female participants ($n = 554$). Males were also the majority at EAP ($n = 382$); however, females were the majority of the participants at TTU ($n = 345$). Regarding the students’ ethnic background, the largest classification of students identified themselves as Latin ($n = 539$), followed by Caucasian/white ($n = 475$), Hispanic ($n = 76$), Native-American ($n = 39$), African-American ($n = 32$), other ethnic background ($n = 12$), and Asian/Pacific Islander ($n = 6$). The majority of the students’ at EAP classified themselves with a Latin background ($n = 538$) but in TTU the majority considered themselves
Caucasian/white \((n = 472)\). Students classified their academic standing according to their university of enrollment, overall the largest group classified themselves as freshmen \((n = 356)\), followed by sophomores \((n = 324)\), juniors \((n = 261)\), and seniors \((n = 255)\). Freshmen were also the largest group at TTU \((n = 214)\) but in EAP seniors made up the largest group \((n = 195)\).

Research objective (b) assessed undergraduate students’ knowledge of global agricultural issues in the target population. Within the instrument, students completed a knowledge section consisting of 20 multiple-choice items. Students were instructed to select the correct answer among 4 options. Results were recorded as correct or incorrect answers with a binary code of 1 and 0 respectively; therefore, the sum of correct answers resulted in the overall knowledge of international agricultural issues score based out of 20 possible points. Results by question varied according to the students’ university of enrollment. No identical frequency percentage of correct answer by item was found between TTU and EAP.

Overall, 90.4% of the students \((N = 1218)\) responded correctly to the question: “The ___ desert is the world’s largest hot desert,” while 95% incorrectly answered the following question: “Although large areas of land are brought into cultivation throughout the world each year, large amounts are also rendered useless or are reduced in productive capacity because of the following reasons.” TTU students’ frequency percentage of responding correctly to the questions varied from 6.7% to 86.9%, while EAP student’s frequency percentages of correct answers varied from 3.3% to 93.9%. TTU students’ posted higher scores of correct answers than EAP students for the following questions: “Which cereal grain is the basic food for more than half of the world’s population,” 45% versus 24%, “Which of the following languages are the four most spoken languages worldwide?” 64% versus 48%, and, “Considering developing and developed countries, the projection of the world population for the year 2050 shows that the largest segment will be in,” 46% versus 30%. Whereas EAP students presented higher scores of corrected answers than TTU students for the following questions: “What is the primary household fuel in lower income groups in Latin America,” 86% versus 58%, “The economic strength of a country can be measured by,” 45% versus 24%, and, “Which country is the largest producer of tea,” 43% versus 29%.

The overall mean score of correct answers was 7.6 \((SD = 2.1)\) with a median and mode score of 7 \((MDN = 7, Mode = 7)\). TTU students’ knowledge of international agricultural issues mean score was lower \((M = 7.24; SD = 2.20)\) than EAP students’ mean score \((M = 7.89; SD = 2.00)\). An independent t-test was used to assess the statistical significance in the differences of students’ knowledge scores based on their university of enrollment. The null hypothesis stated there would be no difference in the participants’ knowledge scores \((H_0: \mu_1 = \mu_2)\). The alpha level was set at .05 \textit{a priori}. Levene’s test for equality of variances violated the assumption of homogeneity of variance \((p = .03)\). The corrected t-test was used not assuming homogeneity of variance. The independent t-test recorded a t value of -5.46 \((p < .05)\). Therefore, the null hypothesis was rejected in favor of the research hypothesis stating, in the population, there is a difference in the participants’ knowledge based on the university of enrollment \((H_0: \mu_1 \neq \mu_2)\). Cohen’s \(d\) effect size value \((d = .33)\) suggested a small to medium effect size (Kotrlik, Williams, & Jabor, 2011).

Quantifying undergraduate students’ attitudes regarding global agricultural issues
in the target population was the purpose of research objective (c). Students completed an attitudes section of 25 Likert-type items on a 6-point scale (1=strongly disagree, 2=disagree, 3=slightly disagree, 4=slightly agree, 5=agree, 6=strongly agree). The mean score of the attitudes section represented the overall attitudes toward international agricultural issues held by the students. Overall, the lowest mean score of this section was 4.44 ($SD = 1.27$) corresponding to the statement: “Lessons on international agricultural issues should not be too complex for me,” whereas, the highest was 5.08 ($SD = 1.03$) corresponding to the statement: “Considering my home country agricultural exports, I should be instructed on other countries agricultural production practices.” TTU students’ mean scores ranged from 4.34 ($SD = 1.27$) to 4.85 ($SD = 1.10$), whereas EAP students’ mean score ranged from to 4.54 ($SD = 1.35$) to 5.35 ($SD = .91$). The overall students’ means score of attitudes was 4.88 ($SD = .76$), with a median of 5 and a range of 4.92. TTU students mean score was lower ($M = 4.70; SD = .78$) than EAP students mean score ($M = 5.06; SD = .68$).

An independent $t$-test was used to assess the statistical significance in the students’ attitudes toward international agricultural issues depending on their enrollment at TTU or EAP ($H_0: \mu_1 \neq \mu_2$). Cohen’s $d$ effect size value ($d = .49$) suggested a medium effect size (Kotrlik, et al., 2011).

Research objective (d) sought to assess undergraduate students’ beliefs about international agricultural issues. Students provided responses to items within a beliefs section of 17 Likert-type items in a 6-point scale (1=strongly disagree, 2=disagree, 3=slightly disagree, 4=slightly agree, 5=agree, 6=strongly agree). The summated mean score of the beliefs section represented the overall beliefs toward international agricultural issues held by the students; in addition, 10 items indicated the students’ educational method of preference to learn about international agricultural issues. Overall mean scores of items in the beliefs section varied from 4.24 ($SD = 1.32$) to 5.25 ($SD = 1.00$), values corresponding to the statements: “I learn about international agricultural issues from listening to selected radio programs,” and “International agriculture involves more than farming.” Variations were observed between TTU and EAP students’ scores; however, results were similar between the subsets of the population. TTU students’ mean scores ranged from 4.02 ($SD = 1.29$) to 5.08 ($SD = 1.05$), while EAP students’ mean score ranged from 4.44 ($SD = 1.49$) to 5.42 ($SD = .94$). The overall students’ mean score in the beliefs section was 4.76 ($SD = .71$). Similar to the attitudes section, TTU students’ mean score was lower ($M = 4.56; SD = .72$) than EAP students’ means score ($M = 4.97; SD = .64$). The range was similar between the subsets of the population.

An independent $t$-test was used to assess the statistical significance in the students’ beliefs toward international agricultural issues based on their university of enrollment. The null hypothesis indicated there was no difference in the participants’...
beliefs toward international agricultural issues \((H_0: \mu_1 = \mu_2)\). The alpha level was set at .05 \textit{a priori}. Because Levene’s test for equality of variances violated the assumption of homogeneity of variance \((p = .01)\), the corrected t-test was used not assuming homogeneity of variance. The independent t-test recorded a \(t\) value of -10.36 \((p < .05)\). Therefore, the null hypothesis was rejected in favor of the research hypothesis that stated, in the population, the participants’ beliefs toward international agricultural issues differ depending on if they are enrolled at TTU or EAP \((H_0: \mu_1 \neq \mu_2)\). Cohen’s \(d\) effect size value \((d = .60)\) suggested a medium effect size (Kotrlik, et al., 2011).

Research objective (e) sought to assess undergraduate students’ attitudes toward global citizenship. Within the instrument, students completed a global citizenship section of 21 items using a 6-points Likert-type scale \((1=\text{strongly disagree}, 2=\text{disagree}, 3=\text{slightly disagree}, 4=\text{slightly agree}, 5=\text{agree}, 6=\text{strongly agree})\). The overall score of global citizenship represented the level of global citizenship held by the students. Overall mean scores of items varied from 2.35 \((SD = 1.23)\) to 5.02 \((SD = 1.11)\), values corresponding to the statements, “Over the next 6 months, I will contact a newspaper or radio to express my concerns about global environmental, social, or political problems,” and “I think people around the world get the punishments they deserve.”

TTU students’ scores by item ranged from a mean value of 2.12 \((SD = 1.07)\) to 4.98 \((SD = 1.02)\) whereas EAP students’ scores varied from 2.19 \((SD = 1.42)\) to 5.05 \((SD = 1.19)\). The overall mean of students’ global citizenship scores was 3.71 \((SD = .63)\) with a median of 3.75. TTU students’ scores were lower \((M = 3.55; SD = .62)\) than EAP students’ mean scores \((M = 3.87; SD = .61)\).

An independent t-test was used to assess statistical significance in the students’ attitudes toward global citizenship based on their university of enrollment. The null hypothesis stated there would be no difference in the participants’ attitudes toward global citizenship \((H_0: \mu_1 = \mu_2)\). The alpha level was set at .05 \textit{a priori}. Levene’s test for equality of variances met the assumption of homogeneity of variance \((p = .92)\). The independent t-test recorded a \(t\) value of -8.86 \((p < .05)\), therefore the null hypothesis was rejected in favor of the research hypothesis that stated, in the population, the participants’ attitudes toward global citizenship differed depending on the university of enrollment \((H_0: \mu_1 \neq \mu_2)\). Cohen’s \(d\) effect size value \((d = .52)\) suggest a medium effect size (Kotrlik, et al., 2011).

Table 1 summarized the findings regarding the students’ knowledge, attitudes, and beliefs toward international agriculture issues, and the students’ attitudes toward global citizenship.
Table 1
Summary of Mean Difference of Students’ Knowledge, Attitudes, and Beliefs toward International Agricultural Issues and Attitudes toward Global Citizenship (N = 1218)

<table>
<thead>
<tr>
<th>Variable</th>
<th>TTU</th>
<th>EAP</th>
<th>df</th>
<th>t</th>
<th>p</th>
<th>Cohen’s d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge a</td>
<td>M=7.24, SD=2.20</td>
<td>M=7.89, SD=2.00</td>
<td>1207.62</td>
<td>-5.46</td>
<td>&lt;.01*</td>
<td>.33</td>
</tr>
<tr>
<td>Attitudes b</td>
<td>M=4.70, SD=.78</td>
<td>M=5.06, SD=.68</td>
<td>1196.08</td>
<td>-8.45</td>
<td>&lt;.01*</td>
<td>.49</td>
</tr>
<tr>
<td>Beliefs b</td>
<td>M=4.56, SD=.72</td>
<td>M=4.97, SD=.64</td>
<td>1199.35</td>
<td>-10.36</td>
<td>&lt;.01*</td>
<td>.60</td>
</tr>
<tr>
<td>Global Citizenship b</td>
<td>M=3.55, SD=.62</td>
<td>M=3.87, SD=.61</td>
<td>1216.00</td>
<td>-8.86</td>
<td>&lt;.01*</td>
<td>.52</td>
</tr>
</tbody>
</table>

Note. a = 20 multiple choice items coded: 0 incorrect, 1 as correct, total possible = 20. b = Likert-type scale: 1=strongly disagree, 2=disagree, 3=slightly disagree, 4=slightly agree, 5=agree, 6=strongly agree. * p < .05

Research objective (f) sought to establish the relationship between undergraduate students’ global citizenship attitudes and the university of enrollment, gender, knowledge, attitudes, and beliefs concerning international agricultural issues. A stepwise multiple regression analysis was conducted to predict the global citizenship score students may hold. The predictors were the students’ gender, university of enrollment, and their attitudes, beliefs, and knowledge of international agricultural issues; the criterion variable was global citizenship. Table 2 displays the regression model summary. The linear combination of students’ attitudes (t = 5.78, p < .05) and beliefs (t = 4.30, p < .05) toward international agricultural issues, and university of enrollment (t = 5.49, p < .05) was significantly related to the students’ global citizenship, F (3, 1194) = 83.04, p = .01. Participants’ predicted global citizenship is equal to the constant 1.87 + .18 (students’ attitudes toward international agricultural issues) + .19 (students’ university of enrollment) + .14 (students’ beliefs of international agricultural issues). The dependent variables of knowledge and gender were excluded from the multiple linear regression model as they did not significantly impact the model’s ability to predict students’ attitudes toward global citizenship (t = .79, p > .05; t = .87, p > .05). The multiple correlation coefficient was .42, indicating approximately 17% of the variance in the students’ global citizenship attitudes within the sample population can be accounted by the linear combination of students’ university of enrollment, and their attitudes and beliefs regarding international agricultural issues.
A multicollinearity diagnosis was conducted to identify if the model presented collinearity issues. The Variance Inflation Factor (VIF) for each of the predictors was less than 2.0 and the tolerance was above .2. VIF values greater than 10.0 and tolerance values lower than .2 are reasons of concern (Bowerman & O’Connell, 1990; Myers, 1990). Therefore, the model to predict global citizenship does not present multicollinearity issues.

Conclusions, Recommendations, and Implications

The results obtained in this research study should be considered with caution and should not be generalized to other populations as non-random assignment procedures were used; however, these results describe TTU and EAP students well. The positive attitudes and beliefs, toward international agricultural issues found in this study may be effectively increasing and strengthening students’ open-minded attitudes, allowing them to become comfortable in global settings, and even more importantly, aware of international agricultural issues. However, their knowledge was found to be deficient. These findings suggest students at both academic institutions may not be connecting the actual information learned in classes to an international context, as suggested by Wingenbach et al. in 2003. This may be disadvantageous for students entering a labor force which demands skillful employees who are able to apply their technical knowledge and show internationally proficiency.

Olson and Evans suggested “students should be able to think, work, and operate across boundaries” (2007, p. 14). Furthermore, global citizenship attitudes, which assessed students’ social responsibility, global competence, and global civic engagement, were found to be toward the mid-point of the scale. These findings suggest students may not necessarily fully understand and exhibit the behaviors of global citizenship as prescribed by Morais and Ogden (2011). This is supported by the conspicuously low scores obtained in items such as, “Over the next 6 months, I will work informally toward solving a global humanitarian issue.”

The linear combination of students’ attitudes and beliefs toward international agricultural issues, and university of enrollment were significantly related to the students’ global citizenship, and explained approximately 17% of the variance observed. Researchers indicate variance ($r^2$) in social sciences models generally range from .15 to .40. This range of variance might not indicate the goodness of models in some fields; however, when examining human behaviors is considered appropriate (Aneshensel, 2012), especially when taking
into consideration human behaviors are highly unpredictable (Westfall & Henning, 2013).

Ajzen (2006) indicated when following the Theory of Planned Behavior that “as a general rule, the more favorable the attitude and subjective norm, and the greater the perceived control, the stronger should be the person’s intention to perform the behavior in question” (2006, p. 1). This research study results imply that the students’ attitudes (attitudes toward the behavior) and beliefs (subjective norms) of international agricultural issues do explain 17% of the variance in the students’ intentions to engage as global citizens in the agricultural sciences (intentions). However, knowledge of international agricultural issues (perceived behavioral control) was found to have minimal contributions to the students’ intentions. These findings partially support what previous researchers have suggested regarding global citizenship and future behaviors, which are built from the students’ attitudes, beliefs and knowledge (Reysen & Katzarska, 2013; Carabain et al., 2012).

These results indicate students at both academic institutions are building positive attitudes and beliefs toward international agricultural issues. These can potentially influence the students’ understanding of global citizenship and their surroundings, and consequently they may display in the future attitudes of global citizenship. The Theory of Human Capital suggests investments in education are done for the purpose of advancing a nation’s economy, and consequently help a nation to keep up with a globalized world (Sweetland, 1996), therefore, it is important to balance students’ attitudinal conditions with the needed knowledge to prepare them as global citizens for the demands of the agricultural industry, locally and globally, especially to build a better world in both developing and developed countries in the upcoming years. This relationship was suggested by the UNESCO in 2013, and supports the goals proposed by philanthropic projects, such as the Gates Foundation 2015 challenge to improve the lives of people in poor countries in the next 15 years in a faster manner than in the past (Gates Annual Letter, 2015).

It is recommended to emphasize actions that may reinforce students’ knowledge of international agricultural issues and may consequently impact their attitudes of global citizenship, in addition to the already established activities at both academic institutions to infuse international dimensions into the students’ curriculum and experience in college. Over the years, researchers have suggested multiple mechanisms to internationalize the students’ curriculum, such as the infusion of international dimensions into core courses; combining domestic and global issues or topics in classes; international agricultural majors and minors, and certificates; and foreign language and culture courses (Brooks el al., 2006; Navarro, 2004; Whigham & Acker, 2003; Radhakrishna & Dominguez, 1999). Therefore, it is suggested to explore these alternatives in both academic institutions.

