The *Journal of International Agricultural and Extension Education* (*JIAEE*) is the official refereed publication of the Association for International Agricultural and Extension Education (*AIAEE*). The purpose of the *JIAEE* is to enhance the research and knowledge base of agricultural and extension education from an international perspective. Acceptance rates for the past three volumes are: Volume 19 = 20%, Volume 20 = 21%. Volume 21 = 13%. Volume 22 = 18%

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.

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Commentary articles state an opinion, offer a challenge, or present a thought-provoking idea on an issue of concern to international agricultural and extension education, including a published article in the *JIAEE*. These articles are invited by the editors. Tools of the Profession articles report specific techniques, materials, books and technologies that can be useful for agricultural and extension educators in a global context and/or in a country/region. Book Reviews provide insight on current books related to international agricultural education.

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From the Executive Editor

As we start the beginning of a new semester preparing classes and meeting new students, it is an important reminder of the scholarship produced in agricultural and extension education around the world. Do not be left out. Submit your scholarship to our journal for review. Submission guidelines are located at: https://aiae.org/index.php/submission-guidelines. There are some great examples of enhancing Extension systems that are going unnoticed. Please remember that we accept submissions for book reviews, commentaries, and feature articles. That is a diverse lineup of formats to disseminate some of the great work you do.

Five feature articles are included in the second issue of Volume 23. I appreciate the diversity of locations identified in each inquiry. The first feature article provides us post-conflict news and information needs of Côte d’Ivoire and Mali Farmers. The second article offers examples of factors that influence 4-H member’s participation in an international program. Critical thinking continues to be a hot topic for researchers. The third article highlights a comparison of U.S. student’s critical thinking skills of students enrolled in a global seminar course. Identifying an alternative agricultural extension strategy in Nepal through the use of action research is the fourth article in this issue. The concluding article focuses on Northern Haitian small-scale farmers’ perceptions of agricultural information sources. I hope you enjoy the variety of scholarship provided in this issue. Do not forget to submit your work to the JIAEE for review. We all want to learn about your discoveries.

Sincerely,

Robert Strong Jr.
Executive Editor, JIAEE

Post-conflict News and Information Needs of West African Farmers: Voices from Côte d’Ivoire and Mali

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Abstract

During the decades following the independence of Sub-Saharan African countries, many farmers were severely affected by armed conflicts. News and information providers could provide important support toward the economic recovery of these farmers and the rebuilding of their communities. This qualitative study sought to explore farmers’ perceptions on the role of media and other sources in disseminating news and information after armed conflicts ceased in Côte d’Ivoire and in Mali. The study involved 10 key informants, five from each country. Rigorous qualitative research procedures were used to collect and analyze the study’s data. Six themes emerged from the interviews. Farmers perceived the media were interested in reporting about their regions only during the conflicts. They also indicated the absence of Extension or other forms of rural advisory services during and after armed conflicts. However, all 10 key informants perceived the media could assist in recovery and rebuilding efforts and should deliver related information in their local languages as well as provide programs targeting women and youth. Recommendations for policy and practice are offered. In addition, topics are identified on which to train communicators and Extension/advisory agents to meet the information needs of farmers who experience the effects of armed conflict.

Keywords: Côte d’Ivoire, farmers, information, Mali, media, news, post-conflict
Introduction and Background

Côte d’Ivoire (RCI) and Mali, two former French colonies and West African states, experienced armed conflicts during the last two decades that heavily impacted their agricultural sectors and displaced thousands of rural citizens (International Crisis Group, 2014; United Nations High Commissioner for Refugees [UNHCR], 2015). The armed fighting in RCI extends further back in time, starting in 2000 (Akindes, 2004) and ending with post-electoral violence in 2010 (Dabalen, Kebede, & Paul, 2012). Mali’s conflict is more recent; it began in 2012 with violent skirmishes and continued through 2015 (Human Rights Watch, 2015; Thurston, 2015).

The Roads to Armed Conflict in RCI and in Mali

RCI gained its independence from France on August 7, 1960; it lies on the Gulf of Guinea with an approximate land area of 322,462 sq. km. The country’s population is estimated to be about 22 million with an annual growth rate of 2.13% (Central Intelligence Agency [CIA], 2014). It comprises more than 60 ethnic groups, including the Agni, Baoulé, Bété, Juula, Lagoon, and Sénoufo, among others (CIA, 2014). Christianity and Islam are the major religions with about 35% to 40% of the population identifying with each (The World Bank, 2012). Agriculture is the economic mainstay of RCI (CIA, 2014). It engages more than 70% of the population and represents 49% of RCI’s GDP (United Nations Development Program, 2013). Agriculture also contributes to more than one-half of RCI’s exports (The World Bank, 2012). The main cash crops are cocoa and coffee. RCI is known as the world’s leading cocoa exporter and ranks fifth in coffee production; the country also produces bananas, cassava, yams, sugar, palm oil, timber, and rubber (The World Bank, 2012). RCI’s economy was one of the most successful in Sub-Saharan Africa beginning in the early 1960s under the rule of President Felix Houphouet-Boigny (Dabalen et al., 2012). The economy was set back between 1980 and the late 1990s by devaluation of the CFA franc and thereafter by a political crisis (The World Bank, 2012). Afterward, the economy was improving when a new crisis occurred in 2002 (The World Bank, 2012). According to the African Development Bank [ADB] (2010), RCI’s poverty rate increased from 36.8% in 2002 to 48.9% in 2008 and the poverty rate in rural communities grew even more.

Origins of the politico-military crises in RCI were very profound and complex. In 1994, President Henri Konan Bedie, who succeeded the late President Houphouet-Boigny, initiated a change to the electoral code stipulating that every candidate in the upcoming presidential election should demonstrate his or her Ivorian ancestry (Dabalen et al., 2012; Djehoury, 2007). The concept of Ivoirienne became a central theme of the political discourse; differences in ethnicity and religious background were used by political parties to criticize opposing candidates (Dabalen et al., 2012). This led the country into unprecedented armed conflicts for more than a decade (Dabalen et al., 2012; Djehoury, 2007). After several failed attempts, RCI held a presidential election in 2010 (Apulu, 2012). The election result was contested by partisans of the two main candidates who embarked on post-electoral violence until the rightfully elected president was inaugurated (Apulu, 2012; Pettersson & Wallensteen, 2014).

The armed conflict had very negative impacts on RCI’s economy, particularly the food and agricultural sector. Cocoa production, for example, which represents the country’s major source of income, dropped considerably during the armed conflicts (The World Bank, 2012).
Moreover, access to agricultural inputs and land was extremely difficult causing disruption of agricultural and food production in most of the country (The World Bank, 2012). The rural economy declined significantly, especially in areas where the conflict was widespread between civilians of different ethnic groups (Food and Agriculture Organization [FAO], 2012). Further, the delivery of agricultural advisory services was severely hampered (FAO, 2012; The World Bank, 2012).

Mali became independent in 1960. The country covers a land area of 1,220,190 sq. km. Its population was estimated to be about 16.5 million in 2012 and is divided among several ethnic groups, including Bambara (46.3%, the largest), Peulh (9.4%), Dogon (7.2%), Sonrais (5.6%), and others (CIA, 2014). Mali’s predominant religion is Islam (94.8%) (CIA, 2014).

Mali’s economy also relies heavily on agriculture; its main agricultural products include cotton, rice, sorghum, sugar, millet, and livestock (CIA, 2014). According to Solomon (2013), Mali was ranked among the 25 poorest countries in the world for 2013 with a GDP per capita of about 700 U.S. dollars; almost two-thirds of the population was considered impoverished in 2004. The poverty rate is even greater in the northern region of the country (Solomon, 2013).

Mali has experienced successive Tuareg rebellions; major uprisings occurred in 1960, 1989, 1992, and 2011 (Solomon, 2013). The most recent conflict started during 2012, which precipitated from a military coup in March of that year (Pettersson & Wallensteen, 2014). The country’s Tuareg community perceived being marginalized and that Mali’s northern region – the home of most Tuaregs – was neglected by the national government (Solomon, 2013).

In 2012, the Tuareg separatist movement known as Mouvement National de Liberation de l’Azawad (MNLA) and Jihadist terrorist groups fought against government forces in northern Mali (Pettersson & Wallensteen, 2013; Solomon, 2013). Consequent to the political chaos, major cities of northern Mali fell into the hands of rebel and Islamist terrorist groups (Pettersson & Wallensteen, 2014). French and other international forces deployed to Mali during the first few months of 2013 to assist in recapturing its rebel-occupied cities (Solomon, 2013; Wulf & Mesko, 2014). In the aftermath of the violent armed conflicts, the Government of Mali and rebel forces signed a peace agreement in May of 2015.

The armed conflict had serious impacts on Mali’s agriculture. According to Kimenyi et al. (2014), because of the conflict, the supply chain of agricultural inputs, i.e., fertilizers, fuel, seeds, and irrigation systems, was disrupted in the northern region; agro-input dealers could not access farmers due to insecurity. The livestock value chain was most affected by the armed conflict; many livestock owners fled to safety in the southern part of the country or to neighboring states (Kimenyi et al., 2014). Due to the armed conflict, in 2013, more than 900,000 people were food insecure in Mali, including much of its rural population (Gourdin, 2012).

Armed conflicts in both countries resulted in internal and trans-border displacement of thousands of people, especially their rural citizens. For example, in Mali, as of July 2014, more than 500,000 people were displaced internally or externally from their homes (UNHCR, 2015).

Pinstrup-Anderson and Shimokawa (2008) stated armed conflicts could result from impoverished socio-economic conditions, including extreme poverty, hunger, food insecurity, and inadequate distribution of income. In addition,
understanding agricultural systems and the needs of farmers is vital in mitigating the risks of conflict associated with rural populations (FAO, 2012). Muehlhoff and Herens (1997) indicated that access to a variety of services, including water irrigation, input supply, and agricultural advisory services, is essential for the recovery of rural economies impacted by armed conflicts. Acker et al. (2001), moreover, concluded substantial investments should be made in the human capital of rural communities, including agricultural education and extension programs, for a sustainable peace process to thrive in post-conflict countries.

Role of the Media and Other Information Sources

Harris (2011) maintained that a significant number of peacemaking and peacekeeping activities occur at the governmental, civil society, and individual levels. In this regard, the media can be a critical tool for supporting socio-economic recovery, peacebuilding, and stability after the cessation of armed conflicts (Swedish International Development Cooperation [SIDA] & The United Nations Educational, Scientific, and Cultural Organization [UNESCO], 2003). Actors, including providers of news and information, should disseminate and promote peacebuilding activities by making such known and by offering support to develop and make the initiatives more effective (Harris, 2011). All stakeholders, including farmers, policymakers, non-government organizations (NGOs), private sector actors, researchers, aid donors, and communicators, should work together to restore economic livelihoods, ensure food and nutrition security, and build resilience in rural communities after armed conflicts end (International Food Policy Research Institute, 2014).

The Agricultural Knowledge and Information System for Rural Development model (AKIS/RD; see Figure 1) supports this approach (FAO & The World Bank, 2000). The strategic vision of the AKIS/RD model is that farmers and other rural populations will gain increased knowledge, skills, attitudes, information, and technologies if integrated models of research, national policies, physical and human resources, institutional commitments, and communications systems are created and used (see Figure 1). The AKIS/RD approach assists poor rural populations in gathering, sharing, and exploiting information that may be only available from sources outside of their local communities (FAO & The World Bank, 2000).
Statement of the Problem

During the decades following the independence of many Sahel countries, the region of West Africa has experienced recurring armed conflicts (Themner & Wallenstein, 2011). de Soysa and Gleditsch (1999) asserted that “[c]onditions affecting agriculture, the main source of livelihood in the rural sector in many poor countries, and the level of poverty and deprivation are linked to armed violence” (p. 19). Rural communities are frequently the most affected by armed conflicts. As a result of the recent conflict in Mali, more than 500,000 people were displaced and, by the end of 2012, it was estimated more than one million remain displaced in RCI due to armed conflict (Internal Displacement Monitoring Centre, 2014; UNHCR, 2015).

Hamre and Sullivan (2014) indicated four pillars in post-conflict reconstruction, including social and economic well-being, presaged “laying the foundation for a viable economy, and initiating an inclusive and sustainable development program” (p. 91). Moreover, post-conflict reconstruction requires greater attention to the agricultural sector in recovering economic livelihood: “[w]ithout cultivating development – a process highly dependent on favorable conditions for agricultural production and rural livelihood – there can be no sustainable peace” (de Soysa & Gleditsch, 1999, p. 23). Media and other sources of information, i.e., rural Extension and advisory services and NGO personnel, stand to be important contributors to post-conflict reconstruction and peacebuilding efforts. However, much more assistance is needed, especially media and communication programs developed to support as well as complement post-conflict recovery efforts, peacebuilding initiatives, and the capacities of rural communities to recover after armed conflict ends. More study is needed about this phenomenon, particularly regarding the rural populations of West Africa, including the nations of Côte d’Ivoire and Mali. This investigation sought to do that.

Theoretical Framework

This research study was guided by several media effects theories, including the agenda-setting theory, the uses and gratification model, and the social cognitive theory of mass communication (Bandura, 2001; Bratiae, 2006; Severin & Tankard, 2001). Media effects theories explain how the media can better inform and educate an
The agenda-setting model suggests the utility of the media’s capacity, through continuous news reporting, for raising the relevance of an issue among its audience members (Severin & Tankard, 2001). Agenda-setting is not an automatic process, rather it involves information processing by audience members (Severin & Tankard, 2001). Research conducted by Hovland (as cited in Bratiae, 2006) found people can gain both information and new attitudes from media programs but receiving information does not necessarily lead to attitude change. Bandura’s (2001) social cognitive theory of mass communication posits people learn best from behaviors perceived as beneficial. Bratiae (2006) asserted it is relatively easy to present post-conflict interventions as beneficial and thus stimulate attitudes favoring peace and stability over violence and conflict.

**Purpose and Objectives**

The purpose of this study was to explore farmers’ perceptions on the role of the media and other information sources in disseminating news and information after the cessation of armed conflicts in the West African nations of RCI and Mali. Three objectives guided the study: 1) describe farmers’ perceptions about how the media and other information sources assisted in economic livelihood recovery after armed conflict ended; 2) explore farmers’ perceptions about how the media and other information sources assisted in rebuilding community resilience after armed conflict ended; and 3) determine farmers’ views about how the media and other information sources addressed issues of economic recovery and rebuilding community resilience in regard to rural women, children, and youth affected by armed conflicts.

**Methods and Procedures**

This qualitative study involved in-depth, semi-structured interviews of 10 key informant farmers (Creswell, 2012; Krueger, 1994), including five from each country. An interview protocol guide was developed to collect data. The interview guide included seven open-ended questions and several probing questions consistent with the study’s research objectives. The questions were phrased in an easy to understand format (Creswell, 2012) and asked in the informants’ preferred languages. Merriam (2009) suggested using open-ended questions because that provides interviewees more opportunities to elaborate on the topics at hand and also elicits additional descriptive data.

The key informants were selected purposefully from the groups of interest in Mali and in RCI. In both cases, cognizant government officials and NGO personnel suggested the informants. The interviews occurred individually, averaged approximately 45 minutes in length, and were conducted during July and August of 2014. Data were collected until saturation (Creswell, 2012) occurred. According to Newing (2011),

> [s]aturation is reached when [the researcher] can ‘make sense’ of the data in terms of identifying areas of consensus or other patterns, and when collecting more data produces little important new information or understanding that is relevant to [the] research question[s]. (p. 75)

The interviews were translated into English and transcribed verbatim for analysis using NVivo 10.2.0. Procedures of **naturalistic inquiry** (Lincoln & Guba, 1985) were used to analyze the data. The data were coded and recoded to identify emerging themes. The lead researcher’s field notes provided context for his reflection as well as
guided data analysis and related interpretations (Creswell, 2012).

To increase the likelihood of validity, Tracy’s (2010) eight criteria for ensuring high quality interpretive research were followed, including strategies to mitigate researcher bias. In addition, the lead researcher maintained an audit trail and held peer debriefings as he analyzed the data (Creswell, 2012). The environment in which the interviews occurred also assisted in achieving rigor as did the methods used to conduct the interviews. The lead researcher advised the key informants about the study’s purpose and their rights as participants in accord with the Institutional Review Board regulations of Oklahoma State University. No incentives were provided to the informants. The lead researcher and sole interviewer established sincerity by maintaining a transparent and honest attitude during data collection and analysis.

