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Introduction and Table of Contents

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Introduction and Table of Contents

Abstract

The *Journal of International Agricultural and Extension Education* is the official refereed publication of the Association for International Agricultural and Extension Education (AIAEE). Its purpose is to enhance the research and knowledge base of agricultural and extension education from an international perspective.

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The *Journal of International Agricultural and Extension Education* (*JIAEE*) is the official refereed publication of the Association for International Agricultural and Extension Education (AIAEE). The purpose of the *JIAEE* is to enhance the research and knowledge base of agricultural and extension education from an international perspective. Acceptance rates for the past 3 volumes are: Volume 16=16%; Volume 17=14%; Volume 18=14%.

Articles intended for publication should focus on international agricultural education and/or international extension education. Articles should relate to current or emerging issues, cite appropriate literature, and develop implications for international agricultural and extension education. **Manuscripts, or portions of manuscripts, must not have been published or be under consideration for publication by another journal**. Three types of articles are solicited for the *JIAEE*: Feature Articles, Tools of the Profession Articles, and Book Reviews.

Feature Articles

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

Other Article Types

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

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From the Executive Editor

I am pleased to publish the summer issue of *JIAEE*. Three feature articles, one book review, and one Tools of the Trade were included, along with highlights of scholarly works presented at the World Conference 2012 in Nakorn Pathom Province, Thailand. If you were unable to join us for the conference, I hope you will enjoy reading the abstracts of papers and posters presented. Award winners in various categories are also listed in this issue.

The theme for the conference this year was "East Meets West for Sustainable Development." This conference was hosted by Kaseatsart University, with the Agricultural and Extension Association of Thailand (AEAT) and the Ministry of Agriculture and Cooperatives (MOAC) as partners. The conference would not have been possible without the hard work and dedication of many people. We are deeply appreciative of the leadership provided by our host coordinator, Dr. Chukiat Ruksorn, and his team. Specials thanks also goes to AIAEE President, Jimmy Lindner, and to the US Conference Planning team of Dr. Pete Vergot, Dr. Theresa Murphrey, and graduate student liason Samantha Alvis, for their leadership and service to the organization.

I thought I would take this opportunity to give you a "state of the journal" report. The acceptance rate for Volume 18 was 14%. For this volume, there were 56 reviewers from 11 countries. We currently have 130 paid journal subscribers/members and 12 library subscriptions. The journal is financially solvent.

An important and continued issue is the need for qualified and willing reviewers. In order to maintain the quality and integrity of the review process, we need reviewers who are committed to taking the time to appropriately and thoroughly review in a timely manner. This is an excellent way to give back to your profession and professional association. If you are not already a reviewer, you can go online and register.

I hope you enjoy the issue and will consider submitting papers presented at the conference for publication in *JIAEE*.

Sincerely,

Brenda Seevers
Executive Editor, *JIAEE*

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Development in Africa and Agricultural Innovation

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Keywords: Africa, Agricultural Development, Capacity Building, Education, Entrepreneurship, Infrastructure, Innovation, Technologies, Women

Juma, Calestous. (2011). *The New Harvest: Agricultural Innovation In Africa*. Oxford University Press, 267 pp. $19.95 (US)

On the world stage, Africa is a diverse continent of contrasts and misconceptions. Juma is a well-qualified author with roots in Kenya and significant experience, including as professor of practice of international development at the Harvard University John F. Kennedy School of Government and director of the Science, Technology, and Globalization Project. Juma is widely recognized for his practical work on sustainable development.

Juma's book, *The New Harvest: Agricultural Innovation in Africa* is a refreshingly practical perspective on agricultural development on the African continent focused through cooperation by Africa's Regional Economic Communities (REC's). The book is optimistic, yet recognizes the enormity and urgency facing African agricultural development. Rather than lamenting setbacks and sluggish results, Juma details successful examples of development, including countries in the Common Market for Eastern and Southern Africa (COMESA) and Southern African Development Community (SEDC). The book chapters sequentially address elements of African agricultural development—the growing economy; advances in science, technology, and engineering; agricultural innovation systems; enabling infrastructure; human capacity; entrepreneurship; and governing innovation. In the final chapter, Juma outlines regional approaches for fostering agricultural innovation. He adds helpful appendices for REC's and decisions from the 2010 COMESA Summit on Science and Technology for Development.