The researchers encourage further analysis on students’ knowledge, attitudes, and beliefs of international agricultural issues, and their attitude to engage as global citizens, using randomization sampling techniques and experimental procedures. Moreover, it is recommended to explore faculty according to the constructs assessed in this study and their international experiences. This can help to identify the transferability of professors’ attitudinal conditions regarding attitudes and beliefs of international agricultural issues and attitudes of global citizenship, and their knowledge of international agricultural issues while teaching.
Further research is needed to identify variables that may contribute to explain the global citizenship unaccounted variance in agricultural sciences students (83%). In addition, knowledge of international agricultural issues should not be yet discarded as a potential predictor as previous researchers found knowledge to be an important contributor to global citizenship attitudes.

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Identifying Knowledge Management Capacity Needs of Rural Advisory Service Networks

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Abstract

Knowledge management is the creation, coordination, transfer, and integration of knowledge so it is accessible and usable by specific stakeholders. Knowledge management has been shown to facilitate the development of networks, as well as to sustain established networks, based on the appropriate collection and subsequent application of embedded social capital. For rural advisory service (RAS) networks, knowledge management can be an important tool to ensure that both explicit and tacit knowledge is shared amongst network members with the anticipated benefit of increased capacity of the network. Although the importance of knowledge management is well documented within the literature, there are limited guidelines for what specific knowledge management capacities a RAS network should develop. Using the Delphi process, a panel of 31 experts from 24 countries arrived at consensus on 34 specific knowledge management capacities associated with effective RAS networks. The results of the research provide a practical framework for RAS providers and networks to focus knowledge management capacity assessment and capacity-building activities.

Keywords: knowledge management, Delphi, evaluation, capacity assessment
Introduction

Farmers must dedicate time and pay attention to management decisions, along with the development of management skills to be successful and engaged in sustainable production (Kay, Edwards, & Duffy, 2015). The World Bank (2007) has emphasized that “using agriculture as the basis for economic growth in the agriculture-based countries requires a productivity revolution in smallholder farming” (p. 1). Extension professionals, also known as rural advisory service (RAS) providers, offer the management skill training necessary for farmers to revolutionize and have been recognized as indispensable for agricultural development (Anderson, 2007). Unfortunately, Bezemer and Headey (2008) found “over the last three decades, there has been an inefficient and systemic bias against agriculture and the rural economy in the allocation of developmental resources” (p. 1342).

Despite limited resources, RAS providers are empowering farmers around the world through educational programming (Davis & Sulaiman, 2014), often referred to as extension education. RAS providers (extension educators in some parts of the world) are most often supported by government agencies, non-profit organizations, farmers’ unions, and for profit organizations. They have diverse educational backgrounds and perspectives on agricultural production practices, but they all have the same intent: to help farmers become more productive and sustainable (Davis & Sulaiman, 2014).

To provide support, guidance, and harmonization amongst disparate RAS providers, different organizations have emerged; one such organizing entity is the Global Forum for Rural Advisory Services (GFRAS; Davis & Sulaiman, 2014). Organizations such as GFRAS serve to facilitate interconnections amongst RAS providers, thus establishing RAS networks (Christoplos, 2010; Davis & Sulaiman, 2014). For example, country-level national RAS networks are supported by thirteen regional networks across the world, which are in turn supported by the GFRAS organization (Davis & Sulaiman, 2014). GFRAS strives to support small farmers’ development of management skills through the regional and national RAS networks that provide training and resources, including knowledge products and platforms to share global knowledge about RAS and agricultural production (Davis & Sulaiman, 2014). Therefore, RAS networks at all levels require the tools and methods necessary to manage and share knowledge, often referred to as knowledge management (Davis & Sulaiman, 2014).

Knowledge management is the creation, coordination, transfer, and integration of knowledge so it is accessible and usable by specific stakeholders (Paulin & Suneson, 2015). It is an organizational asset which must be recognized for its utilization to reach its full potential (Groff & Jones, 2012). There are many social aspects to knowledge management with multiple scientific fields contributing to its advancement including philosophy, cognitive science, social science, management science, information science, economics, and artificial intelligence (Kakabadse, Kakabadse, & Kouzmin, 2003).

Dalkir and Liebowitz (2011) identified that knowledge has two dimensions; tacit and explicit, with tacit difficult to articulate and explicit more tangible. Given that many agricultural practices are modified to local conditions, agricultural knowledge tends to be tacit (Schreiber et al., 2000). One of the main tenants of knowledge management is to transform tacit knowledge assets to provide value within specific contexts (Metcalfe, 2005), therefore knowledge management
could be extremely useful within the agricultural domain if applied correctly.

As an additional benefit, knowledge management has been shown to facilitate the development of new networks, as well as to sustain established networks, based on the appropriate collection and subsequent application of embedded social capital (Woodhouse, 2006). The benefits of knowledge management systems should therefore accrue to the primary clientele of RAS services as farmers and smallholders continue to take an active role in knowledge acquisition and application resulting from the shift from production-oriented to market-oriented agriculture (Phillipson, Gorton, Raley, & Moxey, 2004).

However, there is very limited research available to provide knowledge management guidance within the RAS context. Identifying the characteristics of effective knowledge management systems and practices within RAS would ensure RAS providers have access to the information necessary to best serve RAS clientele (Hartwich, Perez, Ramos & Soto, 2007). A study focused on identifying the characteristics, and specifically the capacities, associated with effective knowledge management within the RAS context would provide a robust platform for RAS practitioners as well as a novel framework for theoretical consideration (OECD, 2006).

**Theoretical Framework**

This study used social capital theory as the theoretical framework. Woolcock and Narayan (2000) identified four views of social capital: communitarian, network, institutional and synergy. Specifically, a network view of social capital theory was utilized for this study. In a network, social capital represents resources embedded within the network which can be accessed or mobilized through network ties (Lin, 2003). The network provides the conditions necessary to access and use embedded resources (Lin, 2008). Previous literature has recommended organizational networks, like RAS networks, should be leveraged to harness their insights and social capital potential (Nahapiet & Ghosal, 1998). Additionally, Bodin and Crona (2009) found that when networks connect diverse stakeholders from multiple perspectives and institutions, the embedded social capital resulted in more effective problem solving than from groups composed of homogenous institutions.

Nevertheless, integrating knowledge, in the form of social capital, from multiple specializations into a single harmonized system requires specialized knowledge integration. Previous research has shown that knowledge integration can be more of a challenge than original knowledge creation (Grant, 1996). Furthermore, for the integrated knowledge to be valuable, there must be some way for the accumulated knowledge to be transferred back out; therefore, there must be sufficient transmission channels available (Paulin & Suneson, 2015).

Knowledge management, and the focus on knowledge transfer among various levels of a system, or network, uses multiple instruments and skills to accomplish the integration and transmission process (Engel, 1990). The complexity of linking social capital acquired through networks to knowledge management systems capable of effectively integrating and transmitting knowledge has been vexing; a fundamental challenge has been the lack of a common understanding of effective knowledge management (Paulin & Suneson, 2015).

For well-known, but not well-understood concepts such as knowledge management, previous literature has suggested the identification of specific capacities as an operative way to improve
clarity and structure (OECD, 2006). For this purpose, the Organisation for Economic Co-operation and Development (2006) has defined ‘capacity’ as the “ability of people, organisations, and society as a whole to manage their affairs successfully” (p. 18), and ‘capacity development’ as “the process whereby people, organisations, and society as a whole unleash, strengthen, create, adapt, and maintain capacity over time” (p. 18). The use of capacity identification may therefore serve as an effective tool to clarify somewhat ambiguous topics such as effective knowledge management (OECD, 2006). Consequently, a set of capacities associated with effective knowledge management within a RAS context may be best extracted from the social capital of a network of individuals familiar with the context (Paulin & Suneson, 2015; Woolcock & Narayan, 2000).

**Purpose and Research Objectives**

The purpose of this study was to identify the capacities needed for a RAS network to be effective in knowledge management. The study was driven by the following research objectives:

1. Create a comprehensive list of potential knowledge management capacities.
2. Arrive at a consensus on the specific capacities necessary for a RAS network to be effective in knowledge management.

**Methods**

The research objectives were addressed using a modified Delphi method research design. Specifically, the researchers conducted the Delphi method to gain experts’ opinions regarding the development of a consensus listing of the capacities needed for a RAS network to be effective in knowledge management. “Delphi has often been used for the purpose of content validation of constructs to be used in quantitative research” (Garson, 2014, Chapter 8, para. 1).

The RAND Corporation developed the Delphi method to collect knowledge and create consensus on a specific topic from a group of experts (Dalkey & Helmer, 1963; Ziglio, 1996). Previously, the Delphi method has been used to gain insight into topics that are otherwise difficult to analyze (e.g. Okoli & Pawlowski, 2004). The Delphi method has been used extensively since the 1960s (Garson, 2014) to analyze numerous topics, for example, trends in social science (Gliddon, 2006; LeClerc, LeFrancois, Dube, Hebert, & Gaulin, 1998) and technology (Okoli & Pawlowski, 2004).

According to Czinkota and Ronkainen (1997), “the selection of the experts is critical to the success of a Delphic study” (p. 152). Consequently, “the individuals comprising the expert panel should represent the research purpose in a way that legitimates the outcome of the Delphi process” (Garson, 2014, Chapter 6, para. 2). To ensure the appropriate experts were included in this study, the selection criteria identified by Okoli and Pawlowski (2004) were followed. First, the expertise domain was defined as an individual actively engaged in RAS from differing geographies, organizational maturity and experience. Next, nominations of individual experts were solicited from the GFRAS organization (Okoli & Pawlowski, 2004). The GFRAS organization was identified as the appropriate source for the expert panel based on the global coverage of the network and the diversity of experiences within the population of interest (Garson, 2014). In total a purposive sample of 31 RAS professionals constituted the expert panel.

The 31 experts that participated in the panel represented RAS practitioners, funding organizations, farmer and advocacy
groups, academic institutions, research institutes, policy makers, and other affiliated RAS support organizations (for example consultants and agricultural supply companies). Panelists had a range of experience with RAS exposure ranging from four to 45 years, with an average tenure of 18 years. Panelists represented the following countries: Bangladesh, Belgium, Bulgaria, Ecuador, Fiji, Georgia, Ghana, Guyana, India, Ireland, Italy, Lao People’s Democratic Republic, Malawi, Nicaragua, Nigeria, Pakistan, Philippines, Samoa, Solomon Islands, South Africa, Switzerland, Uganda, United States of America, and Uzbekistan. Heterogeneity in amount of experience helped to ensure the panel had a diversity of perspectives represented (Garson, 2014).

Three iterations of the Delphi method were used to complete the study. The researchers followed recommendations in the literature to develop the processes and instrumentation (e.g. Delbecq, Van de Ven, & Gustafson, 1975; Nistler, Lamm, & Stedman, 2011). During the first round of the process, experts were asked to list five (5) of the most important capacities a RAS network should possess to be effective in knowledge management using a short phrase or word (Gliddon, 2006). The expert responses were analyzed and aggregated, or expanded, where appropriate (Garson, 2014; Gliddon, 2006) using the Dedoose qualitative analysis software (Dedoose, 2016). Responses from the first round were then used to develop the second-round questionnaire.

The second round of the Delphi was used to capture the expert panel members’ level of agreement with the capacities identified in the initial round. The questionnaire listed the capacities identified and members of the expert panel were asked to indicate their level of agreement or disagreement that each item was an important capacity for RAS networks to have on a five point Likert-type scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree, 5 = Strongly Agree). The scores for each item were then averaged. An item had to receive a mean score greater than 3.25 for the item to continue to the third round (Garson, 2014).

The third round of the Delphi was used to establish the expert panel members’ level of consensus with the capacities that made it through the second round. Specifically, the expert panel was asked to “Please indicate whether or not the following knowledge management items should be kept or removed as it relates to the following statement. A country fora or regional RAS network should…” Each item that had 75% of the expert members agree it should be kept was retained (Garson, 2014).

Prior to research engagement Internal Review Board approval was obtained from the University of Florida. All three rounds of the Delphi were administered online. Using online or “E-Delphi addresses some of the shortcomings of traditional Delphi, notably greatly speeding up the time required for multiple iterations of the estimation-feedback-reestimation process” (Garson, 2014, Chapter 44, para. 1). All three rounds of the Delphi were administered using the Tailored Design Method (Dillman, Smyth, & Christian, 2008).

Throughout the process the results were downloaded and analyzed using the Statistical Package for the Social Sciences (SPSS) version 21. For round one, data analysis included updating spelling and grammatical errors as well as thematic analysis and consolidated the results prior to round two to improve clarity and reduce redundancy (Garson, 2014). Thematic analysis was conducted using the Dedoose qualitative analysis software (Dedoose,
This process was also undertaken to reduce the cognitive load required for panelists to respond in the second round (Ary, Jacobs, Sørensen, & Razavieh, 2010). There were 29 respondents to the first round for a response rate of 94%. Descriptive statistics were calculated based on data collected during round two of the Delphi to determine the level of agreement with behaviors (Ary et al., 2010). There were 27 responses to the second round for a response rate of 87%. Lastly, descriptive statistics were calculated at the end of round three to determine consensus amongst panelists across capacities (Ary et al., 2010). There were 29 respondents in the third and final round for a response rate of 94%. Response rates of greater than 70% per round within Delphi research have been found to be acceptable (Keeney, Hasson, & McKenna, 2011).

Table 1
Delphi Round One and Two Results: Level of Importance for Knowledge Management Capacities (n = 42)

<table>
<thead>
<tr>
<th>Capacity</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share information openly and honestly</td>
<td>4.38</td>
<td>0.75</td>
</tr>
<tr>
<td>Make activities, products, best practices, and success stories accessible to stakeholders in a format they can use</td>
<td>4.26</td>
<td>0.81</td>
</tr>
<tr>
<td>Have members that are actively engaged in sharing knowledge</td>
<td>4.22</td>
<td>0.75</td>
</tr>
<tr>
<td>Have individuals working collaboratively and sharing information freely</td>
<td>4.19</td>
<td>0.74</td>
</tr>
<tr>
<td>Have stakeholders that are expected and encouraged to input their ideas and suggestions to strengthen the network</td>
<td>4.19</td>
<td>0.68</td>
</tr>
<tr>
<td>Have a culture that supports sharing among all levels of staff within the organization</td>
<td>4.15</td>
<td>0.66</td>
</tr>
<tr>
<td>Provide opportunities for networking through shared information/resources</td>
<td>4.04</td>
<td>0.71</td>
</tr>
<tr>
<td>Support stakeholders using the knowledge available to them to inform RAS practice</td>
<td>4.00</td>
<td>0.78</td>
</tr>
<tr>
<td>Have financial resources available to organize meetings, exchanges and peer learning events.</td>
<td>4.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Have feedback mechanisms in place to provide useable formative data</td>
<td>3.96</td>
<td>0.90</td>
</tr>
<tr>
<td>Provide an effective platform for enhanced learning and information exchange through face to face opportunities (e.g. meetings)</td>
<td>3.96</td>
<td>0.59</td>
</tr>
</tbody>
</table>