Patton (2002) asserted that a qualitative researcher is considered the instrument and, therefore, needs ways to control his or her bias to build the trustworthiness of the data gathered. To that end, the researcher reflected on his personal background and biases, his relationship to the phenomenon studied, and bracketed himself. In addition, to immerse himself in the data, the lead researcher listened several times to the recorded interviews and also read and reread the transcripts before loading text into the NVivo software (Creswell, 2012). During each reading, the investigator recorded memos as he interrogated the data for future reference and interpretive considerations.

**Findings**

Ten key informant farmers, including three women, were selected purposefully to participate in this study based on their experience, positions in their communities, and their capacity to provide in-depth insights regarding the phenomenon (Marshall, 1996). Six major themes emerged from analysis of the informant interviews.

**Theme I: Media and other sources of information were not interested in agriculture-related issues or farmers after cessation of the armed conflicts**

The study’s key informants perceived the media and other sources of information were not interested in assisting farmers in recovering their economic livelihoods after cessation of the armed conflicts. Moreover, they indicated the media did not focus much on agricultural and rural issues even though farmers who experienced armed conflicts needed such programming. For most, the media focused more on urban issues and provided entertainment programs, e.g., music, cinema, and sports, which were not the informants’ priorities. An informant from Mali said:

> The media did not tell us anything about agricultural practices or what we need[ed] to do to improve our yields. We were left alone. For example, during the conflict many people left this town for safer places, and because of the armed conflicts people lost their cattle. At the end of the conflicts, and when people returned home, neither the farmers nor the cattle breeders received any information from the authorities or media. It was even worse for cattle breeders who stayed in remote areas with very limited access to media. This farmer described the lack of assistance not only from the media but also government officials. In addition, he pointed out cattle breeders, who are nomadic and live in remote areas looking for pasture to feed their cattle, were the least informed. Another informant from Mali mentioned she had not recently witnessed any reporting by the media, national or
local, regarding community issues or agriculture in her area. She stated:

I did not see them [the media] for a long time now. Some reporters from the national radio came here about four to five years ago, and that was before the conflict started here. Other than that, I do not recall any visit from any media.

An Ivorian informant, who spoke specifically about television, shared:

Television never talked about agriculture after the conflict. After the conflict, the price of rubber has fallen on the market but the media never told us. Why didn’t they tell us? Who will not be happy if they tell us? If it does not make anyone unhappy, they should tell us. We are farmers and we need to know when commodities prices change and that’s the role of the media.

In addition, several of the interviewees from Mali and RCI resented that the media were more attentive to their regions during the armed conflicts to report on fighting, deaths, and the displacement of people. An Ivorian farmer said: “The media was only here during the war to tell the world about our miseries. When the war ended, they packed and left us. They did not care about agriculture. This was not their business.”

As an anecdote, the lead researcher noticed most of the media channels (national and local) did not have specific agricultural programs targeting farmers who experienced armed conflicts. In addition, several of the media outlet representatives with whom he interacted said they lacked the means to offer such programs, i.e., reporters, logistics, and security.

**Theme II: Lack of Extension or rural advisory services during and after the armed conflicts**

The study’s key informants from both countries expressed rather emphatically that Extension or other forms of rural advisory services were mostly absent during and after armed conflicts in their regions. A Malian key informant stated: “They neither came to find out about our problems or help us to improve our farming practices during or after the armed conflicts. They only organized some farmers’ gatherings in bigger cities maybe once in a while. That’s it!”

A farmer from RCI expressed disappointment:

I think they should at least call for farmers’ meetings to share the information they received from their superiors, [e.g., government agencies and researchers], but sometimes we can spend almost two years without any kind of update about farming issues.

In a similar way, another Malian informant declared:

We go to them [and ask] to come see, but they never come to visit our farms. They always made up reasons for not visiting. Either they say they do not have means of transportation or they simply will recommend us some brands of insecticides to apply. This month, they visited us once because there was an internal conflict between crop producers and cattle breeders.

Extension agents whom the researcher spoke to during the study resided in large towns and said they did not have the means to serve farmers in the more rural areas. In northern Mali, where armed conflicts were still ongoing at the time of the study, some Extension agents indicated they feared for their own security and could not assure field visits to the farmers.
Theme III: Need for more media programs on agricultural issues after cessation of the armed conflicts

A shared perception existed among the 10 key informants that the media could help them in many ways to recover their economic livelihoods and in a number of related areas. A typical statement made by one of the Ivorian farmers was this: “The media could help in different ways. For example, they could help us to organize ourselves, or think about development, they should also facilitate interactions between different farming professions to avoid internal conflicts.” Likewise, another Ivorian farmer asserted:

After the conflict, there were several land disputes here, many people lost their fields because of the conflict. When they returned home they found that the fields were confiscated and used by other farmers. The media could help us solve this problem by reporting about it.

A Malian informant indicated the media could help farmers improve their practices:

I heard some information on the radio that targeted the cattle breeders; the reporter explained what the cattle breeders should do to take good care of the animals. For example, he said that the breeders who have more than one-hundred head should try to sell some, and use that money to feed the rest of their cattle to have well-fed animals. Also, they advised the farmers about how to apply insecticides to prevent pest infestation in their crops.

Another Malian farmer stated: “The media need to tell us about the agricultural calendar, water management, and seed varieties and also about maintenance of motor-pumps. They all need to raise awareness of farmers about the necessity to maintain their tools.”

Many of the informants expressed that the media, particularly radio and television, could inform farmers about micro-financing systems and cereal banks, i.e., storage of dried cereals kept by farming communities for hunger prevention measures, and also help them with demonstrations from successful farming experiences. A Malian farmer discussed his expectations for radio and television:

Radios, [i.e., their spokespersons], can also talk to us about how to get access to loans. They should help us with marketing processes. They should also teach us about how to establish and manage a cereal bank or to deal with [the] hunger gap here, [i.e., the period between the dry season and the new harvest season]. On television, they can also show us success stories, successful agricultural projects, to show us how these people have been successful.

An Ivorian informant commented:

Farmers definitely need the media’s help. We need someone to talk to us, to educate us, to inform us. We don’t know anything. We did not go to school. They also need to help us to live together in peace.

All 10 informants indicated the media could assist in reconstruction and peacebuilding efforts after armed conflicts end. To this point, a Malian farmer stated: “The information they brought us was to come together to understand each other and to forget about what happened in the past and to move on.” Further, an Ivorian informant shared his expectations of the media: “The media should work to establish peace in our community.” On the same topic, another Malian interviewee said: “The media should help to raise awareness and encourage farmers to live together in peace.
and good understanding.” The informants’ statements on this theme, if taken together, emphasized the areas in which the media and other information sources could (and should) assist farmers to recover their economic livelihoods and live peacefully while rebuilding their communities after armed conflict ends.

Theme IV: The media should place more emphasis on issues regarding women, children, and youth

The farmers perceived the media should have more programs focused on issues affecting women as well as children and youth after armed conflict ceases. Most of the informants indicated women are key actors in their communities’ agricultural enterprises and the media should pay more attention to their needs, concerns, and issues. A Malian informant shared:

Women play an important role in our community today; they do all kinds of small activities. The media should talk about their roles in our society. They should emphasize that women should have their place in education, agriculture, and anywhere they can bring their contributions to the society.

Another Malian farmer agreed: “There are some programs on the national television and radio about women. They talk about women rights, about the right to [have] access to land, [and] micro-lending. They also talk about the role of women in peace talks.” Moreover, an Ivorian informant stated: “Women need education and information; radios, television, and newspapers can educate them, [and] they can tell them what is right to do.”

Regarding the issue of child labor and youth development after the cessation of armed conflicts in their regions, an Ivorian farmer stated:

Child labor is a big issue here. Many farmers do not admit its existence. But it is here. The radios must talk about it. Television should come and film the children working on the farm. If everybody knows about this issue, it will end. I don’t know why they don’t have programs about this issue, which compromise the future of many children. Radio, television, and other media should help us.

A Malian farmer shared: “The radio should raise awareness about child labor.” Further, another Ivorian informant perceived television as an important tool to eradicate child labor in his country. He said: “If the national television shows the people who use children to work on their farm, and the miseries the children suffer, they will be ashamed and they will give up this bad practice.”

All 10 informants perceived the media as an essential force for empowering women in the rural areas of Sub-Saharan Africa. They stressed that the media should develop more programs targeting women, especially rural women who experienced armed conflicts. Most also saw the media as important actors in improving the lives of rural children and youth.

Theme V: The media should provide programming in the farmers’ local languages

The farmers expressed their preference to receive information regarding agriculture and food production in their local languages. An Ivorian informant said: “Radio and television should talk to us in a language we understand.” Further, a Malian farmer commented: “They should give us the information in all of our national languages, such as Bambara, Tamacheq, Sonrais, Peulh, and Dogon.” Another Ivorian farmer questioned: “We have our own language, why do they use other
languages to inform us?” And a Malian informant explained: “I did not go to school to learn French. I want the media to use my native language.”

**Theme VI: Loss of trust in the media after cessation of the armed conflicts**

Several farmers expressed a loss of trust in the media after cessation of the armed conflicts. An RCI informant expressed this loss of trust with skepticism: “Every night, they give us information on television, but we do not know if this information is true or not? The media always say things that are not true, for reasons I ignore!” Another Ivorian informant explained:

Sometimes, I believe in television but not always. For me, television represents the government. It is the mouth and the eye of the government. But since it is about government, our country, we listen anyway. But they don’t always tell the truth and that is the problem.

A Malian informant noted his preference for receiving information from peer farmers because he did not trust the media: “I do not trust what they say on television or radio because they always tell us lies. I prefer receiving news from people I know.” In addition, an Ivorian key informant insisted the media was not fair and neutral in disseminating information. He explained:

The media in Côte d’Ivoire just serves the current government. They only talk about politics and make propaganda for the government. They don’t talk about agriculture or commodity prices. They avoid talking about coffee, cocoa, or rubber. They must change. Nobody in our village watches the national television.

**Conclusions**

Many of the farmers in Mali and RCI reside in remote rural areas severely affected by armed conflicts. However, the key informant farmers said they had rarely benefited from the media or other information sources in regard to recovering their economic livelihoods or much in the way of rebuilding their communities’ resilience after cessation of the armed conflicts. Although the media appeared interested in reporting on the violence and suffering associated with armed conflict while it occurred, the informants perceived the media’s attention dissipated quickly after conflict ceased. It was during the cessation of conflict that the farmers perceived news and information sources, including Extension/advisory services, could (and should) have helped them. The informants also saw a special role for the media and other information sources in regard to improving the conditions of rural women, children, and youth after the cessation of armed conflicts. The desire for news and information in their local languages was made clear by the informants. A lingering loss of trust in the media and other providers of information was also voiced by the study’s 10 key informant farmers.

The media can contribute to society, including to post-conflict reconstruction and resilience building in war-torn communities, if used effectively (Severin & Tankard, 2001; The World Bank, 2012). Further, Fortune and Bloh (2008) asserted the media could promote the management of citizens’ expectations, foment a sense of ownership in reconstruction processes, broaden community constituency, strengthen transparency, build credibility of and confidence in government, and improve the quality and coordination of information delivery in post-conflict areas. Findings of this study support their assertions.
**Recommendations for Practice**

The media and other information providers should develop news and informational programs focused on agriculture and food production, natural resources, and environmental issues targeting farmers who experienced armed conflicts. These programs should be provided in farmers’ local languages. Moreover, Extension agents, NGO personnel, and agricultural communicators (see Figure 1) should be encouraged to serve in post-conflict zones, especially in farming areas. However, their security needs must be addressed as well as transport and other logistics supporting service delivery.

Media professionals, Extension agents, and NGO personnel should be trained regarding media ethics, trauma mitigation, and crisis communication strategies if they intend to serve farmers recovering from the effects of armed conflict. Ringer (2014) argued such training could facilitate building trust in and reliance on outsiders who conduct post-conflict reconstruction and recovery programs in the rural communities of developing countries. Tertiary education institutions, especially those focused on agriculture in post-conflict regions, could play a vital role in developing curricula (Acker et al., 2001; Maiga, Cartmell, Edwards, & Robinson, 2013) stressing the competencies needed by their graduates to effectively serve these populations. The curricula should include topics such as crisis and post-conflict communication strategies, trauma and stress management practices, and Extension/rural advisory service deliverables suitable for the target audience.

The media and other information providers should also develop programs to address cross-cutting societal issues, including gender sensitivity, child trafficking, girls’ education, and income-generating activities targeting women and youth. Further, the media should conduct informational needs assessments to design programs of the most interest to their respective audiences (Macnamara, 2005). The agenda-setting model suggests the utility of the media, as perceived by an audience, stems from it reporting on issues related to their audiences’ interests and needs; this also includes individual agenda-setting effects (Severin & Tankard, 2001).

Bandura (2001) maintained the media have two essential roles: a) to inform, motivate, and guide their audiences and b) to influence their audiences to build strong communities. Bratiae (2006) argued that in times of conflict people’s information needs increase and they are more vulnerable to the media’s influence. Therefore, the media and other information sources should strive to build and maintain trust by conveying neutral and timely information to farmers and other rural citizens during and after armed conflict. Moreover, the governments of Mali and RCI and aid donors should also develop and implement holistic communication plans targeting rural populations who experience armed conflict. Policymakers are encouraged to consider this study’s findings to inform their planning and implementation of communications and rural Extension/advisory services targeting farmers who experience armed conflicts.

**Recommendations for Additional Research**

The voices of media professionals and other information providers also need to be heard on this phenomenon. To that end, research should be conducted on the views of media professionals, Extension/advisory agents, and other information providers regarding their roles in contributing to the economic recovery of farmers and the rebuilding of rural communities after the cessation of armed conflict. The results of such inquiries may be very helpful in
effectively serving the needs of agrarian societies found in many developing countries.

A comprehensive content analysis of the focal areas of media reporting and programming should be conducted in Sub-Saharan Africa (Macnamara, 2005), especially in Mali and in RCI. Such analysis could inform curriculum developers and communications educators about content to include in learning materials for the preparation of agricultural communicators (Maiga et al., 2013) likely to work in rural areas predisposed to experiencing armed conflict.

Implications and Discussion

The media shape our perceptions of armed conflicts (Bratiae & Schirch, 2007). The media often report more on armed conflicts than about peacebuilding or recovery efforts. “Several studies confirm that the effect of media on conflict is greater than the impact of the media on conflict prevention and peacebuilding” (Bratiae & Schirch, 2007, p. 8). However, Mogekwu (2009) argued the media could be useful in educating local people and increase their understanding of, participation in, and accountability for the decision-making processes impacting their community’s welfare. The AKIS/RD model (see Figure 1) encourages using the media to convey accurate information to rural communities to increase citizen motivation to conduct farming enterprises and recover their economic livelihoods after the cessation of armed conflict. The findings of this study support that position.

Unfortunately, of note, the rural communities of some countries with large Muslim populations, for example, parts of northern Mali, have become recruiting grounds for Jihadist terrorist groups, especially in regard to sourcing disaffected youth (Thornberry & Levy, 2011; United States Department of State, 2013). This reality is additional incentive to assist these communities in economic recovery and in restoring their vitality after experiencing armed conflicts (Kimenyi et al., 2014; Thornberry & Levy, 2011). Increasing the likelihood of their rural citizens being well-informed on a variety of topics, including agricultural and other livelihood-improving news and information, is an essential component of the larger effort to provide alternatives to disaffection, poverty, and further violence (SIDA & UNESCO, 2003; Thornberry & Levy, 2011).