Juma argues convincingly that agricultural development is the cornerstone to African economic stability and security. He chides that African agricultural development policies should concentrate on food security—defined as "sufficiency, reliability, quality, safety, timeliness, and other aspects of food necessary for healthy and thriving populations" (p. 1) Juma uses Malawi's controversial President Bingu wa Mutharika (1934–2012) as a model of the entrepreneurial leadership needed to alleviate food security problems. In 2005, Malawi's people were in dire need. Over one-half of the population lived on less than one dollar a day, a third lacked access to clean water, and a quarter of the population was food insecure. Through a well-thought out, but initially unpopular, plan, the Malawian government imported improved seeds and fertilizer for distribution to farmers at subsidized prices. By closely monitoring the program, explaining the plan and its public benefits, and increased training for farmers, wa Mutharika's program increased 2006–2009 production to allow export of maize to its neighbors. Juma argues that scientific and technical knowledge, innovation, and entrepreneurial leadership are essential for agricultural development.

Juma examines the opportunities offered by an increased pool of scientific and technical knowledge and the importance of local innovations and indigenous knowledge. Although most African countries lag in the use of current technology, they can learn from others' experience and choose the appropriate technologies to create their own innovations for development. Juma notes that "advocates of scientific and technical research in developing countries have found champions in the platforms of nanotechnology, biotechnology, information and communication technology (ICT), and geographic information system (GIS)" (p.24). In preparing to use these platforms, he argues that successfully emerging

countries have invested in basic infrastructure, nurtured the development of small and medium-sized enterprises, and funded higher education and vocational institutions to build human capacity.

Innovation systems are integral to African agricultural development. Juma contends that stronger linkages must be forged among producers, schools, training centers and universities. He grants that ITC and the use of mobile phones has greatly expanded and holds promise for practical development. Interconnected geographic clusters are effective linkage systems. Juma concludes that, "groups that are closer physically, culturally, and socially are more likely to trust one another, exchange information and assets, and enter into complex cooperative production, processing, financing, marketing, and export arrangements" (p. 82). In addition, studies suggest that synergies of market-based and knowledge-based interactions strengthen interactions between public and private sectors.

Juma recognizes that stronger infrastructure—transportation, irrigation, energy, water, and telecommunications—is essential to advance agricultural development. Juma contends that investing in increasing numbers of farm-to-market roads to connect rural areas to markets is more effective than investing in super highways. Infrastructure development creates rural employment. Juma reports that increasing infrastructure by 1% in an emerging country "can add 1% to the country's GDP" (p. 85) and concludes that "one strategic way to achieve this goal is to link technical training institutions and universities to large-scale infrastructure projects" (p. 113)—a lesson some developed countries seem to have forgotten.

Juma opines that human capacity building is crucial to agricultural development. He notes that the current focus of African education systems fails to teach students to maximize opportunities within their own communities. Consequently, systems encourage urban migration, leaving a vacuum in agricultural knowledge, food production, and sustainability. This causes African nations to miss the "chance to increase agricultural productivity, self-sufficiency, and human resources among their populations" (p.114). Juma suggests tackling gender equality, in that 80% of African producers are women, yet only 69% receive extension visits. Juma proposes practical strategies for early school-based agricultural education, community-based experiential agricultural education, and innovation in higher education with entrepreneurial skills coupled with the global private sector. Juma strikes a chord advocating practical reforms connecting policy with practice and sensible long-term capacity building.

Juma reasons that entrepreneurship is an effective way to stimulate rural development without the use of foreign aid. Juma posits that an improved seed industry holds promise for compensatory productivity. Value-added food processing is also a critical link for entrepreneurial activities. Drawing from work in India, Juma concludes that African regional trading blocs must become increasingly widespread to nurture entrepreneurship and value chains.

Juma advocates improving governance of innovation to facilitate agricultural development. Reprimanding leaders, he states, "In 2010, no African head of state or government had a chief scientific advisor" (p. 176). Furthermore, African countries do not have policies that channel emerging technologies into solutions for developmental problems. Juma rebukes policies that rely on generic strategies for poverty mitigation without considering all economic growth factors. Conversely, the

African Union and the New Partnership for Africa's Development created a policymaking African Panel on Modern Biotechnology to advise the AU regarding technology, science, and innovation. Juma reiterates that RECs are the best hope to develop policies and programs necessary to create larger regional markets.

Solving Africa's complex agricultural development issues is no small task, but Juma takes seven basic elements and reduces them into manageable policies with roadmaps drawn from other countries' successes. Juma recognizes that agricultural development has transformed into a knowledge-based entrepreneurial enterprise in a place-bound sector. Education and an entrepreneurial spirit will accelerate an Africa that is in need of empowerment.

