Bringing the West to the East: Creating Sustainable Agricultural Development While Improving Social Capital, the Iraq 4-H Club Program

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Keywords: Agriculture, Social Capital, 4-H Youth Development

Introduction
The agricultural sector is growing, offering employment opportunities to many people. Youth played a role as labor not owners, thus not provided opportunities to create sustainable businesses of their own (USAID-Inma, 2011). The goal of the USAID-Inma Agribusiness Program was to strengthen the sustainability and expand the agricultural private sector through farmers, entrepreneurs, marginalized populations and associations working in agriculture. Therefore, Inma cooperated with the Iraq 4-H program to develop a youth-driven dairy project in the Baghdad area as a means to create small livestock operations (businesses) for the youth that would benefit them and their families.

Theoretical Framework
The development of social capital in youth was nonexistent during the years of Saddam Hussein’s dictatorship: youth programs consisted of military training camps, teaching survival concepts. Development programs that taught youth democracy and civic responsibility were not available. According to Swanson and Rajalahti (2010) and Robinson and Meikle-Yaw (2007), 4-H serves as a vehicle to generate social capital in communities; youth participate in elections and run meetings using democratic methods. Furthermore, 4-H serves as an instrument for teaching future farmers how to organize, thus given farmers a voice and more control of their industry (Swanson & Rajalahti, 2010).
Results

In September of 2010, Inma management began working with the Iraqi 4-H leaders to identify children who exhibited a desire to create a dairy program that would benefit them and others in the community. The Iraqi 4-H leaders identified 25 girls in the Baghdad area, ages 8 – 16, based on the child’s desire to care for an animal and financial need of the families. The girls came from families where the “bread-winners” (fathers) had been killed during the war. The Dar Al Salam (Home of Peace) 4-H club was formed in December 2010, officers were elected, training programs established and implemented. The role of the Inma program was to provide each girl with a 6- to 8-month-old heifer (grant), with the understanding they would care for the animal. As means to benefit the larger community, 4-H and Inma agreed the first born offspring from each heifer would be given to another community member, thereby paying the grant forward. Both organizations provided technical support to the club. As to date, 24 heifers are bred and ready to calve starting March 2012.

Conclusions

The girls are active in their club, serving many different roles. The club is supported by the community; three adults volunteer their time working with the youth. Building positive youth adult partnerships is vital for success. Astroth and Haynes (2002); Kock (2010) suggested these partnerships create positive learning environments for young people, thus helping them reach their potential. The dairy heifer project was beneficial to the families; however, the time-frame before milk production was too long.

Recommendations

To enhance the grants aspect of the program, sheep may be a better and more cost-efficient project for youth. The production costs are cheaper and sheep reproduce more quickly, allowing the projects to grow in size, thus generating more income.

References

Global Competency in a Multi-Cultural World: Cross-Cultural Experiences of Rural Development Practitioners on Multi-Cultural Teams in Asia

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Keywords: Global Competency, Multicultural, Mentoring, Leadership, Social Capital

An important issue facing the development and agricultural professions is the multi-cultural workplace. This issue has been met with much focus on developing global competency among those from the west and from northern countries. There has been much less focus on the interactions that occur within multi-cultural teams that include several nationalities or ethnic groups. Most literature is focused on the westerner to easterner interaction. An important addition to our understanding of multi-cultural interactions and effective teams would be to understand the interaction that occurs on diverse work teams in grassroots working environments in Asia. In addition to the themes of multi-cultural teams and global competency, the themes of leadership and mentoring are important on these diverse teams.

This poster explains how rural development practitioners can become effective when working on diverse teams in a country that is not their home. Through the interview process, the effective coping mechanisms that were utilized to adjust to cultural shock and become effective have been described. Often these practitioners have learned what works and does not work for building bridges across cultures. These lessons have been compared to see what resonates for building healthy team relationships. The diverse teams that are described in this study work for non-government organizations focused on agricultural and rural development. The teams described are in Vietnam, Thailand, the Philippines, Lao PDR, and China. These teams are on small organizations that do not have much formal structure. Due to this lack of formal structure, it was theorized that positions and effective roles would develop more organically. The authors have extensive experience on multi-cultural teams and have drawn from that experience as team interviews have been conducted.

A key finding has been that cultural strengths that are brought to a diverse team strengthen the team if there is a common vision. At the same time, vision casting on diverse teams can be difficult because of the cultural assumptions that each team member has. Several effective methods for bridging those cultural differences have been tried, with differing results. One of the tendencies is for one culture to dominate on a team, especially if they control the budgeting process. This usually occurs when there is a westerner involved, but it also occurs among Asian nationalities. Additional insights have been gained into effective methods for dealing with conflict resolution, building social capital, and equitable power sharing on these teams.

The resources for learning together and building effective multi-cultural teams can be varied, but two valuable methods are exploratory vision trips and cultural sharing experiences.
Many of the effective leadership and team building materials from the West have been used with good effect on diverse teams in Asia, but care must be taken to communicate clearly. Agricultural and development practitioners of all nationalities gain when they add the insights and methodology gained from this study to their toolbox.

References


Exploring Profitability of Compost Micro-Enterprises in Chimaltenango, Guatemala: A Strategy for International Development

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Keywords: Compost, Micro-Enterprise, Sustainability, Profit, Inputs

Introduction

Micro-entrepreneurship has been used by international organizations as an Extension tool to provide alternative incomes for poor and economically vulnerable populations (Vargas, 2000). The success of that enterprise lies in accounting for the various inputs needed to operate its production. In the field of composting, close attention must be paid to inputs involving organic raw material (United States Environmental Protection Agency, 1995). Birks, Fluitman, Oudin, and Sinclair (1994) explained the “issue of costs within micro-enterprises is complex and should be considered not only in terms of fees but also in terms of payments in any kind, such as entry and exit presents, and the duration of the apprenticeship” (p. 1). The achievement of a small farmer’s operations may be measured in terms of profit (Hernandez & Place, 2004). The capability of a micro-enterprise to obtain profit relies upon the pivotal step of understanding inputs. Compost micro-enterprises are a unique business in that their formula and array of materials, as well as their operational grounds, determine their profitability.

Purpose & Objectives

The purpose was to analyze all necessary inputs and their relative output to determine profitability. The population consisted of compost micro-enterprises located within the region of Chimaltenango, Guatemala. The objectives were to (a) quantify all costs of inputs and outputs, (b) calculate amounts of raw material and total cost required to produce one sack of compost and, (c) evaluate the economic sustainability concerning its costs of production and output.

Methods

Case study research was used to identify and quantify variables of input and calculate their resulting output. “The purpose of a case report is not to represent the world, but to represent the case” (Stake, 2005, p. 460). Each micro-enterprise was identified and sampled because of training they received by an international organization, “Agriculture in Guatemala: Technology, Education and Commercialization” (AGTEC). A total of 24 participants were interviewed. Interview questions included: access to affordable labor and market awareness; raw material costs, use, and their projected output; and, the operational costs to convert these inputs into profitable returns. Numerical data was collected during July 2011 via structured oral interviews and observations to gather the total cost and amounts of inputs used over a single six-week regiment to produce a reported amount of compost.

Results & Conclusion

Study results were compiled and presented in detailed tables articulating inputs (i.e., manure, green material, dry material, transport, energy, packaging, and labor), output, grand total
cost, and gross profit for each micro-enterprise. All calculations made to quantify inputs in terms of 100-pound sacks were estimates at best; however, the researcher diligently made estimates based on weighing bundles, calculating carrying capacity of wheel barrels, and deducing the amounts of raw material used from figures provided by participants. The access and use of inputs varied among micro-enterprises, resulting in differing output and profits. Each input affected a micro-enterprise’s profitable outcome differently based on its availability, price and amount. Some micro-enterprises received raw materials free of charge. Access to free abundant raw material (e.g., coffee mucilage) allowed enterprises to produce an inexpensive sack of compost; yet required more material to make one sack. An ill-developed infrastructure surrounding one micro-enterprise negatively impacted transport costs because revenue was lost either from expenditure associated with bringing the product to market or deterrence of consumer access. The net profit of two micro-enterprises was negative when inexpensive, non-bodied labor was used and paid equally regardless of time or task completed. All micro-enterprises were cognizant of the amount of raw materials added to a single pile to produce compost, but none quantified the total amount of raw material used among all the piles. Subsequently, the expenditure spent on raw materials as well as the overhead used to process compost were not regularly assessed.

**Recommendations, Educational Importance, & Implications**

As agricultural innovations are diffused, these technologies and ideas must first be assessed for economic viability. Findings revealed that compost micro-enterprises offer promise but must be managed carefully to obtain profit. Agricultural Extension must extend educational efforts beyond the practice of composting to develop competence in its adopters to evaluate inputs and outputs as they relate to profit. The educational importance of this study relates to the need to provide awareness of how to assess how profit relates to the continuation of an innovation. When Extension has failed to diffuse this concept to enterprises, its adopters fail to account for inputs and output of their operation; thus, becoming unsustainable.

**References**


Cooperative Ownership: A Case Study on Rwandan Coffee Cooperatives

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Keywords: Ownership, Path Dependency, Capacity Building, Participation

Used as a tool to spark economic growth, development of agricultural cooperatives has been effective in decreasing the affects of poverty in places such as sub-Saharan Africa. Earlier studies on Rwandan coffee cooperatives indicated that coffee cooperative general members do not feel ‘valued’, nor have ownership in their cooperative; yet, in order for cooperatives to achieve success, there must be a level of ownership among member participants. The purpose of this study is to describe and examine the relationship between coffee cooperative member’s perceptions of cooperative ownership in relation to their external funding partners. Contradicting previous research, results indicate that the research participant’s recognized their ownership of the cooperatives and that it was a member owned organization, not an extension of an external funding source. Further participants tended to agree strongly that ownership in the cooperatives allows members to be more competitive economically. Given these results, in order to maintain producers perception that they own the cooperative organization it is recommended that cooperative members continue to promote these organizations as a place where producers can utilize the organization as a forum for discussion, to mobilize local resources, to build up bargaining power and claim-making power, to widen the options for income-generating activities, and to enhance local control over factors of production. Results also provide implications for educators. While cooperatives main function remains that of an instrument used to spark development; there is opportunity for capacity building projects and studies to be integrated into the cooperative development models. Using the principle of education, educators can play a large role in helping to bridge the power distance between members and leaders that often, due to local culture, inhibits participation and perception of ownership.

References


University Teaching and Learning

Evaluating the Department of Agricultural Extension,
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Keywords: Program Assessment, Program Evaluation, Agricultural Extension, Higher Education, SWOT Analysis, External Review, Self-Study

Introduction
University of Baghdad’s Department of Agricultural Extension has rich traditions of fostering intellectual development, research, and engagement of students, colleagues, and constituencies. Given its record of excellence, the department wanted to assess itself to improve. Best management practices for departmental reviews were foreign to Iraqis.

Purpose
The purpose of this study was to evaluate the Department of Agricultural Extension, University of Baghdad.

Methods
Step one was a self-study. Not common in Iraqi higher education, this step in a departmental review is often the most valuable. Critical reflection was important for the Iraqi faculty and for the U.S.-based review team’s understanding of the program. The self-study comprised a history of the Department of Agricultural Extension and articulation of degree programs (B.Sc., M.Sc., and Ph.D. in agricultural extension). The team developed and shared interview questions with Iraqi administrators and faculty members and requested meetings with department stakeholders. On site, the team conducted three days of interviews and observations, using a SWOT analysis to examine the program. The team shared an interim/draft final report with Iraqi stakeholders, who provided input to the draft. Then, the team developed its final report.
Results

The SWOT analysis revealed:

Strengths:
• Incoming students with no background or interest in agriculture or extension become energized while in the program.
• A strong summer internship program exists for honors students.
• Students are well trained in evaluation with practical opportunities to develop skills and abilities.

Weaknesses:
• The agricultural extension curriculum has out-dated information and changes slowly.
• Departmental faculty lack practical experience/employment in extension work.
• Admission procedures preclude the program’s attracting high achieving students interested in agricultural extension.
• There are few jobs and little vision for jobs outside government by agricultural extension graduates.
• No private or semi-private extension enterprises exist.
• All students need summer training programs—not just honors students.
• No computer laboratory or communications technologies exist for students.
• Faculty and students seldom engage in public or private sector Iraqi agriculture.

Opportunities:
• Interest and need exist for establishing a diploma program in agricultural extension.
• Students could benefit from studying rural sociology and from access to computers.
• The Ministry of Agriculture opened a division for rural women and youth.
• Scholarships are available for graduate students to study abroad.

Threats:
• Proposed changes to the agricultural extension program face political, economic, and national pressures.
• There is no dynamic, private agriculture sector.
• Current security issues limit students to staying on campus only half days.
• Numerous holidays (national, religious, ethnic) limit instructional time.
• Weak relationships between MOA and the department restrict collaborative projects.

Implications and Recommendations

Faculty members have academic degrees from the Department of Agricultural Extension, University of Baghdad. Isolation has restricted their ability to receive education elsewhere. With few senior faculty members to offer courses and to supervise students pursuing the degree, the Ph.D. in agricultural extension was suspended. No Iraqi institutions currently offer a Ph.D. in agricultural extension.

Recommendations for Faculty Development:
• Communicate need for senior faculty in the department to re-institute the Ph.D. in agricultural extension. Faculty members may come from outside Iraq.
• Provide professional development for faculty (e. g., scholarships, short-term and long-term trainings, and Ph.D. degree work outside Iraq).
• Provide faculty access to computers, instructional and computational software, and the Internet.
• Develop credibility, practical skills, and working relationships through professional engagement in joint needs assessment, program planning and delivery, problem solving, and assessment with agricultural extension professionals, private agribusinesses, and farmers.

The out-dated curriculum is difficult to change; it provides limited opportunities for students to apply agricultural extension knowledge and skills. Many employees are chosen for their technical expertise but work in knowledge and technology transfer (extension).

1. Conduct a needs assessment of the knowledge and skills for agricultural extension and related careers.
2. Follow-up graduates to determine where they work, how well they were prepared, how satisfied they are, and what recommendations they have for improving curricula.
3. Ensure that curricular content is relevant and current.
4. Develop a diploma program to teach extension knowledge, skills, and abilities to professional agriculturists.
5. Invest in a computer laboratory with Internet access for student use; teach students how to search the WWW and how to connect with sources.
6. Ensure that students experience agricultural extension practicums, identifying needs for and implementing agricultural extension projects.
7. In agricultural communications courses, have students practice by developing promotional brochures and materials to garner program support.
8. Develop a departmental vision, mission, goals, and 4-year strategic plan.
9. Conduct a departmental SWOT analysis with stakeholders. Develop and implement plans for regular feedback from stakeholders.

References
Competencies Needed by University Agricultural Communications Graduates in the Republic of Mali

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Keywords: Agricultural Communications, Competencies, Graduates, Mali

Introduction/Conceptual Framework
Mali is a landlocked country in West Africa. Agriculture is the backbone of Mali’s economy. The Food and Agriculture Organization (FAO) (2011) reported that Mali remains one of the poorest countries in the world. However, since 1992, the country has made administrative, political, and economical advances. At the political level, Mali changed from a dictatorial military regime to a successful democracy. Mali is undergoing a significant economic reform currently, which is showing progress in economic growth. Reforms in agriculture, food security, environment, and education are ongoing (USAID, 2003).
Ouedraogo (2008) stated many Malian farmers are illiterate yet need information and communication to organize, manage and market their enterprises. But in spite of the important role of agriculture in the economy, Mali does not have an agricultural communications (AGCM) program in higher education. According to Ouedraogo (2008), the lack of training of agricultural communicators in Mali results not only in poor quality of media services but also a dearth of innovation in media programs.

Agunga (1993) defined six major roles that communicators have to play in the developing world: advising governments on communication policy; assisting project managers in designing and implementing communication strategies; mobilizing and training community groups and individuals for participatory decision-making; training extension workers in communication skills; promoting coordination and linkages among development agencies; and production of multimedia and audiovisual aids.

Planners of agricultural schools in higher education in Mali need to develop a curriculum appropriate for AGCM that not only meets the needs of, but also offers job opportunities to, graduates (Ouedraogo, 2008). Sprecker and Rudd (1997) asserted that examination of the competencies, which are needed by agricultural communicators, would help planners design curricula that enable graduates to be more competitive in the market place.

The study’s conceptual framework was based on the human capital theory (HCT). The proponents of HCT assert the most valuable investment is that made in human beings (Cornachione & Daugherty, 2008). Becker argued that investments in education and training are the most relevant (as cited in Cornachione & Daugherty, 2008).

**Purpose/Objectives**

The study’s purpose was to determine the competencies needed by university graduates of AGCM in Mali, as perceived important by media professionals. Further, the study sought to determine the frequency of use of these competencies by media professionals in their daily activities. The following objectives guided this study:

1. Describe the personal and professional characteristics of media professionals in Mali;
2. Determine competencies needed by university graduates of AGCM in Mali;
3. Develop the conceptual foundation for an AGCM curriculum for universities in Mali.

**Methods/Data Sources**

The study’s target population was media professionals in Mali. The researcher employed snowball sampling. In snowball sampling the researcher asks respondents to identify others to become part of the sample (Creswell, 2008). The online questionnaire was sent by email to a list of 27 media professionals who were asked to complete the questionnaire and forward it to their journalist colleagues. Any journalist who completed the instrument became a part of the sample.

The study included eight constructs. Media professionals responded to seven items, which comprised each construct, and rated their levels of importance and competence related to these items. The Borich (1980) needs assessment model was used, i.e., mean weighted discrepancy score (MWDS) for each construct was calculated. The constructs were ranked from highest to lowest using the MWDS. The construct with the highest MWDS was the most important area for curriculum development for AGCM programs in Mali, and so forth.
Results

More than one-half of the media professionals (57.7%) were in their mid-career with an age range of 36 to 45, and the majority were male (73.1%). More than one-half held a master’s degree (61.5%). The average professional experience was almost five years ($M = 4.92$). “Layout and Editing” had the highest $MWDS$ (3.09) and “Malian agriculture” had the lowest $MWDS$ (-.155). The other construct scores were as follows: “Broadcasting” ($MWDS = 1.95$), “Ethics” ($MWDS = 1.57$), “Knowledge of agriculture” ($MWDS = 1.52$), “Technology” ($MWDS = 1.13$), “Writing” ($MWDS = 1.10$), and “General communications” ($MWDS = .95$).

Conclusions, Recommendations, and Educational Importance

A curriculum of AGCM in Mali’s universities should be developed primarily in layout and editing, broadcasting, ethics, agriculture, use of technologies, and writing. The study’s findings and recommendations should be shared with policy makers and faculty charged with planning university curricula. The views of farmers as well as representatives of agricultural corporations in Mali regarding the role of AGCM and their related needs should be investigated in the future.

References

How Globally Competent Are Students Who Complete an International Dimension Course at a U.S. College of Agriculture? Implications for Improving the Preparation of Professionals for Careers in Agricultural and Extension Education

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Keywords: Global Competence, Students, Undergraduate Curricula

Introduction/Conceptual Framework

Many U.S. universities are concerned with how best to prepare students to become globally competent citizens capable of tackling the global challenges confronting them (McGowan, 2007), including problems in the agriculture sector. The College of Agricultural Sciences and Natural Resources (CASNR) at Oklahoma State University has taken action to achieve this goal by offering three international dimension (ID) undergraduate courses. However, because little or no data existed, CASNR faculty could not be certain if students taking these courses were undergoing learning experiences impacting their global competence.

Global competence has been defined as “having an open mind while actively seeking to understand cultural norms and expectations of others, [and] leveraging this gained knowledge to interact, communicate and work effectively outside one’s environment” (Hunter, 2004, p. 101). In as much as they are influenced by the world, globally competent individuals impact the world and recognize their responsibility to make decisions that will affect the future positively.

Bandura (1997) described self-efficacy as the belief someone has about his or her ability to organize and execute actions required to achieve certain goals. Students’ beliefs about their abilities to acquire knowledge and use it to achieve their goals are usually low at the beginning of a learning experience (Schunk, 1989). However, Schunk (1989) asserted that, “[s]ocial, instructional, and other contextual variables associated with the learning context affect students while they are cognitively engaged with academic material” (p.182). Per this study, students learned by reading prescribed academic materials on international issues, by observing and interacting with guest presenters, including foreign nationals, and by receiving feedback from their instructors through class discussions and assignments.

Purpose/Objective

The purpose of this study was to compare the global competence of students, pre course to post course, enrolled in three ID undergraduate courses offered in the CASNR at Oklahoma State University during the Fall semester of 2010. Describing selected characteristics of the students was also an aim of the study.
Methods & Data Sources

This investigation was a non-experimental, pretest-posttest descriptive and comparative study, which used general global knowledge instruments to gather pretest and posttest data to measure differences resulting from a treatment or intervention effect (Dimitrov & Rumrill, 2003), i.e., students’ participation in an ID course. Twenty-one general knowledge multiple-choice questions constituted the tests, which were adapted from previous studies and content relevant websites (e.g., Global Awareness Quiz, 2009 and Radhakrishna & Dominguez, 1999). The students completed an “alternate form” of the instrument at the semester’s end to measure learning gain.

This was a census study and the target population included all undergraduate students (147) enrolled in three ID courses during the Fall semester of 2010. Descriptive statistics were performed to obtain measures of central tendency, variability, and effect size (eta squared). Per “time and place” rationale (Oliver & Hinkle, 1982) regarding subjects, the researchers also used inferential statistics: A paired-samples t-test measured change in students’ global competence.

Selected Results/Conclusions

More male students (45.7%) than females (37.2%) participated in the study; the students were mostly “seniors” (42.6%) and “juniors” (31.9%) by classification who majored mainly in agricultural education (26.2%), animal science (18.1%), agribusiness (12.8%), or agricultural leadership (12.8%). The students’ overall mean GPA was 3.17 (SD = .437). Most were White (69.1%), non-Hispanic or Latino (77.7%), and spoke only English (64.9%). A majority (74.5%) had not participated in a study abroad program before taking an ID course.

Few students achieved a “passing score” (i.e., correct answers ≥ 60%) on the pre course knowledge test of their global competence. In the post course test, less than one-third scored 60% or higher. Although students’ post course scores were higher, their overall performance was still below 60% correct. However, this was a statistically significant difference (p < .05) in students’ global competence from pre course to post course, and it demonstrated a small effect size.

Recommendations, Educational Importance, Implications, and/or Application

Findings showed that student performance on both knowledge tests was rather poor. To address this shortcoming, instructors who teach ID courses should consider restructuring their courses to include topics that would facilitate improving students’ global competence generally while still teaching the agriculture-specific content (i.e., an “infusion” approach, as described by Whalley, Langley, and Villarreal, 1997). The study’s findings should be used by faculty to improve their curricula and create models that prepare students to succeed in an increasingly globalized world. Other studies should be conducted using different ways to assess students’ global competence, especially regarding facts and understanding that resonate with preparing agricultural and extension educators for career success.

References


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**Globalizing Today’s Classroom: Faculty Perceptions of an International Curriculum Development Process**

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**Keywords**: Faculty Development, Internationalization, Global Education, International Curricula, Development

**Introduction**

There are a variety of reasons we see more and more internationalization occurring in today’s United States of America educational system. As agricultural production and food trade become increasingly globalized, it is critical that educators in the United States improve their global awareness and cultural competency in order to remain viable within the U.S. agriculture sector and food industry. What’s more, employers have expressed that College of Agriculture graduates should not only be able to work with diverse cultures and people, but should also have a good grasp on worldwide issues and events, in order to compete in an increasingly global
society (Irani, Place, & Friedel, 2006; Navarro, 2004). Perceptibly, we are seeing more international students on our campuses; as such, it is a fundamental responsibility of faculty to prepare these students, as well as domestic students, for life within an increasingly connected world (Schuerholz-Lehr, 2007).

Within university programs, the curriculum is a primary element in preparing all students to engage effectively within a global society (Schuerholz-Lehr, 2007). Still, even with the emphasis placed on the importance of developing a global awareness and cultural competency, there have been few, if any, systematic efforts within universities to internationalize their curricula.

At one southern land-grant university, efforts to internationalize curricula have been occurring in the College of Agriculture. This study is interested in exploring international curricula development from the developer’s (faculty) viewpoint. Specifically, as faculty go through the curricula development process, it is expected they would also experience their own learning and skill development. For this reason, this study was informed by Mezirow’s (1991) principles of transformative learning, which describes learning as a process that is at times dynamic, disorienting, personally meaningful, critically reflective, iterative and integrative for the individual.

**Purpose and Objectives**

The purpose of this study was to examine faculty perceptions of the curriculum development process. More specifically, this research was intended to highlight the thoughts, feelings and reflections of those faculty engaged in developing on-line modules with an international focus, with the intent of enhancing agriculture education at the secondary and post-secondary level. The guiding research question for this qualitative study was:

*RQ1: What were the faculty thoughts and attitudes relating to the process of international curriculum development?*

**Methods**

Participants in this qualitative research study were the five faculty members participating in the *Globalizing Agricultural Education: Sustainable Agriculture, Food, and Rural Development* project. A focus group was used to answer specific questions designed to address the guiding research question. After transcription, the researchers conducted a detailed contextual and thematic document analysis on the faculty reflections. In an effort to ensure research validity and reliability, both researchers worked independently, thus allowing for a triangulation of all data.