The imperative of post-conflict response requires integrated and inclusive strategies to assist rural populations in recovering their economic livelihoods (Hamre & Sullivan, 2014). Therefore, understanding the views of farmers who endured armed conflict provides a basis on which to develop curricula and programs designed to integrate agricultural education, agricultural communications (Acker et al., 2001; Bertini & Glickman, 2009), Extension (Ringer, 2014), and leadership such that practitioners are prepared to work effectively in post-conflict regions (Shinn, Ford, Attaie, & Briers, 2012). Agricultural education and extension writ large, i.e., if viewed as transdisciplinary with global perspectives and responsibilities (Shinn, Wingenbach, Lindner, Briers, & Baker, 2009), has a salient role to play in the economic recovery of rural populations who experience armed conflict (Moore & Harder, 2015). Acker et al. (2001) concluded “the role of education in promoting democratic institutions will offer agricultural educators a leadership role should they choose to accept such a role” (p. 8). Further, Acker et al. (2001) warned “it is in our global collective interest to invest in activities that enhance political stability than have to spend much larger sums on peacekeeping and post-conflict democratization” (p. 8).
References


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Assessing the Prior Intercultural Experiences, Motivating Factors and Deterrents influencing 4-H Members’ Intention to Participate an International Experience Program

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Abstract

International experience programs (IEPs), such as International 4-H Youth Exchange (IFYE) and other programs employed by U.S Cooperative Extension Programs and international partners, can forge students’ development of a global perspective. The purpose of this study was to determine 4-H members’ prior intercultural experience, perceived motivating factors to participation in an IEP, perceived deterrents to participation in an IEP, and 4-H members’ intentions to participate in an IEP; and to explain 4-H members’ intention to participate in an IEP. Results of this study suggest that 4-H members’ intention to participate in an IEP is predicted by prior intercultural experiences. The effect of prior intercultural experiences is mediated by motivating factors, that is as motivating factors increase, intent increases while reducing the effect of prior intercultural experiences. A recommendation for practitioners to use to bridge the gap between 4-H members and other cultures is to provide varied intercultural experiences in or near the youths’ own community.

Keywords: Intercultural experiences, motivating factors, deterrents, international experience programs, 4-H
Introduction

As a result of globalization, local and global realities have become intertwined (Baker & LeTendre, 2005; Lechner & Boli, 2015). This is not to say that globalization directly and exclusively determines local circumstance, but rather the world society continues to integrate as individuals become more conscious of their participation in global networks and how those networks are influenced by global forces (Lechner & Boli, 2015). Even if national members do not recognize the larger structures in place, “their everyday life is nevertheless embedded in a global culture that transcends their village, town, or country, and that becomes part of individual and collective identities” (Lechner & Boli, 2015, p. 2).

Reflective of this common knowledge and collective identities across regions, is the emergence of international institutions in all areas of human activity (Lechner & Boli, 2015). While education may be viewed by some as being a national undertaking, Baker and LeTendre (2005) maintained that this image is largely inaccurate as “the demands and expectations for what school can and should do for a society have developed well beyond any particular national context” (in Lechner & Boli, 2015, p. 260). Along with economic, political and social institutions, education is undergoing intensive globalization (Baker & LeTendre, 2005; USDE, 2012). This occurrence has certain implications for land-grant universities; a global dynamic is now pertinent to contemporary agricultural education and Extension services (Akpan & Martin, 1996; Ludwig & McGirr, 2003).

An international component was first introduced into the mission for Cooperative Extension Service Program (CEP) by the Extension Committee on Organization and Policy in 1985. An international component was later included as part of the national goals established by the National Association of State Universities and Land-Grant Colleges (NASULGC) vision statement, in which international awareness was identified as an essential component of outreach and extension activities (NASULGC, 2000). International programming will continue to greatly impact Extension’s financial and human welfare mission (Etling, Reaman, & Sawi, 1993; Ludwig, 2001). As such, the connection between Extension’s mission and international agenda should be a consideration for Extension faculty (Etling et al., 1993; Ludwig, 1995). In order to move Extension’s international program forward, Extension educators should be aware of the organization’s role in the program and should actively incorporate an international perspective into their programming (Bates, 2006; Ludwig, 1995). In light of the reported benefits of international cooperation as a mechanism for developing global perspective (Arnold et al., 2014; Boyd et al., 2001; Odell, Williams, Lawrence, Gartin, & Smith, 2002; USDE, 2012), the U.S. CEP has worked to internationalize programming through partnerships with international organizations, overseas development projects, 4-H youth outbound exchange programs, and programs to host international guests (Ludwig & McGirr, 2003; Major & Miller, 2012).

International experience programs (IEPs), such as International 4-H Youth Exchange (IFYE) and other programs employed by U.S CEP and international partners, can forge students’ development of a global perspective early on (Boyd et al., 2001; Ingram, Smith-Hollins, & Radhakrishna, 2009; Odell et al., 2002). In prior studies, 4-H youth who participated in an IEP (a) demonstrated a developed global perspective and awareness of world issues, (b) reported higher levels of self-confidence and awareness of self and purpose, (c) were
more willing to immerse themselves in another culture, (d) continued to travel abroad following the initial IEP, and (e) were more likely to pursue a career with an international focus (Arnold, Davis, & Corliss, 2014; Boyd et al., 2001; Ingram et al., 2009; Odell et al., 2002). Moreover, enhancing young peoples’ global perspective may generate a ripple effect of international awareness and cooperation within an individual’s microsystem of interaction (Boyd et al., 2001; Olberding & Olberding, 2010). Boyd et al. (2001) found that 4-H IEP participants believed their participation increased family and friends global awareness. To further validate these findings, Boyd et al. (2001) surveyed family and friends of IE participants, which yielded similar findings; close persons of 4-H IEP participants agreed that the IEP was directly beneficial to the 4-H youth participant, as well as had a positive, indirect affect on them personally.

While a large amount of previous research (Boyd et al., 2001; Ingram et al., 2009; Odell et al., 2002; Olberding & Olberding, 2010) has focused on the positive outcomes of participation in IEPs, examination of the factors influencing whether or not 4-H youth will participate in available programs is lacking. As such, research to examine factors that motivate or deter IEP participation among 4-H youth is needed. Research of this nature can aid Extension personnel in program recruitment and facilitation of the IEP process.

**Deterrents and motivating factors.** Considering the limited amount of research specific to the 4-H youth population, the broad scope of the literature review included studies conducted with university students to guide the direction of this study. The major factors reported as deterrents to 4-H youths’ participation in IEPs include financial constraints and lack of information (Boyd et al., 2001). In a study conducted with college students, Relyea, Cocchiara, and Studdard (2008) identified perceptions of high risk as a major deterrent to students’ participation in IEPs. Regarding motivations, college students in prior studies identified opportunity to live in and experience another culture as motivation to participate in an IEP (Kim & Goldstein, 2005; Stroud, 2010). Similarly, Briers et al. (2010) found that students were more likely to participate in an IEP if they believed their experience would contribute positively to their overall life experience.

**Prior intercultural experiences.** 4-H youth members’ collective intercultural experiences (e.g. family vacation abroad, international humanitarian aid or church mission, taking an internationally-focused class, interaction with international exchange students) may help predict their intention to participate in an IEP (Salisbury, Umbach, Paulsen, & Pascarella, 2009; Stroud, 2010). In prior studies, the level of intercultural experience acquired by students was positively correlated with their intention to participate in an IEP (Ludwig, 2007; Salisbury et al., 2009). Similarly, Rust, Dhanaty, Furuto, and Kheiltash (2008) found that students who frequently socialized with ethnic or cultural groups different than their own had significantly higher odds of participating in an IEP. Further, Rust et al. (2008) maintained that students’ acquired intercultural experiences speak to their inclination to associate with people from different ethnic backgrounds and their interest in learning about other cultures, thus predicting the likelihood they will participate in an IEP. Goldstein and Kim (2006) found that intercultural variables such as prejudice, intercultural communication anxiety, and ethnocentrism played a critical role in determining which students would participate in an IEP.
According to Goldstein and Kim (2006), intercultural experiences diminish misperceptions or nervousness that deter students from participating in an IEP by improving their knowledge and skills of cultural diversity.

**Theoretical Framework**

Ajzen’s (1991) Theory of Planned Behavior (TPB) served as the theoretical framework for this study. As proposed by TPB, a behavioral action can be regulated by an individual’s plan to carry out that behavior. Intention is a formed outcome of an individual’s behavioral, normative, and control beliefs and their corresponding attitudes. Thus, modification to any of these three beliefs can alter intent and, ultimately, the resulting behavior (Ajzen, 1991; Azjen, 2006). As per TPB, 4-H youths’ participation in an IEP can be predicted by way of examining their intention to participate and the various factors that shape their intention.

Behavioral beliefs contribute to the general attitude held toward a particular behavior and refer to a person’s judgment of whether the outcomes of performing the behavior will be favorable or unfavorable. Behavior performance is improved if an individual recognizes the associated benefits to outweigh potential costs (Ajzen, 1991). In theory, 4-H youth with strong behavioral beliefs toward participating in an IEP would be those who perceive IEPs as a valuable or worthwhile experience, and they would be more likely to participate in an IEP. Oppositely, 4-H youth who believe intercultural experiences offer little benefit may form unfavorable attitudes toward IEPs and be unlikely to participate (Kim & Goldstein, 2005). Examining 4-H youths’ motivation to participate in an IEP by the extent to which they perceive select IEP outcomes as important can provide an assessment of a formed attitude and, therefore, predict their intention to participate.

Normative beliefs refer to a person’s awareness of others’ expectations regarding their execution of a behavior (Azjen, 1991). If an individual identifies a behavior as a desired norm, then he or she is more likely to perform the behavior (Azjen, 1991). As applied to 4-H youths’ participation in an IEP, TPB suggests that 4-H youths’ intention should be positively related to their perception of the expectations and degree of support from family, peers, and other people they consider important. Lack of support or expectations from family or peers can deter 4-H youth from participating.

Control beliefs refer to an person’s recognition of his or her capacity to perform a behavior (Azjen, 1991). A 4-H youth member who perceives a high degree of difficulty and limited control associated with an IEP would have lesser intention to participate. Moreover, this 4-H youth member would be expected to have a less than favorable attitude and low motivation toward participating in an IEP. Perceived lack of control in areas such as time and finances can negatively influence 4-H youths’ intention to participate in an IEP (Kim & Goldstein, 2005; Presley, Damron-Martinez, Zhang, 2010; Salisbury et al., 2009; Schnusenberg, de Jong, & Goel, 2012). Additional factors, such as anxiety toward interacting with other cultures or language barriers, can pose a threat to 4-H youths’ perception of control and deter their participation in an IEP (Kim & Goldstein, 2005). Conversely, 4-H youth who have high feelings of control over the IEP would likely have a more favorable attitude and greater intention to participate.

**Purpose and Objectives**

The purpose of this study was twofold: (1) to determine 4-H members’ prior intercultural experience, perceived
motivating factors to participation in an IEP, perceived deterrents to participation in an IEP, and 4-H members’ intentions to participate in an IEP; (2) to explain 4-H members’ intention to participate in an IEP.

Study objectives included the following:
1. Describe 4-H members’ prior intercultural experience, perceived motivations to participation in an IEP, perceived barriers to participation in an IEP, and 4-H members’ intentions to participate in an IEP.
2. Develop a model to explain 4-H members’ intention to participate in an IEP.

Methods

Population and Sample
The target population for this study consisted of 4-H members (N = 789) who attended a three-day summer conference at Louisiana State University. Instruments were collected from 628 of the 789 4-H members who attended, which yielded a response rate of 80%. The 4-H members were randomly assigned to two groups. The first group’s responses (n = 314) were used to develop the instrument used (Bunch, Cater, & Danjean, 2016). Data from group two (n = 314) were used for the purposes of this study. The majority of the respondents from group two were white (f = 248; 79%) females (f = 195; 62.1%) with an average age of 17 (SD = 14.06). The respondents’ grade level ranged from 8 to 12, with the most frequent grade levels of 10 (f = 65; 20.7%) and 11 (f = 64; 20.4%).

Instrumentation
To measure prior intercultural experience, participants were asked to indicate by checking all that apply concerning intercultural experiences they had participated in the past (Bunch, Lamm, Israel, & Edwards, 2013). A summed score was computed for this item. The 4-H International Experience Program Questionnaire was used to capture motivating factors for and deterrents to participation in an IEP (Bunch et al., 2016). The nine items of the Motivating Factors for IEP Participation subscale was used to measure perceived motivating factors of 4-H members’ to participate in an IEP. Responses were collected using a 4-point Likert-type scale (1 = not at all important, 2 = somewhat unimportant, 3 = somewhat important, and 4 = very important). A mean score was created to represents youths’ perceptions of motivating factors for IEP participation. The internal consistency reliability for this sub-scale was .92. The 12 items of the Deterrents to IEP Participation subscale were used to measure perceived barriers among 4-H members concerning participation in an IEP. Participants were asked to indicate their level of agreement with 12 items using a 4-point Likert-type scale (1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree). A mean score was created for this sub-scale. The internal consistency reliability was .89. One dichotomous item (yes or no) was used to measure the intentions of 4-H members to participate in an IEP (Danjean, Bunch, & Blackburn, 2015). Lastly, six demographic items were used to describe the sample.

Data Collection
The 4-H youth educators were given a data collection packet. The data collection packet included (a) a data collection protocol, (b) hard copy instruments, (c) participants right to refuse protocol, (d) instructions on returning instruments to the researchers, and (e) a distribution checklist. 4-H youth educators distributed instruments to the youth on the final evening of the three-day summer conference and returned the completed instruments to the researchers.
Data Analysis

Objective one was descriptive in nature. Nominal and ordinal data were described using frequencies and percentages, while interval level data were summarized with means and standard deviations. Objective two used structural equation modeling for the analysis. As part of the data screening process, z-scores were computed and scores greater than 3.29 (two-tailed; \( p < 0.001 \)) were deemed univariate outliers. Mahalanobis distance was used to identify multivariate outliers, with values greater than 16.266 (\( p < 0.001 \); Tabachnick & Fidell, 2007). The percentage of missing data as well as an independent samples t-test were used to determine the impact of missing data on the overall data set and to establish if those individuals with missing data differed significantly from other 4-H members in the sample. Since the dependent variable, intention to participate in an IEP, was dichotomous, maximum likelihood was used to estimate a logit model. Baron and Kenny’s (1986) four guidelines for testing the model were used: (1) prior intercultural experiences and intention to participate in an IEP should be significantly associated; (2) prior intercultural experiences and motivating factors for IEP participation should be significantly associated; (3) motivating factors for IEP participation should be significantly associated with intention to participate in an IEP while controlling for prior intercultural experiences; and (4) the association between prior intercultural experiences and intention to participate in an IEP in a model that includes motivating factors for IEP participation should be smaller than the association between prior intercultural experiences and intention to participate in an IEP in a model that does not include motivating factors for IEP participation. Additionally, the odds ratio illustrates the effect of one unit change in previous intercultural experiences, motivating factors for an IEP, and deterrents to an IEP on the associated dependent variables.

Findings

The purpose of objective one was to describe 4-H members’ prior intercultural experiences, perceived motivating factors to participation in an IEP, perceived deterrents to participation in an IEP, and 4-H members’ intentions to participate in an IEP. The most frequent engagements were going to an international restaurant (\( f = 120, 38.2\% \)), meeting with international exchange students (\( f = 108, 34.4\% \)), and international guest speaker in class (\( f = 104, 33.1\% \); see Table 1). The mean score for motivating factors was 3.14 (\( SD = .67 \)) and the mean score for deterrents was 2.02 (\( SD = .71 \); see Table 2). As for 4-H members’ intentions to participate in an IEP, 67.2 % (\( f = 211 \)) indicated they had intentions to participate in an IEP (see Table 3).
Table 1
4-H Members’ Prior Intercultural Experiences

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Going to an international restaurant</td>
<td>314</td>
<td>120</td>
<td>38.2</td>
</tr>
<tr>
<td>Meeting with international exchange students</td>
<td>314</td>
<td>108</td>
<td>34.4</td>
</tr>
<tr>
<td>International guest speaker in class</td>
<td>314</td>
<td>104</td>
<td>33.1</td>
</tr>
<tr>
<td>Attending an international festival</td>
<td>314</td>
<td>88</td>
<td>28.0</td>
</tr>
<tr>
<td>Traveling individually or with family/friends to another country</td>
<td>314</td>
<td>80</td>
<td>25.5</td>
</tr>
<tr>
<td>Taking a class focused on international issues</td>
<td>314</td>
<td>67</td>
<td>21.3</td>
</tr>
<tr>
<td>Participating in a short-term study abroad program (1-6 weeks)</td>
<td>314</td>
<td>43</td>
<td>13.7</td>
</tr>
<tr>
<td>International study tour</td>
<td>314</td>
<td>42</td>
<td>13.4</td>
</tr>
<tr>
<td>Church mission trip to another country</td>
<td>314</td>
<td>39</td>
<td>12.4</td>
</tr>
<tr>
<td>Hosting an international visitor in your house</td>
<td>314</td>
<td>36</td>
<td>11.5</td>
</tr>
<tr>
<td>Participating in a semester-long study abroad</td>
<td>314</td>
<td>28</td>
<td>8.9</td>
</tr>
</tbody>
</table>

*Note. 4-H members could select multiple responses.*

Table 2
4-H Members’ Perceived Motivating Factors and Deterrents to Participation in an International Experience Program

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivating factors</td>
<td>3.14</td>
<td>.67</td>
</tr>
<tr>
<td>Deterrents</td>
<td>2.02</td>
<td>.71</td>
</tr>
</tbody>
</table>

*Note. Real Limits. Motivating factors – 1.00 to 1.49 = Not at all important, 1.50 to 2.49 = Somewhat unimportant, 2.50 to 3.49 = Somewhat important, 3.50 to 4.00 = Very important. Deterrents – 1.00 to 1.49 = Strongly disagree, 1.50 to 2.49 = Disagree; 2.50 to 3.49 = Agree; 3.50 to 4.00 = Strongly Agree*

Table 3
4-H Members’ Perceived Intentions to Participate in an International Experience Program

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention to participate in an international experience</td>
<td>314</td>
<td>211</td>
<td>67.2</td>
</tr>
</tbody>
</table>

The purpose of objective two was to develop a model to explain 4-H members’ intention to participate in an IEP. Data (N = 314) were evaluated for influential outliers, univariate and multivariate. No univariate outliers were identified. One multivariate outlier was discovered, with one student having a value exceeding the critical chi square value. This student’s data was deleted from the succeeding analysis, resulting in 313 participants remaining for analysis. Observations met the assumption of independence. Analysis of missing data revealed that only 2.6% of data were
missing, and additional testing indicated there was no difference between those 4-H members with missing data and those with complete data. Full information maximum likelihood was used to handle missing data.