Results
At the end of the first round of the Delphi, including the consolidation process, there were 42 capacities identified by the expert panel (Table 1). Panelists were then asked to indicate the level of importance they associated with each capacity in Round Two of the Delphi. Of the 42 capacities from the first round, there were three items that did not achieve the post hoc threshold with a mean score greater than or equal to 3.25 to be retained in Round Two; therefore 39 capacities were included in the third and final round. The mean values for the capacities ranged from 4.38 to 2.59 (Table 1). Experts associated the highest level of importance with the statement “A country fora or regional RAS network should…share information openly and honestly.”
<table>
<thead>
<tr>
<th>Requirement</th>
<th>Score</th>
<th>Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use data to provide insight into challenges and opportunities</td>
<td>3.92</td>
<td>0.98</td>
</tr>
<tr>
<td>Articulate an established knowledge management strategy including the knowledge being managed, the purpose of the knowledge, and who the information is for</td>
<td>3.89</td>
<td>0.89</td>
</tr>
<tr>
<td>Have network personnel that are available to organize meetings, exchanges and peer learning events.</td>
<td>3.89</td>
<td>0.97</td>
</tr>
<tr>
<td>Have information available in annual report format</td>
<td>3.85</td>
<td>1.13</td>
</tr>
<tr>
<td>Provide documentation of knowledge (activities, products, best practices, success stories) to RAS professionals through a centralized platform</td>
<td>3.85</td>
<td>0.77</td>
</tr>
<tr>
<td>Correctly identify the knowledge needs of RAS professionals</td>
<td>3.85</td>
<td>0.99</td>
</tr>
<tr>
<td>Offer an understanding of knowledge management</td>
<td>3.81</td>
<td>0.88</td>
</tr>
<tr>
<td>Provide an effective platform for peer-to-peer learning</td>
<td>3.78</td>
<td>0.89</td>
</tr>
<tr>
<td>Provide network level needs assessments</td>
<td>3.78</td>
<td>1.01</td>
</tr>
<tr>
<td>Offer training on how to use information and data</td>
<td>3.78</td>
<td>1.15</td>
</tr>
<tr>
<td>Communicate in local language(s)</td>
<td>3.70</td>
<td>1.10</td>
</tr>
<tr>
<td>Readily recognize knowledge creators</td>
<td>3.69</td>
<td>0.74</td>
</tr>
<tr>
<td>Provide the ability to develop content from a variety of information sources</td>
<td>3.67</td>
<td>1.04</td>
</tr>
<tr>
<td>Provide an effective platform for enhanced learning through asynchronous online platforms (e.g. website)</td>
<td>3.67</td>
<td>1.11</td>
</tr>
<tr>
<td>Have RAS professionals that use the available knowledge</td>
<td>3.63</td>
<td>0.79</td>
</tr>
<tr>
<td>Provide network level monitoring and evaluating</td>
<td>3.63</td>
<td>0.93</td>
</tr>
<tr>
<td>Have network personnel that are technically skilled in their use of knowledge management resources</td>
<td>3.59</td>
<td>1.05</td>
</tr>
<tr>
<td>Provide network level reporting skills</td>
<td>3.59</td>
<td>0.69</td>
</tr>
<tr>
<td>Provide training based on network level needs assessments</td>
<td>3.59</td>
<td>1.12</td>
</tr>
<tr>
<td>Establish a stable internet platform for knowledge management</td>
<td>3.59</td>
<td>1.05</td>
</tr>
<tr>
<td>Establish connections with research institutes</td>
<td>3.56</td>
<td>0.89</td>
</tr>
<tr>
<td>Have network personnel that are capable of sifting, selecting, prioritizing, refining, organizing, packaging and disseminating knowledge</td>
<td>3.56</td>
<td>1.01</td>
</tr>
<tr>
<td>Provide innovation thinking experts</td>
<td>3.52</td>
<td>1.25</td>
</tr>
<tr>
<td>Provide an effective platform for enhanced learning through synchronous online platforms (e.g. Skype)</td>
<td>3.48</td>
<td>0.98</td>
</tr>
<tr>
<td>Use software and monitoring tools specifically for knowledge management</td>
<td>3.41</td>
<td>1.12</td>
</tr>
<tr>
<td>Have information available in quarterly report format</td>
<td>3.41</td>
<td>0.75</td>
</tr>
<tr>
<td>Resolve conflicts that result from knowledge management</td>
<td>3.41</td>
<td>1.05</td>
</tr>
<tr>
<td>Provide database archiving</td>
<td>3.37</td>
<td>1.28</td>
</tr>
<tr>
<td>Communicate in English</td>
<td>3.11</td>
<td>1.05</td>
</tr>
<tr>
<td>Provide network level research</td>
<td>3.00</td>
<td>1.24</td>
</tr>
<tr>
<td>Have information available in monthly report format</td>
<td>2.59</td>
<td>1.05</td>
</tr>
</tbody>
</table>
For the third and final round of the Delphi, panelists were asked to indicate whether each of the capacities should be kept or removed to establish consensus. Amongst the 39 capacities from Round Two there were 34 capacities that achieved a level of consensus greater than the post hoc threshold of 75% (Table 2).

Table 2  
*Delphi Round Three Results: Level of Consensus with Knowledge Management Capacities (n = 39)*

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Consensus %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide an effective platform for enhanced learning and information exchange through face to face opportunities (e.g. meetings)</td>
<td>96.6</td>
</tr>
<tr>
<td>Provide opportunities for networking through shared information/resources</td>
<td>96.6</td>
</tr>
<tr>
<td>Make activities, products, best practices, and success stories accessible to stakeholders in a format they can use</td>
<td>96.6</td>
</tr>
<tr>
<td>Have a culture that supports sharing among all levels of staff within the organization</td>
<td>96.6</td>
</tr>
<tr>
<td>Provide documentation of knowledge (activities, products, best practices, success stories) to RAS professionals through a centralized platform</td>
<td>96.6</td>
</tr>
<tr>
<td>Have feedback mechanisms in place to provide useable formative data</td>
<td>93.1</td>
</tr>
<tr>
<td>Have members that are actively engaged in sharing knowledge</td>
<td>93.1</td>
</tr>
<tr>
<td>Have network personnel that are available to organize meetings, exchanges and peer learning events.</td>
<td>93.1</td>
</tr>
<tr>
<td>Provide network level monitoring and evaluating</td>
<td>89.7</td>
</tr>
<tr>
<td>Provide network level reporting skills</td>
<td>89.7</td>
</tr>
<tr>
<td>Correctly identify the knowledge needs of RAS professionals</td>
<td>89.7</td>
</tr>
<tr>
<td>Have stakeholders that are expected and encouraged to input their ideas and suggestions to strengthen the network</td>
<td>89.7</td>
</tr>
<tr>
<td>Provide an effective platform for peer-to-peer learning</td>
<td>89.7</td>
</tr>
<tr>
<td>Share information openly and honestly</td>
<td>86.2</td>
</tr>
<tr>
<td>Provide an effective platform for enhanced learning through asynchronous online platforms (e.g. website)</td>
<td>86.2</td>
</tr>
<tr>
<td>Provide an effective platform for enhanced learning through synchronous online platforms (e.g. Skype)</td>
<td>86.2</td>
</tr>
<tr>
<td>Have information available in annual report format</td>
<td>86.2</td>
</tr>
<tr>
<td>Have network personnel that are technically skilled in their use of knowledge management resources</td>
<td>86.2</td>
</tr>
<tr>
<td>Offer an understanding of knowledge management</td>
<td>86.2</td>
</tr>
<tr>
<td>Use data to provide insight into challenges and opportunities</td>
<td>86.2</td>
</tr>
<tr>
<td>Have financial resources available to organize meetings, exchanges and peer learning events.</td>
<td>86.2</td>
</tr>
<tr>
<td>Have individuals working collaboratively and sharing information freely</td>
<td>82.8</td>
</tr>
<tr>
<td>Have RAS professionals that use the available knowledge</td>
<td>82.8</td>
</tr>
<tr>
<td>Establish a stable internet platform for knowledge management</td>
<td>82.8</td>
</tr>
<tr>
<td>Have network personnel that are capable of sifting, selecting, prioritizing, refining, organizing, packaging and disseminating knowledge</td>
<td>82.8</td>
</tr>
<tr>
<td>Articulate an established knowledge management strategy including the</td>
<td>82.8</td>
</tr>
</tbody>
</table>
knowledge being managed, the purpose of the knowledge, and who the information is for
Support stakeholders using the knowledge available to them to inform RAS practice 82.8
Provide network level needs assessments 82.1
Establish connections with research institutes 82.1
Provide database archiving 79.3
Provide the ability to develop content from a variety of information sources 79.3
Readily recognize knowledge creators 78.6
Communicate in local language(s) 75.9
Use software and monitoring tools specifically for knowledge management 75.9
Offer training on how to use information and data 72.4
Resolve conflicts that result from knowledge management 71.4
Provide innovation thinking experts 69.0
Provide training based on network level needs assessments 65.5
Have information available in quarterly report format 62.1

Conclusions, Implications, and Recommendations

Although there has been extensive research into knowledge management theory and practice within the literature (Metcalfe, 2005), there has been a notable lack of knowledge management research within the RAS context. The results of this study indicated that it is possible to develop a list of capacities associated with effective knowledge management within RAS networks using a social capital theoretical foundation (Woolcock & Narayan, 2000).

This study employed a network view of social capital where experts within a RAS network were identified and asked to participate in a Delphi process. The results of the study were consistent with the existing literature indicating that social capital accessed through RAS network resources was an effective way to identify the capacities needed for a RAS network to be effective in knowledge management since the experts were able to build consensus despite their global differences (Lin, 2008). An implication from these results is that capacities derived from a panel composed of RAS network experts from across the globe are appropriate and applicable to RAS networks generally (Bodin & Crona, 2009).

Previously, one of the main challenges with defining effective knowledge management has been a lack of a common understanding (Paulin & Suneson, 2015). This study sought to resolve this issue by focusing on the competencies associated with effective knowledge management in RAS networks (OECD, 2006). By identifying the necessary competencies, RAS networks should have a framework to better evaluate their knowledge management (Paulin & Suneson, 2015). Based on the results for the study, knowledge management capacity might be defined as the ability to successfully collect, categorize, use, and distribute knowledge within a defined context. Additionally, effective knowledge management may be defined as the successful application of knowledge to achieve a desired result. From this perspective, knowledge management should be considered as a range of processes, not limited to specific tool. For example, a knowledge management technical platform might include software, hardware, and infrastructure used to support knowledge management activities; however,
the technical platform is subsumed within the larger context of knowledge management.

A potential limitation of the study was the selection of experts for the Delphi panel. Despite efforts to be as inclusive as possible, and provide a platform for individuals representing RAS networks from across the globe (Bodin & Crona, 2009), the quality of the result is still dependent on the knowledge and expertise of the panel. This risk was mitigated by including experts with a diversity of experience levels as well as a variety of RAS networks represented from both a maturity and resources perspective (Garson, 2014).

There were five capacity areas the expert panel almost unanimously agreed RAS networks should possess for effective knowledge management. First, providing an effective platform for enhanced learning and information exchange through face-to-face opportunities (e.g. meetings). Second, providing opportunities for networking through shared information and resources. Third, making activities, products, best practices, and success stories accessible to stakeholders in a format they can use. Fourth, having a culture that supports sharing among all levels of staff within the organization. Finally, providing documentation of knowledge (activities, products, best practices, success stories) to RAS professionals through a centralized platform. Although previous knowledge management research has tended to focus on tools and technology (e.g. Metcalfe, 2005), the results of this study were less technology centric and more interaction oriented. These results indicated RAS networks have a different set of needs and criteria than other contexts. Scholars and practitioners need to develop systems and processes that are more contextually appropriate for a RAS audience.

Specific to RAS networks, the results indicated knowledge management efforts should include both technical and facilitation platforms. Given the nature of RAS networks, this result may be logical. For example, when access to the internet or other technologies are limited, the most effective method for sharing knowledge amongst network members is through meetings or events attended in person. The facilitation, or non-technological, aspect of knowledge management is critical under these conditions. This result is also consistent with the theoretical foundation for the study identifying that the network aspect of social capital is a relevant consideration for knowledge management in RAS networks (Woolcock & Narayan, 2000).

A secondary theme that emerged across multiple capacities was the importance of networks ensuring members are participating in knowledge management activities. Specifically, individuals should share information freely, and stakeholders should be expected and encouraged to input their ideas and suggestions to strengthen the network. Knowledge management, by definition, is based on aggregated knowledge (Girard & Girard, 2015). If networks do not have a culture where members readily contribute to the aggregated knowledge base, the value of any subsequent knowledge management efforts would be limited (Girard & Girard, 2015). RAS networks should ensure there is a sufficient culture of knowledge sharing and contribution amongst members as a pre-condition for knowledge management activities. Any knowledge management activities should be preceded by an evaluation of the network culture to determine if the necessary support exists. The capacities identified in this study related to culture would be a suggested starting point.
Although the organizational and cultural aspects of effective knowledge management in RAS networks emerged, there were also more process centric themes. These results indicated that although particular technical platforms for knowledge management in RAS networks were not identified, there still must be some platform for knowledge to be sifted, selected, prioritized, refined, organized, packaged, and disseminated. To improve knowledge management effectiveness, RAS networks should establish a dedicated platform that is appropriate for their membership and context. The results of this research identified that the specifics of the platform are less germane than the utility of the platform and the ultimate accessibility of knowledge.

An additional methodological recommendation is to use the Delphi process to gather insights from RAS experts for future research. The results of this research indicated the Delphi process was effective at generating a sufficient number of potential knowledge management capacities, as well as ultimately coming to a consensus on the importance of the solicited capacities. Future research is recommended to use the Delphi process when analyzing research questions within a RAS context, especially for topic areas that do not have a strong theoretical foundation within RAS. For example, the use of information and communication technologies in RAS networks, the organizational and institutional functioning of RAS networks, the professionalization of RAS within RAS networks, and RAS network’s capacity to advocate on behalf of RAS would be recommended areas of further inquiry.

Finally, results from Delphi studies have served as the basis for instrument development in the past (Cheng, Kuo, Lin, & Lee-Hsieh, 2001). It is recommended that the results from this study be used to develop an instrument for measuring knowledge management capacity within RAS networks to identify areas of strength and those worth investing time and finances to build upon. A standardized instrument validated under multiple RAS network conditions would be a tremendous asset for future RAS capacity assessment and subsequent extension efforts (Girard & Girard, 2015).

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Career Development Influences of Employees Working in Haiti’s Agricultural Extension and Advisory Services

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T. Grady Roberts
Amy Harder
University of Florida

Abstract

Agricultural Extension and Advisory Services (EAS) provide vital services to individuals within the developing world. Extension personnel are at the heart of extension services because they are the ones who provide essential support, training, and skills to farmers in rural areas. The capacity of extension personnel, therefore, is an essential component of having a robust AET system. The purpose of this research was to explore and describe influences on career development among extension personnel in Haiti. To achieve this purpose, the set objectives of the research were: (a) describe career development influences in a government run extension agency in Haiti; (b) describe career development influences in a private run extension agency in Haiti; (c) describe career development influences in a grassroots extension agency in Haiti; and (d) compare and contrast career development influences in these agencies. Qualitative data from across the agencies showed common positive influences of: (a) educational background, (b) in-service training, (c) intrinsic motivation, and (d) extrinsic motivation. The common negative influences included: (a) lack of resources and (b) environmental hindrances.

Keywords: Haiti; career development; extension education; Caribbean; advisory services
Introduction

Agricultural Extension and Advisory Services (EAS) provide vital services to individuals in the developing world (Swanson & Rajalahti, 2010). As one half of the world’s hungry and poor are small-scale farmers, EAS help to provide information, training, linkages to markets, and price discovery skills that help farmers create a mechanism for combating poverty (Global Forum for Rural Advisory Services [GFRAS], n.d.). Through these services, farmers are able to find the education and training needed to help improve his or her capacity to increase crop yields and secure a viable future (Jiggins, Samanta, & Olawoye, 1997). According to Anderson and Feder (2004), “extension services have the potential to improve agricultural productivity and increase farmers’ incomes, especially in developing economies where more than 90% of the world’s nearly one million extension personnel are located” (p. 41). EAS play a fundamental role in agricultural development around the globe and as such, the importance of these services could not be emphasized enough (Davis, 2008).

The present study investigated career development influences of employees within Haiti’s EAS. The levels of extreme poverty in Haiti indicate a dire need for quality EAS throughout the country. EAS services in developing countries like Haiti have contributed to the “reduction of hunger and poverty, increase adoption of improved technologies, and increase productive and capacity of clientele” (Swanson & Davis, 2014, p. 2). Because EAS has profound role in agricultural development, it is necessary for extension personnel to experience career development. The quality and development of these extension personnel, after all, determines the overall quality of EAS institutions (Personnel and Organizational Sub-Committee of the Extension Committee on Organizations and Policy [ECOP], 2002; Swanson & Rajalahti, 2010). Minimal research has been conducted on career development influences of extension personnel in Haiti and this research aimed to fill the gap.

Review of Literature and Theoretical Framework

According to Dalton, Thomas, and Price (1977), an individual must be able to change or he or she will stagnate. With a growing and changing world, employees and institutions have an urgent need to either grow or become obsolete (Rennekamp & Nall, 1993). EAS employees, in particular, must experience growth and development in order to address the contemporary challenges that face the agricultural sector (FAO, n.d.). Career development is a concept that allows EAS employees to develop within his or her career through lifelong learning so he or she is best equipped to do his or her job (FAO, n.d.; Rennekamp & Nall, 1993).

Career development can be defined as the “act of acquiring information and resources that enables one to plan a program of lifelong learning related to his or her work life” (Malone, 1984, p. 216). It spans one’s entire lifetime. Career development allows for an employee to grow in his or her respective field over a period of time, which solidifies who he or she is and how he or she operates at work.