**Results**

From the beginning, faculty participants articulated the challenges of the process; particularly the initial ambiguity associated with developing a product without much precedent. “Of course we always go through these processes where you learn by doing and change things up…so I didn’t really know where we were falling in or what the long term objectives were.” “…some of the other modules are really difficult to define and therefore how do you set it up?” Still, a major recurring theme was the importance of the project for student development, which helped faculty “push through” and keep motivated through the frustrating times.

Faculty also expressed the usefulness of personal and peer reflection on improving their final product, as well as the transformative effects of participating in the entire curriculum development project. “I came in as the lab rat, and I am slowly transforming into something
“I am learning how to integrate it (the international module) into a teaching program and it’s all new. So (pause) I may learn more than I actually contribute…” Overall, faculty participants indicated positive reflections associated with the project. “These are things we feel very passionate about…(and now I am) more engaged in the process because now I feel very enthusiastic about it and very excited.”

**Recommendations and Implications**

As institutions of higher learning continue to push for internationalization within their institutions as well as classrooms, more and more internationally-focused curricula will need to be developed in the future. With progressively more faculty participating in the international curriculum development process, it is imperative we understand what faculty experience throughout this process. By setting the process up appropriately, and providing useful structures and resources throughout the process, we can assist faculty in developing the most effective international curricula possible.

**References**


Professional Development

Exploring Cultural Adaptation of Agricultural Faculty on a Short-Term International Experience

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Introduction
Undergraduate education is greatly influenced by the perspectives and experiences of college faculty (National Research Council, 2009). In terms of globalizing the undergraduate experience, it is important to understand how faculty develop their own international perspectives and cultural awareness. Researchers agree that individuals are challenged when exposed to new cultural environments; however, agreement on cultural adaptation is lacking (Gao & Gudykunst, 1990). Several theoretical models exist explaining the intercultural adaptation process (Gudykunst & Hammer, 1988; Hottola, 2004; Oberg, 1960). However, these models focus on tourists and may not adequately explain the impact on faculty traveling on work-related trips. Understanding this phenomenon could provide insight into preparing faculty to teach in a globally competent manner.

Purpose and Objectives
The purpose of this study was to explore how agricultural and life sciences professors react to a short-term international experience.

Methods
In March 2011, eight faculty travelled to Trinidad and Tobago for a 10-day international experience. Researchers collected data through participant observation, interviews, and focus groups. To gain a clearer understanding of participant reactions to the experience, researchers utilized informal interviews with individual participants and focus groups with multiple participants (Patton, 2002). After the trip, recorded data was transcribed and sorted into emergent themes by three researchers using the constant comparative method (Lincoln & Guba, 1985).
After independently coding the data, the coders confirmed and revised the initial findings using procedures outlined by Lincoln and Guba. Results were shared with participants to allow for member checking.

**Results**

Nine stages of cultural adaptation for faculty emerged from data: anticipation, excitement, team building, cultural comparison, cultural understanding, advancing expertise, teaching, building relationships, and developing future plans. Participants exhibited excitement, concern, and nervousness prior to embarking on the experience. Sara said, “Out of my family I will be the first person to actually leave the U.S., out of my entire family, so for me this was a big experience.” The sense of excitement carried forward into the early part of the trip during which time participants expressed desires to see or do certain activities, or expressed much excitement over what had already been done. From early in the trip, participants began to express a bonding with other participants on the trip. Kelly observed, “If you try to pull together this group based on vitas, it wouldn’t make any sense at all … but somehow this group has this cohesion.”

Participants compared their observations of culture in Trinidad to their experiences in the United States. David stated, “The runway runs parallel to the beach. And so what we both came to the conclusion of, in the States you would never see that, because that land would be developed.” Participants experienced a desire for a deeper understanding of Trini culture and wanted to understand why things are the way they are. Ben reflected, “The culture was very interesting. That’s the only way to experience it, to just be immersed in it rather than just reading about it.”

Participants expressed desire to enhance their own technical knowledge. For example, Cliff said, “The thing that I was really excited about coming here and learning directly was to learn about the cocoa research unit that is hosted here at the University of West Indies.” It was observed that participants eventually began to share their knowledge with other trip participants and local counterparts, such as sharing information about indigenous plants.

Throughout the trip, participants built relationships as collaborators and friends as they interacted with local counterparts. Of her experience at a UWI lecturer’s home, Kelly shared “…we were able to go beyond the professional relationship, you know, we were mothers. It was just, there was a real connection there.” Perhaps due to these developing relationships, nearly all participants expressed intentions to return to Trinidad and Tobago, including the potential for future research, collaborations, and Fulbright projects.

**Recommendations and Implications**

Faculty demonstrated nine distinct stages of cultural adaptation. Each participant expressed a unique combination of the stages, indicating that a universal set of stages does not fit. Additionally, faculty participants exhibited unique stages not present in the existing cultural adaptation models focused on tourists. These included: team building, advancing expertise, teaching, building relationships, and developing future plans. Organizers of similar trips should recognize that faculty are different than tourists and they will adapt to the local culture by advancing through these stages in their own unique way.

**References**


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Professional Development Needs of Extension Officers in Belize

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Introduction

The beautiful landscapes and unique biodiversity that characterize Belize contribute to an appeal that leads tourists to outnumber residents by 400% (Association of Caribbean States, 2007). However, Belize lags behind its Latin American and Caribbean neighbors in human development measures such as access to knowledge and a decent standard of living (United Nations Development Programme, 2010). Belize’s Ministry of Agriculture, Fisheries and Cooperatives has historically demonstrated commitment to developing capacity in extension (International Food Policy Research Institute, n.d.) and recently brought in international expertise to provide professional development. The Nation’s poorest citizens are largely subsistence farmers whose limited resources prevent them from taking advantage of progressive technologies that could improve yield and subsequently income (National Human Development Advisory Committee, 2004). A strong extension system can play a valuable role in improving rural livelihoods if staffed by skilled personnel (Swanson & Rajalahti, 2010).
Purpose and Objectives

The purpose of this study was to determine the professional development needs in the area of programming for extension officers in Belize. Specific objectives were to: describe officers’ perceived levels of proficiency for programming competencies, describe the perceived level of importance assigned by officers to programming competencies, and compare proficiency and importance levels for each competency to determine priority training needs for extension officers in Belize.

Methods and Data Sources

A census was conducted of extension officers ($N = 35$) in Belize in August 2011. The survey instrument was derived from the Essential Competencies for Program Evaluators model (Ghere, King, Stevahn, & Minnema, 2006), Teacher Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001), and researcher-developed statements. A modified Borich (1980) model of needs assessment was used to measure participants’ perceptions of 38 programming competency statements grouped into program planning, interacting with learners, teaching tools and methods, and program evaluation areas. Participants used a four-point scale (1 = No Proficiency/Importance, 2 = Low Proficiency/Importance, 3 = Average Proficiency/Importance, and 4 = High Proficiency/Importance) to rate the levels of proficiency and importance for each competency.

Data were collected in person by one of the researchers. Thirty-five responses were received and all were usable. Descriptive statistics were used to address the first two objectives. The ranking procedure described by Edwards and Briers (1999) was used to address the third objective.

Results and Conclusions

Belize extension officers perceived they had average proficiency in all programming areas although they were more confident in their use of teaching methods and tools and interaction with learners than they were with program planning or evaluation, which was the lowest area of proficiency. Although officers reported only average proficiency, each area was perceived to be highly important indicating the existence of professional development needs.

Specific training needs were determined by calculating mean weighted discrepancy scores (MWDS) for each competency. Positive MWDS scores indicated a training need while negative scores indicated no training need existed. Due to word limitations, only the five highest and lowest training needs have been presented but full results are available from the authors upon request. In order, the highest priority training needs were: involving stakeholders in program planning, developing a program of work, using quantitative evaluation methods (e.g. number-based surveys, tests, reports) to measure the effectiveness of my programs, conducting result demonstrations, and developing recommendations for future programming based on the findings of my evaluation. Little or no training was needed for: teaching with PowerPoint presentations, teaching with slides, lecturing, providing an alternative explanation or example when clientele are confused, or identifying target (groups) audiences for my programs. The MWDS substantiate the need for training in the areas of program planning and evaluation.

Recommendations, Educational Importance, and Implications

Involving stakeholders in program planning is ubiquitous to most successful extension programs. Expertise on the use of participatory methods is widely available and should be a central component of professional development efforts currently underway. Similarly, plans of
work are used by extension services throughout the world to help officers focus their work on significant problems with high impact programs. Measuring return of investment has gained much attention over the past decade. Evidence-based outcomes must be substantiated by quantifiable data. Providing officers with the tools to collect and report such outcomes will help to better articulate extension’s mission and impact. Demonstration projects are the hallmark of extension programs throughout the world. Training on demonstration teaching methods is warranted to better the work of officers with their clientele. If the extension service focuses on the identified areas reported in this study, officers will be better prepared to deliver programs for the benefit of Belize’s subsistence farmers, an important step towards improving rural livelihoods.

References


Extension Education Competencies of Agricultural Extension Agents in Kenya; Implications for Curriculum Development

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Introduction
Agricultural extension service in Kenya has undergone transformation over the last five years. A critical challenge has been the effective delivery of extension services to farmers. Extension agents are trained in various technical areas of specialization such as horticulture, animal science and agricultural economics and are expected to work with farmers to improve their livelihoods. However, little has been done to assess their capacity to provide extension service to farmers, technical buck-stopping junior staff, manage extension programs and the context of extension service delivery. Extension education courses in the agriculture undergraduate curricula in Kenya constitute less than 10 percent of the total credit factors required for graduation. This study therefore sought to determine the extension competencies required by agricultural staff critical for effective delivery of services.

Methods, Results and Conclusions
The study was carried in four provinces of Kenya covering 5 counties. A total of 417 agricultural extension agents from the public (n = 302) and 115 private (n = 115) extension service sectors were sampled. The respondents who had a minimum qualification of a diploma in an agricultural discipline were categorized as Frontline Workers (FEW) and constituted 61.6% while Subject Matter Specialists (SMS) had a minimum of a degree in an agricultural discipline constituted 38.4%. The majority of the respondents had a degree in General agriculture (30.2%), Horticulture (19.8%) and Agricultural economics/ Agricultural business management (11.1%). A Cross-Sectional survey design was used and extension competencies were identified using the Critical Incident Technique (CIT) in which respondents were asked to narrate effective and ineffective extension activities and attribute behavioral factors that lead to the success or ineffectiveness. The behaviors were categorized in themes and specific competencies from which training needs were derived. A total of 1894 behaviors were identified as critical to extension work of which 1267 were categorized as effective behaviors and 627 as ineffective. The
behaviors were grouped in four themes; Theme I: Organizing and conducting training for farmers (Effective behaviors \( f = 560 \); Ineffective behaviors \( f = 212 \)); Theme II: Planning, organizing and implementing extension programs (Effective behaviors \( f = 395 \); Ineffective behaviors \( f = 202 \)); Theme III: Demonstrating intra-agency and interagency relationships (Effective behaviors \( f = 112 \); Ineffective behaviors \( f = 59 \)) and Theme IV: Working with farmer groups (Effective behaviors \( f = 200 \); Ineffective behaviors \( f = 154 \)).

The most effective behaviors were; extension program implementation, Having adequate technical and training knowledge of the technical subject matter, Timeliness of extension program and activities, Facilitation and presentation skills, Community mobilization, Willingness of the farmers to form effective and synergetic groups (CIGs), Farmer needs identification, Convincing farmers on the value of accepting the technique introduced, Farmer-extension agent relationship building trust and confidence, Stakeholder networking and collaborating, Encouraging teamwork and Organization/encouraging staff to attend further in-service training. Extension agents attributed their success in extension activities to having adequate technical training, communication skills, and having good extension–farmer relations. This enabled effective community mobilization and adoption of technologies. The most ineffective behaviors were community mobilization, facilitation and presentation skills, stakeholder networking/collaborating, convincing farmers of the value of accepting the technique introduced, encouraging farmer groups to select appropriate local leaders for projects in the community, organization/coordination skills and mobilization of resources, managing farmers’ resistance and poor attitude towards the activity, farmer needs identification, using farmer groups to teach farmers, legitimizing the projects by seeking the cooperation and authority of local administration and opinion leaders, conflicting interests among stakeholders, and providing incentives and recognition of staff members. The most effectively used extension instructional methods were farmer group training sessions \( f = 72 \), demonstration/practical \( f = 43 \), and field days \( f = 36 \). These were also the most rated as contributing to ineffective instruction. This implies there is disparity in the instructional competencies of extension agents; hence training is required in extension instructional methodology.

These behaviors identified as critical to extension work consist of soft skills such as interpersonal skills, communication, conflict management, and trust building. Extension agents also require skills to effectively mobilize communities and manage human and organizational resources. The findings emphasize the importance of training agricultural graduates in extension education in addition to their technical training. It is recommended these competencies be integrated into extension education courses in the agriculture undergraduate curricula and in designing relevant in-service courses that would have impact on agricultural service delivery. The paper also provides a premise to stimulate discussions on core competencies required of agricultural graduates regardless of the area of specialization.
Intercultural Development Inventory (IDI): A Tool for Evaluating and Improving Intercultural Competence

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Keywords: Intercultural, Mindset, Diversity, Culture, Awareness

Introduction

Extension educators have to work with culturally diverse audiences on local, national, and global levels. This task is sometimes difficult; educators are comfortable with the familiar and often times find it challenging to view life from another person’s perspective. To effectively do our work, we must come out of our comfort zones and be knowledgeable about how different cultural communities view the many issues we face, and how we can increase the acceptance of our differences. At University of Minnesota Extension, educators examined their global awareness by completing the Intercultural Development Inventory (IDI). We are now moving to implement targeted, ongoing training and goal setting based on IDI results. The IDI is a tool for evaluating the intercultural competence of individuals or groups in an organization. By learning about and participating in the IDI, University of Minnesota Extension faculty have a greater understanding of cultural differences, and can now apply this new knowledge to their work in the field.

Purpose

Our paper argues for the importance of the IDI in helping Extension educators understand the development stages of intercultural competency. The IDI was created by Dr. Mitchell Hammer, and serves to provide a baseline in assessing a group’s overall capabilities. Specifically, our paper will discuss the Intercultural Development Continuum, including the five core orientations of the IDI. These are developmental stages that a person engages to develop their understanding of cultural interaction: denial, polarization, minimization, acceptance, and adaptation. We draw connections between the IDI and its impact on University of Minnesota Extension faculty. The result of the distribution of group specific IDI feedback to faculty is greater awareness of cultural diversity and an engaged discussion of issues that Extension will have to address in the future.

Methods

80 educators at University of Minnesota Extension completed the Intercultural Development Inventory (IDI) and learned about the underlying theoretical model upon which it
is based—the Developmental Model of Intercultural Sensitivity. Participants were assessed according to the Intercultural Development Continuum. The continuum identifies detailed orientations that range from mono-cultural to intercultural mindsets. Groups who have a mono-cultural mindset tend to use stereotypes and judge other cultures based on their own culture. Those with an intercultural mindset respond more effectively to cultural differences by employing appropriate cultural generalizations and recognizing cultural commonalities. Within those mindsets are five orientations: denial, polarization, minimization, acceptance, and adaptation, with denial and acceptance/adaptation being at separate ends of the spectrum. The five orientations are the development scale used to assess faculty.

Educators were first given a presentation on cultural diversity, values, and intercultural sensitivity. After the presentation, participants took the IDI and were asked various questions regarding their cultural background and their perceived cultural awareness. Groups were then given profile reports that included an explanation of the Intercultural Development Continuum and how to interpret their results.

**Results**

Faculty tested predominantly in the minimization range of the Intercultural Development Continuum, which is a common developmental stage at the University of Minnesota. The goal is to move Extension faculty from a mono-cultural to an intercultural mindset where the predominant orientation would be in the acceptance to adaptation range. While the test has been administered, the University of Minnesota Extension needs to apply these findings into a visibly improved cultural awareness.

**Educational Importance and Application**

Extension still has much to accomplish in way of implementation of the IDI’s findings. One of the key objectives of University of Minnesota Extension is to create a national initiative to internationalize Extension. Until 2005, a United States Cooperative Extension system existed to establish Extension in underdeveloped countries; funding for this venture has since been eliminated. The University of Minnesota sees the importance of re-establishing this program. 47 million people in the United States speak a language other than English at home, and 12% of our population is foreign born. Reaching these audiences will require not only external knowledge of their culture, but a deeper, internal comprehension of what makes us different, and then acceptance and appreciation of those differences. In doing so, we can build our cross-cultural skills and form relationships with cultures we otherwise would have felt disconnected from. Completion of the IDI by faculty creates a foundation to discuss the necessary skills required to meaningfully engage cultural differences that must be understood to foster a national initiative for a global Extension.

**References**


Climate Change and Sustainable Home Management Practices among Agro-Pastoral Women in Nigeria

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Analysis of distributive impacts of the environment on human wellbeing cannot ignore features such as gender (UNEP 2007) because of the persistent and global disparities that perpetuate poverty. Women, disproportionately to men, bear the burdens created by environmental degradation, and a vicious cycle exists between this reality and climate change. It is widely held that environmental degradation has led to climate change which in turn exacerbates existing degradation. The Women’s Major group at the 14th Meeting of the UN Commission on Sustainable Development in 2006 (among others) has given the negotiators reasons to mainstream gender by drawing attention to the specific gender characteristics of climate change, pointing out that women because of their social roles, discrimination and poverty, are affected differently by the effects of climate change and by extreme climate events that often translate into disasters.

Agro-pastoral women as a major supplier of milk and milk products to society constitute a recognizable economic group in Nigeria. However, the agro-pastoral system suffers from climate change and hence unable to consistently provide good quality products at affordable prices all the year round, (Dafwang et. al. 2007) and invariably affecting household food security especially that of pastoral communities whose stable food is the dairy based “fura” and “Nono”.

This study examined the effect of climate change on the activities of agro pastoral women as well as the Home management (HM) practices implemented by them as coping strategies. It aimed at identifying problems faced by these women as a result of climate change as well as formulate appropriate strategies for promoting sustainable and improved practices thereby
ensuring food security among agro-pastoralist in northern Nigeria. Focus group discussion and interviews were used to elicit data from 123 purposively selected households (with a woman as the principal investigator) in six agro-pastoral villages in three Local Government Areas in Kaduna State of Nigeria. Data collected were analyzed using simple descriptive statistics like frequency tables, means, standard deviation, and percentages.

Results of the interview identified seven main environmental problems of great concern to respondents based on their impact on livelihood, health, and access to natural resources and their animals. These were: Flooding (100%), Erosion (89%), increased temperature (84%), drought (92%), overgrazing (86%), deforestation (100%), windstorm (76%). Results also showed that communities had noticed changes in climate but could not identify their causes. For example, despite observing the increase in temperature, shortening of the rainy season, and water scarcity over the past four decades, they attributed it to deforestation. Less scientifically, the women believed that the floods which destroy their livestock and affect the health of their people were divinely sent calamities. Women accepted that they had contributed to deforestation through their search of fire wood which led to the disappearance of many plant and animal species.

Due to the arid climate exacerbated by global warming, water became a precious commodity for the pastoral women resulting in self-help groups enabling women to protect the areas as well as manage their animals around hand pumps. They canalized wastewater to water vegetable and fruit gardens, and collect a water users’ fee from every household for maintenance of the hand pumps. These women have been trained in rainwater harvesting and to repair hand pump and they requested funding for capacity building and awareness to address traditional beliefs.

Further results showed that on daily basis, 20.3% respondents spent 2 hours milking animals now, rather than 5 hours before due to loss of animals, while 39.8% spent 3 hours on milk processing rather than 5 hours before. Also, 20.3% each spent 8 hours on transportation and 4 hours on marketing of milk. Average daily income of agro-pastoral women was low N450:00 ($3) per day, rather than N1200 made daily before losing their animals. Problems of unreliable water sources/drought due to climate change, diseases and pests, lack of milk processing skills and scarcity of market for dairy produce ranked highest among the problems affecting the women. Evidence showed that most agro-pastoral women have had no contact with extension service.

Government extension personnel need to provide extension training to agro-pastoral women and organize them into functional cooperative groups for training programs in home management practices and other income generating activities. Lastly, nomadic education should be more formal and functional to cover the vocational life of the agro-pastoral women.

Implications

Without mass education for skills development in adaptation; awareness creation with environmentally friendly policies on development and investment, climate change is likely to cause more human suffering for rural women.

References


UNEP. (2007) *The fourth uncap that uncap that (GEO-4).* Nairobi: UNEP.

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**Factors Associated with Increased Smallholder Sorghum Production in Uganda**

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**Introduction**

Promoting the transition of smallholder farmers in sub-Saharan Africa from subsistence to commercial production is now considered to be an important development goal and strategy for improving livelihoods, food security and promoting agricultural-led economic growth. There is broad-based consensus that smallholder production can be increased by accelerating the use of
improved agricultural technologies but that this has been hampered by inadequate systems and methods of technology transfer and lack of access to reliable markets providing remunerative prices (World Bank, 2008). These constraints are particularly relevant when examining lagging sorghum production, a traditional staple cereal, which in East Africa is commonly grown by resource poor farmers in semi-arid regions. Examining factors that affect sorghum production in areas where it predominates can assist in the refinement of strategies for improving livelihoods and food security.

The International Sorghum and Millet Collaborative Research Support Program (INTSORMIL CRSP) has been conducting on-farm trials and demonstrations focused on sorghum production with groups of farmers in three districts of Eastern Uganda since 2009. Demonstration trials and training programs organized by research scientists from the Ugandan National Agricultural Research Organization and managed by local extension providers, took place on-farm and included bi-annual field days where farmers could view and discuss the various technologies. The purpose of these technology transfer efforts was to expose farmers to improved technologies and production practices including improved varieties, fertilizers, and agronomic practices to increase their production of sorghum.

**Purpose**

The purpose of this study is to identify factors associated with increased sorghum production by farmers in Eastern Uganda and to use this information to improve program design and delivery.

**Data Source and Methods**

Primary data were collected through a survey of selected farmers in three districts in Eastern Uganda. A multi-staged sampling procedure was used to select farmers for interviewing. From each district, a pair wise matched sample of 25 participants and 25 non participant farmers were randomly selected from lists provided by the local District Agricultural Office. A structured questionnaire was designed, pre-tested, and administered by personal interviews to 150 farmers.

The dependent variable was kilograms of sorghum produced. Independent variables were selected from previous studies that explain technology adoption or constraints on adoption including personal characteristics, possession of economic assets, access to markets and extension programs (Rogers, 1995; Maredia & Minde, 2002). Data were analyzed using multiple correlation and regression.

**Results**

Regression results indicated that independent variables included in the model were successful in explaining sorghum production, accounting for nearly 30 percent of the variance. The most important predictor of sorghum production was farm size, followed in order by market contracting, gender, on-farm trial participation and age. Years of education, improved variety usage, and use of animal traction were not significant. Fertilizer usage was not included in the model because of multi-collinearity problems between this variable and on-farm trial participation. Male farmers and younger farmers were associated with increased sorghum production.

**Conclusions**

Farm size, market access, gender, participation in on-farm trials and age are the most important factors affecting sorghum production. The impact of farm size is consistent with the literature that indicates the importance of economic assets like land on the capacity to adopt new
technologies and increase production. Land utilization appears to be augmented by market contracting which provides enhanced market security and better prices as incentives for increased production.

The results also indicate that the sorghum technology transfer program through on-farm trials is associated with increased sorghum production. Only farmers who had participated in the demonstration trials were using fertilizers and they were also more likely to be using improved varieties. In this case, it appears that on-farm trials are a viable and important component of a research and extension programs. However, the components of these programs may be enhanced by providing additional market linkages to farmers.

However, the results also show that the program may be reaching a more advantaged audience consisting of farmers with larger farms, who are older and more likely to be male. The implications for the design of this program are that the project should redouble its efforts to reach smaller farmers and female farmers, perhaps by working with associations with largely female members. Extension providers have an important role in promoting the adoption of new technologies and providing information on market opportunities to farmers. The main factors identified in this analysis can enhance the design of technology transfer programs that improve livelihoods and food security.

References
Factors Contributing to Building Effective Extension Advisory Leadership Systems: Implications for International Agricultural Extension

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Introduction
Effective Extension advisory leaders are necessary for Cooperative Extension to continue to provide relevant educational programs for citizens. These volunteers are part of the Advisory Leadership System. Cooperative Extension depends on this grassroots connection (Groff, 2005). If functioning properly, the advisory group can be considered as the most important team of an organization (Seaman, 1981). Advisory leaders provide the necessary input to ensure Extension programs are relevant and responsive to local needs. Limited research has been conducted to identify the factors affecting characteristics, motivational factors, recruitment, retention, and training needs of effective Extension advisory leaders. This study provides information to help fill this research gap.