Maximum likelihood was used to fit a logit model. Inspection of the total model ($\beta = 0.259; \ SE = 0.063; \ z = 4.112; \ p = .000$) and total indirect model ($\beta = 0.109; \ SE = 0.029; \ z = 3.704; \ p = .000$) revealed that both models were significant. Examination of each path in the model revealed that all paths were significant (see Figure 1). These results support Baron and Kenny’s (1986) guidelines requiring significant paths from the independent variable to the dependent variable and to the mediating variable and from the mediating variable to the dependent variable while controlling for the independent variable. Examination of a model that included a single path from prior intercultural experiences to intention to participate in an IEP returned a coefficient of 0.178, while the same path in the current model has a coefficient of 0.150. Thus, Baron and Kenny’s requirement for a smaller coefficient in the independent variable/dependent variable chain for the full model was met.

Holding the other independent variables constant, a one unit increase in PIE improves the odds of intending to participate in an IEP by 1.16 (or 16%). A one unit increase in the motivating factors score improves the odds of higher IEP intentions by 5.01 (or 401%). Perceived deterrents to participation in an IEP have a moderating effect on both motivating factors for participation and intention to participate in an IEP by reducing each as perceived deterrents increase. Intention to participate in an IEP is reduced by 6.9% for every one unit increase in perceived deterrents to an IEP ($OR = 0.169$).
Conclusions

No prior intercultural experience had been engaged in by more than 40% of the 4-H participants. Of the experiences, those most frequently engaged in by 4-H youth members were going to an international restaurant, meeting with an international exchange student, and having an international guest speaker in class. Slightly more than two thirds of the 4-H participants expressed personal interest in participating in an IEP as part of their 4-H program. This is consistent with prior studies conducted with college students (Bunch, Blackburn, Danjean, Stair, & Blanchard, 2015; Danjean et al., 2015), indicating that 4-H youth members, likewise, intend to participate in an IEP. Motivating factors were somewhat important to the 4-H participants when determining whether or not they would participate in an IEP. As for deterrents, the 4-H participants did not perceive many deterrents to participating in an IEP.

Four-H members’ intention to participate in an IEP is predicted by prior intercultural experiences. Within the TPB framework, prior intercultural experiences represent intensity of participation that affects behavioral beliefs. The effect of prior intercultural experiences is mediated by motivating factors, that is as motivating factors increase, intent increases while reducing the effect of prior intercultural experiences. Since the effect of prior intercultural experiences is not eliminated, the effect can be described as partial mediation. Prior intercultural experiences still play a role in explaining 4-H members’ intention to participate in an IEP. Additionally, deterrents exhibit a moderating effect by decreasing both motivating factors for and intention to participate.
participate in an IEP as perceived deterrents increase. The effects of motivating factors and deterrents may be connected to Azjen’s (1991) theory because recognizing the benefits may compensate for possible constraints thus increasing the likelihood of an individual performing a behavior.

**Recommendations**

Perhaps the simplest way for practitioners to bridge the gap between 4-H members and other cultures is to provide varied intercultural experiences in or near the youths’ own community. When designing interventions, practitioners should choose small, achievable and affordable activities to give 4-H members a sample of the opportunities offered by an IEP. Holding meetings at different international restaurants where youth can sample foods from other cultures is one of the most accessible options. Inviting guest speakers who have international ties or experiences is another manageable option. Additional ideas include field trips to nearby festivals that celebrate an international culture, inviting visiting international students to meet with groups of youth, hosting a short-term exchange that allows international youth to live with 4-H members, or working with a local teacher to weave an international viewpoint into a high school course.

While 4-H members perceived IEPs as somewhat important and do not perceive huge barriers to IEPs, the vast majority of youth have never traveled beyond the borders of the United States. Two strategies that practitioners may use include personally recruiting 4-H youth to participate in an IEP and promoting the benefits of an IEP to youth, guardians, and other significant adult role models. Because prior intercultural experiences do not matter as much when motivating factors are present, focus should be placed on increasing motivating factors and decreasing deterrents. Part of the success of this strategy is understanding what motivates and deters individual youth. Tools like the 4-H International Experiences Questionnaire (Bunch et al., 2016) can help identify these factors. Additionally, when educators and administrators work together to develop IEPs, they will be better able to meet 4-H members’ perceived needs and to provide opportunities for youth to be a part of an IEP.

While many of the 4-H members in this study perceive an IEP as somewhat important and do not see many deterrents, the trend of the data suggests that as perceived barriers increase the intention to participate in an IEP decreases. Future research should focus on developing a deeper understanding of the deterrents to IEP participation that youth face. Potential areas to explore include how youth perceive IEP participation impacting both their present (e.g., schoolwork) and future (e.g., career plans) circumstances. Another question to consider is whether youth view an IEP as just another activity or as an opportunity for personal growth.

As more 4-H youth become involved in IEPs, the TPB offers a theoretical framework for exploring their behavioral beliefs and attitudes toward IEPs. Additionally the influence of guardians, educators, and other significant adults, in the form of normative beliefs, is another area of needed research. In order to conduct this research, work is needed in the field to develop instruments to validly and reliably measure these constructs. Finally, consideration should be given to research design. While cross-sectional studies provide a point-in-time description of beliefs, attitudes, and intentions, longitudinal studies are needed to more fully understand how all of these factors contribute to behavior, that is actually participating in an IEP.
References


Comparing Critical Thinking Dispositions of Students Enrolled In a College Level Global Seminar Course

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Abstract

In recent years, the discussion concerning critical thinking and problem solving among college graduates and new industry hires has increased dramatically. A plethora of research has discovered that college graduates entering the workforce are lacking in their ability to problem solve and think critically. These attributes have been called some of the most necessary for an individuals’ success in the 21st century. The purpose of this study was to identify the variance in critical thinking disposition of students (undergraduate and graduate) enrolled in an International course (Global Seminar) using the UF-EMI Critical Thinking Disposition Assessment. Students representing the US, Italy, and Austria participated in this study (N=43). Results indicate that the entire population fell within the typical ranges for UF-EMI scores for all three constructs (Engagement, Cognitive Maturity, and Innovativeness) but would be classified as weak overall. There was however a slight difference in mean scores when comparing the US and European students. American students scored higher than the Italian students for all three constructs and higher than the Austrian students for the Engagement and Innovativeness constructs. These results warrant further research to determine how course content, teaching methodologies, and experiential learning opportunities impact college students’ critical thinking dispositions.

Keywords: leadership, critical thinking, international education, agriculture
Introduction

In recent years the discussion concerning critical thinking – a reasoned, purposive, and introspective approach to solving problems (Bisdorf-Rhoades, Ricketts, Irani, Lundy, & Telg, 2005) and agricultural education has increased (Bolton, Duncan, Fuhrman, & Flanders, 2015; Cavus & Uzunboylu, 2009; Myers & Dyer, 2006; Ricketts, Williams, & Priest, 2009; Stedman & Andenoro, 2007). Although a recent topic of discussion, the formal educational philosophy of critical thinking in the United States stems from work that John Dewey performed in 1933. Dewey believed that there were attributes necessary for an individual to experience reflective actions (critical thinking): open mindedness, responsibility, and whole heartedness. These attributes of critical thinking have been called some of the most necessary for an individuals’ success in the 21st century (Huitt, 1998).

New industry hires are expected to have polished leadership and teamwork skills, initiative, interpersonal and social networking skills, and problem solving skills (Employers, 2010). These skills are often referred to in the literature as “soft skills”. “Employers, colleges, and universities have become more cognizant of the role that such so-called “soft” or non-cognitive skills play in successful performance in both academic and nonacademic arenas” (Dwyer, Millett, & Payne, 2006, p. 18). According to Brungardt (2011) numerous studies between 1986 and 2006 provided evidence that soft skills would be critical to future workplace effectiveness.

A study completed in 2008 by the Center for Agribusiness and Economic Development at the University of Georgia showed that job candidates (undergraduates seeking positions) were overly focused on technical skills and not soft skills such as communication and leadership. Furthermore, the study found that job candidates needed more emphasis on critical thinking, problem solving, and analytical skills. A National Association of Public and Land-grant Universities (APLU) study of seven soft-skill clusters consisting of communication, decision-making/problem solving, self-management, teamwork, professionalism, experiences, and leadership skills was conducted to determine which soft skills employers seek in new college graduates (Crawford, Lang, Fink, Dalton, & Fielitz, 2011). Of these seven clusters, the top two ranked by employers were decision-making/problem solving and communication (Crawford et al., 2011). The decision-making/problem solving cluster included recognizing and analyzing problems, taking effective and appropriate actions, and realizing the effects of those actions (Crawford et al., 2011). As evidenced in the 2011 APLU study there are a cadre of items related to “soft-skills” that new hires should be capable of performing in the work place.

In 1988 the Committee on Agricultural Education and Secondary Schools (National Research Council, 1988) reported that reconfiguring the agricultural education program was necessary if graduates were to be effective in further schooling for the workforce. Additionally, a key point of the committee’s report concerned their conclusion that adequate opportunities should be presented to students for practicing critical thinking with increasing variety and regularity, both in and outside of the classroom. Little research has been performed concerning critical thinking dispositions of higher education students – both domestic and international (Ricketts, Williams, & Priest, 2009). This study looks to predict and analyze the critical thinking dispositions of students enrolled in a higher education course in a cohort with international universities.
Based on these conclusions we look to further define critical thinking as it pertains both to agricultural education within the classroom and the objectives of this research. Critical thinking usually involves the student’s ability to do a few or most of the following:

“identify central issues and assumptions in an argument, recognize important relationships, make correct inferences from data, deduce conclusions from information or data provided, interpret whether conclusions are warranted on the basis of the data given, and evaluate evidence or authority” (Pascarella & Terenzni, 1991, p. 118).

Additionally, Glaser (1941) believed critical thinking to be the “attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one’s experiences; knowledge of the methods of logical inquiry and reasoning; and some skill in applying these methods” (p. 5-6). Halpern (1989) delineated this subject as ‘thinking that is purposeful, reasoned, and goal directed” (p. 5). Paul (1995) defined critical thinking as “a unique and purposeful thinking in which the thinker systematically and habitually imposes criteria and intellectual standards upon the thinking, taking charge of the construction of thinking, guiding the construction of the thinking according to [critical thinking] standards, and assessing the effectiveness of the thinking according to the purpose, criteria, and the standards [of thinking]” (p. 21).

Although several critical thinking studies (Bolton, Duncan, Fuhrman, & Flanders, 2015; Cano, 1993; Friedel, et al., 2008; Ricketts, Williams, & Priest, 2009; Rollins, 1990; Rudd, Baker & Hoover, 2000) have been conducted in previous years, limited research regarding critical thinking and agriculture students in higher education have been identified, especially in the fields of agricultural education and leadership development. This study seeks to identify and further explain critical thinking and its related skills in students attending higher education institutions and participating in an international agriculture Global Seminar course.

The Global Seminar was developed in 1997 out of the idea that global sustainability in agriculture needs an interdisciplinary, inter-cultural, and innovative approach. Soon the idea was to form a Global classroom using eLearning technology; to bring students from different parts of the world together as the main actors – not as passive recipients of lectures but as stakeholders of a future which will rely on their decisions. To simulate reality it was decided to use case studies and not theoretical disciplines.

One key element of the practical implementation of the Global Seminar is to understand its specific learning cycle which has its theoretical roots in Kolb’s experiential learning cycle (Kolb, 1984). Figure 1 gives a practical example how the experiential learning cycle is implemented in the Global Seminar. Videoconferences are embedded into a three to four week “learning cycle” which begins when each teacher in the consortium presents the case study to their local students by a conventional face-to-face lecture.
In Step one a responsible team of students for the specific case study is defined. The team is informed about their specific roles and tasks and over the next weeks they have to do self-directed learning.

In Step two all students are engaged in self-directed learning; they gather information and share it with their local classmates in the respective e-Learning platform. Additionally, there is an opportunity for students to engage in small empirical fieldwork such as qualitative interviews with decision makers from the private sector; and develop questionnaires and/or make quantitative interviews.

In Step three students from all universities in the Global Seminar cluster discuss various aspects of the actual case study via virtual chat sessions. Due to the high number of students several chat rooms are formed with a maximum of six students per room. The discussion is moderated by providing guiding questions related to the case study. In Step 4 the synchronous videoconference takes place bringing together all students from the university cluster. Each videoconference follows a specific protocol that includes time for debriefing and reflection. Finally, Step 5 requires students to write a reflective essay about their learning experience.

**Theoretical Framework**

The theoretical framework of this study originates from Peter Facione (1990) and his results from conducting a national Delphi study of experts to define critical thinking. His definition concludes that “we understand critical thinking to be purposeful, self-regulatory judgment, which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based” (p. 2).

From this study the critical thinking skills identified was Interpretation, Explanation, Analysis, Evaluation, Inference, and Self-regulation. In addition, Facione (1990) refers to his identification of critical thinking dispositions, or approaches to life that increase an individual’s likelihood to participate in critical thinking. These dispositions include analyticity, self-confidence, inquisitiveness, maturity, open mindedness, systematicity, and truth-seeking. Further characteristics are described by Facione in 1998:

‘Inquisitiveness with regard to a wide range of ideas, concern to become and remain well-informed, alertness to opportunities to use critical thinking, trust in the process
of reasoned inquiry, self-confidence in one’s own abilities to reason, open-mindedness regarding divergent world views, flexibility in considering alternatives and opinions, understanding the opinions of other people, fair-mindedness in appraising reasoning, honesty in facing one’s own biases, prejudices, stereotypes, or egocentric tendencies, prudence in suspending, making, or altering judgments, willingness to reconsider and revise views where honest reflection suggests that change is warranted” (p.8).

Dispositions develop over time, are influenced by an individual’s surrounding environment, and are strong precursors of critical thinking. Even though one’s disposition can be changed they often change slowly and over an extended period of time (Irani, et al., 2007).

Following factor analyses of Facione’s dispositions a critical thinking research group from four universities determined that the aforementioned three factors of cognitive maturity, engagement, and innovativeness were more comprehensive and explanatory of critical thinking dispositions (Irani, et al., 2007). Thus, faculty at the University of Florida set out to develop an instrument that more accurately measured critical thinking disposition. The resulting instrument, the EMI was developed and submitted to pilot testing in 2003 (Irani, et al., 2007).

Engagement, cognitive maturity, and innovativeness are usually measured via an instrument referred to as the University of Florida Engagement, Cognitive Maturity, Innovativeness (UF-EMI): Critical Thinking Disposition Assessment (Ricketts, Williams, & Priest, 2009). According to Ricketts and Rudd (2005):

“The Engagement disposition measured students’ predisposition to look for opportunities to use reasoning; anticipating situations that require reasoning; and confidence in reasoning ability. The Innovativeness disposition measured students’ predisposition to be intellectually curious and wanting to know the truth. The Cognitive Maturity (Maturity) disposition measured students’ awareness of the complexity of real problems; being open to other points of view; and being aware of their own and others’ biases and predispositions” (p. 33).