Many career development models have emerged in an attempt to understand the dynamics of career development within EAS (Conklin, Hook, Kelbaugh, & Nieto, 2002; Flavell 1971; Kohlberg & Kramer, 1969; Rennekamp & Nall, 1993; Stone & Coppennoll, 2004). Most of these career development models can be classified into one of two categories: (a) competency based, and (b) career stages. Competency based models emphasize knowledge, skills,
attitudes, and behaviors needed by extension personnel in order to experience career development (Cooper & Graham, 2001; Stone & Coppernoll, 2004). Conversely, career stage models address the needs, motivators, and organizational strategies EAS institutions should focus on to help extension employees progress through the multiple phases of career growth (Kutilek, 2002).

Stone and Bieber (1997) defined competency as the “application of knowledge, technical skills, and personal characteristics that lead to outstanding performance” (p. 1). Stone and Bieber suggested competencies ought to be used to help improve the performance and development of extension personnel. Competency models have been created in order to identify specific core skills and characteristics needed by EAS employees (Rennekamp & Nall, 1994; Stone & Coppernoll, 2004). These models have been used to help leaders within EAS institutions facilitate the professional development of extension employees, which can improve the overall quality of services offered by EAS (Suvedi & Kaplowitz, 2016).

The second common category for career development models is career stages. Dalton et al. (1977) provided the original framework for understanding career development through their Four Stage of Professional Career Model. The researchers created this four-part model of career development because of the concerns they had with the existing career models, specifically the pyramid model. Dalton et al. (1977) argued that the commonly used pyramid model did not consider important realities. Dalton et al. (1977) claimed, Organizations found that the pyramidal model failed to take important realities into account. Too often, they found themselves promoting a key technical specialist to a management position because it was the only way to reward him. More and more firms began to set up special new pay and promotion schemes such as the dual ladder for their professional employees in order to recognize the critical contributions they could make as individuals. (p. 21)

As a result, Dalton et al. (1977) developed the following four successive career stages: (a) apprentice, (b) colleague, (c) mentor, and (d) sponsor. Each stage involves different tasks, relationships, and psychological changes.

Change and challenges are inevitable components of working within EAS (Rennekamp & Nall, 1993). As such, career development can offer a practical approach for extension personnel to adapt and develop as a professional (Burke, 2002). Both career development models, the competency based and career stages, offer a framework for employees to experience career development. Despite which model is used, it is important to investigate the influences that impact extension personnel’s career development journey. Understanding these influences may help professionals create strategies that use positive influences to facilitate career development.

Research has been conducted on the positive and negative influences that impact career development of extension personnel. Herzberg, Mausner, and Snyderman (1959) investigated the foundations of job motivation in the workplace. Herzberg et al. (1959) proposed the Motivation-Hygiene Theory, which states that employees are influenced by two independent dimensions: (a) workplace factors that cause job satisfaction, and (b) workplace factors that prevent job dissatisfaction. Herzberg et al. proposed that these two dimensions are not opposites, but instead entirely different components. Motivators produce job satisfaction. Hygienes prevent job dissatisfaction. Herzberg et al. concluded that employees are more encouraged by
motivators than they are by hygienes. The present researched used the Motivation-Hygiene Theory as a framework to classify positive and negative influences on extension personnel’s career development.

Also using the Motivation-Hygiene Theory as a framework, Strong and Harder (2009) investigated factors that influence extension personnel’s decision to remain in his or her career. They found salary, job stress, heavy work-loads, balancing work and family, other financial opportunities, and job dissatisfaction were factors that negatively impacted extension personnel retention (Strong & Harder, 2009). On the other hand, mentoring programs, training, staff development, accolades, and having support in the work place were motivators that positively influenced extension personnel retention (Strong & Harder, 2009). They concluded Extension should use the positive and negative factors as a guide for creating strategies to decrease extension personnel’s stress levels and job dissatisfaction over time (Strong & Harder, 2009).

Arnold and Place (2010) explored the influences that shape Florida extension agent’s employment decisions at different career stages. The researchers found that positive influences at the across all levels of the career development stages included: (a) personal traits, skills, and knowledge, (b) motivators, (c) support systems, (d) career growth opportunities, (e) collaboration, and (f) career management strategies. Negative influences across all stage levels included: (a) lack of direction, (b) job pressures, (c) personal work management issues, (d) mandated work requirements, (e) work issues, (f) salary disparity, (g) performance measures, (h) career overload, and (i) job dissatisfies. Arnold and Place suggested that further research should be conducted on career influences on extension personnel in other U.S. states and internationally.

It is important to note that the three main types of EAS institutions around the globe are public, private, and civil society organizations such as grassroots organizations and NGOs (Swanson & Rajalahti, 2010). Public extension institutions are often operated by the government. In most developing countries public extension is organized as ministries of agriculture (Swanson & Rajalahti, 2010). Due to inadequate government resources most public institutions cannot independently provide the services that are needed within developing countries (Swanson & Rajalahti, 2010). Private and civil society organizations, therefore, are needed to support agricultural development. Understanding the career development of personnel in these groups is an important component to overall effectiveness.

**Purpose**

The purpose of this research was to explore and describe influences on career development among extension personnel in Haiti. The objectives of the research were as follows:

1. Describe career development influences in a government run extension agency in Haiti;
2. Describe career development influences in a private run extension agency in Haiti;
3. Describe career development influences in a grassroots extension agency in Haiti and
4. Compare and contrast career development influences in these agencies.

**Methodology**

This study used a qualitative design in order to achieve the research purpose and objectives (Merriam, 1998). This approach is most appropriate when a researcher aims to “discover and understand a phenomenon,
a process, or the perspective and worldviews of the people involved” (Merriam, 1998, p. 11). Specifically, this research used an interpretive case study methodology to describe the influences on career development among Haitian extension personnel. A case study is “an intensive holistic description and analysis of a single entity, phenomenon, or social unit” (Merriam, 1998, p. 34).

In order to understand the phenomenon of career development influences of Haitian extension personnel, three case studies were conducted, focusing on: (a) public, or governmental, (b) private, and (c) grassroots. For the purposes of this research grassroots organizations can be defined as bottom-up, local development organizations (Uphoff, 1993). Grassroots are distinguished from national or regional organizations by their accessibility to locals. Grassroots organizations and private institutions have both played an important role in supporting agricultural development in ways the Haitian government has been unable to (Arias, Leguía, & Sy, 2013). As a result, public, private, and grassroots organizations represent the three major types of EAS institutions in Haiti (GFRAS, n.d.). For this reason, these three types of institutions were the focus of the present study. A semi-structured interview technique was used in order to provide an avenue for the informants to explore their experiences. This fairly open framework allowed for the interview to be focused, but conversational (Merriam, 1998).

To select the specific employees within Haiti’s public, private, and grassroots EAS organizations, this study used a broad structure of extension systems that was outlined by Bahal, Swanson, and Earner (1992). Haiti’s agricultural sector does not follow the familiar and established U.S. Extension system structure. Furthermore, Haiti follows a pluralistic extension system, which means many different types of organizations offering extension services to Haitian farmers at the same time (GFRAS, n.d.). Therefore, the quality and structure of each EAS organization may not be consistent with others around the country (Arias et al., 2013). Bahal et al. (1992) provided a broad framework that applies to most extension systems around the world, which was appropriate for the present study.

According to Bahal et al. (1992), worldwide, there are more than 600,000 extension workers that fit into one of four categories: (a) administrative staff, (b) subject-matter specialist (SMS), (c) fieldworkers, and (d) multipurpose unidentified people. Although there are regional differences within extension systems around the world, per Swanson, Farner, and Bahal (1990), the breakdown of extension personnel is as follows: 7% are administrative staff, 14% are SMS, and 79% are fieldworkers. The present study, therefore, selected a distribution of extension personnel that had administrative, SMS, and fieldwork positions.

The first case was the public extension institution, the Ministry of Agriculture, Natural Resources and Rural Development (MARNDR, n.d.). MARNDR is the primary institution responsible for agricultural development within the country (GFRAS, n.d.). Haiti is divided administratively into 10 departments, and MARNDR is located in Damien, near the capital city of Port-au-Prince, which is in the West Department (Arias et al., 2013). MARNDR shares a campus with the University of Haiti, which allows for collaboration between the two institutions (GFRAS, n.d.). A total of 7 informants were selected from MARNDR: 3 administrative staff, 2 SMS, and 2 fieldworkers.

The second case was a private institution called Darbouco S.A. The private sector plays a critical role within Haiti’s
EAS (GFRAS, n.d.). Although they are small and fragmented, private agricultural institutions have helped significantly in the commercialization of inputs, such as fertilizers, seeds, and agricultural tools (GFRAS, n.d.). Darbouco S.A. is a Haitian-run corporation located in the Port-au-Prince suburb of Pétion-ville. The organization was established in October 1948 with the goal of providing quality agricultural products (Darbouco, n.d.). This organization has two branches, both located in Pétion-ville. This organization serves as one of the main importers distributor of agricultural inputs and equipment in Haiti. Along with four other private institutions, Darbouco S.A. is responsible for at least 95% of the fertilizer, pesticide, and seed sales in Haiti (Abbot et al., 1995). In addition to fertilizer, pesticide and seed, Darbouco also provides fungicides, herbicides, and spraying equipment (Darbouco, n.d.). The research team planned on interviewing 6 individuals within Darbouco S.A., however only 2 interviews, an administrative staff and an SMS, were conducted per the request of the president.

Finally, the third case was a grassroots organization called Mouvman Peyizan Papay (MPP). Farmer based organizations, cooperatives and grassroots organizations such as MPP are the foundation for rural development activities within rural Haiti (GFRAS, n.d.). MPP was founded on March 20, 1973 by Chavannes Jean Baptiste (MPP, n.d.). MPP is recognized as the largest peasant movement and grassroots organization in Haiti (MPP, n.d.). The organization has 60,000 members which includes 20,000 women and 10,000 youth. This organization operates in all 10 of Haiti’s departments but is headquartered in Hinche, a city in Haiti’s Central Plateau Department. The Haiti’s Central Plateau Department is home to roughly 13% of the Haitian population and most of these Haitians are rural work in the agricultural sector (MPP, n.d.). A total of 7 individuals were interviewed at MPP: 2 administrators, 2 SMS, and 3 fieldworkers.

Across all three cases, a total of 16 EAS employees were interviewed for this study. Of the 16 employees interviewed, 6 were administration, 5 were SMS, and 5 were fieldworkers. The research team decided to conclude the data collection portion of the study at 16 participants because informants within the same positions began to give the same responses which meant that data reached saturation of information (Denzin & Lincoln, 2008).

The lead researcher developed an interview question guide that facilitate the discussion with the EAS employees. The interview guide was passed through an expert panel for review. Members of this expert panel included university faculty, Haitian extension agents, and Haitian extension researchers. The interview guide was then piloted with 5 Haitians within the agricultural sector in order to ensure that the questions were appropriate (Lincoln & Guba, 1985). The researcher revised the guide based on the feedback from the expert panel and the pilot tests. The revisions helped to make the interview guide robust and effective.

The rigor of this research was established using Lincoln and Guba’s (1985) concept of trustworthiness (Lincoln & Guba, 1985). To establish credibility, the lead researcher used triangulation of the information, and of the investigator. There was regular communication between the lead researcher, research team, and experts in the field. Member checking was also used in order to ensure that the data collected accurately depicted the thoughts and reflections of the informants. The lead researcher also used peer debriefing with the research team and experts in the field in
order to ensure that the truth-value concern was addressed in the research.

In order to establish transferability, the lead researcher provided thick descriptions of the methodological process and used purposive sampling in selecting the informants. To establish dependability, the lead researcher kept an audit trail that included the raw data, notes, and drafts of findings of this study. The lead researcher also used a code-recode strategy to ensure dependability (Ary, Jacobs, Sorensen, & Walker, 2013). Finally, confirmability was established through the use of a reflexive journal, which included the weekly reasoning behind all methodological decisions made by the lead researcher.

After the 16 interviews were conducted the data was transcribed in Haitian Creole. A thematic analysis was used in order to identify themes within the data (Creswell, 2013). Open coding was used to detect themes throughout the interviews. After themes were created they were translated from Haitian Creole to English.

**Subjectivity Statement**

The lead researcher is Haitian born, but has been living in the United States since 1998. The lead researcher has extensive research and development experience in Haiti and currently works for a NGO that operates in the North Department of the country. The lead researcher’s strong ties to Haiti and deep faith in agricultural education was monitored so as not to interfere with the data collection and analysis. Because the lead researcher was the instrument for this study, it was imperative that biases that may have impacted the research process were recognized and report. Strategies to establish trustworthiness helped to minimize the impact of any unidentified biases (Lincoln & Guba, 1985).

**Case 1: Public Extension**

The first objective was to describe career development influences in a government run extension agency. For this objective, 7 individuals from MARNDR were interviewed (MA1-MA7). Findings from EAS administrators showed positive influences of: (a) educational background, (b) in-service training, (c) goal setting, (d) intrinsic motivation such as patriotism and setting an example for family members, (e) extrinsic motivation such as promotion and improving expertise, (f) religion, and (g) character traits (MA2, MA4, MA5). The most common positive influences were in-service training, intrinsic motivation, and character traits. An example of in-service training as a positive influence was MA2, who stated, “I’ve arrived at my current position by the grace of God, but I continue to develop because of the trainings and seminars I attend.” MA4 also stated, “Without trainings, I am nothing.”

Negative influences among EAS administrators included: (a) lack of resources, such as limited funding, (b) environmental hindrances, such as government instability, and (c) career overload (MA2, MA4, MA5). The most common negative influence was lack of resources, as seen through the statement of MA5, “At times I can’t do my work because we don’t have what we need. I want to advance, but it’s hard when you don’t have the funds that you need. Sometimes I plan a program and it gets canceled because we don’t have the money.” MA2 also stated, “We don’t have the funding we need to do what this job calls for us to do.”

Among the MARNDR SMS, positive influences included: (a) educational background, (b) in-service training, (c) mentorship, (d) intrinsic motivation such as patriotism and clientele satisfaction, (e) social networks, and (d) extrinsic motivation such as promotion and improving expertise.
(MA1, MA7). The most common positive influence was intrinsic motivation. MA1 stated, “People depend on me so I must be excellent in my work.”

Negative influences to SMS career development included: (a) lack of resources such as limited funding (b) interpersonal issues with co-workers, and (c) environmental hindrances such as government instability (MA1, MA7). The most common negative influence was lack of resources. MA1 stated, “We need resources to get our job done but the government doesn’t have enough resources to make things happen.” MA7 also stated, “My greatest barrier at this point is funding. My department has good ideas but we don’t have the money to materialize the ideas.”

Positive influences among MARNDR fieldworkers included: (a) in-service training, (b) mentorship, (c) intrinsic motivation such as clientele satisfaction, and (d) extrinsic motivation such as promotions (MA3, MA6). The most common positive influences were in-service training and extrinsic motivation. MA6 stated, “If you’re not getting training as an agronomist, you should find another job. I go through trainings every few months to make sure I am effective.” MA3 also stated, “Yeah, I go to seminars and workshops, they help me a lot.”

Negative influences among MARNDR fieldworkers included: (a) lack of resources such as funding, and (b) environmental hindrances such as government instability (MA3, MA6). The most common negative influence was lack of resources. MA3 stated, “I don’t have what I need in order to get my job done sometimes. If I had all the money in the world, I would be able to do my work more effectively, but I am working on a limited budget.” MA6 also stated, “The greatest source of our ineffectiveness is a lack of funding.”

**Case 2: Private Extension**

The second objective of this research was to describe career development influences in a private run extension agency. One individual was interviewed at the administrative level, and one individual was interviewed at the SMS level (D1 and D2). The positive influences among the administrator were: (a) educational background, (b) mentorship, (c) intrinsic motivation such patriotism and leaving a legacy, and (d) character traits (D1). Related to intrinsic motivation, D1 stated, “In 10 years, I am going to be retired. I hope to cross my hands and see this organization flourish because I worked so hard to continue to that.” In regards to character traits, the informant stated, “You will not get anywhere without ethics. You must have integrity in what you do and treat people with respect as you respect yourself. I am where I am because of my ethics and my honesty.”

Negative influences to career development included (a) lack of resources such as funding, (b) interpersonal issues, and (c) environmental hindrances such as government instability and poverty in Haiti. The most prominent negative influence was lack of resources. D1 stated, “I have much planned for this organization, but we need more resources. This has been a barrier for me. I want to do grand things but a lack of resources hinders me.”