Purpose and Objectives
The purpose this study was to determine contributing factors for building effective Extension advisory leadership systems. The main objectives were to determine characteristics and motivational factors of effective Extension advisory leaders and the best ways to recruiting, retaining, and training them.

Methods
The Delphi technique was used to conduct this exploratory study. Since the Delphi technique is exploratory (McInturff, 2009), it is appropriate for this study. This study gathered information from two selected panels: 20 State Advisory Council members and 20 County Extension Directors from the North Carolina Cooperative Extension Service. Three rounds of the study were utilized to reach consensus. At the end of round one, there were 46 like categories for State Advisory Council members and 57 like categories for County Extension Directors. In
round two, panel members were asked to review the list and add new responses if they had any. For round three, panel members were asked to rank categories in relative order of importance.

Results and Conclusions

The rankings resulted in the main factors for identifying, motivating, recruiting, retaining, and training effective Extension advisory leaders. The County Extension Director panel identified "involved, respected, and connected to the community" as the most important characteristic of an effective advisory leader. Culp, McKee, and Nestor (2005) also indicated a desirable characteristic as a person who was already involved and active in the community. The State Advisory Council panel identified ‘desire to serve others and improve the community’ and County Extension Director panel identified "positive attitudes and interests about Cooperative Extension" as the highest motivational factors of effective advisory leaders. Available literature (Bolton, 1992; Fisher & Cole, 1993; MacLeod, 1993; Nelson, 2007; Scheier, 2009; White & Arnold, 2003) supported the notion that the desire to serve others and improve the community and the desire for and value of meaningful service as prime motivational factors for volunteering.

The State Advisory Council member panel ranked "look for effective leaders with desirable skills for Cooperative Extension" and County Extension Director panel ranked "ask Cooperative Extension staff for recommendations" as the best ways to recruit effective advisory leaders. Both panels identified "providing meaningful engagement opportunities for volunteer service" as the best way to retain effective advisory leaders. Available literature (Finkelstein, 2007; Rehnborg & DeSpain, 2007) supported the notion that volunteers participating in meaningful work remain committed to the organization. Regarding the highest priority training need for effective advisory leaders, State Advisory Council members identified "advocacy skills and County Extension Directors identified "orientation for volunteer leadership and role clarification."

Recommendations

When recruiting advisory leaders, it is important to look for effective leaders with desirable skills such as involved, respected, and connected to the community for building strong advisory systems. This can be accomplished by asking Extension staff and advisory leaders for recommendations. Community volunteer leaders feel strongly about the volunteer organization they serve and have skills that will benefit the organization (Walker, 1991).

When working with volunteer leaders, Extension should carefully match assignments that fit the volunteer’s abilities and reason(s) for volunteering. By having the correct match, Extension will be able to make the volunteer experience more meaningful for the volunteer as well as more effective for the organization. Similarly, Lynch (2009) indicated that volunteers need to be matched to a satisfying and meaningful role. For advisory leaders to be effective, they should be given needed training on advocacy skills, along with the mission, vision, and scope of Extension programming.

Findings of this study provide guidelines for identifying, motivating, recruiting, retaining, and training effective volunteer advisory leaders for building extension advisory leadership systems.

Implications and Educational Significance

Findings of this study have implications for building effective extension advisory systems in other parts of the world. Effective advisory leaders are helpful for guiding extension systems to provide relevant educational programs to citizens.
References


Contribution of Urban Agriculture to Food Security in Swaziland for Sustainable Development

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Keywords: Urban Agriculture, Food Security, Sustainable Development, Contribution

Introduction

Swaziland is faced with food security challenges (WFP, 2009). Urban agriculture becomes handy, to complement food supplies from rural areas (David and Moustier, 1993). Urban agriculture has the potential of reducing urban poverty and enhances food security (Slothower, 2009). A growing recognition of the importance and significance of urban agriculture has taken place worldwide (Dubbeling, 1998). Urban agriculture has become even more significant because food production could fail to keep pace with the increase in demand for food (International Food Policy Research Institute, IFPRI, 1997). Projections made the Fourth World Urban Forum held in 2006 indicated that by 2050, two-thirds of humanity will live in urban areas (Smith et al., 1996). Urban agriculture, therefore, could be a natural survival strategy to improve the quality of life in communities. However, urban agriculture lacks formal recognition. Thus urban agriculture may be undertaken as a survival strategy as well as a mechanism for augmenting incomes of the urban dwellers. Therefore the main thrust of the research was to identify means of assuring stability and sustainability of future urban food production.

Purpose and Objectives of the Study

The purpose of the study was to determine the contribution of urban agriculture to food security in Swaziland. The specific objectives of the study were to: (1). Describe urban farmers by demographic characteristics and types of urban agriculture enterprises, (2). Describe yield obtained from urban agriculture enterprises, (3). Describe value added by urban agriculture in the respondents’ household food security, (4). Describe urban farmers’ perceptions towards the urban agriculture policies in Swaziland, (5). Determine the differences in yield from urban agriculture enterprises by selected demographic characteristics of respondents.

Methods and Data Sources

The research design of the study was a descriptive survey. The target population was all urban farmers within the four major regional towns in Swaziland. An up-to-date list of farmers was first obtained through chain referrals and, community development representative officers. The lists were then cross-checked to avoid duplication of names and to control selection error. A stratified random representative sample of urban farmers (N = 196) was drawn, using Krejcie and Morgan (1970) table for determining sample size. Stratification produced sample sizes, of n = 52, n = 52, n = 48 and n = 44; for Manzini, Mbabane, Siteki, and Nhlangano, cities,
respectively. The researchers developed the instrument, following a review of literature. A panel of experts attested to the validity of the instrument. A pilot test, using Cronbach’s alpha, produced a reliability coefficient of .79 for the instrument prior to data collection. Data were collected using face to face interviews. A 100% response rate was achieved. Data were analyzed using the Statistical Package for Social Sciences (SPSS- PC version 10.0). Descriptive statistics were used to describe data. The ANOVA and independent t-test were used to test for statistical differences. An a priori alpha level of .05 was set. Effect sizes were calculated to check for practical differences.

Findings and Conclusions

The findings indicated that urban broiler production was the most popular chicken enterprise, in all towns, contributing .21% to total poultry requirements for the country. Maize contributed .12% to total requirement. Cabbage was the highest produced vegetable in all towns. About 3.1% of urban households practiced commercial farming. Statistical differences employed in the study did not produce practical differences. The conclusion drawn was that the contribution by urban agriculture to food security in Swaziland was minimal.

Implications and Recommendations

That the findings indicated a low contribution of urban agriculture enterprises to food security in Swaziland points to the need to put in place urban agricultural policies to improve food security in Swaziland. Farmers also indicated that urban agriculture added value on their household food security by improving access to dietary food suited to their preferences. This is an indication that urban farmers endorse urban farming, and must be supported. The Ministry of Urban and Housing Development in collaboration with the Ministry of Agriculture should implement the urban agriculture policies and strategies and extend appropriate advisory services to urban farmers.

References


Understanding Stakeholders

AIAEE Value Proposition: What do AIAEE Members Value as Benefits?

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Keywords: Benefit Values, Networking, Journal, Conference, Professional Development

Introduction

The Association for International Agricultural and Extension Education (AIAEE) is an organization committed to developing, improving, or strengthening programs related to agricultural and extension education on an international scale. Professional associations bring people together who share common interests and ideas; members find value in their associations, both socially and psychologically (Tschirhart, 2006; White, 2005). Two types of benefits were identified as valuable for association members: personal benefits (i.e., networking or professional development) and organizational benefits (i.e., lobbying, industry certification, and standards) (Dalton & Dignam, 2007). What types of benefits do AIAEE members value?

Members of Generation X (people born from 1965-1979) and Y (people born from 1980-1997) who become members of professional organizations may question “what is the value of my membership” (Sladek, 2011). Associations with multi-generational members (Baby Boomer vs. Gen X/Y) may find their members value types of benefits differently within the same association.

Methods

The purpose of this study was to identify the types of benefits and perceived values of those benefits, according to AIAEE members. Appropriate research methods (Dillman, Smyth, & Christian, 2009; Fraenkel & Wallen, 2009; Lindner, Murphy, & Briers, 2001) were used to conduct the study. A descriptive design was used to complete the purpose of this census. All dues-paying AIAEE members (N = 297) with valid e-mail addresses were included in the data collection in spring 2009. The response rate was 54%. Participants (n = 161) represented professionals and graduate students. Perceived benefit type and value were measured through a modified instrument (White & Wingenbach, 2007) with online data collection methods. Descriptive statistics were used to analyze and report the data.
Results and Conclusions

This study determined basic demographic information about the AIAEE membership. The majority of responding members were male (65%, f = 105), resided in the Americas (77.6%), had been members for seven or less years (62%), and more than 50% had let their membership lapse.

Respondents were asked to consider their annual membership dues ($70 or $110/member; or, life members were asked how they would distribute $100 across all benefits) and use those dues as a basis to identify and assign a dollar value to their top five benefits gained from membership in the AIAEE. Participants identified their top five benefits as the journal (f = 88), conference (f = 82), networking (f = 78), professional development (f = 56), and communications (f = 36). These benefits could be classified as personal versus organizational benefits (Dalton & Dignam, 2007). Also mentioned, but at less frequent levels, were career opportunities, committees, cultural awareness, socializing, and travel.

Respondents indicated average values for the most frequently appearing benefits as journal (M = $25.06), conference (M = $21.94), networking (M = $20.15), professional development (M = $17.50), and communications (M = $9.63). These findings were consistent with previous research; among the top five benefits ACE members identified were networking (M = $43.56), annual conference (M = $37.52), and journal (M = $26.40) (White & Wingenbach, 2005).

Recommendations and Implications

AIAEE leaders can retain members by knowing what their members value in their association (Dalton, & Dignam, 2007). AIAEE could recruit members by examining the differences of perceived benefit value, compared by respondents’ age and/or geographic location, to better promote benefit values according to differences in sub-groups’ responses. Therefore, additional research is needed to determine if significant differences exist in AIAEE perceived benefit type and/or value, when compared by selected demographic variables.

Sladek (2011) identified networking as an activity, not a benefit; however it was valued by AIAEE members. Methods for continued and improved networking should be explored; perhaps social media could provide improved networking methods for members who prefer that communication/interaction method. AIAEE leaders should recognize the membership benefits most valued by AIAEE members so they can create a strategic plan that results in increased member retention, satisfaction, and recruitment.

Retention may cost less than recruitment measures, but an association must assess its recruitment strategies to ensure continued growth. In the future, AIAEE must be aware of how those entering the association value their memberships. As those who are considered as Generation X (1965-1979), Y (1980-1997), and/or the Millennial Generation enter the workforce, models of association membership must adapt (Gibson, Greenwood, & Murphy, 2009). As cited in Sladek (2011), the Department of Labor estimated that more than 50% of the workforce in 2015 will be from Generation Y. Future studies about how members of Generation X, Y, and/or the Millennial value their membership could provide valuable insights for an association’s changing demographics as the Baby Boomer Generation retires.
References


College of Agriculture Students’ Perceptions of International Education Experiences

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Keywords: Financial Concerns, Information Sources, Global Marketplace

Introduction
In previous studies, globalization of research and graduate education in agriculture was a key driver of quality improvement (Acker & Scanes, 2000). Shinn, Wingenbach, Lindner, Briers, and Baker (2009) found that international agricultural and extension education can help people make better decisions and to be aware of the consequences of their actions as they prepare to become global citizens. Most 1862 land grant universities provide undergraduate courses with international agricultural content and focus (Brooks, Frick, & Bruening, 2006). In this global world, international educational experience can improve competitiveness for students. The American Council on Education (2002) found that study abroad greatly enhanced students’ foreign language abilities, cross-cultural skills, and understanding of other cultures. However, according to the Institute of International Education (2010), in 2008-2009, only 1.1% of the U.S. students studied abroad in an agricultural field; even lower than in 2000-2001 (1.6%).

Methods
The purpose of this study was to examine college of agriculture students’ perceptions and concerns about international educational experiences. Appropriate research methods (Dillman, Smyth, & Christian, 2009; Fraenkel & Wallen, 2009; Lindner, Murphy, & Briers, 2001) were used in conducting this study. A stratified random sample of students (N = 153) was asked to complete an online questionnaire. The response rate was 67%. Participants (n = 98) were from Tarleton State University and Texas A&M University. The instrument included items that measured respondents’ ratings of concerns about gaining international educational experiences and their information sources for learning about study abroad. Descriptive statistics and bivariate analyses were used to analyze the data.

Results
Students rated the importance of 14 factors that may have concerned them while making choices about specific study abroad programs or foreign universities. Affordability was the only concern rated as very important when considering international educational experiences. Respondents also thought the country and available information about the country, university, and programs were important concerns. Having friends and family in the area or region and having friends who study at that university (for
were the least concerning factors, but were rated as somewhat important by the respondents. Respondents rated the frequencies of motivational and prohibitive information sources for learning about study abroad. Motivational information sources for learning about study abroad included study abroad staff, class, and friends, as students’ most frequently used information sources. Prohibitive information sources included study abroad staff, classes, and faculty members as students’ most discouraging sources of information used to learn about study abroad programs.

Students from Texas A&M University were significantly more willing to participate in study abroad than were students from Tarleton State University. Also, students from Texas A&M University held significantly more positive attitudes that participating in study abroad programs would improve their competitiveness in the global marketplace than did students from Tarleton State University. No significant differences existed between respondents’ perceptions or concerns about gaining international educational experiences when compared by gender or multilingual capabilities.

**Recommendations**

Only 4% of respondents had participated in study abroad programs, which was congruent with the findings of Moore, Williams, Boyd, and Elbert (2011). Affordability of study abroad programs was rated as a very important concern by respondents, which was similar to the results of Briers, Shinn, and Nguyen (2010) and Andreasen (2003). This result matches the finding of Texas A&M University (2010) that the main reason for not studying abroad was that respondents felt gaining an international experience was too expensive. Respondents also thought the country and available information about the country, university, and programs were important concerns. The findings were congruent with those of Wingenbach, Chmielewski, Smith, Piña, and Hamilton (2006), who found students’ lack of cultural knowledge and fear of unknown as barriers to gaining international educational experiences. Universities should provide more information about countries, universities, and programs to alleviate students’ concerns.

Respondents in this study were most concerned about financial issues (paying for the program or funding their living expenses and studies during the study abroad and finding affordable and adequate housing), which matched the findings of Texas A&M University (2010) that the main reason for not studying abroad was that respondents felt it was too expensive. However, students from Texas A&M University were significantly more willing to participate in study abroad than were students from Tarleton State University, indicating that Texas A&M University students possibly had better financial support and resources for gaining international educational experiences than did students from Tarleton State University. Expanded research would help determine if personal financial resources plays a significant role in students’ perceptions toward gaining international educational experiences.
References


Perceived Benefits of Membership in the Association for International Agricultural and Extension Education

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Introduction

The Association for International Agricultural and Extension Education (AIAEE) seeks to promote and expand the knowledge base for educators and extension personnel. If AIAEE’s goal is to retain and recruit members, it must respond to how members perceive fulfillment of professional needs by associating with the organization (Zuckerman & Kretovics, 2003). When an organization is aware of members’ perceived benefits, it can develop effective incentive strategies (Dalton & Dignam, 2007). Members respond to benefits that appeal to their needs and desires; when they respond positively, they commit and invest more in the organization (Collier, 2001; Rietshlin, 1998). Social needs and desires are examined in similar studies and explained in non-profit association literature (Tschirhart, 2006; White & Wingenbach, 2005).

Methods

The purpose of this study was to determine AIAEE members’ perceived benefits with respect to: (a) annual conferences, (b) membership, (c) outreach, and (d) recognition. Appropriate research methods (Dillman, Smyth, & Christian, 2009; Fraenkel & Wallen, 2009; Lindner, Murphy, & Briers, 2001) and a descriptive design were used to complete this study. All dues-paying AIAEE members (N = 297) with valid e-mail addresses were included in the study in spring 2009. The response rate was 54%. Participants (n = 161) represented professionals and graduate students. AIAEE members’ perceived benefits (annual conferences, membership, outreach, and recognition), and demographic information were measured with a modified instrument (White & Wingenbach, 2007). Descriptive statistics were used to analyze the data.
Results and Conclusions

Respondents were male (65%), living in the Americas (78%), and were AIAEE faculty members (80%). AIAEE membership ranged from zero to 25 years ($M = 6.67$). Respondents’ perceived benefits derived from annual conferences included professional knowledge and innovative ideas gained as important benefits of attending the annual AIAEE conference, supporting literature on non-profit associations playing a role in developing and diffusing innovations (Tschirhart, 2006). The opportunity to host the annual conference and the conference location does not affect the membership were not perceived as important benefits, conflicting with earlier studies about distance decay. Distance decay refers to increased engagement in activities that are close in proximity than those that are far away (White & Wingenbach, 2007). Distance decay may be less a factor in international associations where members presumably understand and accept travel as a requisite for involvement.

Respondents strongly agreed that collaboration was an important benefit of AIAEE membership. This result is likely because collaboration potentially increases scientific productivity (Lee & Bozeman, 2005). On average, there was also agreement that membership was based on professional reasons. In terms of AIAEE outreach, respondents agreed that opportunities to publish in the Journal of International Agricultural and Extension Education (JIAEE) benefit one’s professional development. This result corresponds to previous findings from this study that members joined AIAEE for professional reasons. Respondents also agreed that published conference proceedings are important for AIAEE outreach.

Respondents agreed on the importance of recognition awards. This result was consistent with the literature on adult motivation (Knowles, Holton III, & Swanson, 2005). Respondents disagreed with the idea that opportunities to hold office are important for remaining a member. Having established that AIAEE members demonstrate preference for career advancement incentives, this finding indicates that recognition awards are viewed as more beneficial than holding positions of leadership. These results are consistent with the findings of the previously mentioned ACE study (White & Wingenbach, 2007).

Recommendations

The AIAEE can recruit and retain members through increased attention to the perceived benefits derived from membership. AIAEE should publicize the value of gaining professional knowledge and/or innovative ideas at the annual AIAEE conference. Likewise, collaboration among members was an important benefit. This finding may take on increased importance because many universities and development agencies have experienced personnel reduction. Budget cutbacks, decreased administrative support, and insufficient time may force many AIAEE members at small institutions to collaborate with colleagues at larger institutions in order to continue working in international agricultural and extension education.

Opportunities to publish in the JIAEE and in the AIAEE annual conference proceedings were perceived as benefits. AIAEE and JIAEE leaders should promote these opportunities beyond the current AIAEE membership. Finally, respondents perceived AIAEE recognition awards as important benefits toward career advancement. Members did not view opportunities to hold office in the AIAEE as an important reason for remaining a member. Additional research may reveal unaccounted for professional and/or personal benefits that would encourage members to seek AIAEE leadership roles.
References

An Evaluation of the Freshman’s Perspective of the Value of Transformational Learning Experiences at Three University Locations

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**Keywords**: Freshman, Learning Leadership, Transformational Experiences
Introduction

In 2009, the National Research Council (NRC) highlighted the national need for a new focus on the undergraduate agricultural education experience. With the NRC emphasis in mind, a few universities have set their strategic goal to include that all undergraduate students will graduate with at least one transformational learning experience (TLE), which could be the following example: study abroad, undergraduate research, internship, or Leadership Development Certificate Program, etc. The goal surrounding that the undergraduate education experience will prepare students for future leadership roles in their careers.

Transformational learning experiences engage students either inside or outside the classroom and have potential to increase and enhance student learning and personal development. A transformational learning experience could be viewed as an activity that raises social awareness that in turn provides a life-changing experience. The ultimate goal for any student participating in a TLE is to have an analogous experience that is identified as “high impact” learning Kuh (2008). Transformative learning is not simply going somewhere and being exposed to another culture, but is a “transformation” of a deeper understanding of how the experience has modified their thought processes. This particularly theory was introduced by Mezirow in 1978 and has evolved over the past three decades Mezirow (1999). This theory discusses beliefs, attitudes and emotional reactions to engage in critical reflection on “the experience,” which would lead to a change in one’s perspective or transformation of why or how the change in thought took place.

Purpose & Objectives

The purpose of this study was to determine the freshman’s perspective and values of having a TLE so that the administration and faculty can fully be aware of the attitudes expressed and opinions of the entering freshman as they begin their professional career.

Methods

Qualitative research methods and open-ended survey questions were distributed to faculty teaching freshman seminar courses in the Colleges of Agricultural and Life Sciences from three different land-grant institutions located in two different regions of the United States of America. Participants were of the freshman class and totaled fifty-nine (n = 59). The assessment included a series of questions inquiring about the impact of a TLE related to learning, and asking if the students think a certain experience would be a TLE. The questions were based on a Likert scale, where five equals strongly agree, one equals strongly disagree and zero is no opinion. Cronbach’s alpha was calculated ex post facto for the transformation learning scale $\alpha = .88$. Because the study was conducted as an assessment of TLE at three institutions, findings were limited in scope and therefore not generalizable to the broader audience of agricultural and life sciences students nationwide. However, the results did offer insight on freshmen students’ perceptions.

Results/Conclusions

The data were collected and analyzed in 2011. The following were the questions asked and the means with standard deviations. A TLE during my college career will have an impact on my future career plans (M=4.15; SD=.715); I think that a TLE will be a life-changing experience (M=3.86; SD=.681); A TLE will apply my academic knowledge to a real-life setting (M=4.27; SD=.582); A TLE will challenge many of my assumptions and beliefs (M=3.44; SD=.749); All students should participate in a TLE project before graduation (M=3.59; SD=1.019); Do you
consider the following below a TLE?: Directed independent study with a faculty member (M=3.53; SD=.971); Field experience with a structured program (M=4.17; SD=.562); An international study abroad experience (M=4.22 SD=.744); A leadership certificate experience (M=3.66; SD=.822); An off-campus event (field trips) (M=4.02; SD=.682); Service learning experience (M=4.03; SD=.642); Undergraduate research (M=3.69; SD=.933); Field experience such as internship (M=4.42; SD=.563); Professional society meeting attendance (M=3.42; SD=.875); Capstone experience (M=3.66; SD=0.863); Teaching experience practicum (M=3.75; SD=.779). The overall freshman were remarkably open to participating in a field experience and study abroad experience for their TLE; however, there were many other options that had a mean around 3.5 and should be just as important. Thus, we need to find ways to help promote these other experiences so that freshman understand the value of actively seeking these opportunities.

**Recommendations, Importance, and Implications**

Currently no published studies present the freshman TLE perspective. Few academic programs in applied agricultural disciplines have created a tracking system or have posted awareness of what the importance is of a TLE on their website. This study suggests that we need to find better ways to express to the freshman student population the importance of a TLE to expand their professional leadership.

**References**


Extension Reform & Strategies

Farmers’ Perceptions and Insights for Sustainable Global Agricultural Extension Systems

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Keywords: Global Extension Systems, Farmers’ Perspectives, Extension System’s Strengths and Weaknesses, Effective Extension Communication, Future of Extension

Global agricultural extension systems are in flux due to diversified clientele, policy decisions and budget cuts from governments. Approaches to agricultural extension are changing (Davis, 2008), and governments have failed to provide effective agricultural extension services (Feder, Anderson, Birner, & Deininger, 2010). Given these realities persistent efforts are needed to revitalize and sustain agricultural extension systems for economic and overall development of farmers. One such effort is to take farmers’ inputs in planning and implementing extension services. This qualitative phenomenological study (Creswell, 1998) explored the perceptions and insights of farmers from 17 countries on what they feel are the strengths, weaknesses, effective communication means and future of their agricultural extension systems.

Objectives

The objectives of the study were framed as four questions posed to farmers: (a) What works for extension in your country and why does it work? (b) What does not work for extension in your country and why doesn’t it work? (c) What is the most effective way to communicate with farmers in your country? (d) What do you see as the future for agricultural extension in your country?

Methods

The population for this longitudinal study consisted of all invited farmers for an international symposium in 2010 and 2011. Twenty-nine farmers (16 in 2010 and 13 in 2011) from Armenia, Australia, Brazil, Egypt, Fiji, Gambia, Guatemala, Haiti, Honduras, India, Kenya, Laos, Madagascar, Mali, Uganda, United States, and Zambia participated in the study. There were 21 men and 8 women farmers. To avoid researcher biases, focus group interviews were conducted by trained facilitators not connected to this study. The same four questions were asked of farmers in both years. Interviews were audio recorded, and later transcribed. Transcribed files were coded and relevant themes extracted.

Results

Responses ranged from having no proper extension systems to struggling systems to reasonably well operating extension systems. The predominant themes that emerged for the first
question on what is working well for extension were (1) extension services are being provided by multiple providers such as nongovernmental organizations (NGOs), private companies, commodity groups and governmental extension systems, and (2) service quality of nongovernmental players is generally superior to governmental extension. The major themes from the second question on what is not working well for extension were (1) vested interests by nongovernmental players or private companies may crowd out directly meeting farmers’ needs, and (2) governmental extension personnel are not sufficiently trained in technical and educational process skills. Additionally, they often did not have the research and on-the-ground reality to ensure that the recommendations actually worked in field.