**Purpose and Objectives**

The purpose of this study was to identify the variance in critical thinking dispositions of students (undergraduate and graduate) enrolled in an international course (Global Seminar). The specific objectives guided this research project:

1. Identify specific demographic characteristics of the students enrolled in the Global Seminar;
2. Identify critical thinking dispositions of students enrolled in the Global Seminar using the UF-EMI: Critical Thinking Disposition Assessment; and
3. Compare critical thinking dispositions between US and European students enrolled in the Global Seminar using the UF-EMI: Critical Thinking Disposition Assessment.

**Methods**

This descriptive post-test only study was conducted with all students (N=46) enrolled in the Global Seminar Cohort 6. Students from four institutions (two USA; one Italian; one Austrian) participated in the 15 week long course that focused on four case studies that were linked to agriculture and the environment.
Each student voluntarily completed the UF-EMI that utilizes the California Critical Thinking Disposition Inventory CCTDI cutoff points developed by Facione to determine a strong, medium, and weak disposition to critical thinking along with related demographic (age, gender, area of residents, current degree program and major, and country of residency) questions on their respective campuses. Participants were contacted via email at the end of the semester and asked to complete the on-line UF-EMI instrument. Follow-up email notifications were used following Dillman’s (2007) Tailored Design Method. A total of 43 students completed the instrument resulting in a 94% response rate.

The post-test only version of the UF-EMI contains 26 items, each relating to one of the three constructs: engagement, cognitive maturity, and innovativeness. Reliability has been calculated on each of the constructs and ranges from: \( \alpha = 0.79 \) to 0.93) and validity was determined to be strong due to the historical use of this instrument with college students. The instrument asks the participant to select a level of agreement with the statement after completing the course. Level of agreement responses are as follows: SD = strongly disagree, D = disagree, U = uncertain, A = agree, SA = strongly agree.

Data was analyzed with Excel and SPSS. Analysis and findings will involve aggregate data which does not allow the researcher or any consumer of the research to be able to identify participants responses to any of the questions or survey items.

**Results**

Students represented the following majors: agricultural education, agricultural leadership, agronomy, food science, environmental resource sciences, environmental health science, agrarian sciences and technologies, International agriculture and business, agrarian biotechnology, agricultural economics, and forestry. As evidenced in Table 1 80% of the respondents fall between the ages of 21-25. Gender is nearly equally represented and 47% of the respondents reported being from rural residency. Lastly, nearly 1/3 of the respondents are from the US and another 1/3 from Italy.
Table 1.  
**Demographic Characteristics of Student Participants**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-25</td>
<td>34</td>
<td>79</td>
</tr>
<tr>
<td>26-30</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>31+</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>20</td>
<td>46</td>
</tr>
<tr>
<td>Male</td>
<td>23</td>
<td>54</td>
</tr>
<tr>
<td><strong>Academic Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td>26</td>
<td>60</td>
</tr>
<tr>
<td>Graduate</td>
<td>17</td>
<td>40</td>
</tr>
<tr>
<td><strong>Area of Residence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>12</td>
<td>28</td>
</tr>
<tr>
<td>Suburban</td>
<td>11</td>
<td>26</td>
</tr>
<tr>
<td>Rural</td>
<td>20</td>
<td>46</td>
</tr>
<tr>
<td><strong>Country of Residency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>16</td>
<td>37</td>
</tr>
<tr>
<td>Italy</td>
<td>13</td>
<td>30</td>
</tr>
<tr>
<td>Austria</td>
<td>14</td>
<td>23</td>
</tr>
</tbody>
</table>

*Note. Total N=45.*

Objective two: Critical Thinking Disposition of All Students Enrolled in the Global Seminar.

A two-sample t-Test was conducted using the summative scores of the undergraduate (n=26) and graduate students (n=17) to determine if a significant difference existed. Results indicate there was no significant difference between undergraduate and graduate students (Table 2). Therefore, it was decided that critical thinking disposition scores would not be separated by academic level.

Table 2.  
**Comparison of undergraduate and graduate summative mean scores**

<table>
<thead>
<tr>
<th>Academic level</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>26</td>
<td>101.61</td>
<td>14.27</td>
<td>2.01</td>
<td>.33</td>
</tr>
<tr>
<td>Graduate</td>
<td>17</td>
<td>106.67</td>
<td>9.20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For all respondents (N=43) the mean total score of the UF-EMI was calculated as 103. Mean scores ranged from a low of 56 to a high of 124 (Table 3). The UF-EMI utilizes the CCTDI cutoff points to determine a strong, medium, and weak disposition to critical thinking. A reported score of 136.95 or higher on the UF-EMI is considered a strong disposition while a score of 135.30 to 110.55 score is moderate, and a score of 108.90 or less constitutes a weak disposition to critical thinking.
Table 3.
**Critical Think Disposition of All Students**

<table>
<thead>
<tr>
<th>Construct</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>43</td>
<td>56</td>
<td>124</td>
<td>103.00</td>
<td>12.95</td>
</tr>
<tr>
<td>Engage</td>
<td>43</td>
<td>22</td>
<td>53</td>
<td>42.33</td>
<td>6.21</td>
</tr>
<tr>
<td>Maturity</td>
<td>43</td>
<td>18</td>
<td>40</td>
<td>31.07</td>
<td>4.05</td>
</tr>
<tr>
<td>Innovate</td>
<td>43</td>
<td>13</td>
<td>35</td>
<td>28.69</td>
<td>4.16</td>
</tr>
</tbody>
</table>

Objective three: A comparison of critical thinking dispositions between US and European students.

As presented in Table 4 the US students’ critical thinking dispositions are higher than their European counterparts for the engagement and innovative constructs. More specifically, the largest gap is between US and Italian students for the engagement construct.

Table 4.
**Critical Thinking Dispositions of US and European Students**

<table>
<thead>
<tr>
<th>Country</th>
<th>ESum</th>
<th>MSum</th>
<th>ISum</th>
<th>TSum</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>46.00</td>
<td>31.73</td>
<td>30.93</td>
<td>108.20</td>
</tr>
<tr>
<td>N</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>SD</td>
<td>3.88</td>
<td>2.31</td>
<td>2.48</td>
<td>7.63</td>
</tr>
<tr>
<td>Italy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>39.85</td>
<td>29.61</td>
<td>26.38</td>
<td>94.83</td>
</tr>
<tr>
<td>N</td>
<td>14</td>
<td>13</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>SD</td>
<td>5.31</td>
<td>3.04</td>
<td>2.90</td>
<td>9.77</td>
</tr>
<tr>
<td>Austria</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>43.16</td>
<td>32.08</td>
<td>28.33</td>
<td>103.58</td>
</tr>
<tr>
<td>N</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>SD</td>
<td>7.70</td>
<td>6.02</td>
<td>5.36</td>
<td>18.40</td>
</tr>
</tbody>
</table>

*Note. ESum = engage; MSum = maturity; ISum = innovative; and TSum = total of all respondents.*

**Conclusions and Recommendations**

The students in this study represented a cadre of college majors ranging from agricultural education, food science, environmental resource sciences, and environmental health science, to agrarian biotechnology and forestry. Nearly eighty-percent of the respondents fell between the ages of 21-25 and 60% reported being an undergraduate. Gender was nearly equal; 37% of the respondents were from the US and 30% from Italy. As previously mentioned a UF-EMI score of 136.95 or higher is considered a strong disposition while a score ranging from 135.30 – 110.55 is moderate. A score less than 108.9 constitutes a weak disposition to critical thinking.

With that said the entire group (N=45) of college students in this study would be classified as weak overall and data analysis found no significant difference between undergraduate and graduate students’ summative mean scores. Previous studies discovered similar results when students’ critical thinking dispositions were determined by one or more of the following assessments: California Critical Thinking Disposition Inventory (CCTDI) and the
Cornell Critical Thinking Test (Baker, Hoover & Rudd, 2000; Bataineh & Zghoul, 2006). It must be noted though that a researcher in this study who has extensive experience with critical thinking research at both secondary and post-secondary levels has never witnessed critical thinking disposition values at this low a level. This concern warrants further research to determine which factors (courses completed, majors, experiential learning opportunities, internships, etc.) enhance one’s critical thinking dispositions during their tenure in college.

United States students (both undergraduate and graduate) scored higher on all three critical thinking dispositions when compared to the Italian students, and scored above the Austrian students on the Engagement and Innovativeness dispositions. According to Irani, et al., (2007) typical ranges for EMI scores fall between 28-55 (Engagement), 16-40 (Cognitive Maturity), and 15-35 (Innovativeness). Therefore, all students in this study fell within the typical EMI mean score ranges for all three dispositions, but the maximum mean scores for each population group were below the “typical” maximum score for each disposition. This is especially evident with the Italian students’ Cognitive Maturity mean score of 29.61. According to Ricketts and Rudd (2005) “The Cognitive Maturity (Maturity) disposition measures students’ awareness of the complexity of real problems; being open to other points of view; and being aware of their own and others’ biases and predispositions” (p. 33).

The nature of this Global Seminar course challenges students to consider and understand differing positions and points of view regarding controversial topics in agriculture and the environment. Due to the size of this study the results can’t be generalized beyond the population; however, the results do inform practice and warrant further inquiry to determine if specific cultures have an impact on the Cognitive Maturity disposition. Additionally, the researchers need to identify the extent to which stages two through four of Figure 1 are impacting the students’ critical thinking dispositions by conducting a retrospective-post design study. Finally, the fact that the European students are not native English speakers must be considered. There could be a bias in answers to the UF-EMI statements due to possible challenges in understanding questions correctly. It is not possible at this stage of research to indicate how strong the influence of “language bias” could be, but based on the researchers’ observations during the videoconference discussions the level of English from the Austrian students was better in general compared to the Italian students. The Austrian students were more fluent in expressing their thoughts in comparison to the Italian students and conducted their presentations without reading directly from their notes; Italian students follow their notes closely during video conferences and don’t freely share their thoughts and observations.

In addition to the “language bias” the lower levels of critical thinking dispositions may be due to cultural differences and/or differences in the education systems between the US and Europe. One of the European researchers in this study taught courses at an American university and experienced first-hand active and vivid engagement of US students during classroom discussions. The US students seemed to be more at ease to express their opinions freely in a classroom situation as observed by the European researcher. The US students classroom engagement may be due to the way children in the US are raised – being encouraged early on by their parents to talk in front of adults and/or a reflection
of the active classroom environment in US public schools – which uses less conventional one-way teaching and more didactic formats which encourage discussion and free exchange of ideas compared to the European Union. Further investigation about the dominant didactic forms of teaching at the participating universities would be necessary to clarify these assumptions.

The Engagement disposition measures students’ predisposition to look for opportunities to use reasoning; anticipating situations that require reasoning; and confidence in reasoning ability. As previously mentioned all three groups scored within the acceptable range but the Italian students mean scores were below that of the US and Austrian students. One may conclude that all students in this study lack the confidence in their reasoning ability; therefore, they may not look for opportunities to challenge or reason with students from other cultures that think differently and hold differing opinions of controversial issues such as those presented in this course. Lastly, even though the US students’ disposition scores were higher than the Italian students in all three categories and higher that the Austrian students in two of the three categories their results were below the “typical” maximum score for each disposition – a somber fact that must be addressed by faculty in this Global Seminar cohort.

If university faculty is to truly train future leaders they must determine the extent at which our pedagogical processes and university experiences are preparing students to think more critically; be intellectually curious, aware of the complexity of real problems, and open to others’ biases and predispositions. Furthermore, teaching faculty need to be more intentional in assisting students in strengthening their critical thinking dispositions. Research has proven that industry leaders are expecting institutions of higher education to better prepare new hires to face the many challenges of a global economy that brings forth uncertainty and change (Crawford et al., 2011).

References


Cano, J. (1993). An assessment of the level of cognitive performance and critical thinking ability of selected


In Search of an Alternative Agricultural Extension Strategy:  
An Action Research on Off-season Vegetable Production in Nepal  

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Abstract  
Agricultural extension services in Nepal are in serious need of revival. An extension approach that brings agricultural stakeholders together and fosters co-learning among them is paramount for agricultural development. This study, conducted in 2013 in Hamsapur, Nepal, aims to assess the current agricultural extension services and search for an alternative extension strategy for speedy agricultural development. Specifically, the study seeks to examine the current agricultural production patterns; assess farmers’ perceptions of the participatory action research (PAR) approach; and identify barriers for adoption of new agricultural technologies by farmers. Personal interviews and observations were employed for collecting qualitative and quantitative data. Ninety-two farmers participated in the study. Farmers, including women and youths, found off-season tomato production beneficial to them. Marketing of vegetables and lack of irrigation, education and knowledge are problems facing farmers. Farmers are optimistic about increasing farm productivity by adopting new and improved technologies. The PAR approach appears to be effective in helping smallholders when non-governmental organizations, farmers and educational institutions work together. Agricultural programs would likely succeed if there were provision of input such as seeds, fertilizers and farmer-to-farmer extension, and if technologies were market-driven and compatible with target communities.  

Keywords: off-season vegetable production, participatory action research, agricultural extension services, Nepal
Introduction

Agricultural extension services in Nepal are in need of revival. In a traditional extension system, extension agents are in control and command of extension services, farmers and other stakeholders have little to say, and technology transfer dominates the mandates. Research, education, farmers and extension rarely connect to one another. This type of extension service cannot adequately address the dynamism of the agricultural system, including emerging challenges, and therefore cannot cash in on the opportunities for and sustain agricultural growth. Scholars suggest the need for dynamic extension services and strong linkages and complementarities between research, extension, education and farmers (Rivera, Blum, & Sulaiman, 2009), but little study has been done in this area, especially pertaining to smallholders.

Scholars advise reversal of the traditional extension approach in favor of pluralistic, participatory and demand-driven forms (Qamar, 2005; Swanson & Samy, 2002). Suvedi and Kaplowitz (2016) underscore that today extension services need extension workers who are competent in both technical areas of their field as well as in process skills. These new lines of thought about extension services posit that beneficiaries’ participation in the extension process is paramount for needs-based, profitable and sustainable farming. Farmers have tremendous knowledge of their farming systems, so their participation in extension is crucial. When researchers, educators and extensionists work together with farmers, this brings synergy to their work. McTaggart (1997) argued that the development process will be effective and sustaining when researchers and clients engage in joint planning, implementation, systematic observation, reflection and co-learning. This is called participatory action research (PAR). PAR offers necessary information to address societal problems. This study employs PAR to identify an alternative approach for extension services in rural Nepal.

Nepal remains one of the poorest countries globally, with the gross national income (GNI) per capita estimated to be $730 (World Bank, 2016). About 80% of the population in Nepal resides in rural areas and practices subsistence agriculture, and poverty and hunger are rampant (IFAD, 2013). Addressing needs of the rural farmers is essential to address poverty and household food insecurity. Anecdotal evidence shows that few farmers who have tried off-season vegetable production have found it to be helpful in earning additional income and price of off-season tomatoes was four times the seasonal price. The question therefore is why are off-season vegetable production technologies not adopted by farmers, and why is this technology not scaled up in Nepal?

Scholars who studied Nepal’s extension services have argued that the traditional and top-down approach of the extension process is hindering the diffusion of innovations among farmers (Suvedi & McNamara, 2012). Weak coordination and linkage between research, extension, education and farmers have been an issue for a long time. Extension professionals are not informed of research findings, and researchers are not aware of field researchable problems (Suvedi & McNamara, 2012). This prevents researchers from addressing real and/or important researchable problems facing farmers and limits interactions and information and knowledge sharing between stakeholders.

Various scholars have explained PAR and found it to be effective in empowering farmers because it is a “for people and by people” approach. Borrowing the definition from Lewin (1946), who first coined the phrase “action research,”
Srikandarajah and Fisher (1992) argue that action research combines investigation and action (cited in Fisher & Jackson, 1998). Findings from investigation inform action, thus the actions taken are pragmatic and sustainable. The PAR involves researchers, extensionists and beneficiaries in the extension and learning process and encourages systematic research by participants to generate new knowledge. Referencing Reason and Bradbury (2008), Baldwin (2012) argued that PAR has three purposes: conducting applied research that can lead to concrete action, involving beneficiaries in the process that brings change and nurturing ownership among participants. Because the process is based on a constructivist approach of researching, PAR is more progressive than a positivist approach (Figure 1). PAR helps bridge the gaps between extension workers, researchers, educators and farmers. In PAR, researchers visit farmers and collaborate with farmers in key activities including technology selection, dissemination and evaluation (Caister, Green, & Worth, 2012). Thus, PAR breaks the traditional one-way relationship between actors—farmers and researchers and extension workers—and fosters shared visions and actions among partners.