Positive influences among the SMS employee included: (a) educational background, (b) in-service training, and (c) goal setting (D2). The most prominent positive influence was in-service training. D2 said, “I get a lot of training. Not many people can do what I do as a client counselor, so Darbouco makes sure that I get a lot of training.” D2 also said, “My career pathway has been most impacted by the
knowledge and expertise I have received from trainings.”

Negative influences included: (a) lack of resources such as knowledge, and (b) environmental hindrances such as government instability (D2). Talking about lack of resources, D2 stated, “Sometimes I just don’t know the answer to certain questions my clients ask me. That’s why try to go to a lot of trainings.” D2 also stated, “My company serves many people throughout the country, but we lack the resources to expand our operations.”

**Case 3: Grassroots Extension**

The third objective was to describe career development influences in a grassroots extension agency. For this objective, seven employees from MPP were interviewed (MP1 to MP7). The positive influences on career development among administrators included: (a) intrinsic motivation such as patriotism, clientele satisfaction, and legacy, (b) goal setting, (c) mentorship, and (d) social networks (MP1, MP2). The most common positive influence was intrinsic motivation. MP1 said, “I work hard so that I can finish this work and be proud of it when I finish. I will retire from this work soon, and I want to make sure I set up this organization well and for success.”

Negative influences that impacted career development for administrative were: (a) lack of resources such as funding, (b) environmental hindrances such as government instability and government persecution, and (c) Interpersonal issues (MP1, MP2). The most common negative influence was environmental hindrances. MP1 stated, “You’ve got to understand, the government has a magnificent impact on everything we do. Sometimes they stand as the biggest barrier for my development and the development of my organization.”

Among SMS, positive influences included: (a) educational background, (b) intrinsic motivation such as feeling indebted and patriotism, (c) extrinsic motivation such as promotions, and (d) in-service trainings (MP3, MP5). The most common positive influence was in-service training. MP3 said, “Without training, there is no work. I am who I am professionally because of the training I have received and continue to receive.”

Negative influences among SMS included: (a) lack of resources such as funding, and (b) career overload. In regards to lack of resource, MP3 said, “I want to help as many people as possible, but money is lacking and we never have all that we need to complete this big work.”

Positive influences on career development among fieldworkers in MPP included: (a) intrinsic motivation such as praise and feeling indebted, (b) extrinsic motivation such as salary and promotions, (c) in-service trainings, (d) goal setting, and (e) social networks (MP4, MP6, MP7). The most prominent positive influence was extrinsic motivation. MP4 said, “Without work, you don’t eat. I work to eat and so that my family can eat.”

Negative influences included: (a) lack of resources such as limited funding (b) environmental hindrances such as government instability, and (c) interpersonal issues. The most prominent issue was lack of resources. MP4 said “Well, one barrier is that we don’t have what we need to get the job done sometimes. We need more resources to get the work done with excellence. This has hindered me from progressing in my career.”

**Cross-Case Comparison**

The final objective was to compare and contrast the influences that impact career development of extension personnel across government, private, and grassroots extension organizations in Haiti (see Table 1). The positive influences that were unique
Administrators and SMS employees identified their educational background as a positive influence on their career development, whereas fieldworkers did not explicitly identify educational background as a positive influence. All three types of EAS employees identified the following factors as positive influences: (a) intrinsic motivation of patriotism and clientele satisfaction, (b) in-service trainings, (c) goal setting, and (d) mentorship.

As for negative influences, administrators revealed an environmental hindrance of government persecution. SMS had the distinct negative influence of lack of knowledge. Administrators and SMS had the distinct negative influence of career overload. All three types of positions had the negative influences of: (a) lack of resources as seen through limited funding (b) environmental hindrances as seen through government instability, and (c) interpersonal issues.

### Conclusions, Recommendations, and Implications

**Extension Personnel in a Government Run Extension Agency**

MARNDRE extension personnel most commonly identified in-service training as an essential positive influence on career development. The importance of in-service training was seen through many of the statements. Researchers affirmed there is a great need for extension personnel to receive
in-service training in order to be successful in his or her career (Arnold & Place, 2010; Burke, 2002; Kutilek, 2000). As the leading agricultural institution in Haiti, it is essential for MARNDR to continue providing in-service training opportunities for all employees at every level and position. Lack of funding within the organization may lead the institution to under prioritizing training, but without continuous training the employees risk growing stagnant (Kutilek, 2000).

Educational background was another prominent positive influence that was identified by nearly all MARNDR employees. When probed about this question, respondents said most MARNDR employees are graduates from the University of Haiti. Although educational background and past experiences give organizations a competitive advantage (Arnold & Place, 2010), MARNDR is at great risk by not have a diversified workforce (Grogan & Eshelman, 1998). Because most staff members are graduates from the University of Haiti, there leaves little room for other qualified people to join MARNDR.

According to Grogan and Eshelman (1998), recruiting and retaining a diverse staff is a priority in an extension system. For MARNDR to best position employees for success, it is recommended that leadership consider ways of diversifying the workforce. Homogeneity in educational background may lead extension employees in MARNDR having the same strengths but also the same weaknesses as their fellow employees. Difficulty will arise when there is a need for diverse thinking (Grogan & Eshelman, 1998). Fortunately, Haiti has many strong agricultural higher education institutions within the country. MARNDR benefits from being in the same city as four of the six leading agricultural schools, which means many qualified entry-level extension agents are miles from their headquarters. It is recommended that MARNDR investigate diversifying their employee options.

Extension Personnel in a Private Run Extension Agency

Darbouco’s administration identified the intrinsic motivation of leaving a legacy and mentorship as two major positive influences on career development. Researchers support the notion of using mentorship programs to support development (Kutilek, 2000; Rennekamp & Nall, 1994; Strong & Harder, 2009). Although mentorship was mentioned there was no indication that Darbouco intentionally invested in a mentorship program with employees. In fact, informal mentorship was the only type of mentorship mentioned.

Because character traits and leaving a legacy were also mentioned, it would be beneficial for Darbouco to invest in an official mentorship program within the institution. This program can ensure that leaders are investing in employees and instilling character traits believed to be essential for the job. Furthermore, because there is a strong culture of privacy, an official mentorship program can be the best way for leadership to increase levels of trust within the organization. Perhaps in the future with a mentorship program, Darbouco’s administrative leadership can feel comfortable enough to have researchers interview more employees.

Extension Personnel in a Grassroots Extension Agency

Intrinsic motivation was identified as a prominent positive influences on career development for MPP employees. Researchers support the notion of using intrinsic motivation to help increase employee satisfaction and retention (Herzberg et al. 1959; Strong & Harder, 2009). MPP in particular, had almost every
employee indicate that clientele satisfaction positively influenced their career development. In order to ensure that employees are continuously receiving feedback on clientele satisfaction, MPP should invest in ensuring that the organization has a robust evaluation system that enables employees to receive direct feedback from clientele.

Creating an evaluation system for clientele would allow employees to see their positive impact, but it would also show the organization areas that are in need of improvements. A second highly mentioned positive influence was goal setting. By identifying areas of improvement through evaluations, leadership would be able to set goals for the entire organization so that the overall effectiveness of individuals and the organization can improve. A robust evaluation system could bring great benefits to MPP. An evaluation systems have a possibility of increasing the overall effectiveness of this grassroots extension agency.

Lack of resources was the only negative influence identified by every MPP employee. MPP is recommended to aim to build partnerships with other extension agencies (World Bank, 2012). Specifically, MPP should investigate ways that the organization could partner with other grassroots or nonprofit agencies around Haiti to maximize their efforts. MPP should also investigate ways that the organization could partner with MARNDR in order to reach more areas in Haiti. Although there is a culture of distrust, a collaboration between grassroots and public can prove to be beneficial for all parties involved (World Bank, 2012).

Implications

Many factors positively and negatively impact the career development of Haiti’s extension personnel across all types of positions. In order for extension agencies to have an effective organization it is important for leaders within these organizations to identify the both positive and negative factors that impact employees career development. Identifying positive and negative influences is important because these factors could ultimately lead to success or failure within employee’s career progression. (Herzberg et al. 1959; Strong & Harder, 2009).

In Haiti’s case, extension agencies could use inexpensive positive influences to help mitigate the effects of the negative influences on career development. For example, intrinsic motivation can be used as a tool to help extension personnel overcome interpersonal issues. Organizations could cultivate a common culture of patriotism to unite co-workers. Likewise, mentorship could be a resource that helps employees overcome career overload. Identifying positive and negative influences could have a profound positive impact on the career development of extension workers in Haiti.

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Empowering youth and communities through 4-H School Gardening Programs: Results of focus groups in Burundi, Africa

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Abstract
The quality of education and training children receive today will significantly impact their development into adulthood and their impact on society (Kibwiki & Semana, 2001). Burundi, Africa is the second poorest country in the world and has a turbulent history laced with economic, political, and cultural challenges (Headrick, 2016). With more than half the population under the age of 18, educating the youth of Burundi is paramount to bringing about change in the country. The purpose of this qualitative study was to understand the needs of primary school teachers, administrators, afterschool program educators and their students; and to determine if a 4-H Youth Development school gardening program was a viable methodology to meet their needs. The desire of local partners to empower Burundian youth and the fact that empowerment is a fundamental principle of the 4-H methodology led to the selection of Empowerment Theory as the conceptual framework for this study. A needs assessment using focus groups was conducted with 34 primary school teachers, administrators, and afterschool staff in two rural communities in Burundi. Findings indicated that poverty and hunger were the primary barriers to quality education and climbing out of poverty. School educators also reported a need for professional development to better provide quality education for youth. Based on the outcomes of the focus groups, the researchers recommend that the 4-H Youth Development school gardening program is implemented in rural Burundi using Empowerment Theory as a framework to address the needs of educators and youth.

Keywords: Needs assessment; Burundi; Educators; School Gardens; 4-H Youth Development; Empowerment Theory
Introduction

It is no secret that today’s youth are tomorrow’s leaders and change agents (Zimmerman, Stewart, Morrel-Samuels, Franzen, & Reischl, 2011). The quality of education and training children receive today will significantly impact their development into adulthood and their impact on society (Kibwika, & Semana, 2001). In many developing countries, children face a multitude of complex barriers like war, trauma, and poverty, which further challenge their ability to attain the education and skills needed for a prosperous future. Burundi, Africa is the second poorest country in the world (Headrick, 2016), and half of the nation’s population are children 18 years and younger. Similar to other developing countries, Burundi has a turbulent history laced with many economic, political, and cultural challenges. From 1897-1962, Burundi was a colony under German and then Belgian rule (Bamber, 2001). Since Burundi gained its independence from Belgium in 1962, the nation has been in a perpetual cycle of conflict, which erupted in 1993 as a civil war between the Hutu and Tutsi ethnic groups. The civil war lasted 12 years, killed 250,000-300,000 people (Amnesty International, 2004), and displaced 1.3 million (Haken, Imbriano, Ben Nun, & Tobias, 2011).

Today Burundi is still recovering from immeasurable destruction, with 81% of the population living below the international poverty line of U.S. $1.25 per day (UNICEF, 2013) and 58% of people suffering from chronic malnutrition (World Food Programme, n.d.). There is a new generation of rising young leaders and Burundi is at a turning point. The history of violence can continue to repeat itself or today’s youth can pave the way for a brighter future. Educating the youth of Burundi is paramount to bringing about change. This qualitative study was conducted to determine the needs of primary school aged students and their educators in rural Burundi, and to determine if a 4-H Youth Development (4-H) school gardening program would be viable within Burundian culture.

Power of Education

Education has the power to make people more employable and thus increases the likelihood of economic growth (Haken, Imbriano, Ben Nun, & Tobias, 2011). Since the end of the civil war, Burundi has made significant strides in youth development by initiating a public education system. “According to the UN Children’s Fund (UNICEF), the proportion of children in school increased from 59% in 2005 to 96% in 2011” (Sambira, 2012, p. 1). Although more students now have access to education in Burundi, schools still struggle with keeping youth enrolled. Some schools lose half the students before they even finish primary school (grades 1 - 6). Reasons for poor retention include inadequate sanitation facilities for girls, early marriage, pregnancy, grade repetition, and job opportunities (Sambira, 2012).

Rural communities tend to face additional challenges in ensuring children have access to quality and relevant education (Bennell, 2007). In Burundi, 88% of the population lives in rural areas, and the livelihood of the majority of Burundians is dependent upon agriculture, specifically subsistence farming of coffee, cotton, tea, corn, sorghum, sweet potatoes, bananas, and cassava (Central Intelligence Agency, 2015). Youth in rural communities are often more poorly educated than urban youth (Bennell, 2007) and “oftentimes the education rural youth receive does not prepare them with the livelihood skills necessary for their rural lifestyle” (Kibwika, & Semana, 2001, p. 1).
Local Partnerships
Motivated by the need to assist Burundians to recover emotionally from the civil war, a group of Burundian mental health professionals created a non-governmental organization (NGO), Trauma Healing and Reconciliation Services, in 2000 to provide resources for trauma healing and reconciliation in Burundi and the African Great Lakes Region. One of the organization’s original delivery modes was offering afterschool programs in nine rural primary schools. The NGO further expanded its scope and purpose to include economic development through agricultural endeavors and youth empowerment. Upon learning about 4-H’s history in agriculture and youth empowerment, the NGO partners became interested in the 4-H program, specifically in integrating 4-H into the school system and existing afterschool programs.

4-H Youth Development Methodology
For the past 100 years in the United States, the 4-H program has opened doors for young people to learn the skills needed to be a proactive force in their communities. The largest youth development program in the U.S., 4-H began as a solution to help address agricultural challenges in rural America (National 4-H Council, n.d.-a). Research shows that 4-H youth do better in school, make healthier lifestyle choices and are more engaged in their communities (Lerner, 2013). Over the years, the success of 4-H has inspired programs to develop around the world. In Africa, 4-H is present in 15 countries including Burundi’s neighbors Tanzania, Kenya, and Uganda, and is “helping prepare Africa’s young people to meet urgent regional needs, including hunger, sustainable livelihoods and food security” (National 4-H Council, n.d.-b, p.1). For example, the United States Department of Agriculture/United States Agency for International Development (USDA/USAID) piloted the Cultivating Learning with School Gardens (CLSG; Crave et al., 2009) program in the Democratic Republic of Congo, Rwanda, and Mozambique (2005-2013). The program provides training for teachers on how to use school gardens as a hands-on method for students to apply academic concepts (USDA & USAID, 2013).

Youth empowerment is a core principle of the 4-H model, providing youth the opportunities and resources to grow and learn in partnership with caring adults (Weybright et al., 2016; Borden, Perkins & Hawkey, 2014). The desire of local partners to empower Burundian youth and the fact that empowerment is a fundamental principle of the 4-H methodology led to the selection of Empowerment Theory as the conceptual framework for this study.

Conceptual Framework
Many disciplines including community development, psychology, education, and economics use the term “empowerment” (Page & Czuba, 1999). It has been central in developing positive youth development curriculum (Zimmerman, Stewart, Morrel-Samuels, Franzen, & Reischl, 2011), planning and implementing programs in international development organizations (Hennink, Kiiti, Pillinger, & Jayakaran, 2012), and as an evaluation methodology (Fedderman, 2015). Although there does not seem to be a universal definition for “empowerment” (Hennink et al., 2012), researchers and practitioners agree on the components necessary to describe the construct. The components are multi-dimensional (have many levels and domains), social (are done with others), and include both processes and outcomes, resulting in people having more control over their lives (Hennink et al., 2012; Page & Czuba, 1999; Peterson, Lowe, Aquilino, & Schneider, 2005; Zimmerman,
Perkins and Zimmerman (1995) suggest that using empowerment “compels us to think in terms of wellness versus illness, competence versus deficits, and strength versus weaknesses” (p. 569).

An empowerment philosophy helps to shape the role of the professional when working with communities and emphasizes the importance of cultural context. Professionals adopting an empowerment philosophy become partners with the participants, bringing knowledge and other resources but not forcing them on the community, trusting the local community members to guide the use of resources in the most culturally appropriate way. Through this lens, professionals are collaborators, not experts, at all levels of the program: needs assessments, program planning, implementation, and evaluation. Success is dependent on a professionals understanding of the cultural context of the community, empowering all participants to have greater control of their lives (Perkins & Zimmerman, 1995; Peterson, Lowe, Aquilino, & Schneider, 2005; Zimmerman, 2000).

As shown in Table 1, Zimmerman (2000) offers a framework for applying Empowerment Theory that describes the characteristics of empowering processes and empowered outcomes across three different levels of analysis (individual, organizational and community). The processes listed (activities, actions, or structures) enable empowerment to occur at each level and result in empowered outcomes.