For the third question on what is the most effective way to communicate with farmers, the overarching theme that emerged was “farmer-to-farmer” dissemination in the form of commodity groups, farmer clubs and train-the-trainer programs. A respected and well-informed peer was consistently seen as the key. A sub theme that emerged was farmers’ preference to “seeing is believing,” indicating the utility of field days, farmer field schools, demonstration farms etc. And, lastly, for the fourth question on what the farmers saw as the future of extension, the predominant themes were that (a) extension is important but may go more private, (b) proper coordination between the various service providers is needed, and (c) government needs to provide more financial and professional development support to extension personnel as trust factor was higher for governmental extension compared to others.

Conclusions, Recommendations and Implications

The major conclusions were that farmers see (a) extension becoming more pluralistic with private entities overtaking some of the extension services around the world, (b) governmental extension is still important for it serves a role of providing service that does not have a profit or commercial interest. This trust factor when vetted with practical realities on the farm could be very powerful and (c) the different farmer-to-farmer forums are the best ways to provide extension services. Therefore, it is recommended that decision makers coordinate the efforts of different extension providers so more focused services can be provided without duplications. Also, governmental extension systems have to be revitalized by providing professional development and required resources for personnel. Finally, access to information technology and training on how to use it should be provided to both farmers and extension personnel, especially in developing countries, so the different forums facilitating farmer-to-farmer dissemination of information can be effectively facilitated. This study has implications to all the program areas in global extension to design their strategies and configurations to meet clients’ needs.

References


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Introduction
U.S. involvement in Afghanistan, since the start of Operation Enduring Freedom (OEF), has explored many options to address the crippled agricultural sector. U.S. policy objectives are presently focused on building Afghan confidence in their government. In rural areas, agriculture development was the face of this policy because this may have been the only government program or personnel with whom farmers interact (Groninger and Lasko, 2011).

Due to evolving policy, coupled with disappointing results from other development approaches through the first several years of OEF, U.S. civilian and military personnel in the region have increasingly focused on agriculture training, including education and extension programs to address policy objectives that would ensure sustainability in the agriculture industry (Kock, et al., 2010). Similarly, the Afghan government is in the process of formalizing a program to increase extension capacity (FAO, 2007).

Purpose & Objectives
Presently, agriculture extension functions are being carried out by several institutions with limited programmatic evaluation. An assessment of current extension efforts by U.S. agriculture support personnel was conducted with the hope of improving the transfer of the agricultural knowledge needed to re-establish sustainable agricultural systems in a persistently unstable area.

This study sought to provide an evaluation of agriculture extension in the southeastern Afghanistan provinces of Khost, Paktika and Paktya, obtaining input from U.S. personnel conducting extension in theater. Insights gained from this study were intended to guide future activities and establish sustainable agricultural systems.

Theoretical/Conceptual Framework
A theoretical framework was established by identifying five areas of concern regarding the re-establishment of agriculture sustainability in Afghanistan through extension efforts. By employing three constructs from a train-the-trainer agricultural education program in Egypt (Barrick, Samy, Gunderson & Thoron, 2009), an initial theoretical model was proposed, which included assessment, content and process. Using qualitative case study methodology to develop grounded theory (Creswell, 1998), two areas were added that defined unique constraints under which agricultural extension must take place in Afghanistan; these included the two constructs of security and access, and provincial diversity.
Methods & Procedures

Assessment of agricultural extension efforts was conducted employing a qualitative case study methodology (Merriam, 1998; Yin, 1984). Open-ended interviews were conducted with eight individuals, who either trained Afghan agricultural extension agents or helped to coordinate extension efforts in theater.

Interview questions were developed and initial questions were reviewed by a group of experts who had also conducted agricultural extension efforts in Afghanistan from 2005 to 2010. A final instrument was ready for use with the targeted population of United States agricultural extension personnel in Afghanistan. The interviews were conducted by the researcher on location in Afghanistan from November 9 to December 10, 2010.

Findings & Results

Security issues were the primary driver of the type of extension delivery system employed. Informants’ impressions of the Afghan government (GIRoA) also differed starkly among the provinces. Local agricultural capacity and sophistication was also highly diverse, but not necessarily reflecting the security situation. Infrastructure was similarly inconsistent. Extension, as carried out by the Afghan government, primarily involved agents waiting for farmers to come into district offices for answers to farming problems and the distribution of goods and seeds. Unfortunately, such services primarily represented those farmers closest to Kabul, as the government was separated from other provinces due to obstacles; such as, mountains, tribal diversity, and security issues, not to mention corruption.

It was determined that the best delivery of agricultural extension education would be sequential in nature. Sergeant Milner phrased it as, “Educating the farmers, extension agents and hoping that they’ll also carry this educational training into the school systems.” The American ADT members saw their roles not only in the realm of teaching, but also facilitating cooperation between the different entities at work in Afghanistan; including , MAIL extension agents, schools and colleges, agricultural associations, and other related organizations.

Technical information was available through training the ADT personnel received from American universities, as well as what was termed “reach back” capabilities via internet.

Recommendations & Implications

The study concluded U.S. personnel of very low intensity and a long term commitment were needed in a cooperative model that would include local & central government, university and NGO collaboration. Youth organizations, demonstration on local farm sites, and recruitment of agents from the local districts were essential program components. Education should be the primary role of the Afghan extension agent, and networking to facilitate an interchange of ideas among Afghan professionals should be encouraged.

References


Analysis of Decentralized, Pluralistic Extension Systems in Rwanda

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Keywords: Pluralistic, Decentralized, Donor-Driven, Extension Systems

Introduction
This paper will outline the role and key functions of the different extension service providers in Rwanda. Each service provider in Rwanda is somewhat different, especially in terms of the public, private and non-governmental organizations (NGOs) providing advisory services for different categories of farmers (size and gender), as well as the strategies they are implementing.

Purpose and Objectives
The purpose of this paper is to outline the key strategies and services being carried out by these different extension and advisory service providers in Rwanda, including the clientele being served as well as the sustainability of these different organizations and approaches.

Methods
The methods used in carrying out this study were to analyze the different service providers in Rwanda, including the Ministry of Agriculture (MINAGRI), the Ministry of Local Government (MINALOC), and the many international and national NGOs in Rwanda. All of the major service providers were visited to define the strategies being followed and then to determine the effectiveness and impact of these services to these different types of farmers being served.

Results, Products and Conclusions
Current advisory services being provided in Rwanda are complex and there is very limited collaboration between these different extension service providers. For example, the public extension system was transferred to MINALOC in 2004; therefore, there is now a major gap between MINAGRI, which now largely handles agricultural research, and MINALOC, which currently has extension agents in its 30 districts, 416 sectors, and most of the 2148 cells that serve farmers in the 14,876 villages across Rwanda. It should be noted that nearly all extension workers at the district and sector levels have university degrees in some field of agriculture, but no training in extension methods. One important unit that is currently being developed is the Agricultural Information and Communications Center (CICA), which could play a key role in linking research with extension, including all public, private, and NGO service providers.

In addition, there are many international (about 6) and domestic NGOs (about 40) that primarily focus on increasing the productivity of staple food crops, especially those being grown in the major valleys across Rwanda. However, donor and government funding for these stable crops (free seed and subsidized fertilizer) is expected to begin to be phased out in 2012; therefore, the long-term future for these NGO service providers is uncertain. Also, little attention
is being given, by both public and NGO service providers, to the emerging high-value crop and livestock products (HVC/Ps) that could substantially increase farm income, especially for small-scale men and women farmers. Given that agricultural production in Rwanda is totally dominated by small-holder farmers with less than one hectare of cultivable land (about 0.7 ha/farm family), farmers must do all they can to maximize farm income from their very small land holdings. In short, they could greatly enhance their farm incomes by producing appropriate HVC/Ps by intensifying and/or diversifying their respective farming systems. This would be in line with the Strategic Plan for the Transformation of Agriculture in Rwanda – Phase II (PSTA-II).

**Recommendations**

To improve the performance and impact of the pluralistic extension system in Rwanda, the following key recommendations are proposed:

1. Provide in-service training in participatory extension methods for all field extension workers, including public, private and NGOs service providers. This will require that the National University of Rwanda (NUR) College of Agriculture establish a Department of Agricultural Extension that will train both current students and field extension workers in these process skills and knowledge.
2. Strengthen CICA to better link research with extension service providers using ICT tools, so that all field extension service providers can access both technical and market information.
3. Begin organizing men and women farmers into groups, so they can get better connected with extension service providers, as well as getting linked to markets for specific HVC/Ps, both for domestic consumption and export.

**References**


Community Development

Agricultural Education and the Challenges of Sustainable Development and Poverty Reduction in Developing Countries: A Nigerian Case Study

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Introduction
The ultimate aim of a meaningful educational activity is palpable enhancement of the quality of life of the beneficiaries and the society, and not the acquisition of a certificate per se. In many developing countries including Nigeria, there is a bothersome tendency for stakeholders in the education system to lay disproportionate emphasis on ‘passing examinations’ and obtaining certificates to the detriment of acquisition of useful skills necessary for enhancement of quality of living and sustainable development. Nigeria probably has the largest agricultural education system in Africa; comprising of more than 100 universities, 70 polytechnics, 56 agricultural colleges, 22 agricultural research institutes and about 75,000 primary and secondary schools. Furthermore, in the informal agricultural education sub-sector, there are more than 800 government agricultural extension/service offices catering for over 14 million farming households. In spite of this considerable human resource potential and the presence of abundant environmental resources necessary for agricultural development, Nigeria is still facing grave challenges in her march towards food security and sustainable agricultural development (Adekunle et al, 2008; Ogen, 2007).

Purpose and Methods
This paper examines agricultural education in relation to the need to reduce poverty and achieve sustainable development in Nigeria. Specifically, the paper presents an overview of contemporary agricultural education in Nigeria, the current problems and prospects of agricultural production, and the connection between agriculture, poverty, and sustainable development, as well as the role of agricultural education.

Conclusions and Recommendations
The paper identified the perennial problems of agriculture to include illiteracy among farmers, low technology level, poor access to information, small-sized holdings, and high yield gap. In addition, emerging challenges such as farmer poverty, environmental degradation, declining influence of extension, low level of agricultural research, declining government political will to fund agriculture, aging farming population, and increasing water and land use conflict were discussed. The paper underscores the need for repositioning Agricultural Education in Nigeria to overcome these challenges and thereby attain respectable poverty reduction and
sustainable development. Four propositions were proffered as ways by which Agricultural Education could be more responsive to the challenges of agricultural development and sustainable poverty reduction. These are:

- **On Primary and Secondary School Agricultural Education Curricula.** Whatever happens in the lower levels would affect the quality of higher agricultural education, since products of the lower levels eventually become students in higher institutions. It is proposed that lower agricultural education should involve more farm and field activities, encompass more practical assessment, be more production-oriented and given longer period of instruction. The younger generations often called ‘leaders of tomorrow’ must be prepared to become "feeders of tomorrow" as well.

- **On Higher Agricultural Education Curriculum:** graduates of agriculture are generally uninterested in taking up farming as a profession, partly because they do not have the necessary skills due to the kind of the curriculum and teaching methodology they were exposed to (Adisa, 2005; Adereti, 2007). Agricultural Education must be more vocational without compromising scholarship. It is proposed, inter alia, that the "general agriculture" degree program should be dropped in favor of specialization that encourages prospective graduates to acquire useful skills for meaningful participation in production activities. Curriculum should not only be periodically reviewed, but must be problem-centered and solution-driven.

- **On Informal Agricultural Education:** in most parts of Nigeria, extension agent-farmer ratio is between 1:1800 and 1:3000 or more. This scenario must be corrected by hiring more agents and creating enabling statutory, institutional, and financial environments for private extension agencies to operate. There should be better and more elaborate cooperation and collaboration between extension agencies and the universities. Most Faculties of Agriculture in Nigerian universities have little or no linkage with the extension apparatus in their domains. Adult literacy and use of indigenous languages for readable formats of extension messages must be encouraged. Welfare and training of extension agents should be paramount, as should be the provision of communication and transportation facilities to enhance their efficiency.

- **On the Opportunities Offered by ICT:** the opportunities offered by ICT should be exploited to transfer knowledge that would improve the quality of life of rural people, especially in the use of mobile phones, radio, and television more purposefully. Extension agencies should use more ICT as a matter of deliberate policy.

Conclusively, poverty reduction and sustainable development cannot be achieved in Nigeria without the resuscitation of the agricultural sector. The consequences of neglect of agriculture have been very painful. Time is now for Nigeria and other developing countries with similar scenario to employ greater investment in agricultural education as a panacea for poverty and underdevelopment.

**References**


Indigenous Perceptions of a Technological Innovation: A Case Study Approach to an Improved Cookstove Program in Guatemala

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Keywords: Cook Stoves, Guatemala, Adoption–Diffusion, Case Study, Social Perceptions

Introduction

The use of traditional cook stoves throughout the developing world continues to be a problem affecting human health, economic capabilities, and ecological stability (Agarwal, 1983; Barnes, Openshaw, Smith, and Plas, 1994; Fullerton, Bruce, and Gordon, 2008). Development agencies have introduced improved cookstoves (ICS), which are designed to increase heating efficiency, decrease biomass use, and decrease the release of particulate matter inside the home. However, the lack of widespread adoption has been documented in many parts of the developing world (Ruiz-Mercado, Masera, Zamora, & Smith, in press; Hiemstra-van der Horst, 2008). Everett Rogers' (2003) work on modeling the diffusion of innovations used broad categories and descriptions of potential adopters and the adoption-rejection decision making process. Rogers also acknowledged the pro-innovation bias present in many diffusion studies (Rogers, 2003).

Much of the existing research (Boy, Bruce, Smith, & Hernandez, 2000; Naeher, Leaderer, & Smith, 2000) on ICS programs has focused on the technical performance of the innovation, however little is known about how rural, agriculturally-based communities perceive this technology. Using the model that Rogers (2003) developed in 1962, this case study describes the adoption-rejection process at the household level.
Methods

The purpose of this study was to describe the adoption process for a technological innovation through the cultural lens of a rural, agriculturally based, indigenous community in Guatemala. How culturally appropriate are the ICSs? Why do some households continue to use traditional cookstoves, while others use a combination of the two?

A case study approach, using both qualitative and quantitative data collection procedures, was employed to describe the dynamic between the users and the innovation. Purposeful sampling was utilized in order to identify residents who had existing relationships with a local nongovernmental organization (NGO) managing an ICS program. A total of 20 households were interviewed. The quantitative data collection consisted of a descriptive household survey. The interviews, conducted in the participants’ native language, used a semi-structured format. Appropriate qualitative research methods were used to code, analyze, interpret, and report the data.

Results

Of the participating 20 households, 13 had some model of ICS in use, and seven were exclusively using the traditional open cook fire. The interviews yielded data related to three themes regarding the cooking and heating options in the community. The perceptions surrounding the comparative advantage of the available heating/cooking methods had a central importance in making the decision whether to adopt or reject using an ICS. The second central theme was a concern for the technically applied use by the end-user. The third theme was described as the culturally appropriate context of use. The survey data yielded descriptive data about the households such as an average household family size of 7.7 persons, 4.7 children under age 16, and average land (rented or owned) under cultivation as 13.9 acres. 70% had adobe or wood housing, while 60% had earthen floors, and 15% did not have incandescent or CFL lighting.

Conclusions and Recommendations

Three key points and several recommendations can be generalized from the results. First, it is important for extension agents to think of technological innovations in the local cultural context. The results showed that stoves in this community had several layers of cultural importance and value. The stoves provided the only source of warmth in the winter months; it was an area where women spent the majority of their day; and it was the family’s central gathering space. In addition, the results revealed that respondents valued and were keenly aware of the comparative advantage of heating and cooking choices available to them. Although nearly all lacked a formal education beyond age 10, they were highly cognizant of the choices available to them. This finding supports Troncoso, Castillo, Masera, and Merino’s (2007) research on the adoption rates of ICSs in Mexico, which revealed differences among individuals were more significant than differences between communities. Extension agents should not underestimate the level of cost-benefit analysis that members of a community will engage in for development projects. Finally, patience is needed for practitioners hoping to introduce this new technology into Guatemalan communities. Prior studies have shown that an increase in the use of ICSs does not necessarily correlate to a decrease in biofuel consumption or exposure to particulate matter (Jones, 1998; Smith, Aggarwal, & Dave, 1983). Similarly, nearly all the residents who were using an ICS did so in conjunction with the continued or intermittent use of a traditional open cook fire.
References


Assessing Impacts of Participatory Agricultural Research on Livelihoods of Arabica Coffee Farmers in Manafwa District, Uganda

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Keywords: Impact Assessment, Gross Margins, PAR, Coffee, Uganda

Introduction

Evaluating the impact of agricultural development programs is increasingly important to funding agencies to demonstrate program effectiveness, and justify programmatic investments (USAID, 2010; Alston et al., 1995). Although program outcomes that increase knowledge and adoption of new technologies are of interest to these agencies they are particularly interested in assessments that can quantify impacts on poverty reduction and improved food security. It is now recognized that developing and disseminating improved technologies for smallholder non-food cash crops, such as coffee, which improves agricultural productivity and incomes, can make vital contributions to food security (World Bank, 2010). Thus evaluations of farm level yields and profits need to be incorporated into impact assessments of development programs.

The USAID supported Integrated Pest Management Collaborative Research Support Program (IPM CRSP) in collaboration with the Ugandan Coffee Research Centre (COREC) has been using a participatory agricultural research (PAR) approach with Arabica coffee producers in Manafwa district, Uganda, since 2007. In keeping with this approach, scientists and local extension providers worked with small groups of farmers engaging them in each step of the research and technology development process from problem identification to on-farm testing of improved management practices. Rather than a strict focus on purely IPM objectives the project had a broader focus on integrated pest and crop management. Demonstration trials and training took place on-farm and included field days where groups viewed and discussed various tactics and improved technologies.

The overall goal of the program was to increase coffee yields and incomes. Following five years of implementation it was decided to launch an evaluation to assess these higher order impacts. Past evaluations of other IPM CRSP programs in Uganda had assessed outcomes on knowledge/awareness and adoption of IPM technologies (Erbaugh et al., 2011) but had not examined higher order impacts on improved livelihoods and incomes. These latter outcomes are high priority indicators of particular interest to USAID (2006).
**Purpose**

The purpose of this study was to assess the impact of PAR on the livelihoods of Arabica coffee farmers in Manafwa district by assessing the impact of program activities on farmers’ yields and profitability.

**Data and Methods**

A multi-staged sampling procedure was used to select farmers from two sub-counties in Manafwa district for interviewing. A systematic random sample of 21 farmers per sub-county was selected from lists of PAR participants and a control group of 21 non-participants per sub-county selected from lists provided by the District Agricultural Office. The final sample consisted of 42 participants and non participants for a total sample size of 84. The survey instrument was designed, pre-tested and adjusted by a graduate student, her thesis committee and local extension personnel. Each questionnaire was administered to farmers by personal interview.

**Results**

Student t-test determined significant differences between participants and non-participants on a variety of indicators including socioeconomic characteristics with participants being older, having more education, and more land in coffee production. Additional comparisons between the two groups indicated that participants had greater knowledge of pests and pest management practices and used more production inputs including synthetic fertilizers, pesticides, and improved coffee varieties.

Analysis of variable costs (input and post harvest handling costs), per acre yields and revenues from coffee sales indicates significant differences between participants and non participants. Participants had higher variable costs ($840/acre) than non-participants ($460/acre); greater per acre yields (751 kgs./acre compared to 305 kgs./acre); and greater revenues from coffee sales. Analysis indicates that participants had significantly higher gross margins with an average annual gross margin of $2910 compared to non-participants whose gross margin was $653.

**Implications**

The results indicate that there were significant positive economic impacts for those who participated in coffee PAR activities. Participants had higher yields, greater revenues, and profits than did farmers who did not participate resulting in greater incomes and food security. This assessment appears to provide preliminary evidence of important programmatic impacts that will be shared with the funding agency. That participants had higher variable costs is attributed to their greater use of farm inputs including fertilizers and improved varieties which was another benefit of participation in PAR activities. However, it should be noted that program participants appear to be socioeconomically advantaged having more education and more land in coffee production. Although this assessment used a split group design to compare program outcomes other impact assessment methodologies such as pre-test/post-test design may provide for more valid and reliable results. Gross margin analysis is an important analytical method for extension and development practitioners to add to their program assessment tool-kit.

**References**


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**Indigenous Knowledge in Developing Sustainable Agriculture for Smallholder Farmers in Africa: The case of Mali**

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Abstract

Farmers in developing countries have a knowledge of agriculture and natural resources management, which are recognized to be more eco-friendly and helpful in ensuring agricultural sustainability. This knowledge is based on insights gained from many generations and close interaction with natural and physical microenvironments (Rajasekaran et al., 1991). In the context of agricultural development, the usual pattern of “transfer-of-technology” involves knowledge being created by scientists, packaged, disseminated by extension services, and adopted by local farmers. This system has been criticized to bypass smallholder farmers because it is much focused on technical intervention hence crushed local creativity and innovation.

During the last two decades, efforts have been made to change the paradigm in agricultural research. They resulted in the passage of technocrat research into an approach that involved all the social actors. There is a common agreement that the potential adopters have existing ideas and beliefs known as indigenous knowledge systems (Kolawole, 2001). Indigenous knowledge was also defined as “the information base for a society, which facilitates communication and decision-making” (Warren, 1993, p. 1). Warren (1991) stated that “It is the basis for local-level decision making in agriculture, health care, food preparation, education, natural-resource management, and a host of other activities in rural communities.” Indigenous knowledge systems (IKS) may appear simple to the outsider but they represent mechanisms to ensure the minimal livelihoods for local people. IKS are often elaborated and adapted to cultural and environmental conditions (Warren and Cashman, 1988). Poor farmers often rely on indigenous knowledge to solve their problems.

The program “Promotion of Farmer`s Experimentation and Innovation in the Sahel (PROFEIS)” was created to enhance local innovations and contribute to food security and natural resources conservation. PROFEIS is a platform of dialogue among various partners (Farmers’ Organization, NGO, Education and Research Institutions). The first phase of the programme, which started in 2007 in Senegal and Mali, considered possible synergies between researchers, extension agents, and farmers to allow a positive and constructive exchange of experiences. Farmers’ innovation and experimentation were used to build an innovative partnership among farmers, researchers, and extension agents in order to develop sustainable technologies in Mali. In this process, farmers make the technology fit to their reality in order to improve effectiveness, efficiency, productivity, profitability, marketability, adoptability, and sustainability.

In Mali, a study was conducted on the PROFEIS program to investigate its achievements and challenges. An interview was conducted with 34 farmers including 13 women innovators. The results showed high experience in forestry grafting, nursery, and other techniques. Therefore, there was no need of an extension agent or a forestry specialist. The local communities relied on farmers-to-farmers training. There was an easy and high adoption of the technologies. The activities constituted a good source of income, they favored an increase of food security, an increase of the carbon sequestration, and the preservation and conservation of threaten species. It was concluded that technology is not the sole way to improve the livelihood of poor farmers. Farmers are innovators, curious, and risk takers, because they developed new methods of production of natural resources using their own initiative and ideas from various sources. There is a need to help farmers use their strengths and build on them. It was recommended that research be conducted on how farmer innovator can include more varieties of trees for grafting and to help farmer innovators to set their agribusinesses. Strategies should be developed to ensure sustainable agriculture for stallholder and poor farmers based on what individuals and social groups already know and believe.
References


Study Abroad

Examining the Student Impacts of Three International Capstone Experiences

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Keywords: International Experience, Student Knowledge, Agriculture, Student Travel, Globalization

Introduction

Students today are faced with the challenge and opportunity of a culture influenced by media and technology that transcend traditional borders. Overwhelmed with media messages of international events, natural disasters, and political innuendo, students have the world at their fingertips; yet, many choose to distance themselves from learning about globally relevant topics and issues (Wingenbach, Boyd, Lindner, Dick, Arispe, & Haba, 2003). Collegiate programs, such as study abroad, focused study tours, and service-learning, offer students the opportunity to immerse themselves in a different culture for a period of time. Zhai and Scheer (2004) noted “Colleges of agriculture have the responsibility to prepare students adequately for the global and diverse environment in which the will participate throughout their careers” (p. 40–41). Cross-cultural opportunities unveil the responsibility placed upon this generation as global citizens, including the challenge of connecting local and global.