**Figure 1. Participatory action research (PAR) approach to development.**

Participatory Action Research (PAR) is popular in learning and development. Aziz, Shams and Khan (2011) contend that PAR provides spaces for participants to engage in critical reflection and action. McTaggart (1991) argues that PAR envisions flexibility and collective actions in planning, implementation, observation, evaluation, reflection and co-learning. Technologies are evolving fast. Societal needs are also changing. Problems and opportunities perceived to be important today may not be important in the future. PAR encourages agricultural partners to keep an eye on changes and remodel their programs to suit their changing contexts.

The project on which this paper is based followed a demand-driven, pluralistic and participatory extension model to plan and deliver technological innovations for socioeconomic change in the rural areas. Michigan State University (MSU) initiated an action research project in Hamsapur, Nepal, in 2011 with 18 farmers. The project’s goals included enhancing food and nutritional security by increasing farm productivity with a focus on off-season vegetable crops. Building on the success of the MSU-initiated off-season vegetable production project, this project aimed to scale up the off-season vegetable production and develop leader farmers as entrepreneur-cum-extension workers at the grass roots. Most farmers in the village practice subsistence farming. There were no concerted efforts to scale up off-season
vegetable production programs in Hamsapur in the past. Little is known about whether and how action research works in rural settings like Hamsapur. Aziz, Shams and Khan (2011) used PAR in a community empowerment program in Pakistan and found PAR to be effective in deciphering social contexts and finding solutions to societal problems. Fisher and Jackson (1998) used PAR in management of protected areas in Nepal and found it to be effective there, too.

**Study Goal and Objectives**

The overarching goal of this study is to document the lessons learned from the participatory action research on off-season vegetable production and recommend an alternative extension strategy that farmers deem appropriate to them. Specifically, the study aims to identify the sociodemographic characteristics of farmers, determine current agricultural production patterns, assess farmers’ perceptions of the PAR approach, and identify barriers and/or constraints for adoption of new agricultural technologies and practices.

**Methodology**

The PAR employs various methods to collect data, such as in-depth interviews, case studies and observations. For this study, personal interviews and observations conducted in June 2013 collected qualitative and quantitative data. Ninety-two project beneficiaries volunteered for the interviews.

The survey instrument consisted of eight questions. Questions 1–4 sought information about production and marketing of vegetable crops, fruit trees, cereal crops and livestock. Question five contained nine statements about barriers to adoption of new and/or improved farming practices and technologies. Respondents were asked to indicate the importance of these barriers on a 1-5 scale with 1 being “not all important,” 3 being “neutral,” and 5 being “very important.” Questions 6 and 7 were open-ended questions asking respondents to indicate educational and informational needs of farmers and suggestions on how the government can help farmers to increase agricultural production and productivity. Question eight was about participants’ demographics. Graduate research assistants at Michigan State University designed the instrument. The instrument was reviewed by extension experts for content and face validity and revised incorporating their input. The farmers were interviewed in their native Nepali language, and answers were simultaneously recorded in English.

A Michigan State University (MSU) student spent two weeks in the village interviewing farmers, observing their farm activities and gathering ethnographic data. She visited 14 farmers, interviewed them and visited their vegetable fields. A local person helped translate the data. Informal discussions were held with the leadership of a local non-governmental organization—the Ingragufa Community Foundation (ICDF)—who shared the history and activities of the off-season vegetable production programs running in the study area. Crosschecking of information (triangulation) boosts study’s credibility (Creswell, 2007).

Trustworthiness of data were established through crosschecking with key informants, i.e., local farmers and NGO staff and participant observation.

Descriptive statistics (mean, standard deviation) and inferential statistics (independent sample t-test and one-way ANOVA) were calculated while analyzing the data. Open-ended answers were reviewed and coded, and key themes were drawn. Key verbatim responses are included in this paper.

This was an ex post facto study. Some respondents could not recall production and yield data; others did not
want to share information on the sale of vegetables. This resulted in higher numbers of missing data for production, sale and income from vegetable sales than one would ordinarily find in this kind of research.

The off-season vegetable production program started in Hamsapur in 2008, when a few farmers indicated the need and interest to grow vegetables as a means of supporting their livelihood because cereal crops, which dominated their farming, were not of much help to them. A select number of farmers received training on off-season vegetable production, and one farmer actually started growing tomatoes under a plastic tunnel. The result of the tomato harvest was promising. More farmers requested support on vegetable production. In 2011 and 2012, 18 farmers each year got support from MSU and ICDF and started tomato production.

Farmers continued with the tomato production, but marketing of tomatoes was a problem. Farmers explored the markets, and ICDF guided them to link to markets. Upon request from ICDF, the extension experts in the District Agricultural Development Office (DADO) provided vegetable production training to the farmers. Lead farmers and ICDF staff members met with farmers to seek their input. Farmers would also approach the latter and share their experiences. The researcher and extension expert at MSU were also in regular touch with ICDF and lead farmers. Every year, the three partners—farmers, ICDF and MSU—would review the project and share the lessons learned and revise as necessary the next year’s program.

In 2013, 93 farmers received technical assistance and training in off-season tomato production. Technical assistance included partial support to cover the cost of building a plastic tunnel house (hoop house). Farmers who participated in the program were required to contribute Rs. 1200 (approximately $12) to join the producer group. This contribution went into a revolving loan fund for the farmers.

Farmers were selected from households with little or no knowledge about the new technology and farmers who showed interest and motivation to participate in off-season tomato production for income generation. Farmers who had already grown tomatoes together with those who were committed to building tunnel houses were included in the program. Some farmers were selected to serve as lead farmers. They worked as resource persons for other farmers who were new to tomato production in plastic tunnels.

To make the adoption of this new off-season vegetable technology sustainable, a three-stage process was followed. The first year, select farmers were provided with ready-to-plant tomato seedlings raised by a trained nursery grower. In the following season, farmers received seeds from ICDF and had to raise and plant their seedlings independently. The third time around, farmers were required to acquire and plant the seedlings on their own.

Results and Discussion

Participants’ Demographics

Farmers \((N = 92)\) were on average 44 years old. They had average family size of five, an average of eight years of education and farm size of 1.15 ha. Three out of four respondents were males. More than half (53.4\%) of the farmers were of 31 to 50 years of age. Males, higher caste and younger farmers tended to be more educated than females and older farmers. The majority of households (74\%) indicated males as their household heads, but nearly half (47\%) of the respondents said farming-related decisions were made either by females or by both males and females. Among the 92 farmers interviewed, 50.5\% were from high castes, followed by 33\%
from ethnic groups and 16.5% of from lower caste or occupation-based caste.

Males had slightly higher levels of schooling ($M = 8.41$, $SD = 3.42$) than females ($M = 5.87$, $SD = 4.07$), and in a $t$-test this was found to be significantly different, $t (19.709) = 2.216$, $p < .05$. Seven percent of farmers had had no schooling; one-fifth and one-third had completed six to eight years, and nine to 10 years of schooling, respectively. The older farmers (age 61 years and higher) tended to have less education ($M = 4.56$ years) than younger ones. The ANOVA post-hoc test results show that there was a statistically significant difference in education of the oldest group and the younger ($F (4) = 2.604$, $p = .044$). Further, the youngest group of 30 years or younger had the highest level of education ($M = 9.21$, $SD = 3.02$).

As expected, farmers from high caste group had more education than the other groups. The majority (73%) of the high caste farmers had nine to 10 years or more education. Only 30% of farmers from ethnic groups and 18% of farmers from the occupation-based caste had achieved such high levels. About one-third of the respondents (27%) from the occupation-based caste did not have any school education, as compared with 4% and 3% from ethnic groups and higher caste, respectively.

Farmers’ farm size was relatively small—i.e., 43% owned 0.5 to 1 hectare, and 19% owned farms of 0.4 ha or smaller. Only six respondents had more than 3 hectares of farmland. The majority (73.9%) of the households were headed by males. Several farmers interviewed were women who had assumed the role as the head of the household. Some women farmers had husbands working in the cities and foreign countries, which left them in charge of the farm. Younger farmers tended to share the responsibility as head of the household and for agricultural decision making more than older farmers. These findings reveal the changing demographics and social trends of farmers.

### Agricultural Production

The overall agricultural outlook of the farmers in Hamsapur reflects those of typical subsistence farmers in the hills of Nepal.

#### Vegetable production. Overall, 19 types of vegetables were grown by farmers; the top eight are shown in Table 1.

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Farmers growing vegetable(s)</th>
<th>Area (sq. m.) $N$</th>
<th>Production (kg) $N$</th>
<th>Income from sale (Rs) $N$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tomatoes</td>
<td>40</td>
<td>90.82</td>
<td>31</td>
<td>408.23</td>
</tr>
<tr>
<td>Cabbage</td>
<td>39</td>
<td>117.05</td>
<td>18</td>
<td>49.44</td>
</tr>
<tr>
<td>Cauliflower</td>
<td>37</td>
<td>25.75</td>
<td>16</td>
<td>27.31</td>
</tr>
<tr>
<td>Onion</td>
<td>27</td>
<td>7.87</td>
<td>11</td>
<td>14.09</td>
</tr>
<tr>
<td>Cucumber</td>
<td>26</td>
<td>154.77</td>
<td>12</td>
<td>173.33</td>
</tr>
<tr>
<td>Potato</td>
<td>20</td>
<td>183.57</td>
<td>13</td>
<td>129.62</td>
</tr>
<tr>
<td>Bitter gourd</td>
<td>20</td>
<td>8.80</td>
<td>6</td>
<td>25.83</td>
</tr>
<tr>
<td>Garlic</td>
<td>19</td>
<td>39.40</td>
<td>6</td>
<td>27.50</td>
</tr>
</tbody>
</table>

*Note.* "x" = No data reported.
Tomatoes are the most commonly grown vegetable and generate the most income for the farmers. Farmer 1 has been participating in off-season tomato production for three seasons now, and this past season he earned Rs. 30,000 from tomatoes alone. This is no paltry amount for a subsistence farmer in rural Nepal. This is even after he distributed tomatoes to his immediate and extended family. Farmer 1 explained that he had been using the extra money to expand his farm; for example, most recently he purchased chickens.

The next five most prevalent vegetables were cabbage, cauliflower, onion, cucumber and potato (Table 1). More land is devoted to growing potato ($M = 184$ sq. m.) than any other vegetable. Cucumber is next, with planted areas averaging 155 square meters. Farmers reported producing on average 408 kg of tomatoes, 173 kg of cucumbers and 130 kg of potatoes in the previous 12 months.

Although off-season vegetable production has excellent potential as an economic stimulant, marketing the produce remains a problem. A small number of farmers were selling their produce, but no single vegetable (excluding tomatoes) was being utilized for generating income. One farmer facing difficulty in marketing her/his produce commented, “Although vegetables have quick turnover for production, it is difficult to access the market for vegetables...It ends up being harder to see results than you would expect.” The findings suggest that it is not only the production that the project and farmers have to focus on--they also have to think about the marketing of products.

Fruit production. Fruit production in Hamsapur is less common, with 10 fruits reported by farmers. Production of bananas, oranges and guava was reported most frequently. Fruits that farmers generated income from are bananas, oranges and coffee. This is consistent with the previous study in the research site by Aoki and Suvedi (2012), who found farmers receiving substantial earnings from the sale of coffee and banana. On average, farmers had 68 coffee plants, 15 pineapples and nine banana trees on their farms. All farmers that reported growing bananas and oranges raised local varieties. As for coffee, both local and improved varieties were indicated. On average, farmers produced 137 kg of banana, 96 kg of coffee and 220 kg of oranges the past year. Average production of guava and papaya ranged from 41 to 48 kg. Banana, orange and coffee were the major fruits that farmers sold in the market. Among 19 farmers growing oranges, one farmer had 500 trees and sales worth Rs. 48,000; others had an average of one to 30 trees and sales of Rs 400 to Rs 7,000.
Table 2

Crop production

<table>
<thead>
<tr>
<th>Crop</th>
<th>Farmer growing crop (N)</th>
<th>Farmers reporting tenure of land</th>
<th>Crop area Mean (\text{Ha})</th>
<th>Total production (N)</th>
<th>Farmers selling crops (N)</th>
<th>Quantity sold (N)</th>
<th>Amount earned from sale (\text{Rs.})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>81</td>
<td>Own 72 Rent/Lease 1 Other 5</td>
<td>0.67 (N=79)</td>
<td>62</td>
<td>6 48 5 816</td>
<td>5 26,800</td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td>91</td>
<td>Own 84 Rent/Lease 1 Other 2</td>
<td>0.48 (N=90)</td>
<td>68</td>
<td>4 52 2 200</td>
<td>2 7000</td>
<td></td>
</tr>
<tr>
<td>Millet</td>
<td>86</td>
<td>Own 77 Rent/Lease 3 Other 2</td>
<td>0.39 (N=83)</td>
<td>66</td>
<td>13 46 9 200</td>
<td>- x</td>
<td></td>
</tr>
<tr>
<td>Mustard</td>
<td>12</td>
<td>Own 9 Rent/Lease x Other x</td>
<td>3.20 (N=7)</td>
<td>7</td>
<td>45.14</td>
<td>0 3 x x x x x x x x</td>
<td></td>
</tr>
</tbody>
</table>

Note. “x” = No data reported (either no data or it is not applicable).

**Crop production.** Crop production in Hamsapur is dominated by maize, millet and irrigated rice (Table 2). All farmers except one grew maize. Nearly every farmer grew millet, and only 12 farmers grew mustard. Predominantly, crops that farmers grew were of native varieties.

Regarding land title, the majority of farmers reported that they owned the lands where they grew the above-mentioned crops. Only one maize grower and three millet growers said they rented the land on which they grew these crops. Among the four crops listed in Table 2, maize and millet were cultivated in areas of 0.48 and 0.39 ha, respectively; the average crop area for rice was 0.67 ha. Likewise, production and sale of rice in Hamsapur exceeded that of other crops.

**Livestock production.** The majority of respondents (89 of 92) reported the ownership of buffalo, and 72 said they raised goats. Poultry, cattle and pigs were also raised, but less frequently. On average, farmers possessed two buffalo, six goats, 16 poultry and two cattle. Most livestock in Hamsapur were of the local breeds; among pigs and poultry, some were improved breeds.

**Benefits of Off-season Vegetable Production to Farmers**

Besides helping farmers with income generation and livelihood improvement, the off-season tomato production program was found to be helping the Hamsapur community in sustainable development. Farmer 2, who went abroad to Kuwait to work for five years and returned and started tomato production, recalled his experiences: “*Why am I working so hard for another country, long hours, sending money home, when I could be just doing this in my own country?*” He was the first who started growing off-season vegetables using traditional methods and later used tunnel houses. He explained that people were skeptical about tomato farming when he started it, but he did it, he benefitted from it, other farmers saw it, and they are following Farmer 2’s footsteps now.

The contribution of vegetable production to community development and farmers’ empowerment is also shown by the fact that a forerunner in the tomato project and currently the vice president of a local...
tourism committee, Farmer 2, stepped up as a model farmer. Another lead farmer, Farmer 3, who is participating in and benefitting from the tomato project, recounted the time that he spent in Saudi Arabia: “When I was 37, I went to Saudi Arabia for work. There I spent twenty hours a day, doing very hard labor, as a carpenter.” He was in Saudi Arabia for 25 months before he returned to Hamsapur and began farming again, but upon returning he no longer was satisfied with typical subsistence farming. Instead, he began participating in the tomato project and proved that, with dedication and hard work, farmers could become highly successful using hoop houses for off-season production. He stated, “Abroad I earned no money, but here, I earned four lakhs [four hundred thousand rupees]. When I was abroad, I only earned one lakh!” Vegetable production like that discussed here, besides preparing farmers for leadership, could eventually lead to other development projects -- thus the sustainability.

**Barriers to Adopting Improved Agricultural Technologies**

To the question about whether they saw any possibility for increasing their farm productivity by adopting new and improved farming practices and technologies, out of 86 respondents, a high percentage (90%) said yes, they can. To the question “Are there barriers to fully adopting the improved agricultural technologies?” about eight respondents in every 10(77%) replied “Yes”, 16% said “Unsure” and the remaining 7% said “No.”