<table>
<thead>
<tr>
<th>Levels of analysis</th>
<th>Process (“empowering”)</th>
<th>Outcome (“empowered”)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>Learning Decision-making skills</td>
<td>Sense of control</td>
</tr>
<tr>
<td></td>
<td>Managing resources</td>
<td>Critical awareness</td>
</tr>
<tr>
<td></td>
<td>Working with others</td>
<td>Participatory behaviors</td>
</tr>
<tr>
<td>Organizational</td>
<td>Opportunities to participate in decision-making</td>
<td>Effectively compete for resources</td>
</tr>
<tr>
<td></td>
<td>Shared responsibilities</td>
<td>Networking with other organizations</td>
</tr>
<tr>
<td></td>
<td>Shared leadership</td>
<td>Policy influence</td>
</tr>
<tr>
<td>Community</td>
<td>Access to resources</td>
<td>Organization coalitions</td>
</tr>
<tr>
<td></td>
<td>Open government structure</td>
<td>Pluralistic leadership</td>
</tr>
<tr>
<td></td>
<td>Tolerance for diversity</td>
<td>Residents’ participatory skills</td>
</tr>
</tbody>
</table>

so they can become independent problem-solvers and decision makers” (2000, p. 46). Thus, empowered outcomes are a result of empowering processes at the individual, organizational and community level. All levels of analysis are connected and are “both a cause and consequences of each other” (Zimmerman, 2000, p. 46). It is important to note that empowerment processes and outcomes look different across various situations. The activities or actions needed in one context to produce empowered communities may not be the same actions needed in another community, once again highlighting the importance for the professional to have adequate cultural knowledge for each situation and to work in close collaboration with local experts.

Hennink et al. (2011) expanded upon Zimmerman’s (2000) three levels of analysis (individual, organizational and community), and includes domains (content areas where empowerment occurs) and mechanisms needed for empowerment to occur at each level within each domain.

Despite the cultural and historical differences between Burundi and the United States, the researchers and Burundian partners hypothesized that a 4-H school gardening program might be applicable within the rural Burundian culture to address agricultural challenges while teaching youth life skills; thus providing opportunities for empowerment at the individual, organizational, and community levels. A needs assessment guided by Empowerment Theory was designed.

Purpose and Objectives
The purpose of this qualitative study was to determine the needs of public primary school teachers, their students, school administrators, and NGO afterschool program educators, and to determine if a U.S. 4-H school gardening program was a viable methodology in the rural area of the Gitega Province in Burundi. Specific objectives were to gain information on: How do public school teachers, school administrators, and NGO educators in rural Burundi:

1. Describe the needs of primary students and challenges of teaching/working with this population?

2. View or perceive the cultural appropriateness and feasibility of implementing a 4-H school gardening program in public schools?

Methods
Partnering with a local Burundian NGO, researchers developed a qualitative study design using focus groups to address this study’s research questions. To ensure trustworthiness various strategies were employed throughout the study. Credibility or internal validity was established by using well-established research methods, developing familiarity with the local culture, using strategies to encourage participant honesty, conducting frequent debriefing sessions with organizational leadership, and triangulating the data analysis. Reliability techniques included peer examination and investigator triangulation (Amankwaa, 2016; Merriam & Tisdel, 2016; Shenton, 2004). Thick description was utilized in reporting about the participants, data collection, and the findings to ensure external validity (i.e. transferability; Merriam & Tisdel, 2016).

The study design, guided by the principles of Empowerment Theory and Evaluation, was created to assure that the community members as well as the NGO staff, were included in the decision-making processes. The researchers relied on local community knowledge to foster capacity building, organizational learning,
community ownership, and accountability (Fetterman, 2015). Involvement of the community members in all phases of the research: planning, implementation, and data analysis inform the research team of cultural values, practices, and sensitivities (Halcomb, Gholizadeh, DiGiacomo, Phillips, & Davidson, 2007). The lead researcher spent time in Burundi and interacted with the NGO staff for two years before this study, which assured the researchers' familiarity with the culture, a vital credibility method (Shenton, 2004).

Focus groups engage a small, similar group of people in a group interview to acquire a better understanding of a problem (McMillan & Schumacher, 2010). The study used focus group design for a variety of reasons. First, the Burundian culture is an oral culture where ideas, opinions, concepts, and traditions are shared verbally (Embassy of the Republic of Burundi to Germany, n.d.). Using focus groups demonstrated respect for the local culture by using effective engagement strategies such as “listening as much as we talk” (King & Boehlje, 2013).

Secondly, due to Burundi’s long history of colonialism, dominance by and dependence on outside groups (Haken, Imbriano, Nun, & Tobias, 2011), focus groups allowed the participants an opportunity to be actively involved in defining the problem, determining the needs, and shaping their future. Thirdly, focus groups help to create “a social environment in which group members are stimulated by one another’s perceptions and ideas” (McMillan & Schumacher, 2010, p. 363), thus enhancing the value and breadth of the data. For these reasons focus groups have been shown to be a successful methodology to employ in intercultural settings and in supporting credibility (Halcomb, Gholizadeh, DiGiacomo, Phillips, & Davidson, 2007; Jones & Shen, 2005; Malek, 2002; Mwaijande, Miller, Wailes, & Petersen, 2009; Shenton, 2004).

Participants
The participants were chosen from nine primary schools within one rural region of Burundi where the NGO was implementing programs. Participants included primary school teachers, school administrators, NGO administrators and afterschool staff. At the time of the study, primary schools in Burundi included students in grades 1 – 6. Sites were selected, and participants were recruited using the Reputational Case method of site and participant selection. This type of selection uses “the recommendation of knowledgeable experts for the best examples” of a topic or situation (McMillan & Schumacher, 2011 p. 326). Since the NGO had worked with the nine schools for many years providing afterschool programs and counseling, there was a trusted relationship between the NGO staff and the school personnel.

The NGO asked the school administrator from each of the nine primary schools to participate and to identify two teachers from their school to also participate in the focus groups. The afterschool program staff of all nine schools also participated. The focus groups were conducted in three locations: 1) in Bujumbura four members of the NGO administrative staff participated (two female and two male), 2) in Gitega five primary school teachers, five school administrators, and eight NGO afterschool staff participated (eleven female and seven male), and 3) in Bugendana seven teachers, three school administrators, and three NGO afterschool staff participated (six female and seven male). The total number of participants was 34 with the average age being 35 years of age.

At the time of this study, the teachers had completed the educational requirement
for rural primary school teachers (e.g. completion of secondary (high) school with an emphasis in education during the last two years). The school administrators completed the same level of education as the teachers and were nominated by district administration to serve in the position due to their high performance. The NGO staff had four-year degrees from a Burundian university or graduate degrees from Europe or the U.S. All participants worked with primary aged youth and considered themselves educators. This commonality allowed the educators to discuss the topic more deeply and provide rich feedback, an essential component of focus group membership (McMillan & Schumacher, 2011).

Data Collection
Focus groups were conducted in three locations: the NGO’s primary office in Bujumbura, the capital of Burundi; the NGO education center in Gitega, 62 miles (100 kilometers) north of Bujumbura; and at the NGO branch office in Bugendana, a small rural community 17 miles (27 kilometers) north of Gitega. The locations were selected because they were centrally located, easily accessible, and familiar to all participants, while also available at no cost. Since the participants were not familiar with 4-H, the researchers provided an overview of the U.S. 4-H program model before each focus group. The overview included the history of 4-H in the U.S., the organization’s mission, vision, the 4-H pledge, experiential learning, 4-H structure (clubs and projects), life skills, livelihood skills, essential elements of quality programming, and the history of 4-H in Africa. Also included was an experiential activity and overview of the school gardening curriculum, Cultivating Learning with School Gardens (Crave et al., 2009), which is available in French (one of the official languages in Burundi). Each focus group lasted two hours.

This study’s research questions guided the development of the focus group questions. Two experts, an Extension Evaluation Specialist with international experience and the director of the Burundian NGO, reviewed the questions for validity and reliability. The questions were revised based on the suggestions of the experts. Since neither researcher was fluent in Burundi’s official languages (French and Kirundi), the NGO’s program director, a native Burundian with a long trusted relationship in the community, served as the focus group interpreter and facilitator (hereinafter referred to as the facilitator). Trusting the facilitator is essential for participants to feel safe to share their thoughts and opinions (Halcomb, Gholizadeh, DiGiacomo, Phillips, & Davidson, 2007).

The facilitator used a semi-structured protocol where he asked the focus group questions and then followed with probes for further clarification (Mwaijande, Miller, Wailes, & Peterson, 2009). Participants were informed of the focus group procedures and were free not answer questions or withdraw at any time without consequences to their future participation in the program, adding to the study’s credibility and ethics (Merriam & Tisdel, 2016; Shenton, 2004). Each participant was reimbursed for round-trip transportation costs to the focus group site and was provided light refreshments during the focus group.

After each question was asked, the facilitator translated the participants’ answers for the researchers and they took notes. Researchers also observed and took notes on body language and the characteristics of each site location. Three strategies were engaged to assure validity of the data: multiple researchers came to agreement on observations, participants
were asked to confirm the translations (member checking), and after all three focus groups had finished, several NGO staff members met with the researchers to determine accuracy of the data (McMillan & Schumacher, 2011). The university-affiliated research office found the project exempt from full IRB review.

**Data Analysis**

Immediately after each session the researchers and facilitator met to discuss the translations and to clarify any misunderstandings or questions. Researchers determined coding categories based on the interview questions (template analysis style) and then independently coded the responses for each category (McMillan & Schumacher, 2011). To ensure consistency, researchers met periodically to compare results and discuss differences. Once the researchers concluded their coding, they met with the facilitator to triangulate the analysis (Merriam & Tisdel, 2016). Then the researchers shared the findings with the NGO organizational leadership, discussing, debriefing, and confirming the results, which added to the reliability of the study (Merriam & Tisdel, 2016). As a final step, an outside expert reviewed all aspects of the data collection and analysis to confirm the reliability of the processes (Merriam & Tisdel, 2016).

**Findings**

**Needs of Students and Educators**

Results are organized based on the two research questions. Two themes emerged in response to the first research question, “How do public school teachers, school administrators and NGO educators in rural Burundi describe the needs of primary students and the challenges of teaching/working with this population?” The first theme relates to the needs, hopes, and dreams of the students. The second theme relates to the need for more professional development opportunities for educators to assist them in their role.

**Theme 1: Hunger and Quality Education**

Participants reported that poverty was the greatest challenge they faced in working with youth. Students arrive at school hungry, do not receive any nourishment while at school and cannot afford to bring food from home. Schools also lack reliable access to potable water. Additionally, students do not have sufficient books or school supplies. When asked, "What would make the most impact in the lives of the students?" participants agreed that quality education was the most important. However, for that to happen students needed "basics like food, clothing, and shelter as well as well-trained teachers." The participants described quality education in two ways.

First, they expressed the need for school resources, such as chairs for each student; teaching materials like textbooks, chalk, paper, and pencils; and uniforms for school teams and dancing groups.

Secondly, participants described the need for youth to learn livelihood skills, knowledge of technology, agriculture, and life skills (i.e. goal setting, cooperation, and conflict resolution). Participants also reported that students have little or no time for out of school activities (e.g. homework or reading) because they are helping with chores at home. Chores described included "fetching" water before and after school, caring for animals, helping with farming and cooking for the family.

If youth have any spare time, the boys enjoy playing soccer (futbol) and running, and the girls practice traditional dances. All youth enjoy listening to music. Participants also shared that the youth they work with wish to have more resources than
they currently have (e.g. getting out of poverty).

The youth also dream of becoming "important people" such as doctors, ministers or priests, well-known athletes, nurses, engineers, journalists, teachers, political figures or teachers. The educators also shared their hopes for the students. The participants wanted their youth to stay in school and work to empower themselves through education, moving towards a better future. One afterschool staff member specifically voiced his wishes that "more girls would stay in school past the 6th grade and would wait to marry and have children at a later age".

Participants felt that what the students like most in school are hands-on activities that allow for creativity and a sense of empowerment such as singing, dancing, games, drawing, and sports. The students also enjoy learning languages such as English and Swahili. This desire from the students to learn experientially led to the second theme.

**Theme 2: Professional Development Opportunities**

The teachers voiced a strong desire to have more professional development than what they receive. The school systems offer professional development for teachers during school breaks, however, due to a lack of funding the teachers felt it was not enough to help them with the challenging situations they face in the classroom. All participants reported a strong interest in learning more about classroom management, ages and stages of youth development, positive youth development, and gaining knowledge and skills in technology and horticulture to implement school gardens.

Although agriculture is one of the subjects taught in school, there is no professional development for teachers on this topic. Participants wanted to have more knowledge to pass on to their students beyond what they had learned from their own home gardening experiences. Participants reported a strong interest in the 4-H curriculum, *Cultivating Learning with School Gardens* (Crave et al., 2009). They were most interested in applying the hands-on activities in the classroom and in the afterschool program to teach specific skills while producing food.

**Implementing 4-H in Burundi**

The second research question was "How do public school teachers, school administrators, and NGO educators in rural Burundi view or perceive the cultural appropriateness and feasibility of implementing a 4-H school gardening program in public schools?" The participants' responses centered on two themes: the 4-H pledge and the experiential learning model as manifested through the school gardening curriculum.

**Theme 1: The 4-H Pledge**

During the focus groups, participants asked for the 4-H Pledge (i.e., I pledge my head to clearer thinking, my heart to greater loyalty, my hands to larger service, and my health to better living, for my club, my community, my country and my world) to be translated into Kirundi. After translating the 4-H pledge into Kirundi, the participants spent approximately 20 minutes practicing and memorizing the pledge so that they could teach it to their students the next day. They shared that learning the 4-H pledge would be a joy for the students and help the students remember how working in the gardens could connect to the 4-H philosophy as described through the pledge. Also, participants unanimously agreed that the 4-H pledge aligned with the Burundian cultural values of caring for one's neighbors and having a strong sense of responsibility.
Theme 2: Experiential Learning Model
The participants felt the Experiential Learning Model (i.e., Do, Reflect and Apply) was a valuable method to teach students the concepts of personal goal setting and self-empowerment. One participant specifically described his desire for youth to view their world through the lens of what they could do for themselves, their families, and communities without waiting for assistance or aid from the government. He stated, "I want our youth to be empowered, not wait for others to do for them." Others felt using experiential learning methodology could be a way to cultivate creativity in their students, help them gain livelihood skills for obtaining employment, and to grow to their fullest potential. Participants viewed the school gardening curriculum as a tool to help with experiential learning while learning desirable life skills (e.g. teamwork, communications, and decision-making) and to produce food by teaching horticulture skills to the students, their families, and the community.

Discussion and Recommendations
The purpose of this study was to ascertain the needs of primary school aged students and their educators in rural Burundi and to determine if a 4-H school gardening program would be applicable in the public school and afterschool setting. Based on the findings from this study, the 4-H school gardening program has the potential for Burundian students to learn livelihood skills to obtain jobs in agriculture, feed themselves and their families, and learn valuable life skills of teamwork, communications, decision-making, and problem-solving.

To achieve these outcomes, it was important the researchers verified that the 4-H school gardening program would be a cultural fit in Burundi. Conducting this study through the lens of an empowerment approach helped the researchers to focus “as much attention on how goals were achieved as on outcomes” (Zimmerman, 2000, p. 45). It also provided the tools needed to begin the empowerment process from the initial conversations with partners to conducting the study and designing recommendations for future steps.

Needs of Students and Educators
The focus groups revealed that poverty and hunger are the main needs of Burundian primary school youth. These findings confirm statistics showing that Burundi is the second poorest country in the world (Headrick, 2016) and that 81% of the population lives below the international poverty line of U.S. $1.25 per day (UNICEF, 2013). Hunger causes impediments to student learning such as difficulty paying attention, moderated cognitive functioning, and lower performance levels on tests (Taras, 2005).

Implementing the Cultivating Learning with School Gardens (Crave et al., 2009) program has the potential to alleviate some hunger during school time while helping students learn gardening skills that they will then share with their families at home. The CLSG report from Rwanda, Congo, and Mozambique revealed that "A surprising number of students have gardens at home that utilize the skills they are learning in the SGP (School Gardening Program). The skills students talked about demonstrating to their parents included: making furrows, planting, watering, weed control, plant spacing, nursery construction, composting, and introducing new crops” (Coolman, Badini, & Taugher, 2010, p.14).