Clearly, international awareness and experiences are valuable opportunities universities need to continue developing as the workforce demands for such skills, and one that students should explore to remain competitive in the job market (Acker & Scanes, 1998; Battistoni, Longo, & Jayanandhan, 2009; Bender, Wright, & Lopatto, 2009; Connors, 2004; Irani, Place & Friedel, 2006; Moore, Williams, Boyd, & Elbert, 2011). Integrating service-learning into an international experience enhances student interaction with the culture and community for a new level of learning through a service experience (Battistoni, et al., 2009; Chieffo & Griffiths, 2004; Doyle, et al., 2010; Munck, 2010; Tonkin & Quiroga, 2004). Minimizing barriers and preparation for travel are of great importance to the overall student travel experience; reflection on the experience once returning home is also an important component in gleaning the most knowledge and cultural awareness to enhance student growth as a global citizen. The existing literature paints a clear picture about the importance of conducting international capstone experiences.
Methods

This descriptive case study used survey methods to examine three international capstone experiences. The University of Florida Institutional Review Board approved the activities reported in this research and signed informed consent was obtained from each participant. The population included the 31 student participants of these travel experiences; 15 students traveled to Egypt, 9 students traveled to Costa Rica, and 7 students traveled to China. Each experience was 10 to 13 days in length and included various cultural, agricultural, and iconic experiences to the area. The results of this study are limited to those students who participated in these experiences. All three groups of students were evaluated utilizing a pre- and post-travel instrument adapted from the work of Connors (2004), which assesses student knowledge of the destination country and attitude towards the international experience. The instrument was administered face-to-face by the trip coordinator.

Results and Discussion

Egypt

Data were received from the fifteen students who participated in the Egypt travel experience. This group of students varied considerably on their previous international travel. Participants expressed more positive perceptions of international travel and the importance of learning about international agriculture. Participants also showed increases in their knowledge (perceived and actual) of Egypt, Egyptian agriculture, and international agriculture as a result of the trip.

Costa Rica

Valid results were received from all nine students who participated in the Costa Rica travel experience. This group of students also varied greatly in their previous international experience. Changes in participant attitudes were mixed. More broadly, students also expressed an increase in self-perceived knowledge of international agriculture.

China

Data were received from the seven students who participated in the China travel experience. Previous international travel experience varied with this group of students. Data showed that participants expressed more positive attitudes about international travel and the importance of learning about international agriculture. Participants also showed increases in their perceived and actual knowledge of China, Chinese agriculture, and international agriculture in general.

Summary

Based on the data collected it was concluded that participants from all three groups showed an increase in knowledge (actual and perceived) related to agriculture in the destination country and international agriculture in general. Changes in attitudes about international agricultural and international travel were mixed. Participants generally had more positive attitudes about traveling internationally, but expressed mixed attitudes about the importance of College of Agriculture and Life Sciences students gaining international experience.

Additional areas recommended for future study relating to international experiences include:
• Factors that influence the change in specific attitudes towards international experience.
• The long-term impacts on students who participated in these experiences.
• Identifying best practices for conducting short-term international experiences.

References


Exploring Cultural Adaptation of Agricultural Faculty on a Short-Term International Experience

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Introduction
Undergraduate education is greatly influenced by the perspectives and experiences of college faculty (National Research Council, 2009). In terms of globalizing the undergraduate experience, it is important to understand how faculty develop their own international perspectives and cultural awareness. Researchers agree that individuals are challenged when exposed to new cultural environments; however, agreement on cultural adaptation is lacking (Gao & Gudykunst, 1990). Several theoretical models exist explaining the intercultural adaptation process (Gudykunst & Hammer, 1988; Hottola, 2004; Oberg, 1960). However, these models focus on tourists and may not adequately explain the impact on faculty traveling on work-related trips. Understanding this phenomenon could provide insight into preparing faculty to teach in a globally competent manner.

Purpose and Objectives
The purpose of this study was to explore how agricultural and life sciences professors react to a short-term international experience.

Methods
In March 2011, eight faculty travelled to Trinidad and Tobago for a 10-day international experience. Researchers collected data through participant observation, interviews, and focus groups. To gain a clearer understanding of participant reactions to the experience, researchers utilized informal interviews with individual participants and focus groups with multiple participants (Patton, 2002). After the trip, recorded data was transcribed and sorted into emergent themes by three researchers using the constant comparative method (Lincoln & Guba, 1985). After independently coding the data, the coders confirmed and revised the initial findings using procedures outlined by Lincoln and Guba. Results were shared with participants to allow for member checking.
Results

Nine stages of cultural adaptation for faculty emerged from data: anticipation, excitement, team building, cultural comparison, cultural understanding, advancing expertise, teaching, building relationships, and developing future plans. Participants exhibited excitement, concern, and nervousness prior to embarking on the experience. Sara said, “Out of my family I will be the first person to actually leave the U.S., out of my entire family, so for me this was a big experience.” The sense of excitement carried forward into the early part of the trip during which time participants expressed desires to see or do certain activities, or expressed much excitement over what had already been done. From early in the trip, participants began to express a bonding with other participants on the trip. Kelly observed, “If you try to pull together this group based on vitas, it wouldn’t make any sense at all … but somehow this group has this cohesion.”

Participants compared their observations of culture in Trinidad to their experiences in the United States. David stated, “The runway runs parallel to the beach. And so what we both came to the conclusion of, in the States you would never see that, because that land would be developed.” Participants experienced a desire for a deeper understanding of Trini culture and wanted to understand why things are the way they are. Ben reflected, “The culture was very interesting. That’s the only way to experience it, to just be immersed in it rather than just reading about it.”

Participants expressed desire to enhance their own technical knowledge. For example, Cliff said “The thing that I was really excited about coming here and learning directly was to learn about the cocoa research unit that is hosted here at the University of West Indies.” It was observed that participants eventually began to share their knowledge with other trip participants and local counterparts, such as sharing information about indigenous plants.

Throughout the trip, participants built relationships as collaborators and friends as they interacted with local counterparts. Of her experience at a UWI lecturer’s home, Kelly shared “…we were able to go beyond the professional relationship, you know, we were mothers. It was just, there was a real connection there.” Perhaps due to these developing relationships, nearly all participants expressed intentions to return to Trinidad and Tobago, including the potential for future research, collaborations, and Fulbright projects.

Recommendations and Implications

Faculty demonstrated nine distinct stages of cultural adaptation. Each participant expressed a unique combination of the stages, indicating that a universal set of stages does not fit. Additionally, faculty participants exhibited unique stages not present in the existing cultural adaptation models focused on tourists. These included: team building, advancing expertise, teaching, building relationships, and developing future plans. Organizers of similar trips should recognize that faculty are different than tourists and they will adapt to the local culture by advancing through these stages in their own unique way.

References


**African Food Security Fellows’ Perceptions of their Experiences in the United States: Reflective Journaling as a way to Interpret and Understand an International Experience**

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**Keywords:** Food Security, International Experiences, Reflective Journaling

**Introduction/Conceptual Framework**

The U.S. Agency for International Development (USAID, 2011) reported 3.5 million Kenyans and 600,000 Ugandans required humanitarian assistance; moreover, the global acute malnutrition (GAM) prevalence was 15% in Kenya. “Any GAM prevalence above 10 percent is considered to be unacceptable” (Loewenberg, 2011, p. 18). The situation in East Africa led faculty members at Oklahoma State University to develop a grant focused on improving food security in Kenya and Uganda by catalyzing communication networks between policy makers, community leaders and media professionals (Grant Proposal, 2010). Twenty-six individuals became the project’s Food Security Fellows (FSFs).

The grant, sponsored by the U.S. Department of State’s Bureau of Educational and Cultural Affairs, was implemented as a four-phase process. One phase of the project brought 14 Kenyans and Ugandans to the United States for a five-week, professional development experience. During the Fellows’ stay in Oklahoma, they received rigorous training in food
production, education/advocacy, food security/sufficiency, nutrition and rural vitality (Grant Proposal, n.d.). Another phase included two groups of Oklahoma State University faculty and collaborators traveling to Kenya and Uganda to learn more about the regional food security situation.

As a part of their experiences in the United States, the Fellows kept a reflective journal. Reflection “. . . leads the learner into a careful observation of the surrounding world and stimulates exploration” (Larson, Bruening & Bruce, 2009, p. 314). “The process of journal writing forces students to integrate new information with what they already know” (Alm, 1996, p. 113). Hubbs and Brand (2005) stated all four stages of Kolb’s theory of experiential learning can be achieved through guided reflective journaling. Concrete experience and reflective observation are met through describing and reflecting on an experience; abstract conceptualization is achieved when journal authors begin to question explanations or meanings, and active experimentation or application happens when authors apply what they have learned to the event (Hubbs & Brand, 2005).

**Purpose/Objective**

The purpose of this study is to describe the perceptions of Kenyan and Ugandan Food Security Fellows regarding the culture of the United States, their internship experiences, as well as training procedures and activities used during their professional development program.

**Methods/Data Sources**

Larson et al. (2009) recommended “program designers should incorporate reflective journal writing . . . as a method of solidifying comprehension” (p. 320). Dunlap (2006) suggested providing guided questions to achieve more focused journal entries. Therefore, journal prompts were given as a guide for the reflection process and to facilitate the research questions being answered. Examples of prompts included, “describe what you learned today and how that could be applied to your professional life; describe what you learned during your internship; and explain what surprised you the most about your experience in the United States.”

A qualitative case study method was used to analyze written journal entries made by the 14 FSFs. Journal entries were digitized and entered in Atlas.ti, a data management software program. Content analysis is being used to determine emergent themes from the FSFs’ journals.

**Preliminary Results/Conclusions**

Initial analysis of the Fellows’ journal entries indicates multiple themes, including hospitality, kindness, and lack of racism of the people in Oklahoma; the high quality of educational presentations; benefits of the internship component; increased motivation to do their part in improving food security; and the prevalence of teamwork among U.S. co-workers and how that can transfer to the Fellows’ everyday lives. Reflections documented in FSFs’ journals clearly suggest this was a positive experience and the overall goal of the project, which was to catalyze communication networks, was met. Not only were Fellows given the opportunity to learn ways to improve food insecurity, but also their daily reflections caused them to learn about themselves. Fellows questioned their preconceived notions of Americans and gained an appreciation for American culture. Furthermore, spending time in the United States gave the Fellows an opportunity to appreciate many aspects of their own cultures.
Preliminary Recommendations, Implications, Educational Importance, and/or Application

Based on the preliminary conclusions of this project, the researchers recommend other institutions provide similar programs related to food security or other global issues. Russell and Vallade (2009) analyzed American students’ reflective journals to evaluate the impact of study-abroad programs, and Larson et al. (2009) used reflective journals to increase the engagement of American students who participated in study-abroad courses. However, additional research should be conducted on internationals coming to the United States. Understanding internationals’ perceptions of the United States can be a valuable resource when proposing programs (i.e., seeking funding) and planning similar professional development experiences for other participants.

References
Internationalizing Extension – Local Leaders and Extension Faculty
Explore Biofuels in Brazil

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Keywords: Extension, Stakeholder, Elected Officials, Biofuels

Introduction
To continue the expansion of Internationalizing Extension, a unique Extension Brazil Biofuels study program was developed for a team of county commissioners and county extension faculty. The contribution of county governments to extension operations during the past five years was greater than $35 million annually; clearly, they are an important partner in the overall extension and outreach program of extension at the land grant university. Five county commissioners and five county extension faculty from the same counties and representatives from Extension Administration, Extension International Programs, as well as a Research and Education Center participated in a seven day in-country study tour in the São Paulo, State of Brazil. The week long study tour to Brazil was developed to see firsthand various components of the biofuels industry in the state of São Paulo. The group was unique in that the members were selected specifically for their interest in the biofuels industry and to advance the Internationalizing of Extension at the university extension system.

Purpose and Objectives
The purpose of this program was to partner county government officials with Extension to gain firsthand knowledge of biofuels and the challenges associated with local governments.
facing this issue. The objectives for Internationalizing Extension were to develop partnerships with other extension systems in Central and South America to assist in Internationalizing Extension, assist extension faculty in their development, by enhancing their capacity through firsthand knowledge and experience in other countries and to develop extension partners knowledge of the benefits of Internationalizing Extension in a global society.

For this Extension study tour to Brazil, which focused on the biofuels industry, the Internationalizing Extension objectives were to: develop partnerships with public and private organizations contributing to the biofuels industry; provide the extension faculty and county commission partners with firsthand knowledge of all aspects of the biofuels industry in Brazil, including ethanol production and distribution, biodiesel production and distribution, and possible activities related to cellulosic ethanol.

The group made visits to agricultural fields and talked with producers directly involved in biofuel production and people involved in ethanol production associations for cooperative and private ethanol production facilities. The group held discussions with university researchers and local officials on relevant research and policies related to creating an enabling environment for biofuels production and distribution.

Methods

The county faculty and commissioner teams came from five counties representing the many different constituencies and ecosystems found throughout the state. All had an interest in biofuels derived from many different sources of products including: ethanol from cellulose of forest products, biodiesel from oil producing crops, and other energy crops for ethanol, such as sugarcane and sweet sorghum. The group was exposed to many facets of ethanol production including agriculture research universities, a sugarcane association, a private research and extension facility, a conglomerate getting into the ethanol plant business, sugar production, and ethanol factories, a growers’ cooperative and a mill equipment manufacturing plant. The group was able to discuss the issues and ask questions about infrastructure, policies, research, actual processes, costs, and worker issues.

Commissioners and county extension faculty who participated toured a variety of Brazilian biofuel entities during the five days of visits within the São Paulo state of Brazil. They were educated firsthand about techniques like mechanical harvesting and biological pest control, which are being utilized to reduce the water consumption and pesticide usage. They visited mills which are creating bioelectricity to power the plants and sell the excess back to the grid and that flex-fuel vehicles have become standard. The group gained knowledge of the three grades of ethanol, one of which is used in cognac production.

Conclusions and Results

The participants gained firsthand knowledge of many types of biofuel development and production including inputs required for ethanol production, biodiesel production by visiting production plants and talking with researchers and producers directly involved in the production of products utilized by these production facilities. Participants discussed policy issues with officials assisting biofuel production facilities and processes. These local officials now have a better understanding of why the University of Florida should continue to Internationalize Extension.

Recommendations and Educational Importance

The recommendation and educational importance of this project are to continue with the goals for internationalizing extension by continuing to develop partnerships from other extension
systems in Central and South America to assist in internationalizing extension. There is a need to educate our county extension faculty in their development by enhancing their capacity through firsthand knowledge and to develop our partners’ knowledge of the benefits of internationalizing extension in a global society.

References
An Examination of eXtension Use Internationally: Opportunities for Engagement across International Agricultural and Extension Education

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Keywords: eXtension, Technology, Collaboration, eLearning, Engagement

Introduction

The Internet has revolutionized how individuals obtain information, gain experiences, and interact with each other and with experts. Access to the Internet, and online content and resources, continues to expand across the globe, providing new opportunities for Extension. eXtension takes advantage of this capability and these opportunities as “an Internet-based collaborative environment where Land Grant University content providers exchange objective, research-based knowledge to solve real challenges in real time” (eXtension, 2011).

It is well documented that Extension employees benefit from participating in international outreach education efforts. As Harder, Lamm, and Vergot (2010) explained, “it is time for Extension agents to get out, explore their world, and enhance program delivery using their international Extension experiences” (p.2). Their involvement and resultant knowledge and awareness can spread to others and ultimately “enhance global knowledge, skills and understanding of U.S. agricultural producers and the general public” (Place, Evans, Andrews, & Cargo, 2000). International audiences can benefit individually from the education that is brought to them and Extension’s broad knowledge base can be called on to assist with global uses such as food production and security (Ludwig & McGirr, 2002). However, historically there has been a hesitation for involvement in international efforts for different reasons. Harder and Lamm (2010) reported safety, health, and language as areas of concern.

The national eXtension initiative sponsors the hosting and support of an online campus for eXtension specialists and agents to use for the design, development and delivery of web based education. The site, open to anyone, currently has over 11,500 registered users, in addition to many more users who choose not to register and use the site as a guest. Users are not required...
to create accounts to utilize the site, but some courses are not open to guests, and access to those courses does require an account and a login by the user. Over 210 courses are open for enrollment as of October 2011, with another 200 courses in varying stages of development.

**Purpose**

The purpose of this study was to evaluate data gathered from the eXtension online campus and document access and use by international clientele in an effort to begin to understand current use and develop strategies for increased international collaboration across Extension.

**Methods**

The methodology for this study consisted of evaluating analytical data collected on website access during the period of March 2010 to March 2011. “Automated data gathering has enabled monitoring of accessed pages, navigational paths; discovery of usage patterns and user profiles” (Robal & Kalja, 2007, p. 129).

**Results**

Log reports from February 2010 show registered, active users from across the globe including Canada, UK, India, Australia, South Africa, Mexico, Italy, Brazil, Pakistan, Turkey, Philippines, China, Argentina, Uganda, Ireland, Spain, Portugal, Nigeria, New Zealand, Iran, Colombia, Zambia, Sweden, Kenya, and Denmark, among other countries. From the timeframe of March 2010 to March 2011 users from 149 countries visited the site, as reported by Google™ Analytics. The largest number of visits came from the US, but many countries had over 100 visits including Canada, UK, Australia, India, Syria, Italy, and Iran. While it may be tempting to write off the visits as non-substantial, and certainly some are, many are not. There were two visitors from Iran, for example, who each participated in one online course on the site. One student spent over 40 minutes in the DAIReXNET Dairy producer’s course in February, 2011, while the other student spent nearly 300 minutes in a Basic Horse Care course over the course of a few days in January, 2011.

**Educational Importance, Recommendations, & Implications**

The educational importance of this study lies in gaining a better understanding of the current reach of the eXtension online campus in relation to an international Extension audience. Extension educators must be sensitive and prepared to develop and deliver educational programming within a more diverse environment (Ludwig, 2002). Online education allows Extension to broaden its educational reach. Further research can guide the development of appropriate topics and allow presentation in the most appropriate ways for international clientele. Online education will not replace face to face education in totality, nor should it. However, it is an option that should be considered. Comments that were made over a decade ago by people like Acker (1999) who wrote; “We need to be both global and local in all that we do” (p. 6) are even truer today. We can be both global and local online, and extension cannot and should not overlook online education and collaboration as a viable programming method for international outreach.

**References**

Bridging the Digital Divide: E-Readiness of Extension Officers from Two Areas in South Africa and Nigeria

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Keywords: E-readiness, Digital Gap, Extension Officer, ICT Competence, ICT Availability, Nigeria, South Africa

Introduction
Agriculture is the mainstay of most African countries and occupies a pivotal role in the development of the continent. It also remains an important sector in South African and Nigerian economies due to its central role in building a strong economy, reducing inequalities by increasing incomes and employment opportunities for the poor, while nurturing natural resources. The agriculture macro-production system stresses information generation, sharing and
utilization. The advent of the Information and Communication Technology (ICTs) has brought a remarkable change to the pattern and nature of information generation, sharing and utilization. ICTs promote and distribute new and existing farming information and knowledge which is communicated within the agricultural sector, since information is essential for facilitating agricultural and rural development and bringing about social and economic changes (Hafkin, 2002; Stienen, 2007; Swanson & Rajalahti, 2010). Many researchers (Arokoyo, 2010, Chizari, Alibaygi & Breazeale, 2006, Adebayo & Adesope, 2007) have highlighted that the extension officers in African countries needs to be re-skilled and re-oriented because the majority of the extension officers do not have proper skills to use ICTs. In spite of the wide variety of available literature on the importance of agricultural extension to economic development in Africa and the critical role that extension officers play within the macro production system, the use and contribution of ICTs in agriculture has been clouded with inefficient and ineffective usage. The multicultural and multiracial composition of South Africa and Nigeria as well the application of multilingual policy stressed the diversity of the farming populations in these countries and the need for ICT in agricultural extension delivery in order to ensure effective information sharing the myriad of socio-cultural circumscribing factors notwithstanding.

**Purpose and Objectives of the Study**

The purpose of this study was to determine e-readiness of extension officers in South Africa and Nigeria; specifically the study identified the personal characteristics and determined awareness, availability, accessibility, competencies and importance of ICT tools among extension officers.

**Methods and Data Sources**

The Northwest Province (NWP) is in the central North of South Africa bordering Botswana in the North, Limpopo and Gauteng in the east, Free State in the South, and Northern Cape in the west and located on latitude 25.80 S and longitude 25.5° E. Kwara state is one of the 36 states in Nigeria with a predominantly agrarian rural population and located on coordinates 8°30′N 5°00′E. A simple random sampling technique was used to select 169 extension officers from a total of 228, while a large sample size technique of n ≥ 30 (Kerlinger & Howard, 2000) was used to select extension agents in Kwara state Nigeria. Frame error was controlled by excluding administrative and support staff, while selection error was eliminated by ensuring that all frontline extension (field) officers were contacted for the study. Data were collected by a structured questionnaire that was subjected to face validity by lecturers universities in Nigeria and South Africa. The questionnaire had an overall reliability coefficient of .90 using split-half technique. Non response error was controlled through call backs and follow-ups. E-readiness of extension officers were measured on a 2-point scale in terms of awareness, availability, accessibility, competencies and importance of ICT tools. The aggregated score of gives the e-readiness for extension officers in the two study locations. Data obtained were analyzed with the Statistical Package for Social Sciences (SPSS) using percentages.

**Results**

The majority of extension officers in the two study locations were male, married, with Diploma qualification and studying for higher degree in agriculture. While the majority lives within their job area in South Africa, many live outside their job areas in Nigeria. In the North West province of South Africa, the proportion of extension officers in terms of awareness, availability, accessibility, competence, and importance of ICT tools are 77, 58, 56, 53, 68 percent.
respectively while in Kwara state, Nigeria the corresponding proportions are 80, 36, 32, 46 and 70 percent respectively. The overall results shows that extension officers in South Africa have a higher e-readiness score than their counterparts in Nigeria.

**Recommendation and Educational Importance**

In order to harness the effects of the use of ICT in agricultural extension delivery in the two study locations, it is important that the issues of availability and training on ICT for use of extension officers should be addressed. The focus on the provision of necessary ICT infrastructure and conditions for their use will lead to improvement in awareness, accessibility, and competence because extension officers are already well acquainted with the importance of the use of ICT tool for extension service delivery.

**References**


**Identifying Learning Styles and Technology Acceptance of African Agriculture Students: An Effort to Improve Educational Effectiveness**

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Introduction & Theoretical Framework

Effective utilization of educational technology requires an understanding of participants’ approach to learning and to technology itself. Using “a variety of teaching methods to accommodate different learning styles” is the most-used educational strategy reported by respondents in North America, Europe, Asia, and Africa (Johnson, Creighton, & Norland, 2006, p. 38). Research related to learning and technology in Africa mainly has focused on primary education rather than university students and adults. When evaluated using the Learning Process Questionnaire, South African students (i.e., 14 and 15 years old) “reported greater use of deep and achieving strategies,” as opposed to understanding the material only on the surface (Watkins & Mboya, 1997, p. 637). Limited research has been published regarding university populations in Africa. When Afrikaans- and English-speaking students were compared at the University of Stellenbosch in South Africa, the Afrikaans-speaking students had a slightly different thinking style. They were found to be “legislative” and “global” thinkers (Cilliers & Sternberg, 2001, p. 15). Additional research is needed in order to gain a more in-depth and accurate description of learning preferences in Africa.

In regard to technology use and acceptance, evidence of adoption exists in Africa. Podcasting has been tapped as a possible way to teach South African auditory learners more efficiently (Hay, 2008) and Malian schoolteachers are using cell phones to access lesson plans and online curricula because many of the schools are isolated (Davis, 2010). Mobile technologies are in place and growing at a faster pace than any other area in the world (Brown, 2004).

Understanding learning preference and technology acceptance by university students in Africa can aid educators in developing and implementing effective program efforts. The theoretical framework for this study was based on learning preference and technology acceptance. Learning preference relates to matching materials to a student’s need. “VARK is a questionnaire that provides users with a profile of their learning preferences. These preferences are about the ways that they want to take-in and give-out information” (Fleming, 2001).

Venkatesh et al. (2003) articulated the Unified Theory of Acceptance and Use of Technology (UTAUT) which identified “core determinants of intention and usage” (p. 425) related to technology acceptance.

Purpose & Methodology

This study sought to describe learning preference and technology acceptance of African agricultural students so that appropriate educational strategies could be developed for use in university and Extension programming. The study utilized two instruments: the VARK Questionnaire (Fleming, 2001) and a technology acceptance questionnaire based upon the UTAUT model (Venkatesh et al., 2003). The surveys were administered both online and in print (based on student need) in order to address bandwidth issues of the accessible population.
Results

A total of 79 students participated in the study (i.e., 48 completed the learning style instrument; 60 completed the technology acceptance instrument). In some cases individuals completed both instruments and in other cases individuals only completed one of the instruments. Respondents included both males (56.7%) and females (43.3%). The majority were aged between 21-25 years (i.e., 65%; 26.7% were 18-20 years of age). About 85 percent reported not taking an online course. Seventy percent reported spending one to five hours on the Internet for educational purposes and more than 96% classified themselves as either intermediate or advanced computer users. Almost all (more than 90%) reported access to the Internet in the broad sense. However, the use of technologies varied with usage being reported as follows: social networks - 91%; blogs - 44%; Twitter - 52%; YouTube - 49%; and virtual worlds - 22%. Analysis of the data related to technology acceptance regarding social networks, course management systems, Second Life™, and Twitter™ varied. Respondents reported a higher acceptance for course management systems and social networks than for Second life™ or Twitter™. Respondents reported all technologies as easy to use. Respondents were neutral as to whether or not a specific individual or group would be available to assist them with difficulties. Responses to the learning preference instrument revealed that respondents represented all categories (i.e., Visual, Aural, Read/Write, Kinesthetic, Multimodal). The highest percentages of any one preference were kinesthetic (18.8%) and read/write (27.1%).