When asked how important the given nine barriers were in the adoption of new and/or improved technology, a high proportion (82.2%) indicated the lack of market information, and 80.8% indicated no access to irrigation as the most important barriers hindering their adoption of technologies for farm production and productivity. Other important barriers included lack of access to markets for their products (74.6%), lack of required education or skills (68.9%), and insufficient knowledge or details about the new technology (62.7%) (Table 3). Surprisingly, more than 50% of the respondents did not perceive unsuitable technologies and small farm size as important problems, which needs further inquiry. As expected, respondents perceived “not owning the land they farm” as unimportant.
Table 3

Barriers for adoption of technologies

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Not important</th>
<th>Neutral</th>
<th>Important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% reporting</td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>I do not have sufficient knowledge or details about the new technology.</td>
<td>25.3</td>
<td>75</td>
<td>3.85</td>
<td>1.42</td>
</tr>
<tr>
<td>I do not have the education or skills to adopt the new technology.</td>
<td>20.3</td>
<td>74</td>
<td>3.84</td>
<td>1.26</td>
</tr>
<tr>
<td>The agricultural technology is not suitable to my farm.</td>
<td>52.7</td>
<td>74</td>
<td>2.39</td>
<td>1.51</td>
</tr>
<tr>
<td>I cannot get credit needed to adopt the new technology.</td>
<td>36.5</td>
<td>74</td>
<td>2.85</td>
<td>1.46</td>
</tr>
<tr>
<td>I do not own the land I farm.</td>
<td>66.2</td>
<td>71</td>
<td>1.87</td>
<td>1.26</td>
</tr>
<tr>
<td>My farm is too small.</td>
<td>72.2</td>
<td>72</td>
<td>2.00</td>
<td>1.44</td>
</tr>
<tr>
<td>My farm has no access to irrigation.</td>
<td>13.7</td>
<td>73</td>
<td>4.34</td>
<td>1.26</td>
</tr>
<tr>
<td>I do not have access to a market for my products.</td>
<td>2.8</td>
<td>71</td>
<td>4.01</td>
<td>0.85</td>
</tr>
<tr>
<td>I cannot get market information as needed.</td>
<td>4.1</td>
<td>73</td>
<td>4.10</td>
<td>0.78</td>
</tr>
</tbody>
</table>

Note. Scale: 1 = not at all important, 2 = a little important, 3 = neutral, 4 = somewhat important, 5 = very important.

Farmers’ Perceptions of the PAR Approach

Farmers indicated that lack of markets and market information, a weak public extension program, and lack of education and knowledge were the barriers holding them back. Farmer 4 is a woman whose husband pursued employment abroad, leaving her in charge of managing the farm and the home. She said that she knew the market was important to understand, but it was far away and difficult to access because of lack of transportation. She often did not know what the prices for products were. Additionally, she said that she would benefit from training on how to improve her maize and millet production, but that the training is lacking: “Agriculture office representatives come only one or two times a year, and they do not give me enough information on how to improve my crops.” With an education that extended only to grade three, she said every opportunity to gain new knowledge and training for her fields was vital. Another farmer expressed concerns on how training by governmental organization was conducted that “The training by NGOs and government is too theoretical. It needs to be more practical. The training by government needs to be more focused and specific. Training is short and too widespread in topics.”

The interviews revealed an increased level of awareness of farmers about organic agricultural production. Farmer 5 offered his point of view on the topic of improvements that the government can make. “It would be helpful if the government developed an official standard for organic production. If an organic market were managed, then farmers who use all natural methods would be able to obtain a higher price for vegetables.”

On the way forward to attain sustainability, farmers reiterated the need for
education and training on vegetable production and the urgency for a contingency seed supply regime. One farmer said, “Government training [is needed] on how to produce tomato seeds by ourselves so we don’t [have to] rely on Pokhara. More money can be made. Five grams of tomato seed costs Rs. 600, and if [seed] runs out in Pokhara, we have no backup.”

Conclusions
Following are the conclusions and the summary of the study focusing on three areas of PAR—participation, research and action.

Participation. The off-season vegetable production program run in Hamsapur is a farmer-led program. Initial demand for the program came from farmers who were struggling to support their families and some of whom even worked abroad. A few farmers who dared to take the risk of piloting new technology—those who Rogers (2003) called early adopters or innovators—showed that tomatoes could be a successful enterprise in Hamsapur. It is a typical example of “learning by doing” and the multiplier effect of intervention. Other farmers followed the lead farmers, and every year more farmers demanded and joined the program. It showed how innovation can be diffused easily across farmers—“farmer-to-farmer”—when the perceived benefit of innovation is greater than perceived risks (Rogers, 2003). Furthermore, technologies that are appropriate and culturally compatible are adopted quickly. This is an example of pluralistic extension services as well where farmers, a local NGO—the ICDF—and MSU worked together.

The participation of women farmers and farmers from ethnic groups in vegetable production indicates the project’s contribution to empowering disadvantaged groups. However, the majority of the tomato growers were high-caste males with middle school education. Males dominated as the household heads and made decisions in most HHs. There were more females as HH heads among the younger generation, and in HHs with younger HH heads, males and females tended to share agriculture-related decision making. Proportionate participation from the lower caste and ethnic groups is required to foster equality in the community and sustain the programs. Participation and support of local stakeholders is needed to address the problems that respondents highlighted, such as lack of irrigation and lack of access to markets and marketing information, and need for education and training and advisory services.

Research. Except for off-season tomatoes, which showed promise for commercialization, most other agricultural crops and produce were of native varieties and used for families’ own consumption. It appears that more farmers pilot-tested tomatoes on their farms because the partner NGO trained them and provided them with inputs—seeds, seedlings and plastic sheets. Several other agricultural products that may have market demand have not yet been tested in Hamsapur; they need to be pilot tested as farmers did tomatoes. Farmers’ expressed interest in organic vegetable production shows their awareness of environmentally friendly production and their interest in getting higher returns to improve their livelihoods. Given increasing awareness of and growing demand for organic products among Nepali urban consumers, this demand appears to have potential. This, however, needs to be carefully planned, executed and promoted via a piloting and/or field-based research project.

Action. Partners collectively worked to make the off-season vegetable production project a success. The local NGO helped with social mobilization and with getting plastic sheets and other inputs. MSU faculty
provided advisory services. Lead farmers helped other farmers to address technical and marketing problems. They also worked to collect farmers’ feedback and helped with distributing the agricultural input.

In summary, such a program is likely to be successful if technologies are market-driven and culturally compatible; there is provision of inputs (e.g., seed, fertilizer, credit, technical services) in the program; farmer-to-farmer extension is used to disseminate technology; and finally, when research, extension, education, and NGOs work together.

References


Small-Scale Farmers’ Perceptions of Agricultural Information Sources in Northern Haiti

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Abstract

Agricultural extension in developing countries can be a major source of support for small-scale farmers. In Haiti, the majority of the agricultural population is made up of small-scale farmers. In the past, Haiti’s extension system has suffered from various governmental instabilities in the nation. This study sought to (a) determine the information channels small-scale farmers use in the North Department of Haiti, (b) determine the accessibility of quality information as perceived by small-scale farmers in the North Department of Haiti, and (c) identify the perceived barriers to successful production of small-scale farmers in the North Department of Haiti. Results from this study showed Haitian farmers in the North Department gain their information for farming from a variety of sources. The farmers in this study varied in their perceptions of the accessibility of quality information in the area. While some farmers participated in groups with extension services, most farmers had not participated in these groups. Farmers in this study also displayed a lack of trust towards service providers in the region. Farmer perceptions of external factors as barriers towards production illustrated a sense of powerlessness in their production practices. Recommendations include using opinion leaders to engage small-scale farmers and build trust towards service providers.

Keywords: Haiti, Food Security, Small-Scale, Farmers, Information Sources
Introduction

Haiti has a rich history dating back to times of colonization. In the 18th century, Haiti was known as the Pearl of the Antilles and provided most of the modernized world with coffee, sugar cane, and rice (Drexler, 2008). Haiti’s rich agricultural history would come to a stark standstill at the dawn of the Haitian Revolution after which Haiti became the first Free Black Republic (Wucker, 2004). France would not recognize Haiti as a sovereign state until 20 years after gaining its independence. This recognition would come with a tremendous cost to the country. Haiti was forced to repay 150 million francs in restitution to the French state for damages plantation owners incurred during the revolution. Haiti would not fully pay this debt until 1947 (Dupuy, 2010). The debt would set the foundation for future financial difficulties in years to come leading to Haiti’s current status as the poorest country in the Western Hemisphere (Drexler, 2008).

Agriculture is a staple labor sector in Haiti. Sixty percent of the population in Haiti is employed in agriculture (USAID, 2011). Agricultural employment can range from production to the market place. Many farmers are considered small-scale farmers. Small subsistence farmers represent 50% of the labor force in Haiti (Eneas, 2010). Specifically, in the Northern region of Haiti, small-scale farmers make up a “vast majority of producers” (Pienaar & Sacks, 2012, p. 28). The most widespread staple crop of Haitian small-scale farmers is maize (Pienaar & Sacks, 2012). For the purposes of this research, small-scale denotes having 2 hectares of land or less (United States Agency for International Development, 2011).

Haiti’s agricultural sector has experienced difficulties due to trade limitations and the influx of foreign imports. Up through the 1980’s, Haiti had been self-sufficient in rice production. Rice was a low-risk crop for small farmers due to its ease of growth, storage, and preparation for consumption. During this time, rice consumption began to decline (Eneas, 2010). Trade liberalizations caused the tariffs on rice to decrease to 3%, the lowest in the region. Due to this incredibly low tariff on rice, Haiti became able to affordably import rice, pushing local rice producers out of markets and out of business (Eneas, 2010).

Governmental policies have not only affected the production capacities of small-scale farmers, but the linkages between access to research and small-scale farmers. The Ministry of Agriculture, Natural Resources, and Rural Development (MARNDR) in Haiti is currently rebuilding the structure of its extension services within the country’s ten departments as part of its Post-Earthquake Strategic Planning (USAID, 2011). The availability of extension services in Haiti differs based on farm location; in addition, individuals with larger farms are more likely to receive extension services (Arias, Leguía, & Sy, 2013). The majority of farms in Haiti are less than two hectares and government-run extension services in Haiti are minimal (Arias et al., 2013), leaving some farmers without consistent support from extension. Currently, many nongovernmental organizations (NGOs) are working to reach farmers some of who may not have had previous access to extension resources (Schuller, 2007).

The presence of NGOs in developing countries can be overwhelming. This is the situation facing Haiti. Currently, Haiti is referred to as the “republic of NGOs” (Kristoff & Panarelli, 2010, para. 1) due to the presence of over 10,000 organizations within the country. NGOs have taken the place of governmental assistance in many sectors, including agriculture (Kristoff & Panarelli, 2010).
Within the agricultural sector, NGOs have started to offer advisory services to small-scale farmers in an attempt to reach rural populations (Carballo, 2010). Lack of coordination among NGOs has created information gaps among rural groups (MARNDR, 2010). This dilemma has left some small-scale farmers to search alone for valuable information to improve their crop production. This study focused primarily on small-scale farmers located in the North Department of Haiti and their sources of information.

**Literature Review**

The processes of sharing information have been extensively seen within development literature. Information-sharing processes can have an effect on the ways extension services and NGOs meet the needs of small-scale farmers in Haiti. In order to better understand the perceptions of these farmers as they decide which practices to adopt, it is necessary to understand information-sharing processes.

**Information Sources Within Networks**

Rogers (2003) described the process that individuals progress through to adopt an innovation as the Diffusion of Innovations. Within this theory, Rogers described the most likely source for new knowledge entering a given community. Rogers (2003) stated individuals tend to receive new information from cosmopolite sources as opposed to localite sources. Cosmopolite sources can be described as sources outside a person’s immediate connections. These sources are more likely to bring in new information to a network of individuals than would a localite individual due to their access to different experiences and information. Similarly, Granovetter (1973) explained how information flows to new social networks through weak ties. Weak ties are categorized as connections between individuals outside of immediate close social circles. Weak ties bridge gaps between social networks and allow for access to new information. These ties emphasize the ways connections allow for a flow of information to occur between networks that may not have had interaction before.
Network analysis becomes critical when taking into consideration the experiences of small-scale farmers in developing nations, such as Haiti. Developing nations tend to rely on personal relationships as focal areas of information gathering due to limited availability of information communication technologies (ICTs) (Bello & Obinne, 2012). Various studies in developing nations (Bello & Obinne, 2012; Elly & Silayo, 2013) have found small-scale farmers within these countries rely heavily on personal relationships for knowledge growth in agricultural practices. Through friendships, individuals can become connected with others who may then lead them to new information. NGOs and extension services may act as cosmopolite and weak ties that help farmers gain new knowledge (Granovetter, 1973; Rogers, 2003).

Advisory Services in Developing Nations
Agricultural advisory services, also known as extension services, have recently been increasing “as a means of promoting agricultural productivity, increasing food security, improving rural livelihoods, and promoting agriculture as an engine of pro-poor economic growth” (Birner et al., 2006, p. 12). These services take on various forms in different countries. Developing countries have recently seen a rise in pluralistic advisory systems, which include services from the public sector, private sector, and NGOs (Anderson, 2008). It is common for governments to favor pluralistic systems in order to diversify the financial...
responsibilities to meeting the needs of a nation’s farmers (Birner et al., 2006). Pluralistic systems have also allowed for small-scale farmers to have their needs met from sources that may not have been available to them before. A functioning Agriculture Innovations System (AIS) offers benefits to the small-scale farmers (Birner et al., 2006).

It is estimated that 90% of advisory service personnel are located in developing nations (Anderson, 2008). Most of these personnel have been funded through the public sector. Although the presence of advisory service personnel is greater in the developing world, advisory service effectiveness varies by country and can be based on a variety of factors. Factors include farmer to personnel ratios, funding, governance, and system characteristics (Anderson, 2008). While the successes of agricultural advisory systems may vary within a country, these services are still a great source of advancement for farmers worldwide (Birner et al., 2006).

*Figure 2. Information sources for Northern Haitian farmers.*
**Purpose and Objectives**

The purpose of this study was to describe the specific experiences of small-scale farmers in the North Department of Haiti in regards to the sources of information they used to improve their production practices. The following research objectives guided the study (a) determine the information channels small-scale farmers use in the North Department of Haiti, (b) determine the accessibility of quality information as perceived by small-scale farmers in the North Department of Haiti, and (c) identify the perceived barriers to successful production of small-scale farmers in the North Department of Haiti.

**Methodology**

The design of this research is grounded in interpretive research. Interpretive research is also referred to as constructivism (Creswell, 2013). This study is founded in the idea that knowledge is relatively formed through repeated experience (Guba & Lincoln, 1994) and is constructed from these experiences. This research study sought to understand the perspectives and experiences of Haitian small-scale farmers in the North Department of Haiti. The data collected in this research was based on interviews and analyzed through thematic analysis.

Qualitative research focuses on understanding phenomena through the perspectives and experiences of others (Merriam, 2009). Meaning is derived through observation and interaction is filtered through the researcher’s understanding. Qualitative research seeks to gain a depth of understanding of a particular setting and is usually descriptive in nature (Merriam, 2009).

Qualitative research can be used to describe a variety of research approaches.
These approaches help the researcher “understand and explain the meaning of social phenomena with as little disruption of the natural setting as possible” (Merriam, 1998, p. 5). The emphasis on particular participants at a set point in time dictates an interpretive qualitative approach (Merriam, 2009). An interpretive qualitative approach is appropriate, since the focus of this study was the experiences of small-scale farmers in the North Department area.

Population

The participants of this study were from the North Department of Haiti, which is located six hours north of the capital by land. Haiti’s major agricultural services are located in the capital of Port-au-Prince, situated in the West Department. The North Department offers the perspective of farmers that are separated by distance from the centrally located services in the capital.

The North Department of Haiti is separated into seven arrondissements and within those arrondissements are different communes. Four arrondissements were included in this study based on the recommendation of local agronomists who considered their relative agricultural significance in the North. The arrondissements are Acul-du-Nord, Cap-Haitien, Grand Rivière du Nord, and Limbé. Furthermore, within these areas, farmers were included from the following communes: Limbé, Limonade, Grand Rivière du Nord, Milot, and Quartier-Morin.

The population for this study included small-scale farmers. This parameter for small-scale farmers was chosen because these farmers make up the majority of farms in Haiti (Philius, 2013). Including two hectares of land as a parameter allowed the researcher to include more of the population of farmers to help supplement the data.