Focus group participants felt that the most effective pathway out of poverty and hunger was through quality education. The CLSG program provides the opportunity for students to learn science experientially while gaining lifelong skills to share with families.
and communities. CLSG may also aid students in seeing the relevance of science in their daily lives and lead to more science related occupations (Glenn & Wingenbach, 2015).

A program similar to CLSG, the Junior Master Gardener (JMG) program, has shown that when implemented internationally the program has the potential "to improve science education and empower youth. JMG programs equip youth with improved scientific knowledge that may help them to transform their lives and the lives of those around them” (Glenn & Wingenbach, 2015, p. 71). Furthermore, research shows “that STEM [science, technology, engineering, and math] education is closely related to a country’s development” (Glenn & Wingenbach, 2015, p. 70) and can help a country build a strong base for future growth (Osborne, Simon, & Collins, 2003).

Educators participating in the focus groups felt they needed more professional development in two key areas: 1) positive youth development and 4-H methodology including experiential learning, and 2) agricultural science and horticulture. The CLSG final report supports the need for training educators in experiential learning methodology. "Experiential learning is new to all the teachers we interviewed. Asking teachers to embrace such a new teaching method requires a long-term plan of training and skills development” (Coolman, Badini, & Taugher, 2010, p.42).

**Cultural Appropriateness of 4-H School Gardening Program**

Findings from the focus groups indicated that implementing a 4-H school gardening program is viable, desired by teachers, administrators, and afterschool staff, and that the 4-H philosophy as outlined in the 4-H pledge is a cultural fit. The 4-H pledge focuses on four learning goals for program participants, both youth, and adults (Borden, Perkins & Hawkey, 2014). “I pledge my head to clearer thinking” indicates learning how to analyze situations for developing sound decision-making and problem-solving skills. These are greatly needed skills in a country where illiteracy can allow citizens to be misled by political corruption (Ntahobari & Ndayiziga, 2003). Also, decision-making and problem-solving skills lead to individual empowerment (Zimmerman, 2000).

The second and third goals of the pledge "I pledge my heart to greater loyalty and my hands to larger service) support Burundian values of tolerance, caring for others, personal and community responsibility, and being reliable (Haken, Imbriano, Nun & Tobias, 2011). The final goal of the pledge, "I pledge my health to better living," focuses on the need for physical and mental health. Focus group results highlight the need for more food for better health, which will enhance learning and provide a path out of poverty. The alignment of the 4-H pledge with Burundian cultural values and needs is critical. A program embedded in the culture of the community leads to empowerment (Zimmerman, 2000; Peterson, Lowe & Aquilino, 2005).

Results also indicated that the experiential learning methodology implemented through the school gardening program was highly valued. Burundi public schools are currently implementing a new system where students take the lead in their learning, and the teachers act as facilitators (Sambira, 2012). The school gardening curriculum provides teachers and afterschool staff the tools to implement this pedagogy while also providing greatly needed science lesson plans. The program supports 4-H's history as an organization capable of teaching agricultural science through positive youth development, increasing
participants capacity to improve the rural economy (Major & Miller, 2012).

With the above discussion in mind, we have four recommendations. First, the 4-H program is introduced into the school system and afterschool programs through the implementation of Cultivating Learning with School Gardens (Crave et al., 2009). By implementing a science-based experiential program that teaches livelihood and life skills, the potential is ripe for applying empowering processes at both the individual and organizational levels (as outlined in Table 1). The 4-H program using CLSG has the potential to make lasting change in the community. Secondly, we recommend that educators receive professional development which includes the 4-H philosophy and methodology, experiential learning, CLSG curriculum, positive youth development, evaluation, additional horticulture topics, and conflict resolution. Thirdly, we recommend that empowering processes such as decision-making and shared leadership are integrated into all aspects of the school gardening program: development of the budget, creation of action and staffing plans, and implementation of the program. The integration of empowering processes will provide opportunities for local partners to move towards empowered outcomes (see Table 1) and lead to program sustainability. Providing only knowledge or skills training to community groups is often not sufficient for long-term outcomes or lasting empowerment (Hennink et al., 2012).

Lastly, the cultural context and the role of all professionals as collaborators must be foremost in the minds and actions of U.S. partners at all levels of the program. “Acknowledging the role of culture while implementing projects in Burundi is crucial to achieving sustainability in this war-prone country. We argue that only while taking into account both traditional Burundian culture and the profound impact of colonization on Burundi’s culture will positive societal reconstruction, and economic development become possible” (Haken, Imbriano, Nun, & Tobias, 2011, p. 35).

The majority of the citizens in developing countries like Burundi rely on agriculture for their livelihood (Bennell, 2007). Thus it is vital that today’s students develop their interest and skills in gardening and horticulture while also developing valuable life skills that will empower them to improve their economic status and increase their civic engagement. The results of this initial needs assessment indicate that despite the economic and cultural differences between the U.S. and Burundi, the 4-H school gardening program is a viable option to assist rural Burundian students to achieve a brighter future.

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Competency Assessment as a Way of Determining Training and Educational Needs of Extension Professionals in Nepal

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Abstract
This study examines the level of and gaps in core competencies among agricultural extension professionals in Nepal. The study population was composed of agricultural extension professionals in governmental extension offices and agriculture-based, non-governmental organizations. During August-September 2015, 349 extension professionals completed self-administered surveys. The design for the data collection instrument was based on a literature review and on focus group recommendations. Data were analyzed using descriptive and inferential statistics. The findings revealed that respondents perceived themselves to be moderately competent in extension core competencies -- program planning, program implementation, communication skills, educational and informational technology, program evaluation, personal and professional development, diversity, and technical subject matter expertise. Respondents’ perceived levels of competency differed by their current position, undergraduate college attended, and level of education, although not much by their age and experience in extension. Office chiefs and foreign-educated respondents perceived themselves as having higher levels of competency than their counterparts -- subject matter specialists and technical officers, and in-country-educated professionals. The perceived levels of the importance of all core competencies were significantly higher than the professionals’ perceived levels of their own competency, indicating gaps in extension core competencies among Nepalese extension professionals. The findings imply that there is a need for in-service training of extension professionals in all core competency areas. Preservice extension education curricula need to be reviewed and updated, incorporating the core competencies highlighted in this study.

Keywords: agricultural extension professionals, extension core competencies, levels of core competency, competency assessment, Nepal
Introduction

The success of agricultural extension services is contingent on extension professionals’ knowledge, skills, and abilities to perform their extension work effectively. Extension professionals (EPs) educate farming communities about new and improved agricultural technologies and practices and their adoption. As Christoplos (2010) explained it, extension is a system of facilitating access for farmers or their organizations to new knowledge, information, and technologies. Extension enables farmers to engage in interactions with research, education, and other stakeholders and assist them in developing their technical, organizational, and management skills and practices. As alluded to in this definition, extension is a complex process involving several actors with varied interests, a process in which EPs are expected to play catalytic roles. EPs serve as information brokers, community organizers, facilitators, and change agents (Suvedi & Kaplowitz, 2016). Maddy, Niemann, Lindquist, and Bateman (2002) asserted that extension employees “should possess the necessary competencies to anticipate and deliver quality educational programs of relevance and importance to our publics” (p. 1). Only EPs who are trained, motivated, and competent—technically and in process skills—can succeed in effectively delivering agriculture-related knowledge and skills to their clients.

Core Competency Definitions

“Competencies” and “core competencies” are buzzwords in extension and in education and training. “Competencies” refer to human abilities to provide efficient and effective services, and to help attain individual and organizational goals. Burke (1989) defined “competence” as the ability to perform at the standards expected of employees. Seevers, Graham, and Conklin (2007) used the term “core competency” to describe the basic knowledge, skills, attitudes, and behaviors that contribute to workers’ excellence in their respective professions. Core competencies are, according to Athey and Orth (1999) and Lucia and Lepsinger (1999), observable human dimensions necessary for program success, both individually and organizationally; and they are the qualities required at all levels in the workforce. The terms “competencies” and “core competencies” are used interchangeably in the literature. In this paper, “core competencies” are defined as the broader constructs to which “competencies” are attributed.

The competency of individuals is directly related to their performance. As Shim (2008) pointed out, a high level of competency leads to higher efficiency in services, better performance, and higher satisfaction among staff members and their clients. Highlighting the importance of a competent workforce in an organization, Dubois, Rothwell, Stern, and Kemp (2004) stressed “no competencies, no outputs, no organization” (p. 21). These points underline the increasing need for a competency assessment of human resources.

Extension Core Competencies

The types of jobs that extension professionals (EPs) do define the extension core competencies that EPs need to possess. The literature suggests that EPs should be able to communicate effectively with clients; demonstrate program development abilities; lead and/or facilitate collaboration and coordination with stakeholders; and evaluate extension programs (Suvedi & Ghimire, 2015; Suvedi & Kaplowitz, 2016). This literature further underscores that EPs should be able to foster diversity in their work; pursue personal and professional development throughout their careers; be
technically competent in their subject areas; and efficiently use newly emerging educational and informational technology (EIT) such as the Internet, email, social media, and computers. More importantly, EPs should not only be knowledgeable about these competency areas but also be able to transform that knowledge and those skills into actions. The extent to which EPs in developing countries have attained these competencies is not well-documented. Most EPs in developing countries are educated under traditional curricula that focus more on technical aspects of crops and livestock and less on process skills such as communication, leadership, adult learning, and social mobilization (Davis, 2015; Swanson, 2008). They may not have the required core competencies to serve in extension. According to Ghimire, Koundinya, and Holz-Clause (2014), EPs in Nepal lack professional competencies. Only study Nepal conducted on competency assessment was in the 1980s and that was about agricultural graduates ‘preparation for job (Robson, Suvedi, Shivakoti, Pokharel, & Maughan, 1986). Graduates as well as their supervisors perceived graduates to be well-prepared with technical skills but not so with communication skills. We are entering a new era, backed by advancing science and technology. Farmers expect new innovations to boost their farm productivity while addressing burgeoning challenges such as diseases, pests, and climate change. There is a need for EPs who can work with and help people in this challenging yet opportunity-filled age. It is, therefore, imperative to periodically assess workers’ competencies and identify where they are in those competencies, where the gaps are, and what should be done to address those gaps.

The goal of this study was to examine the gaps in perceived competencies among EPs in Nepal. The study objectives were to: (1) assess the perceived level of competency in core competencies among extension professionals; (2) determine whether the perceived level of core competency varies with respondents’ demographics; and (3) ascertain the gaps between perceived level of competency and the perceived importance of the core competencies among extension professionals. Identification of perceived competency levels will allow extension management to know which EPs fit where, and who needs what types of orientation and training. The findings also identify areas that agricultural education and training need to address.

**Conceptual Framework**

This study was grounded in the competency-based approach to human resource management, which helps improve employee and organizational outputs. The goods and services that staff members offer are the result of their tasks, and tasks are the function of staff members’ thoughts, feelings, and actions (Dubois et al., 2004). Mulder (2010) offered a similar argument: EPs need integrated sets of knowledge, skills, abilities, and attitudes to be able to effectively deliver services to their clients. Knowledge is not the only thing that matters in providing services. To improve efficiency and impart sustainable outcomes, workers must have both process skills and technical competencies. Furthermore, as O’Neil, Allred, and Baker (1997) pointed out, a shift from traditional to high performance work, which workers such as EPs are asked to do, involves a new type of behavior and orientation toward a job. As agricultural systems and farmers’ demands are changing, EPs may need new knowledge and skills to serve their clients well. This warrants assessing the competency of staff members periodically.

The major thrust of a competency assessment is to identify gaps in competency
and help to design training and education to address those gaps. As Shim (2008) pointed out, the assessment of core competencies is a learning process that helps organizations to determine a standard for training, development, and learning activities for EPs to prepare for the future, adapt to changes, and make services more efficient. Similarly, Swanson (2008) pointed out that EPs need new knowledge and skills, which they can acquire through additional training and education, to undertake new tasks and responsibilities. Therefore, this study was designed to elicit extension workers’ opinions of their levels of competency on process skills and to identify the knowledge areas and skills in which they think they have gaps. Because EPs are adults who have worked in extension services for years and, as seen in evidence presented in the literature (Dziechciarz, & Dziechciarz-Duda, 2016; Okwoche, Ejembi, & Obinne, 2011; Rigyal & Wangsamun, 2011), it is assumed that EPs are able to articulate both which competencies are critical or important to their services (and which are not), and how confident and able they are in those competencies. Determining the perceived importance of competencies is indicative of what value workers give and how willing the workers are to acquire and/or possess those competencies. Level of competency, on the other hand, indicates their current caliber. The difference between the expected and the current level of competency defines the training and educational needs. However, as Mulder (2010) and Liles and Mustian (2004) pointed out, competency needs are context-specific, and individuals’ personal characteristics and organizational background will influence their perceptions of levels, needs, and importance of a competency.

![Figure 1. Conceptual framework for competency assessment.](image)

This study was a part of a larger study. As illustrated in Figure 1, broad core competency areas were first identified by soliciting the viewpoints of extension experts. This paper is based on three stages: examining the importance of core competencies, examining the levels of core competencies, and identifying gaps in core competencies. This would lead to identifying ways to acquire core competencies by revising and updating pre- and in-service extension education and training curricula, offering training and education to targeted EPs, and, ultimately,
providing more effective extension services. A periodic review of the extension programs would help identify new core competency areas that need to be addressed, which completes the cycle.

**Explanation of Variables**

For objective 1, the variables of interest were the ratings of the level of core competencies. For objective 2, ratings of the level of core competencies are the dependent variables. Independent variables are demographic traits: gender; primary organization (government extension offices and agricultural-based non-governmental organizations [A-NGOs]), undergraduate college (Tribhuvan University and affiliated colleges, hereafter referred to as TU; Purbanchal University and other non-TU colleges in Nepal, hereafter referred to as PU; and colleges outside Nepal); experience in extension in years; district extension office chief, subject matter specialist and technical officer defining current position; age in years; and education (intermediate [I. Sc.], bachelor’s degree [B.Sc.], and postgraduate). For objective 3, the perceived level of importance and self-rated level of competency for core competencies are the dependent variables. The existing literature (Brodeur, Higgins, Galindo-Gonzalez, Craig, & Haile, 2011; Eicher, 2006; Ghimire & Martin, 2011; Lahai, Goldey, & Jones, 1999; Lopokoiyit, Onyango, & Kibett, 2013; Okwoche et al., 2011; McClure, Fuhrman, & Morgan, 2012) was used as the basis for selecting the explanatory variables. Though the literature suggests that the core competencies of EPs differ by those demographic traits listed above, there is no agreement on how they differ.

**Study Methods**

This cross-sectional research employed surveys to collect data. The study sought to assess the perceptions of extension professionals (EPs) in public extension organizations—the Department of Agriculture (DOA) and the Department of Livestock Services (DLS)—and of those in A-NGOs. The study population comprised extension professionals—office chiefs, subject matter specialists (SMSs), and technical officers (TOs)—in district agricultural (DADO) and district livestock services offices (DLSO), and agricultural program officers in A-NGOs. We used web-based and in-person surveys to collect data. The researcher visited 17 districts. EPs there self-administered the surveys. Surveys were also administered among EPs attending training programs at central training centers, as well as those visiting regional directorates and departments. Technical officers in field offices accessible to the researcher also filled out the survey. The final data (n = 305), excluding the web-based data, came from 45 districts and all three eco-zones.

In September 2015, a web-based survey was conducted among 302 professionals using SurveyMonkey.com. This survey sample excluded hard-copy survey respondents. Respondents were sent an email explaining the objective of the study, methods to fill out the survey, and a link to access the survey. Three follow-up emails were sent to non-respondents over a 3 to 5 day interval. The survey received a 16.79% response rate after discounting the bounced-back emails and unusable responses. Because no differences were found between data from the web-based and in-person surveys, the two data sets were combined, resulting in 349 responses.

A competency list drawn from a literature review and from suggestions made by experts during focus groups was used for designing the survey instrument. The survey contained eight core competencies, each of which had five to seven competencies within it for a total of 48 competencies. Program planning and communication skills had six
statements each; program implementation, educational and informational technology, and program evaluation had seven statements each; and the rest -- personal and professional development, diversity, and technical subject matter expertise -- had five statements each. Each statement had two parts, level of importance and competency, measured on a five-point Likert-type scale (1 = not important or very low, 3 = average or moderate, 5 = very important or very high), which were designed to examine respondent perceptions. The survey was field tested among 22 EPs, with eight respondents filling out surveys with the researcher present. The survey was then modified to integrate their feedback. One side of the in-person survey was in English, and the other side, in Nepali. Respondents were free to choose either version. An expert at Michigan State University and the extension experts in Nepal reviewed the survey instrument and validated the contents. Reliability coefficients calculated post-hoc for the eight core competencies ranged from .86 to .94. Index scores were calculated to examine the overall perceptions of importance, levels of competency, and perceptions by respondents’ demographics. Data were analyzed using descriptive statistics (frequency, mean, standard deviation) and inferential statistics (independent sample t-test, one-way analysis of variance [ANOVA], post-hoc LSD, paired t-test).