Educational Importance, Recommendations, & Implications

The educational importance of this study relates to gaining a better understanding of African agricultural students regarding learning preferences and technology acceptance. Technology offers tremendous opportunities to educate; however, it must be used appropriately in order to be efficient and effective. Further study is recommended that compares study findings to additional populations, as implications exist for programming efforts at both the university level and across Extension.

References

Extension Methods

Agricultural Extension Model for Community Self-Reliance: A Case of Thailand

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Introduction

Thailand deems agricultural extension crucial for agricultural sustainable development in terms of promoting possible change in individuals or groups when coping with appropriate technology, while aiming for quality products, as well as a better quality of life, through the training & visiting system. From time to time, the agricultural extension model has continuously been developed under the concept that the extension agent (EA) would be taking knowledge from the knowledge resource to farmers and taking problems from producers in order to find out solutions from knowledge resource center. The EA would therefore, serve as teacher and coordinator. Up to present information era, farmers have been able to learn or find out their required information directly from existing knowledge through media around them.

Purpose, Objectives, and Methods of the Study

Therefore, with the current agricultural extension emphasis upon communities’ and farmers’ self-reliance, the objectives of this research on the agricultural extension model for community self-reliance were to: 1) study and evaluate the general circumstances of communities concerned 2) study participatory action of communities in their self-reliance with regards to agricultural extension 3) develop agricultural extension for self-reliance of communities and 4) try out the agricultural extension model for the self-reliance of communities by data compilation from farmers, housewife-farmers, youth farmers who joined the project of learning self-reliance at the agricultural extension center. They were from 6 provinces in this region and there was and EA total of 130 persons. By interviewing, group discussion, experimental knowledge, and the media package for technology transfer.

Results and Conclusions

From the study, it was found that informants’ obtained 75% of their knowledge from: the community’s information tower, 59.2% from agricultural village leaders, and 50.0% from Sub-District Agricultural Technology Transfer and Service Center. Information obtained by their main occupation, members’ source of information included independent self-study, which was at 76.7%, neighbors (68.3%), television (64.2%), and from government officials (50.8%). Information obtained on their subordinate occupation, members’ sources of information included independent self-study at 80.0%, from neighbors (68.3%), government officials (55.8%) and leaders (51.7%). Participants obtained information on life skills (savings, sufficiency living,
morality, physical, and mental health etc.) gained: members’ sources of information included independent self-study at 72.5%, from neighbors (49.2%), and knowledge relating to culture (grouping, natural preservation, religious activity and rituals). Knowledge required for development consisted of better living, marketing, processing, packaging, agro-tourism.

Results of the study could be concluded as the model below:

![Agricultural Extension Model in Information Era](image)

**Figure 1.** Dissemination of knowledge by the community and extension agents

The model shows how the EA and the community improve and disseminate knowledge to other communities. To achieve this endeavor, an agricultural extension agent must increase his/her role through exchanging and sharing learning, thinking and implementing together with farmers rather than being an instructor or resource person. Arising from the above concept, the agricultural extension model will begin with farmers and communities working through the analytical systems thinking process so as to find out farmers’ or communities’ problems. Apart from learning about farmers or communities’ problems and their limitations, the EA will discover tacit knowledge of farmers, communities, and local indigenous wisdom via exchanging and sharing learning process.

The extension guidelines that the agricultural extension agent gleans from the knowledge bank should be in accordance with concept and theory. In case of practice, the EA must determine whether or not it is really practical. Also taken into consideration is that the farmer is using agricultural extension philosophy of the self-reliance concept for sustainable development. Thus, it is highly recommended that the agricultural extension agent should learn with farmers in order to gain appropriate innovation for potential solutions, or building a new model of agricultural development guidelines as well as the transfer of innovation via communication principle-SMCR. The primary concern of the AEG is good communication with the receiver or farmer, in order to consider basic characteristics, such as, needs, attitude, and materials or equipment for receiving such innovation. Besides the transfer of knowledge to farmers, it is also recommended that the agricultural extension agent publicize the innovation acquired to the
general public, so that the study of that innovation can be conducted for further development with better appropriateness.

References


Sanders, Irwin T. *Theories of community development*. Rural Sociology.


**Mobilizing Extension to Address Sugarcane Orange Rust, a New Sugarcane Disease in the Western Hemisphere**

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**Keywords:** Extension Education, Competencies, Extension Agents, Extension Service Delivery, Critical Incident Technique

**Introduction**
Sugarcane Orange Rust (OR), a significant sugarcane disease in the Eastern hemisphere (Australia epidemic in 2000), was first discovered in the Western hemisphere in Florida in 2007.
Recognizing OR as a pandemic threat to all sugarcane growing regions in the Western hemisphere, University of Florida extension specialists partnered closely with USDA-ARS scientists, the Florida Department of Plant Industries, and sugarcane industry leaders to address this emerging international disease problem. Sugarcane research institutes and private companies in multiple countries were immediately notified and ARS scientists coordinated internationally to receive suspect leaf samples from numerous countries to track the imminent spread of this new disease. ARS scientists also provided identification tools (molecular procedures and orange rust DNA check samples) to international sugarcane organizations. OR was ultimately confirmed in Costa Rica, Guatemala, and Nicaragua in 2007; El Salvador, Jamaica, Mexico, and Panama (2008); Brazil and Belize (2009); Columbia, Cuba, Cameroon and the Ivory Coast (2010); and Ecuador and the Dominican Republic (2011).

Results

Following OR detection in Florida, University of Florida extension specialists launched international extension programming efforts to disperse information on OR regional distribution, yield impacts, and evolving control strategies showing success against the OR pathogen. On May 28-29, 2009, Florida extension specialists organized and moderated a 2-day International Sugarcane Orange Rust Workshop. Day 1 included presentations on OR extension strategies (successful fungicide programs, visual OR rating system, environmental factors favoring outbreaks, effective scouting methods), impacts to internationally popular varieties, and evolving molecular detection techniques. Florida extension specialists video streamed the event in real time over the internet to an international audience. Several pre-selected sites in Brazil were interactively linked, allowing interaction with the Florida program in real time. Although the Workshop was physically attended by 76 people, a coordinating Brazilian government official confirmed on-line participation by 81 different locations in Brazil (over 500 people). The event was also recorded which further increased off-site viewership via IP connectivity. Day 2 was comprised of a Brazilian delegation of University and government sugarcane scientists, University of Florida sugarcane research/extension faculty, Louisiana sugarcane researchers, local sugarcane industry leaders, and USDA Beltsville administrators to discuss collaborative opportunities for OR research/extension initiatives.

Recognizing the growing OR knowledge base in Central and South America, Florida extension specialists organized the 2nd International Sugarcane Orange Rust Workshop (August 4, 2010) to include Central America and Brazilian involvement. This event was also video-streamed, allowing off-site presenters to participate as key-note speakers from Costa Rica (LAICA/DIECA, EARTH University), Guatemala (Cengicaña), Brazil (Universidade Estadual de Londrina), and Washington D.C. (USDA-ARS Beltsville). The program included presentations from visiting scientists from Penn State University, Universidade de São Paulo (Brazil), and Universidade Federal do Parana (Brazil). Roughly 37 different institutions (in Argentina, Brazil, Columbia, Cuba, Ecuador, Guadeloupe, Jamaica, Nicaragua, and Louisiana) indicated their intention to connect in real time or view the on-line video recording. Physically 87 people attended, with off-site viewership exceeding 500 people. The workshop summarized OR yield impacts and successful control strategies from four countries, recommendations for effective fungicide treatments and scouting strategies, possible origin of OR into the Western hemisphere, environmental factors limiting OR spore survival, sugarcane varieties at risk, and new breeding strategy recommendations (modified parent selection, early-stage screening) for OR resistance.

Based on OR data from the Eastern hemisphere and earlier experiences with sugarcane brown rust in Florida, extension priorities immediately focused on identifying fungicidal control
strategies that would limit sugarcane yield losses to OR. Using existing fungicide efficacy data from sugarcane brown rust trials, a crisis exemption was granted (April 18, 2008) for the temporary use of two different fungicide chemistries [strobilurin (pyraclostrobin) and triazole (metconazole)] in Florida. Florida extension specialists coordinated an internationally relevant sugarcane industry spray program using both fungicide chemistries on 8,500 acres, alternating between pyraclostrobin (Headline at 10-12 oz/acre) and metconazole (Caramba at 10-12 oz/acre). Both biomass and sugar yields were significantly improved over unsprayed controls. Based on the prevailing sugar price ($0.21/lb) and average spray costs ($29.78/acre), overall return on the spray investment was $174.97/acre, for a total return exceeding $1.48 million. Repeatedly highlighted in the International Sugarcane Orange Rust Workshops, Florida extension recommendations for these two fungicide chemistries have been tested and adopted internationally within the Brazilian (> 19.7 million acres) and several Central American sugarcane industries.

Implications

In conclusion, Florida extension specialists harnessed video-streaming technologies to provide outreach to international audiences while also capturing sugarcane rust experiences from leading Central and South American sugarcane research institutions. This novel approach significantly accelerated the dissemination of OR-related technologies between international sugarcane research institutions and their grower clientele.

References


Methodology and Techniques of Participatory and Extension Development Projects

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Introduction
An interesting definition of participatory development and extension projects can be translated from the native Aymara language of Bolivia, “we get to know ourselves” (Cox, 1996, p. 17). Since the early 20th century until the present, local communities as well as development and extension researchers and facilitators have been attempting to find appropriate methods to improve well being (Masters & Tuttle, 2010; Khan, 2009; Hickey & Mahon, 2004; Rahman, 1993). Kumar (2002) asserts that sustainable development must place local people’s participation central to the development process, although a wide spectrum of participatory definitions and theory, and ways of achieving participation (methodology and techniques), exists.
Purpose and Research Questions

The purpose of this paper is to review participatory methods that span the globe in order to inform ourselves on methods that may apply to our extension practices with poor, indigenous populations. Research questions include: 1) What are the basic origins of participatory programs? and 2) What methodologies have been applied in different countries worldwide?

Methods and Data Sources

The researchers employed literature review from 2 international proceedings and 1 journal article, as well as 10 books, containing both theoretical and practical applications of participatory extension and development. The researchers used qualitative methodology to divide data into 2 main categories: origins of participatory programs, and participatory methods and techniques.

Results and Conclusions

Kumar (2002) claimed that there were 5 major origins of participatory development projects. Participatory Action Research (PAR) focuses on how locals evaluate their own situation, and then use participation to foster changes. Participants become co-researchers with facilitators from outside of the community (Tuttle et al., 2003). Agro-Ecosystem Analysis utilizes visual and diagrammatic methods that illiterate people can understand. Applied Anthropology employs the community members’ perspectives rather than that of outsiders. Farming Systems Research consists of research and extension where producers play an active role. Rapid Rural Appraisal is the primary source of Participatory Rural Appraisal (PRA), but PRA was found to be more cost effective than survey instruments, while encouraging poor, marginalized, illiterate people to contribute (Kumar, 2002). Participatory Rural Appraisal applies space, time, and relational methods, ranging from maps drawn or colored by locals, seasonal diagrams, and daily time schedules to flow diagrams about community systems and networks, among others.

To illustrate field application of participatory methodologies, the researchers focused on 2 projects in Pakistan and Bolivia, though many other countries were reviewed, and participatory programs span the entire world. In Pakistan, Khan (2004) explained that the organizational model consisted of 3 components: programs, participants, and support organizations. From the perspective of the local beneficiaries of the projects, activities including getting together, speaking out, participating in making decisions, doing new things, and going out and working with outsiders were necessary for building confidence and empowering the community and its members. Participants and the support agencies worked on infrastructure improvement, creating and improving skills, and improving management of agriculture and natural resources.

In the High Plains region of Bolivia, facilitators and community members employed six steps and seven techniques to perform an assessment, which was also done in five other regions (Cox, 1996). The six steps included: overview of systems; logistics and organizational design; applied methods for each micro-region; review and organization of all documents and artifacts; defining problems, needs, solutions, and alternatives, as well as prioritization of projects; community approval of final documents, reports, and municipal resolutions to support the projects. The seven steps consisted of: community and agricultural maps drawn by small groups of locals; color coding geographical maps of the topography, roads, and population; ecological transect walks with locals, who also produce an elevation map of native/domestic plants and animals; other drawings such as landscapes, agricultural tools, evaluation cartoons; social dramas of situations, perceptions, relationships, and problems; and matrices employed for analysis of problems and solutions as well as other issues.
Implications and Applications

This brief taste of participatory extension and development projects, their origins, and two examples illustrate how poor and marginalized people may be included and empowered by these methods. All of the researchers who contributed to this paper work with Native Americans, who are still marginalized in the U.S., as are many indigenous peoples in the world. We continue to explore how to better reach and understand disadvantaged audiences, which is a lofty goal, but essential to extension’s mission. Developing an understanding of the history of participation and the participatory methods and techniques that have led to success may help us to evolve our own participatory development practice.

References
Needs Assessment

The Sasakawa Africa Fund for Extension Education’s (SAFE) Training Program: Examining Relationships between Graduates’ Personal and Professional Characteristics and Their Views on the Training Program

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Keywords: Extension Educators, Mali, Relationships, Training

Introduction/Conceptual Framework

Extension education is important for the improvement of food security in sub-Saharan Africa. A significant challenge is that many Extension personnel hold low levels of formal education vis-à-vis their job requirements (Davis, 2008; Kroma, 2003; Mutimba, Mangheni, & Matsiko, 2007). A strategy to overcome this dilemma was to create the Sasakawa Africa Fund for Extension Education’s (SAFE) training program.

The SAFE program was established to upgrade the skills of mid-career Extension professionals by “. . . 2) strengthen[ing] the competencies of Extension workers in order to serve small farmers and meet their needs” (SAFE, 2009, p. 1). The program was extended to Mali in 2002 (Traoré, 2008), and 150 mid-career Extension professionals have received training.

Experiential learning and self-efficacy are relevant theories for understanding the SAFE graduates’ training experiences. Kolb postulated that concrete or real-life experience and reflection are central components of experiential learning and facilitate improvement of an individual’s performance, including work behaviors (Knobloch, 2003). Ajzen (1991) and Bandura (1995) explained that an individual’s level of self-efficacy influences his or her self-confidence and ability to act. The SAFE-trained Extension educators are expected to be change agents who demonstrate self-efficacy in addressing the challenges of Mali’s farmers by using skills acquired through their SAFE training.

Purpose/Objectives

This study’s purpose was to describe training graduates’ personal and professional characteristics, as well as their views on the SAFE program and measure relationships between those variables. Three objectives guided the study: 1) determine selected personal and professional characteristics of the training graduates; 2) describe graduates’ perceptions on their
training experience and its impact on their professional practice (e.g., competence and satisfaction); and 3) describe associations between graduates’ characteristics and their perceptions of the training program.

**Methods/Data Sources**

Fifty graduates were sampled purposively to provide data for analysis. A researcher-developed instrument was used to collect data. Graduates’ perceptions were gathered using five-point, summated-rating response scales (Cronbach’s alphas ranged from .569 to .923 depending on construct), Yes/No questions, and a ranking item. A panel of experts assisted in ensuring the instrument’s content validity. A pilot test was conducted; consequently, a few questions were reworded slightly to improve the instrument’s clarity. Mali is Francophone, so the instrument was translated into French.

An opportunistic sampling procedure was followed (Creswell, 2005), i.e., a portion of the instruments were administered during the graduates’ annual SAFE alumni conference ($n = 23$). Others were hand-delivered to the remainder of participants at their workplaces ($n = 27$) and retrieved similarly. Descriptive statistics were calculated to analyze the data, including Cramer’s $V$ as well as Pearson and Spearman correlation coefficients, to describe associations between graduates’ characteristics and their perceptions on the SAFE training.

**Selected Results/Conclusions**

Most of the graduates were males who had substantial work experience in Extension. Nearly all were married and Muslim. On entering the training program, most held a “Technician” degree in Agriculture (i.e., four years of post-secondary education). The study included graduates drawn from the District of Bamako and seven of Mali’s eight regions.

Significant associations ($p < .05$) were found between graduates’ characteristics. Differences by gender were apparent in graduates’ marital status, educational level at entry in the SAFE program, major of study, farm ownership, retention in Extension, and service location. A significant association existed between the variables “still an Extension educator” and “major before entering the program.” The males were more likely to have stayed in Extension.

Graduates’ satisfaction with the training was a significant factor regarding their willingness to encourage a colleague to participate in the program. It was also concluded that the training had a cumulative effect on graduates’ perceptions regarding changes in their clients’ behaviors. The relationship between graduates’ perceived overall competence resulting from the training and their performance with supervised enterprise projects (SEPs) was also significant. Therefore, the researchers concluded that graduates’ perceptions of their overall competence could be a predictor of their perceived competence to work successfully with clients on SEPs.

**Recommendations, Educational Importance, and Application**

The researchers recommend the SAFE training be continued in Mali, however, the need exists to examine the views of graduates’ clients regarding the educators’ performance and impact. SAFE’s providers and Mali government officials should develop ways to recruit, as well as increase retention of, more female Extension educators. Graduates recognized as being highly satisfied with their training experience should be solicited to recommend and recruit future trainees. Moreover, because SAFE alumni could assist in promoting and sustaining the training program, the researchers recommend SAFE increase its support of the graduates’ alumni association.
References


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**Barriers Impacting the Diffusion of Information Communication Technologies (ICTs) in Agricultural Colleges and Universities in the Developing World: Views of Aspiring Faculty**

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**Introduction/Theoretical Framework**  
The Internet has enabled the world to access, disseminate, and use information, training, and education in and about agriculture as never before. ICTs have transformed education in
developed countries more than could have been imagined a generation ago, e.g., distance education (DE) to accommodate individual learning needs (Loxley & Julien, 2004). However, important tools for transferring technologies to agricultural students and farmers in developing countries, including ICTs, are underutilized (Erbaugh, Donnemeyer, & Amujal, 2010).

This study relied on the theoretical lens of Rogers’ (2003) diffusion of innovations model for understanding the behaviors of potential adopters. “Diffusion is the process in which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 2003, p. 5). As individuals contemplate new technologies, their perceptions influence whether they adopt or reject (Rogers, 2003). Per that, real and perceived barriers to the adoption of ICTs may exist, including the views held by individuals who may aspire to teach agriculture at tertiary institutions in developing countries.

**Purpose/Objectives**

This study sought to describe the perceptions of international graduate (IG) students from developing countries in the College of Agriculture (CoA) at Oklahoma State University on the diffusion of ICTs to advance agricultural education (AE) at colleges and universities in developing countries. (“Agricultural Education” was operationalized as learning that encompasses the different academic disciplines found in most colleges or faculties of agriculture worldwide.) Four objectives guided the study: (a) determine selected characteristics of the IG students; (b) describe IG students’ perceived levels of innovativeness regarding their use of ICTs for academic learning; (c) describe IG students’ views on barriers impacting the diffusion of ICTs to advance AE in developing countries; (d) describe relationships between IG students’ characteristics and their perceptions on variables impacting the diffusion of ICTs.

**Methods/Data Sources**

This was a descriptive-correlational study. The target population included IG students from developing countries enrolled in the CoA at Oklahoma State University during the Fall semester of 2010. The CoA’s administrative units provided the study’s sampling frame. Of 120 students, 72 or 60% responded.

Students indicated their level of innovativeness (i.e., per Rogers’ [2003] stages of the innovation-decision process) regarding the use of ICTs. The barriers portion of the instrument (nine constructs, e.g., “faculty compensation and time”; 38 statements) was modified from Li’s and Lindner’s instrument (2007) used to describe the perceptions of faculty at an agricultural university in China on the use of web-based, DE. Their instrument was derived from a study conducted by Muilenburg and Berge (2001) on DE generally.

Students rated the barriers using a five-point, summated response scale: 1 = no barrier, . . . 5 = very strong barrier. A field test of the instrument was done with IG students in another College; a few revisions were made to improve clarity and readability. A panel of experts ensured the instrument’s content validity. As determined post-hoc, the barrier constructs revealed Cronbach’s alphas ranging from .808 to .949. Twenty questions were asked to describe students’ characteristics. The data were analyzed descriptively.

**Selected Results/Conclusions**

A majority of participants were male, 30 years of age and had 3.43 years of professional experience. Many were from Asia and about one-half anticipated working in tertiary institutions. About one-half had not experienced a course using ICTs, and a similar number were “uncertain” about whether they would recommend such a course to others. The students perceived their levels of innovativeness regarding ICTs for academic learning was between “unpersuaded” and
“persuaded.” Their perceptions overall regarding the nine barrier constructs were in the range of moderate. They perceived three constructs were strong barriers. The other barriers were considered moderate. A few positive relationships existed between selected variables but were not statistically significant at $p < .05$.

**Selected Recommendations, Educational Importance, and/or Application**

If ICTs are to be adopted widely for teaching agriculture in developing countries, barriers perceived as strong by potential faculty members must be mitigated (Harder and Lindner, 2008; Li and Lindner, 2007; World Bank, 2008). Faculty in the College of Agriculture studied should make it a priority to introduce their IG students to ICTs for the purpose of tertiary level instruction as well as research and outreach. It is also recommended that the governments of developing countries implement policies calibrated to introduce ICTs for education more aggressively. Because male IG students outnumbered females about two to one, factors that may be preventing the enrollment of more female IG students in the CoA studied should be examined.

**References**


Technology Preferences of Belizean Extension Officers

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Introduction
While the use of technology for the dissemination of extension material to its target audience is pervasive in developed nations, the use of technology in developing nations, however, is not as widely used. While in Belize, technology has produced a need for adults to engage in perpetual learning opportunities (Ministry of Education, 2009). The advantages of using technology in developing countries are trade, knowledge exchange, tourism, and foreign investment (Hoekman, Maskus, & Saggi, 2005). A lack of technology resources inhibits extension officers’ capacity to pursue the latest knowledge and share the information with farmers (Bruening et al., 2002).

Theoretical Framework
Fishbein and Ajzen’s (1975) theory of reasoned action suggests that an individual’s behavioral intention is determined by that individual’s beliefs and subjective norms towards the behavior. Davis (1989) developed the Technology Acceptance Model based on theory of reasoned action. The Technology Acceptance Model postulates that perceived ease of use and perceived usefulness determines adult’s intent to use a technological system (Davis, 1989). The Technology Acceptance Model is the leading technique to describe and predict adult technology usage (Chutter, 2009).

Purpose and Objectives
This study was a part of larger study designed to assess the professional development needs of Belizean extension workers. More specifically this study sought to:
1. Describe extension workers’ technology preferences; and
2. Examine the effect of extension workers’ demographic characteristics toward technology preferences.

**Methodology**

This was a census study of extension workers in Belize (N = 35). Participants were provided with a written questionnaire during a professional development in-service training. The study used the Technology Acceptance Model instrument developed by Venkatesh and Davis (2000) to assess the technology preferences of Belizean extension workers. Technology preference was measured on a four-point scale: 4 = strongly agree, 3 = agree, 2 = disagree, 1 = strongly disagree. For this study, construct validity was addressed by a team of researchers from Texas A&M University and the University of the West Indies. The reliability of the instrument was calculated ex post facto $\alpha = .90$ for this study. The first objective was measured by descriptive statistics, and the second objective was measured by analysis of variance (ANOVA).

**Results and Conclusions**

Belizean extension officers agreed that technology enabled them to accomplish tasks more quickly and that using technology enabled them to do much more work. Using technology enhanced the quality of extension officers’ work and made it easier to do their work. Belizean extension officers found it easy to become skillful in using technology, and intended to utilize technology more in training sessions with farmers. Extension officers agreed technology made their job easier to do and accomplish their goals effectively.

Belizean extension officers used technology at least twice a week. The majority of extension officers had used technology more to enhance their personal knowledge than to prepare training materials. Extension officers tended to strongly agree that they intended to use technology more for enhancing their personal knowledge, but otherwise tended to agree that they intended to use technology for work-related tasks. Belizean extension officers were least positive about using technology more to contact farmers.

Gender, age, and work experience were not significant on technology preference. Highest level of education earned was significant toward Belizean extension workers’ ease of technology use. Extension officers with Associate Degree’s had a higher intention to use technology in training sessions with farmers than extension officers who had earned a Diploma ($p < .05$). Extension officers earning an Associate Degree had a higher intention to use technology to get information out to farmers than extension officers who had earned a Diploma ($p < .05$). Belizean extension officers earning a higher level of education were more likely to use technology to teach farmers and disseminate information.