Although in-depth data on the North Department are not known due to lack of government data, the farmers in this study were involved in various areas of crop production. At the time of this research, the North Department represents 10.2% of the total 1,018,951 farms in the country (Philius, 2013). According to the Ministry of Agriculture, Natural Resources and Rural Development (MARNDR) in Haiti, the largest percentage of farmers (13.8%) are between the ages of 45 and 49 years old (Philius, 2013). The MARNDR (Philius, 2013) reported 96.5% of farmers in Haiti learned their skills on the job as opposed to one-time training (2.5%), technical training (0.6%), or university training (0.1%).

Sampling Methods

Qualitative studies generally employ the use of purposive sampling methods (Ary et al., 2014). When using purposive sampling, researchers select participants who can accurately represent the focus of the study. This method allowed for an increased possibility for the inclusion of varied perspectives in the data (Lincoln & Guba, 1985).

There are several methods that exist within the scope of purposive sampling (Ary et al., 2014). Among these methods is snowball sampling (Ary et al., 2014; Merriam, 1998, 2009). This type of sampling occurs when initial participants are asked to refer other participants that fit within the parameters outlined in the study (Biernacki & Waldorf, 1981). Snowball sampling was beneficial to this particular study due to the lack of a formulated list of all farmers within the North Department. The various complexities within the Haitian culture also made it necessary for relational connections to be built with community members before potential participants felt comfortable enough to agree to an interview. For this particular study, previously
interviewed participants would physically walk the lead researcher, research assistant, and interpreter to the next potential participant.

Sample Size
There are no distinct numerical goals for sample sizes in qualitative research (Ary et al., 2014; Merriam, 1998). Sample size depends on the purpose of the study, the type of data, and resources available (Merriam, 1998). Lincoln and Guba (1985) stated sample size is found at the point where the researcher finds “redundancy” (p. 233). The descriptive nature of qualitative studies leads to smaller sample sizes (Ary et al., 2014). The sample size in this study was selected using a similar method. Similar studies used between 30 and 181 participants (Dang, Li, Bruwer, & Nuberg, 2014; Lwoga, Stilwell, & Ngulube, 2011). The sample size for this study was 35 small-scale farmers consisting of seven farmers from each of the five communes.

Instrumentation
The interview guide used for this study was modified with permission from a similar study (Moore, 2014). The questionnaire was initially developed through a four-step process, which included a literature review of the central topic, draft development using relevant data, feedback from stakeholders, and an Institutional Review. In this study, the questions were modified to fit the context of Haiti. They were then given to a relevant stakeholder in Haiti who has experience with Haitian small-scale farmers in the North to review. The questions were also submitted as per new IRB approval requirements.

The instrument consisted of open-ended and close-ended questions, which created a semi-structured interview. The semi-structured interview method allowed for the participants to add relevant information that was not originally included in the interview guide. The questions allowed for greater opportunities for the participant to explore concepts close to the central topic (Creswell, 2013). The content covered central themes of type of crops produced, types of agricultural advisory services received, frequency of service, and challenges faced.

Data Collection
Data collection occurred in June and July of 2015. Data were collected through semi-structured personal interviews of 35 small-scale farmers. The interviews ranged from 4 to 15 minutes and were conducted in Haitian-Creole. Although the lead researcher speaks Haitian-Creole, the researcher’s limited technical agricultural vocabulary led to the need of a native Haitian assistant. The assistant was a Haitian national with extensive background in agriculture and in his final year at a local university. The lead researcher traveled to the specified locations with the help of a student agronomist at a local university in Haiti. The agronomy student served as a research assistant.

At the time of the study, the lead researcher, who is not of Haitian descent, found farmers had certain financial expectations based on the lead researcher’s position as a foreigner. Due to the potential influence on farmer behavior and response, the research assistant conducted most of the interviews to avoid this expectation and potential bias (Ary et al., 2014). The interviews were audio recorded using a small device with permission of the participant. Researcher notes were also used to supplement the interview audio.

The interviews were conducted in two steps. First, the interviewer explained the purpose of the study, the rights of the participant, and also answered any questions. There were also instances when the interviewer made casual conversation in
order to build trust before speaking about the research study. After this point, the interviewer began to ask the participant questions from the already developed interview guide.

**Data Analysis**

Merriam (2009) described the goal of data analysis as making “sense out of the data” (p. 175). The constant comparative method was used to accomplish this task. Glaser and Strauss (1967) outlined the use of the constant comparative method of analysis. This method involves comparing the data to find thematic categories and subcategories (Merriam, 1998). Thus, this method was used for data analysis.

The data were first transcribed and translated from Haitian-Creole into English. A third party, an English professor in Haiti, transcribed and translated the interviews. Once transcribed the interviews were then returned to the lead researcher. The data were stripped of recognizable attributes and were assigned a reference number (e.g. 01, 02, 03). According to Glaser and Strauss (1967), the constant comparative method involves four stages. These stages are “comparing incidents applicable to each category, integrating categories and their properties, delimiting the theory, and writing the theory” (Glaser & Strauss, 1967, p. 105). The data were analyzed using the first two steps of this method as there was no intention to develop grounded theory in this exploratory study.

In order to gain a deeper understanding of the data, the lead researcher read the transcriptions several times to become immersed in the data (Ary et al., 2014). The lead researcher then used line-by-line open coding (Strauss & Corbin, 1990) to begin generating categories. After the initial analysis was completed, the researcher used a spreadsheet to begin tracking the participant interviews and including relevant quotes from the data. The data were again analyzed for similarities to create new categories. The data were combined to create broader categories. This occurred one last time to create three steps of coding.

**Trustworthiness**

Lincoln and Guba (1967) suggested a framework for establishing trustworthiness within a naturalistic paradigm. Credibility, transferability, dependability, and confirmability were their criteria for trustworthiness. In order to establish credibility, the data were triangulated using multiple sources of data collection. Researcher notes and audio transcriptions helped to establish credible data. In addition, after the data were transcribed, they were sent to the research assistant in Haiti to review for accuracy. Peer debriefing was also used to establish credibility. This occurred on two levels. The first level was with the other researchers. The second level was peer debriefing with the research assistant after data collection. These times were used to discuss biases, content, findings, and methodological processes. The methods used to establish credibility can also justify dependability. Transferability was provided for this study using thick description. Confirmability was achieved through the audit trail. Notes, reflective processes, and analysis were all documented.

**Subjectivity and Bias**

Within qualitative research, the researcher is intimately involved with the setting of the study (Merriam, 1998). This interaction creates a certain level of subjectivity in the interpretation of the data. The experiences and the perceptions of the researcher collide with the analysis and the result is a constructed interpretation of the data. The background experiences,
ideologies, and characteristics of the researcher create bias that should be addressed.

The lead researcher has extensive experience in Haiti, specifically through an NGO in Cap-Haitien, Haiti. This work has created a connection that could create a bias towards the interpretation of data. The opinions of Haitians concerning government involvement and assistance are another potential source of bias that could exist. One of the researchers in this study has over 10 years of experience in U.S. Extension. The third researcher in this study has significant experience in Agricultural Education and has recently been involved in capacity development in Haiti.

Results
Themes identified from the farmer interviews were categorized into three major categories: information sources of farmers, farmers’ perceptions of access to information, and farmers’ perceptions of barriers. Coding was used when including direct quotes from the interviews. Each of the five communes are designated with a letter: Grand Riviere du Nord (G), Limbé (B), Limonade (L), Milot (M), and Quartier Morin (Q). Interviews within these communes were given a number 1-7.

Information Sources of Farmers
Varied information sources. Farmers indicated various sources for their knowledge of farming practices. Transmission of knowledge from fathers was evident (2B, 6G, 7G, 1Q, 2Q, 3Q, 4Q, 7Q). Parental influence helped to guide farmers in the techniques they used. One farmer stated, “My father was himself a farmer. You know when your father can do something it is transmitted to you as a young boy. You were raised and doing what your father does” (6G). These interactions with parents were formative and continued to impact their current practices. Other farmers confirmed the strength of these interactions: Since my childhood I was raised in my father’s farm. Every day and after class I would join him in the gardens to help him because I do like farming. Indeed, those techniques are the ones that I am still using today to better work the lands. (2Q)

Some farmers had previous interactions with service providers in their areas (1B, 1G, 4G, 5B, 6G, 4M, 5M, 1Q, 5Q). The farmers described instances where the service provider, an “agronomist” (1B, 1G, 4G, 5B, 6G, 4M, 5M, 1Q, 5Q), changed the manner in which they worked. One farmer stated, “that agronomist has changed me by providing me new trainings on agriculture” (6G). In describing an instance where water was impacting farming land on mountainsides, one farmer reported the advice from the service provider helped to “prevent that, and it does not happen anymore” (5B).

Farmers also stated being their own sources of knowledge through experience and each other (5B, 2G, 3G, 5G, 5M, 4Q). Some farmers stated how they learned from their experiences (1B, 3G, 4Q). One farmer reported being the source of information for “young boys” (4Q) who are currently farmers. Farmers also recognized training needs (1B, 3G, 7G). One farmer expressed this by stating, “we are limited in knowledge” (7G).

Farmers’ Perceptions of Access to Information
Outsiders and insiders. Farmers spoke about their knowledge of extension service providers reaching their areas (1B, 1G, 2G, 3L, 4B, 4G, 5G, 5L, 6G). Their interactions with these groups varied. While some were benefitting from extension providers (1B, 1G), others stated they were not “invited” to attend (2G, 3L, 4B, 5G, 5L,
This developed a sense of insiders who received training and outsiders who were not included. When asked about the quality of the trainings, one farmer stated, “I can’t really tell. Some farmers here receive help from them, but not me” (3L). Another farmer stated, “if you are not in the same political movement with them you are not invited to join in” (4G). Another farmer used the word “abandoned” (5G) to describe the lack of service providers. Although some farmers knew of the presence of service providers within their communities, they stated “they aren’t working” (4B) with them. A farmer in Quartier Morin insinuated socioeconomic status influenced the opportunity for training and stated: “the men in this area won’t let me in” (3Q).

**Lack of trust in service providers.** Lack of trust in service providers was evident among the farmers. They expressed how government officials would visit their farms while “running for” (3L, 6L) positions. Other farmers described instances where service providers made promises concerning help they had yet to fulfill (1B, 6L, 2G). One farmer stated, “we used to meet with some agronomists but they told us lies” (2G). This farmer later stated once more how Haitian agronomists are “liars” (2G). Another farmer described instances where agronomists would sell pesticides which “did not cause any effects” (2M) on insect damages. This distrust was also expressed in conjunction with governmental ministers who “don’t do their job” (4G).

**Farmer Perceptions of Barriers**

**External locus of control.** In several instances farmers indicated how their success in agriculture directly depended on forces beyond of their control. These forces included “God” (1L, 4B, 5G, 7M, 1Q), the “weather” (3L, 7L, 4G, 5G, 1M), government and organizational provisions (6L, 4G, 5G, 6G, 7B), and thieves (1L, 6L, 6M, 2Q). God was seen as the overarching source of favor in their production. This is seen as a farmer described how “Haiti will perish unless God decides to do something” (7M). When describing the weather, one farmer stated, “sometimes it is beneficial, other times it is not” (3L). Another farmer expressed how the weather impacted where they would “suffer a loss” (4G) on their farms. When describing ways in which the government and their extension services could help to support their production, one farmer stated, “I can’t really tell. It is up for them to decide whatever is best for us” (4G). Farmers expressed how extension service providers could help improve the situation in Haiti and how they would “wait for their help” (7B). When speaking about problems with their production, farmers repeatedly described how thieves would impact their production. Animals and produce were stolen. One farmer stated, “we may hope that we are going to harvest our bananas or yams at the time to sell them, but they are stolen” (6M).

**Nature as an adversary.** Farmers viewed nature as an adversary to their production. Farmers frequently mentioned the “sun” (1G, 1L, 2B, 2G, 3G, 4B, 4G, 4L, 5B, 6L, 7G, 7L, 2M) as a source of death. The presence of the sun was described with words such as “kill” (5B, 1L, 4L, 6L), “burn” (1L, 3L), “destroy” (1G, 2G), and “problem” (3G, 1L). One farmer stated how “when the sun shows up, our crops are destroyed” (5B). Farmers also indicated loose livestock (1L, 2B, 4B, 6M) and insects (1B, 1G, 2G, 4G, 7G) as adversaries. Animals would find their way onto farms, which caused farmers to suffer losses. One farmer expressed frustration by stating, “sometimes unleashed animals eat a part of our crops” (6M). Farmers also described problems when “some insects like
caterpillars come up and eat all of our maniocs’ leaves which destroy them” (7G).

Conclusions, Implications, and Recommendations

Haitian farmers in the North Department gain their information for farming from a variety of sources, which is not necessarily by choice. It is evident farmers desired to receive training but were not given adequate training or any training at all. Feelings expressed toward service providers often reflected distrust and powerlessness. For extension, this poses a significant challenge. Programs must seek to provide relevant information while working against cultural mindsets, which emphasize external loci of control.

Farmers gained their knowledge from a variety of sources. Basic knowledge of production was mainly attributed to parental sources passed down from parents to children. This knowledge formed the foundation of their day-to-day practices. Other knowledge was gained from fellow farmers as well as sporadic interactions with service providers in the area, confirming Rogers’ (2003) and Granovetter’s (1973) assertions that new information is gained through sources from outside familiar social networks. Outside of their immediate experiences and inherited knowledge from family, the information channels were perceived as unreliable and rare.

The farmers in this study varied in their perceptions of the accessibility of quality information in the area. While some farmers participated in groups with extension services, most farmers had not participated in these groups. The farmers, who were not a part of these groups felt as though the groups were exclusive in nature and not open to the general population of farmers in the area. The perceived exclusivity of these groups served as a barrier for farmers who felt as though quality information for their production could be gained through group membership. The sporadic nature of encounters with extension service providers also made farmers feel as though their access to information was beyond their control. They felt as though their fate was left in the hands of those who held information. In a recent study Roberts, Ganpat, Narine, and Heinert (2015) recommended extension service providers increase partnerships to help provide farmers with more opportunities for gaining knowledge. These stronger linkages are important to increasing the effectiveness of extension services within the North Department of Haiti.

Haitian farmers identified various external factors as sources of barriers in their production. These sources included nature, absent governmental sources, and the sun. These barriers all represent situations which are beyond the control of the farmers in the North Department. The perception of farmers as barriers lying beyond their personal control signifies a distinct view of powerlessness in the face of adversities. These views will be important for extension service providers to understand in order to better serve the small-scale farmers in the North Department. Extension service providers must provide tools and techniques, which will combat farmer perceived powerlessness.

As previous research has stated (Bello & Obinne, 2012), individuals must feel as though sources are credible to receive information. The lack of trust towards service providers among Haitian farmers expresses the need for these programs to work towards regaining the trust of many farmers who feel as though they are being used for purposes other than simply helping them. It is also evident that although programs do exist within the region, some farmers feel as though they cannot benefit from these programs. These perceptions are
fueled by their knowledge of groups, which deny access and participation from certain areas or types of farmers. The information in this study can serve to improve the services provided to smallholder farmers in the Northern Department of Haiti.

The perceptions unearthed in this study help give insight into potential actions for extension service providers. Perceptions of Haitian farmers in the North Department indicate low levels of trust towards extension service providers. If extension service providers desire to help North Department farmers, they must first develop trust (Rogers, 2003). This could be done through using key leaders within the community to serve as opinion leaders. These opinion leaders can bridge distance caused by distrust. Levels of mistrust have been increased by the perceptions of inside and outside groups.

In order to increase trust and open access to information, it would be important to encourage the participation of other members in communities through opinion leaders. In a study by Owolade and Kayode (2012), interpersonal means of communication were found effective for sharing information with farmers. These interpersonal relationships will help develop trust. In addition to these recommendations, it would be important for extension service providers to address the various ways in which farmers may mitigate the effects of external factors such as the sun and lack of water. The barriers, as expressed by small-scale Haitian farmers, reveal a sense of powerlessness even in the face of new information.

The results of this study highlight the need for future studies on the specific programmatic needs of small-scale farmers, self-efficacy of small-scale farmers in the region, as well as the perceptions of service providers in the region. By looking into these three areas, service providers will be able to tailor programs to meet the needs of farmers in the north. This will be of importance since the Haitian government has expressed the need to increase training in the North Department (MARDNR, 2010). New studies have shown the importance of increasing the livelihoods of small-scale farmers in relation to food security (Carballo, 2010). In the country of Haiti, where food security has long been a concern, focusing on small-scale farmers will positively impact the future of the country.

References


Moore, A. (2014). Challenges and opportunities for improving the delivery of agricultural extension


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