### Study Findings

#### Study Participants

Table 1 shows respondents’ demographics. Among 349 extension professionals (EPs) participating in the survey, the majority of the respondents were male (93.1%). The mean age of respondents was 46 years, with an average experience of 20.32 years. There were 160, 152, and 36 respondents from the DOA, DLS, and NGOs, respectively. More than one-third of the respondents (37.2%) had I. Sc. (high school), 23.8% had B. Sc. (undergraduate), and 39% had postgraduate degrees. A majority of the participants (73%) were graduates of TU, Nepal; 14.9% were graduates of PU, Nepal; and 12.2% had attended colleges outside Nepal. Approximately one-fifth (19.1%) were DOA and DLSO chiefs; one-third (32.2%) were SMSs; and 34 (9.9%) were NGO-POs. Technical officers (TOs) made up of 38.8% of the respondents.
Table 1.
Respondents’ Demographics

<table>
<thead>
<tr>
<th>Demographic characteristics</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (N = 349)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>24</td>
<td>6.9</td>
</tr>
<tr>
<td>Male</td>
<td>325</td>
<td>93.1</td>
</tr>
<tr>
<td>Organization (N = 348)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOA</td>
<td>160</td>
<td>46.0</td>
</tr>
<tr>
<td>DLS</td>
<td>152</td>
<td>43.7</td>
</tr>
<tr>
<td>NGO</td>
<td>36</td>
<td>10.3</td>
</tr>
<tr>
<td>Current position (N = 345)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DADO/DLSO Chief</td>
<td>66</td>
<td>19.1</td>
</tr>
<tr>
<td>SMS</td>
<td>111</td>
<td>32.2</td>
</tr>
<tr>
<td>NGO-PO</td>
<td>34</td>
<td>9.9</td>
</tr>
<tr>
<td>TO</td>
<td>134</td>
<td>38.8</td>
</tr>
<tr>
<td>Age group (N = 341)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 35 years</td>
<td>71</td>
<td>43.9</td>
</tr>
<tr>
<td>36-50 years</td>
<td>119</td>
<td>35.1</td>
</tr>
<tr>
<td>≥ 51 years</td>
<td>149</td>
<td>20.9</td>
</tr>
<tr>
<td>Highest education (N = 344)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Sc.</td>
<td>128</td>
<td>37.2</td>
</tr>
<tr>
<td>B. Sc.</td>
<td>82</td>
<td>23.8</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>134</td>
<td>39.0</td>
</tr>
<tr>
<td>TU</td>
<td>246</td>
<td>73.0</td>
</tr>
<tr>
<td>PU</td>
<td>50</td>
<td>14.9</td>
</tr>
<tr>
<td>University outside Nepal</td>
<td>41</td>
<td>12.2</td>
</tr>
<tr>
<td>Experience in extension (N = 325)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 5 years</td>
<td>55</td>
<td>16.9</td>
</tr>
<tr>
<td>6-10 years</td>
<td>27</td>
<td>8.3</td>
</tr>
<tr>
<td>11-15 years</td>
<td>15</td>
<td>4.6</td>
</tr>
<tr>
<td>16-20 years</td>
<td>41</td>
<td>12.6</td>
</tr>
<tr>
<td>≥ 21 years</td>
<td>187</td>
<td>57.5</td>
</tr>
</tbody>
</table>

Perceptions of Level of Core Competencies

Descriptive statistics revealed that respondents perceived themselves as having moderate to high levels of competency in all of the core competencies. As shown in Table 2, respondents indicated that they had the highest levels of competency in personal and professional development, followed by communication skills, diversity, program implementation, program planning, and technical subject matter expertise. Program evaluation received the lowest rating, though still moderate, followed closely by educational and informational technology.
The statistics for individual competencies show eight competencies with ratings of 3.48 or lower. The lowest ratings were given to familiarity with government administrative and financial rules and regulations (M = 3.41) and computers (Internet, email, webpages) for communication (M = 3.42). Many competencies receiving low scores mostly concerned information, communication, and technology (ICTs) and program evaluation. Demonstrating a positive attitude toward extension work (M = 4.24) received the highest rating, followed by good listening skills and preparing reports on extension work, both with an average score of 4.10.

**Level of Competency by Demographics**

Table 3 shows perceived levels of core competencies by primary work organization, undergraduate college, age, experience in extension, current position, education, and gender.

**Primary organization and undergraduate college.** The NGO-POs rated themselves significantly higher for educational and informational technology (EIT) than GO respondents. Ratings differed significantly by undergraduate college for all but two of the core competencies: educational and informational technology, and personal and professional development. The PU group rated significantly lower than the other two groups for five core competencies: program planning, program implementation, communication skills, diversity, and technical subject matter expertise. The TU group rated program evaluation competency higher than the PU group.

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**Table 3.**

*One-way ANOVA and t-Test Results (F and t values) Showing Differences in Perceptions of Levels of Core Competencies by Demographics*
### Age and experience in extension.

The only age-related difference found in perception was in educational and informational technology (EIT), which the youngest group (≤35 years) rated the highest. The least experienced group (≤ 9 years) rated themselves higher for EIT than those with more experience. The 10-19 years’ experience group rated themselves higher for this core competency than the other two groups with higher levels of experience. The ≤ 9 years’ experience group rated program evaluation higher than the 20-29 years’ experience group.

### Current position.

The DADO and DLSO chiefs perceived themselves as having significantly higher levels of competency than SMSs and TOs for all core competencies except personal and professional development, and diversity. The chiefs rated themselves significantly higher for program planning, program implementation, and EIT than the NGO-POs. The NGO-POs rated their competency for EIT to be significantly higher than that of SMSs and TOs. An additional analysis showed that the TOs rated themselves significantly lower than others for six of the core competencies, with diversity, and personal and professional development as the exceptions.

### Education.

Postgraduate degree holders perceived themselves as having a higher level of competency in program planning, educational and informational technology, and program evaluation than those with less education. Ratings of high school or equivalent degree holders for program implementation, personal and professional development, and technical subject matter expertise were significantly lower than those of EPs with postgraduate degrees; they were also lower for program implementation and technical expertise than ratings of undergraduate degree holders.

### Gender.

Males and females differed in their ratings on EIT, with a higher rating for females. An analysis of individual competencies revealed that females rated themselves higher for competency in using
Microsoft Excel, Word, PowerPoint, a computer for Internet and email, and a mobile phone for texts and short message service.

**Discrepancy between Desired and Current Levels of Competency**

The mean ratings of the importance of core competencies are significantly higher than the mean ratings for the levels of competency for all of the core competencies (Table 4).

**Table 4.**  
*Paired t-tests Results of Level of Importance and Level of Competency*

<table>
<thead>
<tr>
<th>Core competency</th>
<th>Mean (SD) (N = 346)</th>
<th>Paired difference</th>
<th>t value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Importance</td>
<td>Competence</td>
<td>Mean diff.</td>
</tr>
<tr>
<td>Program planning</td>
<td>4.44 (0.46)</td>
<td>3.66 (0.61)</td>
<td>0.78</td>
</tr>
<tr>
<td>Program implementation</td>
<td>4.44 (0.45)</td>
<td>3.77 (0.65)</td>
<td>0.67</td>
</tr>
<tr>
<td>Communication skills</td>
<td>4.49 (0.44)</td>
<td>3.89 (0.64)</td>
<td>0.61</td>
</tr>
<tr>
<td>Educational and informational technology</td>
<td>4.40 (0.51)</td>
<td>3.57 (0.85)</td>
<td>0.83</td>
</tr>
<tr>
<td>Program evaluation</td>
<td>4.37 (0.49)</td>
<td>3.56 (0.73)</td>
<td>0.81</td>
</tr>
<tr>
<td>Personal and professional development</td>
<td>4.58 (0.46)</td>
<td>3.92 (0.69)</td>
<td>0.66</td>
</tr>
<tr>
<td>Diversity</td>
<td>4.45 (0.48)</td>
<td>3.84 (0.71)</td>
<td>0.61</td>
</tr>
<tr>
<td>Technical subject matter expertise</td>
<td>4.47 (0.50)</td>
<td>3.64 (0.69)</td>
<td>0.83</td>
</tr>
</tbody>
</table>

Note. *** p < .001

**Discussion**

Extension professionals (EPs) in Nepal perceived themselves to be moderately to highly competent in their ability to perform their jobs. The highest ratings for personal and professional development for both importance and level of competency indicate that EPs are committed to fostering integrity and good governance in extension services. They would like to pursue learning and further their knowledge on extension. Importantly, they seemed to have a positive attitude toward their extension work, a key factor in being a successful worker. The findings are consistent with studies among Cooperative Extension professionals in North Carolina by Lakai, Jayaratne, Moore, and Kistler (2014), and with EPs in Ethiopia by Wasihun, Kwarteng, and Okorley (2013).

The 21st century has brought an era of accountability and of ICTs. ICTs such as smart phones, the Internet, and social media facilitate effective dissemination of agricultural information among a large group of consumers. EPs have to be cognizant of and able to use these tools in their work. The study results indicate that the opposite is true.

Public extension services in Nepal and throughout the developing world have long been criticized as being top-down and less effective than their counterparts in the developed world at serving their clients. The current demand-driven extension envisions bigger roles for NGOs and the private sector. It is, therefore, encouraging to find that NGO-POs perceived themselves as having higher levels of competency in educational and informational technology (EIT), and as being on par with their government counterparts in the other seven competencies. These findings are in contrast to those of Lopokoiiyit et al. (2013) in...
Africa, where all of the NGO workers’ competency levels were higher than those of government workers in all of the areas measured.

The higher the education level of the respondents, the more competent they perceived themselves to be in core competencies. Respondents with a postgraduate degree perceived themselves as having a higher level of competency in all areas except communication skills and diversity. These findings are in line with a study by Lakai et al. (2012), who found that a higher level of preservice training helps EPs to acquire core competencies. Consistent with findings by Duo and Bruening (2007), chiefs rated themselves higher for most competencies, including program planning and implementation. Technical officers, most of whom do not hold undergraduate degrees but who do more fieldwork serving farmers than their better educated counterparts, have lower levels of competency. Given the increasing stake of TOs in extension services, this is a serious issue in need of immediate attention.

Respondents’ levels of competency varied by the undergraduate college they attended, with the alumni of non-Nepali colleges indicating higher ratings. This implies that foreign colleges, attended by one respondent group, offered a better education in the core competencies than agricultural colleges in Nepal. This could be because of their using better curricula, better teaching methods, and/or better educational materials focusing on extension core competencies, as well as learning environments more conducive for students to learn.

Except for EIT, respondents perceived themselves as having equal levels of competency regardless of their age. This finding goes against that of Lakai et al. (2014), who found that proficiency in professional competencies, including use of ICTs, increased with age. Higher levels of competency in EIT among the youngest group could reflect greater exposure and more opportunities to use ICTs. The emergence of the Internet in Nepal is fairly recent, and older people have likely had fewer opportunities to learn about ICTs than younger ones. It is very likely that younger EPs might have attended courses on computer technology in school, and may have learned about ICTs and other e-tools there.

Experience counts, in both learning and providing services. Adult and/or informal learning, which is an integral part of extension education, emphasizes experiential learning among extension stakeholders, which include extension professionals. Reasonably, staff members with longer work experience are expected to be more skillful and competent in serving their clients. Yet, aside from educational and informational technology (EIT) and program evaluation, which were rated the highest by the least experienced group, this study does not show any such differences in other competencies by experience.

Office chiefs rated themselves higher in six of the eight core competencies, perhaps because of their having more education than others. A large percentage (91%) of the chiefs reported holding postgraduate degrees, as compared with 2.3% of TOs, 43% of SMSs, and 65% of NGO-POs. This counters the findings of Lakai et al. (2014), who found that overall proficiency levels of EPs did not vary with their job position. The findings of this study reinforce the notion that a higher level of preservice education is critical to acquiring competencies.

The only difference by gender was in educational and informational technology (EIT), where females scored higher than males. Consistent with the study by Lakai et al. (2014), females rated themselves higher
in computer use, including using Microsoft programs, the Internet and email, and mobile phones and texting. The findings show that female EPs are perceived as being more computer-friendly and competent in ICT use than their male counterparts. The finding that the perceived levels of competency for all but one of the core competencies are similar for both genders reveals that females are as competent as males in extension services.

This study found a clear difference in the perceived level of importance and the perceived level of competency, with competency being significantly lower than importance. This suggests that EPs in Nepal have much to learn related to extension competencies to effectively perform their roles. The largest difference was found in educational and informational technology, and in technical subject matter expertise, followed by program evaluation. These are the areas in which EPs need more training. The greater need for technical subject matter training is consistent with the study by Rigyal and Wangsamun (2011) in Bhutan but contrasts that of Conklin, Hook, Kelbaugh, and Nieto (2003) at Ohio State University. It is worth noting that EPs perceived all of the core competencies to be important and very important to their work, we can therefore assume that they value these extension skills and are eager to hone their competencies.

The areas least known to respondents were ICT use; government administrative and financial rules and regulations; and the vision, mission, and goals of extension services. How can we expect effective services from EPs who do not know what the extension’s vision, missions, and goals are? How can we expect efficient and accountable extension services from EPs who do not know their governmental rules and regulations?

**Conclusions and Recommendations**

This study sought to assess the level of core competencies of agricultural extension professionals (EPs), to determine differences in levels of core competencies by demographics, and to identify any existing gaps in competency in Nepal. The study found that EPs perceived themselves as having a high level of competency in all of the extension core competencies. Receiving lower yet still positive ratings were ICTs, which include computer use, e-learning, and social media. These were found to be the weakest areas for EPs. Interestingly, the longer the extension worker’s experience, the lower the perceived level of ICT competency. Foreign-educated EPs appear to be more competent in extension skills than those who are educated in-country, in spite of the proximity of and familiarity with local stakeholders and local contexts, as well as opportunities for in-country colleges to train students in local contexts that articulate local needs and demands. Curricula and teaching methods may have a significant bearing on students’ competencies. The findings indicate gaps in the national agricultural extension education system.

The chiefs’ perception of themselves as competent was higher than other groups’ self-perceptions. The chiefs had more education than the others, thereby emphasizing the importance of preservice education among extension workers. There is a clear discrepancy among EPs between the desired and actual levels of competency for core competencies, indicating that EPs in Nepal do not feel they are as competent as they should be to serve their clients. Core competencies with the highest competency gaps—educational and informational technology, technical subject matter expertise, and program evaluation—are the areas in which EPs in Nepal are most in need of training. One important conclusion from this study is that EPs in Nepal...
perceived extension core competencies as important and thus essential to their work.

The government of Nepal should adopt appropriate policies and programs to provide training to its extension professionals, including its technical officers, on computer use, program evaluation, and technical subject matter. It should also review and adapt the extension education curricula of international universities as needed. Soliciting beneficiaries’ perceptions of the levels of competency of their extension workers and examining the differences between self- and beneficiary-rated levels of competency would be worth researching to determine how and whether ratings are consistent across the two populations. Also useful would be undertaking qualitative research using in-depth interviews among extension stakeholders about extension professionals’ delivery of services and gaps, if any, in their competency.

This study had some limitations. Originally, we planned to use proportionate stratified sampling and to use a web-based survey. But, while we were pretesting the survey, only six of 39 professionals participated. This response was less than one would ordinarily find in web-based surveys. Realizing that not all of the EPs had email and that employing a web-based survey only would not be effective, we used both in-person and web-based surveys. When data collection was about to start, Nepal was badly hit by an earthquake. This was followed soon after by incessant rainfall and political strikes in various regions of Nepal. Stratified sampling could not be employed, so convenience sampling was used to select the sample.

The study findings have relevance to international extension. For example, as in Nepal, extension professionals in other developing countries may have lower competency levels in education and information technologies, technical subject matter, and program evaluation. These could be the key areas for EPs to receive additional training and education.

References


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

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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.

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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.

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Commentary Article manuscripts are submitted online. A title page with manuscript title, authors’ names, institutions, and city/state/country is required. 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.

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