**Recommendations/Implications/Educational Importance**

Belizean extension officers need professional development training in the instructional technology tools currently available to them. Using technology to teach farmers may assist extension officers in producing a positive effect on product trade, knowledge trade, tourism, and foreign direct investment (Hoekman, Maskus, & Saggi, 2005) in Belize. Understanding the use of technology by adults enables program administrators to predict the extent adults will utilize technology in the future. Belizean extension officers with more formal education will use technology to teach and deliver information to farmers due to their beliefs and subjective norms toward the behavior (Fishbein & Ajzen, 1975). Extension officers’ level of perceived use determined their intent to use technology in their job (Davis, 1989). Assisting Belizean extension officers develop a comprehension of using technology to teach and disseminate
information to farmers may enable adults to engage in perpetual learning opportunities, as identified by the Ministry of Education (2009).

References


Understanding Informational Needs of Mexican Lending Institutions for Improving Loan Distribution

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Introduction
The Mexican Ministry of Agriculture works to provide the national marketplace with high quality food from the country’s farms (SAGARPA, 2011). Increased participation in
processing, supplying, and marketing agricultural products in Mexico could lead to more income and enhance the standard of living for rural citizens (Zertuche Guerra & Eaton, 2000). The Mexican Ministry of Agriculture supplies agricultural statistics to lending institutions with the intent of assisting farmers acquire loans. Lending institutions have the ability to improve the lives of farmers in developing countries (Yasmeen & Sarwar, 2011). Gravel (2007) found that Mexican farmers do not receive loans from lending institutions in a timely manner in order to purchase seed, fertilizer, and equipment to plant crops.

**Theoretical Framework**

Rogers’ (2003) diffusion of innovations was implemented to frame this study. The diffusion of innovations has been used in several agricultural and extension education studies to identify an innovations rate of adoption. Rogers (2003) identified five perceived attributes of an innovation, which aid in determining an innovation’s rate of adoption: (a) relative advantage; (b) compatibility; (c) complexity; (d) triability; and (e) observability. The evolution in which an innovation is communicated across specified channels over time among members of a social structure is the diffusion of innovations (Rogers, 2003).

**Purpose and Objectives**

The purpose of this study was to assess the dissemination of information from the Mexican Ministry of Agriculture’s agricultural statistics division to national lending institutions in order to more efficiently distribute loans to farmers for local food production. More specifically, this study sought to: (1) Describe lending institutions’ perceived attributes of the Ministry of Agriculture’s information; and (2) Describe the informational needs of agricultural lending institutions.

**Methodology**

This was a descriptive study of the fourteen (N = 14) agricultural loan administrators at Mexican lending institutions that loan currency to farmers. A fundamental qualitative research design (Dooley, 2007) was employed for this study. The agricultural loan administrator at each respective Mexican lending institution was purposively selected in order to meet the objectives of this study. Purposeful sampling allows the researcher to magnify the function of data attained from the context (Lincoln & Guba, 1985). A semi-structured interview guide was utilized with participants to answer the study’s objectives (Denzin & Lincoln, 2008). The interviews lasted approximately one hour and were conducted between June and August 2011. The data set from interviews and observations was triangulated to achieve trustworthiness (Lincoln & Guba, 1985). The researchers implemented member checks and conducted an audit trail. Each participant was emailed a transcription of their remarks for confirmation in order for the researchers to address member checks. Electronically recorded data and field notes made up the audit trail.

**Results and Conclusions**

Nine (n = 9) of the fourteen lending institutions participating in this study perceived information from the Ministry of Agriculture as advantageous, and therefore, used the information to distribute loans to farmers. Four (n = 4) lending institutions did not use agricultural information from the Ministry of Agriculture because it was too difficult to understand for their loan inquiry processes. Very few (n = 3) agricultural loan administrators observed farmers’ productivity based upon loans distributed.
Twelve \((n = 12)\) lending institutions wanted respective commodity price analysis information at least two business weeks before processing loans. Ten \((n = 10)\) agricultural loan administrators recommended establishing a stronger communicable relationship with personnel in the Ministry of Agriculture’s agricultural statistics division. Seven \((n = 7)\) lending institutions suggested Facebook or other social media platforms as a means of disseminating information or providing a direct link to the information once available. The majority \((n = 9)\) of agricultural loan administrators believed information from the Ministry of Agriculture provided a relative advantage over other sources of agricultural information. The complexity and compatibility with Ministry of Agriculture information led to some lending institutions \((n = 4)\) not adopting specific pieces of information.

**Recommendations/Implications/Educational Importance**

The Mexican Ministry of Agriculture should develop a comprehension of each respective lending institution’s agricultural loan processing schedule in order to assist in improving the lives of farmers (Yasmeen & Sarwar, 2011). The Ministry should offer information to lending institutions via Facebook or Twitter on a trial basis and evaluate the dissemination after one year. Agricultural and extension education academics can offer needs assessment methods to assist agencies and lending institutions in developing countries ensure farmers receive funds to purchase resources in a judicious manner, as identified by Gravel (2007). Assisting Ministries of Agriculture and lending institutions to more effectively disseminate and process agricultural information, may enhance agricultural sustainability, and rural residents’ lifestyle in developing countries (Zertuche Guerra & Eaton, 2000).

**References**


Agricultural Teacher Education in Korea: 
A Study Program for U.S. Students

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Introduction

The University of Florida is in the process of reaccreditation with the Southern Association of Colleges and Schools (SACS). The purpose of SACS is the improvement of education through a thorough and careful evaluation of the educational quality of the member institutions. SACS requires the submission of a Quality Enhancement Plan (QEP) that clearly defines an area of interest of the university in improving education (SACS, 2011). The University of Florida selected internationalizing the undergraduate curricula as the focus of the QEP, providing specific goals based on desired student learning outcomes.

International awareness and experiences, such as study abroad, are valuable learning opportunities that universities need to continue to develop in response to workforce demands (Acker & Scanes, 1998; Wingenbach et al., 2003; Connors, 2004). The most beneficial international experience is highly related to the career goals of the students (Irani, et al., 2006). The literature clearly defines the need and importance of international experiences for collegians studying in the agricultural sciences Zhai & Scheer, 2004). The study of agricultural teacher education at the undergraduate level occurs in very few countries; South Korea, like the United States, offers programs in agriculture in the secondary schools and provides teacher education programs in universities to prepare agriculture teachers. A partnership between the University of Florida and Seoul National University is an excellent mechanism for providing a unique experience for students in their discipline and meeting the goals of the accrediting agency.

Purpose

The purpose of this paper is to describe a unique study abroad program for agricultural teacher education students in the U.S. and Korea. The paper will identify the objectives of the program and the in-residence and in-country learning experiences for the participants.
Methods

The purposes of the U.S-Korea study abroad program are: 1) to develop and prepare globally minded agricultural education teachers, and 2) to assist teacher candidates in acquiring the characteristics of a global-minded agricultural education teacher as identified by The National Council for Agricultural Education (National Council, 2011). Students enrolled in a course at two U.S. universities develop global citizenship, which is a multi-dimensional construct that entails three interrelated domains: social responsibility, global competence, and global civic engagement. The course objectives are:

1. Evaluate social issues and identify examples of global.
2. Examine diverse perspectives.
3. Recognize abilities to engage successfully in an intercultural encounter.
4. Demonstrate an array of intercultural communication skills.
5. Discuss and interpret world issues and events.
6. Synthesize global knowledge and experiences in the public domain.
7. Engage in purposeful behaviors that advance a global civic sensitivity.

To meet the objectives, students will “shadow” teacher education students at Seoul National University, teach a micro lesson at two Korean agricultural high schools, and tour agricultural and cultural sites. Upon returning to the US, students will make educational presentations based on their learning to various teacher and student groups in their respective states.

Results

The in-residence course is taught for 13 weeks in Spring Semester 2012 and emphasizes learning via group interaction in both synchronous and asynchronous settings, guest presentations, and lecture. Topics range from: history, culture, and customs; to government and politics; to secondary school curricula and student organizations; and to logistics. The class travels to Seoul, Korea in May-June to engage in conversations and interactions with Korean school-based agricultural education programs, the agricultural education professional teacher organizations, and the youth organization (Future Farmers of Korea), as well as cultural activities. The students will participate in a pre- and post-test project regarding their attitudes toward internationalization and their knowledge of Korean agriculture, history and culture, and agricultural education.

Application

The Korean Agricultural Education Study Program addresses the principal thematic elements of the international QEP: global citizenship and intercultural communications. The program creates a collaborative effort between universities in the United States and Korea. Additional joint programs and research efforts should develop as a result of this new partnership, including the exchange of undergraduate students (Korean students to the U.S.), the exchange of secondary school agriculture instructors, and research opportunities for undergraduates and faculty in comparing and contrasting the two delivery systems. The program serves as a model for other international study programs that relate specifically to student career interests.

References


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**College of Agriculture Students’ Perceptions of International Education Experiences**

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**Keywords**: Financial Concerns, Information Sources, Global Marketplace

**Introduction**

In previous studies, globalization of research and graduate education in agriculture was a key driver of quality improvement (Acker & Scanes, 2000). Shinn, Wingenbach, Lindner, Briers, and Baker (2009) found that international agricultural and extension education can help people make better decisions and to be aware of the consequences of their actions as they prepare to become global citizens. Most 1862 land grant universities provide undergraduate courses with international agricultural content and focus (Brooks, Frick, & Bruening, 2006). In this global world, international educational experience can improve competitiveness for students. The American Council on Education (2002) found that study abroad greatly enhanced students’ foreign language abilities, cross-cultural skills, and understanding of other cultures. However,
according to the Institute of International Education (2010), in 2008-2009, only 1.1% of the U.S. students studied abroad in an agricultural field; even lower than in 2000-2001 (1.6%).

Methods

The purpose of this study was to examine college of agriculture students’ perceptions and concerns about international educational experiences. Appropriate research methods (Dillman, Smyth, & Christian, 2009; Fraenkel & Wallen, 2009; Lindner, Murphy, & Briers, 2001) were used in conducting this study. A stratified random sample of students (N = 153) was asked to complete an online questionnaire. The response rate was 67%. Participants (n = 98) were from Tarleton State University and Texas A&M University. The instrument included items that measured respondents’ ratings of concerns about gaining international educational experiences and their information sources for learning about study abroad. Descriptive statistics and bivariate analyses were used to analyze the data.

Results

Students rated the importance of 14 factors that may have concerned them while making choices about specific study abroad programs or foreign universities. Affordability was the only concern rated as very important when considering international educational experiences. Respondents also thought the country and available information about the country, university, and programs were important concerns. Having friends and family in the area or region and having friends who study at that university (for study in foreign universities) were the least concerning factors, but were rated as somewhat important by the respondents. Respondents rated the frequencies of motivational and prohibitive information sources for learning about study abroad. Motivational information sources for learning about study abroad included study abroad staff, class, and friends, as students’ most frequently used information sources. Prohibitive information sources included study abroad staff, classes, and faculty members as students’ most discouraging sources of information used to learn about study abroad programs.

Students from Texas A&M University were significantly more willing to participate in study abroad than were students from Tarleton State University. Also, students from Texas A&M University held significantly more positive attitudes that participating in study abroad programs would improve their competitiveness in the global marketplace than did students from Tarleton State University. No significant differences existed between respondents’ perceptions or concerns about gaining international educational experiences when compared by gender or multilingual capabilities.

Recommendations

Only 4% of respondents had participated in study abroad programs, which was congruent with the findings of Moore, Williams, Boyd, and Elbert (2011). Affordability of study abroad programs was rated as a very important concern by respondents, which was similar to the results of Briers, Shinn, and Nguyen (2010) and Andreasen (2003). This result matches the finding of Texas A&M University (2010) that the main reason for not studying abroad was that respondents felt gaining an international experience was too expensive. Respondents also thought the country and available information about the country, university, and programs were important concerns. The findings were congruent with those of Wingenbach, Chmielewski, Smith, Piña, and Hamilton (2006), who found students’ lack of cultural knowledge and fear of unknown as barriers to gaining international educational experiences. Universities should provide more information about countries, universities, and programs to alleviate students’ concerns.

Respondents in this study were most concerned about financial issues (paying for the program or funding their living expenses and studies during the study abroad and finding
affordable and adequate housing), which matched the findings of Texas A&M University (2010) that the main reason for not studying abroad was that respondents felt that it was too expensive. However, students from Texas A&M University were significantly more willing to participate in study abroad than were students from Tarleton State University, indicating that Texas A&M University students possibly had better financial support and resources for gaining international educational experiences than did students from Tarleton State University. Expanded research would help determine if personal financial resources plays a significant role in students’ perceptions toward gaining international educational experiences.

References
Enhancing Teaching and Learning: A Case Study in Haiti

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Introduction

Haiti is a small, densely populated, mostly rural country, and agriculture is the largest sector of the economy, employing two-thirds of the labor force (FAMV, 2007). While resources allocated to agriculture have increased, economic value has been decreasing. Major agricultural reform is a national priority; to succeed in reforming that sector, qualified agricultural experts are needed (FAMV, 2007). Institutional capacity building ranges from organizing farmer groups and reinforcing investments in the agricultural sector to enhancing workforce development (Smucker, et.al., 2005; Louissaint, 2007).

In the aftermath of the 2010 earthquake, Haitian higher education officials are desperately seeking to build the infrastructure and the educational system (USAID HED, n.d.). Programs supported by the US Agency for International Development (USAID) were designed to improve employment skills in the agricultural sector (USAID, 2006). Specifically, the agricultural strategy of USAID was focused on improving problem-based learning approaches as a part of strengthening agricultural training and education (USAID, 2004). Partnerships between Haiti and selected U.S. higher education institutions are designed to spur economic growth. The University of Florida and the Faculte d’Agronomie et de Medecine Veterinaire (FAMV) of the State University of Haiti formed one of these partnerships; one of the primary objectives has been to help the FAMV faculty to think, teach, and act more entrepreneurially. The goal has been to set the foundation for fostering economic growth in the agribusiness sector (USAID HED, n.d.).
Purpose and Objectives
The purpose of the USAID HED-funded project at the University of Florida was to enable the FAMV to deliver high-quality academic programming in agribusiness. This case study addresses one of the four goals of the effort:

• To assist the faculty to upgrade and update course content and improve the teaching-learning environment.

Methods
Project team members initially traveled to Haiti to meet and gain a shared vision for the project and goals. Discussions included a critical analysis of course content and sequencing, enabling FAMV faculty to determine how their courses contribute to the curriculum. Priority areas were set for the development and revision of courses based on industry needs, identified in part through a Skill Gap Analysis and related interviews with key informants.

Seven of the 21 faculty at FAMV were selected to participate in a 14-day visiting professor program at the University of Florida. FAMV faculty were paired with peer faculty at the University of Florida and participated in a series of workshops on effective teaching.

After a significant delay caused by the 2010 earthquake, University of Florida team members returned to Haiti to conduct peer observations of teaching and provide feedback to the seven faculty. Additional workshops on teaching and learning, course development, and establishing external advisory councils were conducted for the entire FAMV faculty.

Results
Results of the project include the following:

1. Seven faculty received intensive training in teaching and learning. Classroom observations verified that the faculty members were implementing the various teaching strategies they had learned, such as the use of advanced organizers in class, the implementation of alternative forms of assessment, the use of more visual forms of information, and effective small group activity and feedback.

2. Two new courses were created, and seven others were redesigned to more closely meet the needs of the agricultural workforce via the integration of an entrepreneurship focus.

3. An external advisory committee for FAMV has been established and had its inaugural meeting.

4. Additional faculty members have participated in teaching and learning workshops. The materials and presentations for those workshops have been recorded and translated into French for future use by other faculty groups and placed on the project website.

Recommendations and Implications
In spite of the fact that the project work was interrupted for more than a year due to a devastating earthquake, excellent progress has been made in reforming and rejuvenating the curriculum and teaching at FAMV. The support that was offered through this project was a timely, positive influence on the faculty. Including more of the faculty initially in the project would have been beneficial. Although not noted above, the common language in Haiti is French Creole. Providing materials in the native language throughout a project such as this is recommended. Other challenges included adjusting interactions to account for a high number of adjunct and part-time faculty at FAMV, and meeting efforts to target female faculty members, who are significantly underrepresented in the ranks of the FAMV faculty. The relatively small
size of the FAMV faculty does not allow for in-depth quantitative analysis of change. However, the components of this project can be adapted for replication in other settings throughout the world.

References
USAID HED (n.d.) *Higher education for development in Haiti*. Washington, DC: USAID.

*Student Reflections of a Study Abroad Experience in Costa Rica: Personal Gains and Program Characteristics*

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**Introduction**

Study abroad programs are a way to help universities meet their needs to globalize the curriculum. Study abroad programs are also a popular option for students to gain course credit, international perspectives, and international experience. Dwyer and Peters (2004) found that
study abroad “influences the career path, world-view, and self-confidence of students” (para. 2). Students in agriculture represent a mere 1% of the total number of students who study abroad (Institute of International Education, 2010).

Agricultural students face barriers when considering studying abroad. Financial constraints, degree requirement issues, and lack of cultural knowledge were found to be barriers (Briers, Shinn, & Nguyen, 2010). Irani, Place, and Friedel (2006) found that “perceived barriers was the most significant predictor of intent” (p. 27) to study abroad.

**Purpose Statement and Objectives**

The purpose of this study to determine why students chose to participate in the Agricultural Leadership Study Abroad Program. The objectives of this study were to: (a) identify the students’ study abroad intentions, and (b) identify program characteristics that attracted students.

**Methods**

The students were engaged in a qualitative, prereflection/reflection interview. Preflection is “the process of being consciously aware of the expectations associated with the learning experience” (Jones & Bjelland, 2004, p. 963). The researchers were interested in how the students interpreted their experiences (Merriam, 2009). Students responded to a set of open-ended questions that were administered to the students before and after.

The prereflection and reflection responses were analyzed independent of each other. In accordance with Glaser and Strauss (1967), themes were allowed to emerge using the constant comparative method. The prereflection and reflection emergent themes were then compared to determine any changes in the students’ perceptions and attitudes as a result of the experience.

**Results**

**Preflection**

Preflection data revealed that students expected to develop personally and professionally. Students anticipated *knowledge gain* on how to be innovative and a change agent as a result of course content. They expected to gain knowledge in foreign agricultural practices and agricultural development and a broader *global perspective*. They reported that they anticipated *relationship building* with the other students. Professionally, they indicated that participating on this study abroad would help them to develop desirable leadership qualities and expand their future career opportunities.

Students were asked about the characteristics of the Agricultural Leadership Study Abroad Program that helped them choose to participate. The data revealed four characteristics: Trip logistics (e.g., schedule, location, affordable, topic); reputation (e.g., professors, Texas A&M University Soltis Center); people attending; benefit to future career; and general opportunity.

**Reflection**

Reflection data revealed that students achieved their expected personal and professional growth, and relationship building. They reported a more accurate cultural understanding of Costa Rica, and were surprised about the standard of living. As a result of the program, students are able to make decisions related to international issues, such as foreign agricultural practices,
agricultural development, ecotourism, and research methods. Students found the experience increased their confidence and responsibility. Students reported that after the experience they are more flexible and open to change, more of a team player, and have a greater appreciation for the United States of America. They reported their desire to share their knowledge with their fellow classmates.

The participants indicated that they would recommend this program because the professors made the trip educational and fun with excursions and the classes fulfilled a section of their degree plan. Students mentioned the great environment and the ability for them to be able to compare and contrast the United States of America with another location because they have a broadened global perspective.

**Conclusions**

As a result of the study abroad, students fulfilled their expected gains of the study abroad, and developed a deeper and more accurate global and cultural understanding. The excursions and course content allowed them to learn about ecotourism and research methods all while becoming more flexible, confident, and responsible individuals. The Agricultural Leadership Study Abroad Program gave the students the ability to make global comparisons.

Students chose this program primarily because the two-week format allowed them to participate without missing excessive work or school while gaining course credit toward their degree plan and benefits to their future careers. The two-week format was more affordable and the reputation of the professors and Soltis Center helped students make the decision to participate.

**Recommendations, Educational Importance, and Implications**

Educational importance is embedded in the increased global perspective, cultural understanding, and personal and professional gains of the participants. It is indicative of program characteristics for those looking to develop or restructure a study abroad program.
References


Value Chain Approach to Agricultural Development: Implications for Curriculum Revitalization in Sasakawa Africa Fund for Extension Education Partner Institutions in West Africa

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Keywords: Curriculum Development, Value Chain Approach, Extension Training, Curriculum Review, and Midcareer Professionals

Introduction

A value chain (VC) is a sequence of related business activities (functions) from the provision of specific inputs for a particular product to primary production, transformation, marketing up to the final sale of the particular product to consumers (Kaplinsky et al., 2000). It considers the set of enterprises (operators) performing these functions i.e. producers, processors, traders and distributors. VC promotion fosters economic growth by making sure that the additional income generated actually benefits poverty groups (Toshiro, 2004). VC approaches are a vehicle for linking small businesses to markets, hence essential for improving rural sub-Saharan Africa (SSA) economies and reducing poverty (Weber, 2000). Market accessibility and value addition have become critical issues to the success of the farming enterprise of African small scale farmers (ASS) (Berdegué, Julio, 2008). Increasingly, ASS farmers in SSA need improved market access with better product quality and wider product offer (Beyerlee, Derek 2008). To achieve that objective, ASS farmers need advisory services along entire agricultural VC but majority of extension officers are technically competent to offer advisory services largely on production agriculture with little emphasis on post-harvest handling, processing, value addition and marketing. This is largely due to the fact that the present curricula for the training program are production biased.

Sasakawa Africa Fund for Extension Education (SAFE) seeks to strengthen the capacity of African agricultural education institutions to play a more pivotal role in rural development through responsive, farmer-focused formal continuing education programs for mid-career agricultural and rural development workers. The current focus of SAFE is to strengthen its partner institutions to revitalize its curricula to incorporate VC so that graduates from the program can assist farmers to consider what consumers of agricultural product want.

Purpose

This paper presents the results of a study the sought to find out: the relevance of incorporating Value Chain Approach (VCA) in curricula of SAFE institutions, extent of
coverage of VCA in SAFE partner institutions, ways to incorporate VCA into SAFE curriculum and anticipated challenges in mainstreaming VCA into curricula of SAFE institutions.

**Methods**

The study employed documentary analysis of curricula of SAFE-partner institutions, checklist, observations and summary of view of participants at SAFE regional Workshop organized at University of Cape Coast in September 2010.

**Results**

All 35 participants (100%) from SAFE partner institutions (Ghana, Burkina Faso, Benin, Mali & Nigeria) agreed to the relevance of incorporating VCA in the curricula to develop graduates who will meet the demands of clientele for food security. Furthermore, extensionists will be able to teach entrepreneurs to create greatest possible value for customers, best way to maximize profit, satisfy consumers’ needs and specifications. The present curricula of SAFE partner institutions partly cover (10-12%) the tenets of value chain (ie processing, value addition and marketing) in content and in sequence. It focused mainly on production agriculture while, aspects such as marketing, food processing and transformation and storage are not well covered and organized sequentially along the VCA with principles of VCA, selection criteria and value chain mapping are not reflected. Institutions agreed to propose specific course on Value Chain in the curriculum. However, the principles of VCA will be introduced into specific technical courses in the curricula. Approaches such as collaboration with local institutions, needs analysis, translation of needs into modules, meeting of the academic committee in charge program evaluation, provision of practical and concrete training will be used to deliver VCA, either as short courses, distance learning mode, and as full time program.

The study revealed that anticipated major challenges to mainstream VCA in SSA higher educational institutions include the need to sensitize and reorient all stakeholders, development of curriculum, financing the different activities, staff capacity building, training of trainers, behavioral and attitudinal change, non-availability of specialists in the VC, surmounting the curriculum review process, and creating enabling environment, negotiating with other departments to develop along VCA.

**Implications and Educational Importance**

The study showed that HEIs in agriculture identified the relevance of mainstreaming the value chain approach into curriculum. This signifies the responsiveness of training institutions in addressing the needs of the clientele, which goes a long way to improve the livelihood of many SSA farmers. It suggests a development and adoption of feasible educational plan to mainstream VCA in curriculum which involves all major stakeholders to ensure ownership and swift implementation with adequate materials, equipment, funds, and human resources mobilized to implement curriculum. The VCA aspect of curriculum should be harmonized among SAFE institutions with development of partners supplementing the efforts of training institutions to invest in the development of human resources to play leadership roles in the VCA.

**References**

Climate Change and Agriculture in Nigeria: Implications for Agricultural Extension Service delivery in the Adamawa State ADP

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Introduction

The various definitions of climate change agree it is change in climate impacting directly or indirectly on human activities, altering the atmospheric composition of the earth, leading to global warming with the potential of affecting all natural and human systems and posing a threat to human development and survival, socially, politically and economically. It arises from the “release of greenhouse gases, carbon dioxide, water vapors and nitrous oxide into the atmosphere due to human activities, such as fossil fuel burning, gas flaring and deforestation” (Dai, et al., 2004). Climate change has become a critical challenge to humanity as it can determine the status of the resources on which economies depend (Adams and Mortimore, 1997), as evident in the United Nations Framework Convention on Climate Change and the Kyoto Protocol. West Africa is one of the world’s most adversely affected sub-region (Ahmed, et al., 2000). Efforts to address climate change have focused on mitigation and adaptation (Ayuk, 1997). While adaptation focuses on coping with climate impacts when they materialize, mitigation seeks to reduce greenhouse gas emissions to avoid further global warming. However, discussions in the early years were dominated by mitigation with less consideration given to adaptation (Chamberlin and Diop, 2003). Nigeria’s agriculture being predominantly rain-fed is vulnerable to the effects of climate change (Butt, et al., 2003) raising the need to examine its effect on advisory service especially in the drier parts of the country, as well as find out the mechanisms evolved by extension service to cope with the problems.
Methods

The study targeted households, groups, and extension staff of Adamawa State Agricultural development program (ADP). Information was derived from review of available literature on climate change in Nigeria, while data was collected from 120 randomly sampled individual farm households from six villages in Yola local Government Area, using interview schedule and analyzed using descriptive statistical tools namely means, percentages, and standard deviation. There were four focus group discussions with common interest groups involved in various farming enterprises within the Local Government. For Institutions, interviews were held with 60 frontline ADP field extension officers randomly selected from the six local government areas currently adversely affected by climate change.

Results

Results showed that climate change impacts adversely on extension service delivery in several ways:

- Frequent crop failures (3.55)
- Farmers become more impoverished (3.27)
- Frequent droughts discourage farmers investing more into farming (3.36)
- More difficult for extension officers to convince farmers to undertake investments that are exposed to climate risks (3.32)
- Increased variability in rainfall conditions means annual planned work cannot be implemented (3.45)
- Makes timely and relevant training more essential (3.21)

Increased rural-urban migration; women and the old are left to practice farming, thereby reducing agricultural labor force and increasing the work burden of women (2.77)
- Variable weather conditions also question the expertise, relevance and validity of extension officers and extension advice (2.89)

Farmers however claimed that Adamawa state public extension service officers have implemented the following measures with them to mitigate the effects of climate change:

- Multi-Enterprise choice with diversification of farming and incorporation of other crops like cassava and sweet potatoes which are less water-demanding and crops with short gestation periods (100%)
- Better market intelligence and options as farmers can now grow trees for selling (73%)
- Better postharvest management, as crops are free from diseases and pests, harvests last longer for use during dry seasons (52%)
- New crop varieties introduced to farmers who now plant early maturing crops (83%)
- Drought resistant cultivars as farmers now plant early maturing crops that are drought resistant (79%)
- Early warning systems and weather monitoring for easy planning and for taking necessary measures (88%)
- Use of crop residues after crop failure as livestock fodder (54%)
- Food preservation and value addition as farmers claimed to have been storing food for use when harvests are poor (57%)

Frontline extension officers highlighted they need better understanding of climate change concept and adaptive measures to be able to advise farmers correctly. Farmers also want crop
insurance scheme developed for them and that climate change should be part of the agricultural policy.

**Conclusions and Recommendations**

Climate change has adversely affected the effectiveness of agricultural extension staff in Adamawa state, Nigeria. Even though they have effected some adaptive measures, both the farmers and extension service officials expect more from the government in terms of friendly policy and capacity building.

**References**


A Case Study of NGO–Government Collaboration in Vietnam: 
Partnership Dynamics Explained through Contexts, Incentives, and Barriers

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Introduction
Collaboration among international NGOs (INGOs) and governmental organizations (GOs) have contributed significantly to the goals of poverty alleviation and agricultural development in developing countries. In the case of Vietnam, after adopting the Renovation Policy (Doi Moi) in 1986, the government has embraced an open-door policy to welcome and join INGOs in their efforts to alleviate rural poverty through agricultural development; their joint efforts often take the form of project-based development partnerships (Dang, 2004; Hakkarainen & Katsui, 2009; Norlund, 2007; Sidel, 2010; Wishermann & Nguyen, 2003). The success of these partnerships hinges on effective inter-organizational collaboration, which further translates to improvement of the quality of life for millions of farmers. In the socio-economic and political context of post-reform Vietnam, the focus of this study is to understand the incentives and barriers that shape these partnerships.

Purpose and Methods
This study aimed to describe and explain the contexts, incentives, and barriers that influence INGO-GO partnerships in Vietnam. Many studies on NGO-GO partnerships have explored theoretically or empirically what motivates and hinders cross-sector collaboration, but few have addressed cross-sector collaboration from both analytical and descriptive perspectives. This study filled in this gap by approaching the subject descriptively and analytically. On the one hand, the researcher sought empirical data, and on the other hand, built on previous studies to arrive at a framework that could illuminate the empirical data. The purpose of the approach was to contribute to building a contextualized and theoretical-based framework that would enable a comprehensive understanding of partnership dynamics (Carlile & Christensen, 2005).

As incentives and barriers to partnerships are shaped first by their contexts, the framework of this study acknowledged the role of the conditioning factors that influence partnership development, particularly their agenda of engagement (Teamey, 2007; Lewis & Opoku-Mensah, 2006). The framework also recognized how partnerships are shaped by the
interactions between institutions and society while simultaneously transforming them. Smith and Gronebjerg’s (2006) models (demand/supply; civil society/social movement; and regime/neo-institutional model) along with Selsky and Parker’s (2005) theoretical platforms (resource dependence; social issues; and societal sector) enabled the researcher to categorize a web of interactive factors that can motivate or deter partnerships in the public sector. Furthermore, recognizing partnerships as ecological bodies evolving over time (O’Leary, Gazley, McGuire, & Bingham, 2008; Ramanath, 2005; B. Gray, 1989), the researcher conceptualized partnership development on a dynamic continuum.

The researcher adopted a qualitative case-study method with emergent design. Personal interviews were conducted with 20 key informants, including eight Vietnamese staff from one INGO and 12 government officials from six GOs who partnered with the INGO. All participating organizations were institutions serving agricultural and rural development in the south of Vietnam. The data were collected in 2010 and analyzed using the software ATLAS.ti.

**Major Findings**

The results showed four categories that interact to form a framework of a dynamic continuum of partnership development. The four categories are conditioning factors, incentives, barriers, and feedback loop. The themes covered in each category are the following: (a) conditioning factors comprised of socio-political contexts and organizational natures, (b) incentives comprised of shared missions, resource mobilization, capacity building, and networking, (c) barriers comprised of ideological conflicts, structural constraints, and operational hurdles, and (d) feedback loop comprised of reflections and recommendations.

![Figure 1. A Dynamic Continuum of Partnership Development.](image)

In the dynamic continuum of partnership development, conditioning factors shape incentives and barriers for partnerships, the former leading to agenda of engagement while the latter to a renegotiation of agenda. The feedback loop channels updates from conditioning factors.
and agenda renegotiation back to agenda of engagement, thus facilitating new or revised agenda of engagement. The interactions between these components are the dynamics of partnerships.

Conclusions, Educational Importance, and Implications

From a theoretical standpoint, the study contributed to the body of knowledge on partnerships and inter-organizational collaboration, particularly in regards to non-state actors and government collaboration. It also provided an international, comparative perspective in the field of development research. The resulting framework—a dynamic continuum of partnership development—can also be used as an instrument for future studies.

In terms of practical implications, the study provided knowledge and insights into the intricacies of cross-sector partnerships, especially partnerships between INGOs and GOs in developing countries. The study contributed to improving mutual understanding and communication between government and nonprofit sector, thereby increasing the effectiveness of cross-sector collaboration. For public leaders, the study could assist in strategic management to minimize constraints and maximize opportunities in collaborative environments.

References


Teamey, K. (2007). Literature review on relationships between government and non-state providers of services. Informally published manuscript, International Development Department, University of Birmingham, Birmingham, U.K.


Analysis of Decentralized, Pluralistic Extension Systems in Rwanda

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Introduction
This paper will outline the role and key functions of the different extension service providers in Rwanda. Each service provider in Rwanda is somewhat different, especially in terms of the public, private and non-governmental organizations (NGOs) providing advisory services for different categories of farmers (size and gender), as well as the strategies they are implementing.

Purpose and Objectives
The purpose of this paper is to outline the key strategies and services being carried out by these different extension and advisory service providers in Rwanda, including the clientele being served as well as the sustainability of these different organizations and approaches.

Methods
The methods used in carrying out this study were to analyze the different service providers in Rwanda, including the Ministry of Agriculture (MINAGRI), the Ministry of Local Government (MINALOC), and the many international and national NGOs in Rwanda. All of the major service providers were visited to define the strategies being followed and then to determine the effectiveness and impact of these services to these different types of farmers being served.

Results, Products and Conclusions
Current advisory services being provided in Rwanda are complex and there is very limited collaboration between these different extension service providers. For example, the public extension system was transferred to MINALOC in 2004; therefore, there is now a major gap between MINAGRI, which now largely handles agricultural research, and MINALOC, which currently has extension agents in its 30 districts, 416 sectors, and most of the 2148 cells that serve farmers in the 14,876 villages across Rwanda. It should be noted that nearly all extension workers at the district and sector levels have university degrees in some field of agriculture, but no training in extension methods. One important unit that is currently being developed is the Agricultural Information and Communications Center (CICA), which could play a key role in linking research with extension, including all public, private, and NGO service providers.

In addition, there are many international (about 6) and domestic NGOs (about 40) that primarily focus on increasing the productivity of staple food crops, especially those being grown in the major valleys across Rwanda. However, donor and government funding for these stable crops (free seed and subsidized fertilizer) is expected to begin to be phased out in 2012;
therefore, the long-term future for these NGO service providers is uncertain. Also, little attention is being given, by both public and NGO service providers, to the emerging high-value crop and livestock products (HVC/Ps) that could substantially increase farm income, especially for small-scale men and women farmers. Given that agricultural production in Rwanda is totally dominated by small-holder farmers with less than one hectare of cultivable land (about 0.7 ha/farm family), farmers must do all they can to maximize farm income from their very small land holdings. In short, they could greatly enhance their farm incomes by producing appropriate HVC/Ps by intensifying and/or diversifying their respective farming systems. This would be in line with the Strategic Plan for the Transformation of Agriculture in Rwanda – Phase II (PSTA-II).

**Recommendations**

To improve the performance and impact of the pluralistic extension system in Rwanda, the following key recommendations are proposed:

1. Provide in-service training in participatory extension methods for all field extension workers, including public, private and NGOs service providers. This will require that the National University of Rwanda (NUR) College of Agriculture establish a Department of Agricultural Extension that will train both current students and field extension workers in these process skills and knowledge.
2. Strengthen CICA to better link research with extension service providers using ICT tools, so that all field extension service providers can access both technical and market information.
3. Begin organizing men and women farmers into groups, so they can get better connected with extension service providers, as well as getting linked to markets for specific HVC/Ps, both for domestic consumption and export.

**References**


Rural Extension Programs in Environmental Education in Brazilian Rural Schools

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Keywords: Socio-Environmental Diagnosis, Rural Schoolteachers, Agricultural Education, University–Rural School Interaction, Southeastern Brazil

Introduction

Rural schools are important loci for the construction of knowledge, experiences, and practices of children from Brazil’s rural districts. Actions taking place in these institutions affect their families and communities because working with rural schools is working with rural communities as well (Zakrzewski, 2007). These schools’ near loss of socio-cultural identity, due to the application of an urban logic to their curriculum and educational goals (Leite, 2002), has impacted the stability of farming communities as a result of the new generation’s growing lack of interest in agriculture. To counter this phenomenon rural extension and environmental education programs committed to agricultural socio-environmental sustainability have been proposed in Brazil. All these programs share the opinion that small-scale agriculture is a highly relevant and indispensable element of agriculture in today’s world (Carvalho, 2001; Freire, 2006; Petersen, Dal Soglio, & Caporal, 2009).

Purpose and Objectives

The objective of this study was to better understand the possibilities and difficulties of rural schools in implementing agricultural and environmental education programs, and the purpose was to carry out actions in partnership with the university to train teachers and students.

Methods

The study was conducted at six rural K-8 schools in rural district in Brazil’s southeastern, which cater for the education of 1-14-year-old children of small farmers and rural settlers, a segment of Brazil’s population that has low purchasing power and is socially discriminated against. A socio-environmental diagnosis of rural schools was conducted by means of participative rural diagnosis (Verdejo, 2006). This technique allows the mapping of environmental, social, and physical aspects of rural schools. In addition, interviews were carried out with students and teachers in order to understand their perceptions about the environment in general, rural environment in particular, and environmental education. In agreement with the needs diagnosed, the university has offered a continued education program to rural school teachers and activities to rural students about agricultural/farming issues. This study has been supported by the Dean of Extension, Federal University of São Carlos, and the Foundation for Research Support of São Paulo (FAPESP/Process # 2010/00620-0).
Results

The socio-environmental diagnosis indicated in general that the rural schools in question conduct very few projects related to farming and environmental education. Most of the projects concern the recycling of solid waste produced at the schools. Most of the teachers are not from rural districts and know little about their students’ lives. The concept of environment held by most teachers was rather simplistic, usually connected to conservation issues related to the natural environment. After the diagnosis, a partnership between the university and rural schools was established, enabling the development of a course on socio-environmental issues directed to teachers and another about agricultural issues to students.

During the course, teachers conducted a socio-environmental diagnosis with their own students, thus getting a deeper understanding of their problems. Because of that, teachers have proposed and are carrying out socio-environmental projects on their own. In addition, the university is organizing a workshop at the campus in which teachers will present their project results and share experiences. The activities carried out with kindergarten students consisted of drawings, paintings, and games around agricultural, farming, and environmental topics. For older students, topics such as organic gardens/farming, orchards, and agro-forestry systems were addressed.

Recommendations, Educational Importance, Implications, and Applications

The work carried out indicated that rural schools in southeastern Brazil have great potential for the socio-environmental education of small farmers’ children. The culture and importance of farming, therefore, has to be encouraged, so that farmers’ children take pride in their role in society. Also, it is important for students to critically analyze the reality in which they live so as to develop a sense of political engagement. The rural school teachers under investigation have been able to grasp the rural reality and propose educational activities, and teachers are more committed to the rural schools’ communities. On the other hand, their students now acknowledge the importance of Brazil’s rural culture, which they had previously devalued and denied. In addition, students are learning techniques of organic gardening, arboriculture, and recovery of degraded areas through agro-forestry.

Finally, the university is benefiting from the activities conducted, since its contact with the reality of rural districts is being incorporated to the teaching and research related to rural extension. Several undergraduate and graduate students have been engaged in this work, which has enabled them to expand their professional knowledge of agricultural and socio-environmental education.

References

An Examination of Employee Characteristics within Compost Micro-Enterprises in Chimaltenango, Guatemala: Factors That Facilitate Success

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Keywords: Micro-Enterprise, Compost, Occupation, Gender, Employee Hierarchy

Introduction

Over 13 million people live in Guatemala, and among this population 56% live below the poverty line (Kiser, Trevino, & McVicker, 2009). Multiple efforts have been initiated to mitigate the growing problem of poverty. One proposed solution made by international organizations and their Agricultural extension advisors is compost micro-entrepreneurship. “Micro-enterprises have been viewed as a way to offer financial assistance to help the poor and vulnerable groups increase their income and...break the cycle of poverty” (Vargas, 2000, p. 11). Employee characteristics can impact the success or failure of a compost micro-enterprise’s daily operations. Though an employee characteristic may not be quantified exactly, “…it should be argued that this variable can…have a structural impact on productivity” (Zwick, 2004). Awareness of specific characteristics affecting operations, whether by Extension officials or enterprise members, can enable strategies to facilitate success.

Methods

The purpose was to analyze employee characteristics that impacted compost micro-enterprises in Chimaltenango, Guatemala. The specific objectives were: (a) explore employee characteristics among compost micro-enterprises, (b) identify characteristics of employees fulfilling various positions within a compost micro-enterprise and, (c) analyze employee characteristics that impacted a compost micro-enterprise.

Qualitative research was used because it “places an emphasis on the dynamics between the researcher and the topic of study” (Kiser, Trevino, & McVicker, 2009, p. 121). Interviews, focus group sessions, and participant observation were used to gather individuals’ discernments about personal traits that benefited a compost enterprise. Research was conducted as a multisite case study, which incorporates data from several cases to uncover a phenomenon expressed by group members (Merriam, 2009). Field research was conducted for one month (July 2011) and included three compost micro-enterprises whose members had received training by an international organization “Agriculture in Guatemala: Technology, Education and Commercialization” (AGTEC). A total 24 participants were interviewed. The open-ended interview protocol included 14 guiding questions arranged to gather details about entrepreneurial
operations and challenges, impacts made by employees upon these operations, and if those impacts were positive or negative outcomes as a result of employee characteristics.

**Results and Conclusions**

Each focus group and/or interview explored employee structure and responsibilities to unveil characteristics that impacted success. Categories emerged that complimented the conceptual framework: *employee structure, gender, occupation* (including subcategories of *agronomic and non-agronomic jobs*), and *age*.

Findings included both specific and general concepts. Enterprises comprised of women viewed male employees as assets because their primary consumers were men and often requested reconfirmation from a fellow man about compost's comparative advantage. Women utilized the knowledge they had about non-farmer consumer demands, by marketing their fertilizer in smaller bags (as opposed to the typical 100 pound sack). An employee’s occupation granted or deterred access to certain raw materials based on their agronomic networks. Other occupations such as mechanics and construction mitigated costs for operating machinery and building operational structures. Employee age influenced the amount of arduous work that could be complete. As indicated by Hynes, Edwards, and Murphrey, (2009) it was important to recognize the impact manual labor can have on an individual's health and the amount of work they can complete.

This study revealed that compost micro-enterprises benefited in numerous ways because of employee characteristics. Mayoux’s (1995) findings about gender-associated careers and the benefits associated with male occupations as well as the role social networks play in developing and marketing new products (Hinrichs, Gulespie, & Feenstra, 2009; Oleas, Dooley, Shinn, & Guisti, 2009) were confirmed. Unlike findings reported by earlier studies (Stofella & Kahn, 2001; Elliot & Foster, 2004), the data did not add evidence to the belief that previous agricultural experience or knowledge granted better formula production methods.

**Recommendations, Educational Importance, and Implications**

Micro-enterprise development can serve as an important tool addressing poverty. However, compost micro-enterprise sustainability lies in the strategy its members employ to utilize employee characteristics and input assessment. The educational importance of this study is the identification of characteristics that can impact success in regard to recruitment, development and retention of employees for the micro-enterprise. Failure to recognize potential advantages arising from employee traits and the availability of necessary materials to produce compost may not allow an effective plan of how to reach financial sustainability.

A critical understanding of how each characteristic affects a micro-enterprise provides Extension agents key knowledge to use when advising and encouraging micro-enterprise development. Readily available skills must be assessed prior to the initiation of operations. Recognition and awareness of benefits offered by characteristics can serve to support micro-enterprise development.

**References**


Food Safety Climate of Municipal, Private and Government Regulated Slaughter Plants in Mexico

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Introduction
Training is an essential element of food safety. Yet, education alone does not always translate into practice (Griffith 2010). In 2010, Ball et al. identified that the organizational climate, or management’s commitment to food safety, is a key factor in determining worker behavior.

Taguiri and Litwin defined organizational climate as the “relatively enduring quality of the internal environment of an organization” (1968, p. 27). Organizational climate has been shown to influence individual and organizational outcomes (James et al. 1990; James & Jones 1974; Kopelman et al. 1990). Management is the most important determinant of an organizational climate as it sets the tone for how people act within the organization (Stringer 2002).

Organizational climate is particularly important in the context of food safety. Yiannas (2009) describes attributes of food safety culture, which include strong leadership and commitment to food safety throughout the organization. Since leadership affects climate, climate influences training, and training effectiveness determines quality of product, it follows that leadership and climate are imperative to developing training.

Purpose and Objectives
This paper describes how three different types of slaughter plants in Mexico- municipal, private, and government-regulated- differ in organizational climate as related to food safety.

Methods
Researchers identified three types of beef slaughter facilities in Mexico. The first plant was a municipal plant, owned by the city and managed by the mayor. It employed fifteen workers, but only processed 8-12 head of cattle per day. The second was privately-owned, employed approximately fifteen workers, and processed 15-20 head daily. The third was a government-inspected plant, certified for supermarket sales and exports (TIF). The plant employed 200 workers, processing approximately 400 head per day.
Instrumentation developed by Ball (2010) was translated into Spanish and provided to all workers. With shift changes, illness and absence, less than 100% of worker responded to the survey. In certain cases, the instrument was read to the employees. Using a seven-point Likert-type scale, worker perception of organizational climate was measured in six constructs: Work Unit Commitment, Personal Understanding, Food Safety Training, Infrastructure, and Behavior. Mean scores for each construct were calculated within each plant and ANOVA was used to determine significant differences between plants.

**Results**

**Table 1.** Comparison of Food Safety Climate Means for Municipal, Private and TIF Slaughter Plants in Mexico.

<table>
<thead>
<tr>
<th></th>
<th>Plant 1. Municipal (n=11)</th>
<th>Plant 2. Private (n=9)</th>
<th>Plant 3. TIF (n=189)</th>
<th>ANOVA F-ratio</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td><strong>Overall Climate</strong></td>
<td></td>
<td></td>
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<tr>
<td>mean</td>
<td>5.16 .63</td>
<td>5.94 .19</td>
<td>5.53 .71</td>
<td>3.164</td>
<td>.047*</td>
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<tr>
<td>s.d.</td>
<td></td>
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<td></td>
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<tr>
<td>Work Unit Commitment</td>
<td></td>
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<tr>
<td>WUC1</td>
<td>5.62 .45</td>
<td>5.65 .39</td>
<td>5.51 .77</td>
<td>.226</td>
<td>.798</td>
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<tr>
<td>WUC2</td>
<td>5.80 .39</td>
<td>5.64 .83</td>
<td>5.70 1.01</td>
<td>.074</td>
<td>.928</td>
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<tr>
<td>WUC3</td>
<td>5.86 .58</td>
<td>6.13 .58</td>
<td>5.93 .92</td>
<td>.254</td>
<td>.776</td>
</tr>
<tr>
<td>Supportive Communication</td>
<td>5.13 1.57</td>
<td>5.67 2.02</td>
<td>5.13 1.80</td>
<td>.389</td>
<td>.678</td>
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<tr>
<td>Personal Understanding</td>
<td>5.11 1.04</td>
<td>4.51 1.77</td>
<td>4.33 1.49</td>
<td>1.611</td>
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<td>Food Safety Training</td>
<td>5.00 .63</td>
<td>4.92 .94</td>
<td>5.11 1.92</td>
<td>.271</td>
<td>.763</td>
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<td>Management Commitment</td>
<td>4.04 1.25</td>
<td>3.67 .56</td>
<td>4.14 1.38</td>
<td>.539</td>
<td>.584</td>
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<td>Task Knowledge</td>
<td>5.96 .78</td>
<td>6.17 1.44</td>
<td>6.07 1.18</td>
<td>.083</td>
<td>.920</td>
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<tr>
<td>Food Safety Training</td>
<td>4.79 1.38</td>
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<td>5.59 1.28</td>
<td>3.703</td>
<td>.026*</td>
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<td>Infrastructure</td>
<td>5.23 .66</td>
<td>6.43 .44</td>
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<td>.006*</td>
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<tr>
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<td>6.44 .56</td>
<td>5.70 1.07</td>
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<tr>
<td>GTC2 – Leadership Shown</td>
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<td>6.52 .78</td>
<td>5.97 1.17</td>
<td>1.197</td>
<td>.305</td>
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<tr>
<td>GTC3 – Resource Commitment</td>
<td>4.38 1.25</td>
<td>6.36 .53</td>
<td>5.44 1.23</td>
<td>7.255</td>
<td>.001*</td>
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<td>Infrastructure Support</td>
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<td>Food Safety System Support</td>
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<td>6.11 .89</td>
<td>5.36 1.41</td>
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<td>.254</td>
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<tr>
<td>GMP’s 2</td>
<td>4.69 1.31</td>
<td>5.81 1.28</td>
<td>5.17 1.50</td>
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<td>.229</td>
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<td>Behavior</td>
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<td>Worker Negative</td>
<td>4.89 .87</td>
<td>6.26 .38</td>
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<td>6.06 .98</td>
<td>5.46 1.46</td>
<td>3.475</td>
<td>.033*</td>
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</tbody>
</table>
| Mean scores on a seven-point Likert-type scale.  
*significant at the .05 level

Differences between the plants are presented in descending order of significance: overall climate, supportive food safety system, food safety training, behavior, management commitment, and resource commitment.
Recommendations

Climate of the plant should be measured before safety training is completed in order to determine which type of training—top-down or bottom up—should be implemented. Manager training in organizational leadership would also benefit overall climate. In terms of experimental design, practitioners should administer surveys at the beginning of the shift, not the end, and adjust for challenges presented by illiteracy.

References

Ball, B. Wilcock, A. & Aung, M. 2010. Background factor affecting the implementation of food safety management systems. Food Protection Trends, 30(2), pp. 78-86.