Juma acknowledges that, "It is not possible to cover the full range of agricultural activities in one volume" (p. xxiii). Hence, he leaves a challenge to agricultural educators and integrators to put into practice new platforms and innovations. As reviewers, we recommend *The New Harvest: Agricultural Innovation in Africa* to the AIAEE membership.

Reference

Juma, Calestous. (2011). *The new harvest: Agricultural innovation in Africa.* Oxford University Press, 267 pp.

Juma, Calestous. (2011). *The new harvest: Agricultural innovation in Africa.* Oxford University Press, USA. Retrieved from, http://belfercenter.ksg.harvard.edu/files/the_new_harvest_complete_text.pdf

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Building Human Resources in Bioenergy: An International Training Program at Michigan State University

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Keywords: Bioenergy, Biofuels, Education, Training, Human Resources Development, Capacity Building, Professional Development

Introduction: The Importance of Bioenergy and the Need for Trained Human Resources

Biofuels and bioenergy has become a global issue due to the widespread interest in finding and developing alternatives to fossil fuels, including biofuels, while ensuring food security and environmental quality. Many developing countries have ample and unique bio-resources to utilize for generating bioenergy and have an opportunity to harness their rich biological resources. Education, capacity building, information, dialogue and networking are critical to better formulate appropriate policies, research, development, and outreach programs to address energy issues for sustainable development. Currently there is a lack of training programs, courses and curriculum devoted to biofuels/bioenergy.

Design and Offering of the Bioenergy Training Program

This paper describes a unique international short course on biofuels and bioenergy that has been designed and offered at Michigan State University since 2009. To the authors' knowledge, it is the first and only international short-term training program offered in the United States that focuses on bioenergy issues related to developing countries.

Goal of this Training Program

The goal of this training program is to build human resources capacity in the area of biofuels and bioenergy, especially in developing countries. It aims to do this by: (a) exposing biofuels and bioenergy specialists first-hand to cutting edge research in the field; (b) allowing these professionals to network with some of the top scientists in the field, private sector and with each other; (c) equipping these professionals to make decisions on policy and investments for their countries, institutions and/or businesses; and (d) allowing the opportunity for joint research projects and/or investments.

Program Components

This comprehensive short course provides education and information on various issues related to biofuels and bioenergy, including research, policy, technology transfer, commercialization and socioeconomic issues. It is divided into three main platforms: (a) technical, (b) social systems, and (c) agricultural. The technical platform deals with scientific research on conversion technologies (biochemical, biological, and thermochemical). The social systems platform covers ethics, economics, supply chains and life cycle assessments. The agricultural platform includes sessions on feedstock development and environmental and sustainability research. A final session on Biofuels and Developing Countries highlights the issues relevant to bioenergy, food security and rural development.

The course is offered by MSU in collaboration with research stations, farming communities, and the local private sector in the state of Michigan working on bioenergy issues. The international participants also share knowledge and experiences drawn from their current work and programs and policies on bioenergy in their home countries. Course topics have evolved each year based on feedback and suggestions received from the participants. In addition, a special private online group has been created for alumni of the course so that they can interact, network, and share information with each other.

Results: Impacts of the Short Course Program

Diverse Pool of Professionals Trained

The offering of this course has resulted in the training of 27 professionals from five continents and 13 countries over the past three years. Around 10 international participants are expected to attend this training course in 2012. Participants come from various sectors (government, public sector, private industry) and represent a variety of professional roles (scientists, engineers, researchers, policy makers, university/academia, administrators). Through this course, a global network of bioenergy specialists is being formed for continued networking and sharing of information, expertise and experiences.

Spin-off activities. Several spin-off activities have directly emerged as a result of this short course.

1. Michigan State University was invited to participate in an Expert Consultation on Developing a Sustainable Bioenergy Programme in Africa, Dakar, Senegal, April 12–14, 2010.

2. Several scientists have been hosted at Michigan State University for additional training in bioenergy areas.

3. MSU has been asked by two institutions in India to partner to develop bioenergy educational programs: TERI (The Energy and Resources Institute) University, New Delhi, and MET (Mumbai Education Trust) in Mumbai.

Curriculum Development. Efforts are under way to offer and institutionalize similar courses at universities in developing countries. As mentioned above, TERI (The Energy and Resources Institute) University, New Delhi, India, has requested assistance in developing and offering a joint course in biofuels and bioenergy, as they begin to develop their own bioenergy curriculum. A proposal has been submitted for this education partnership.

Bioenergy Network Development. The short course is serving as an excellent platform for developing a global network of biofuels/bioenergy professionals and specialists.

Conclusion, Recommendations, and Implications: A Way Forward

Michigan State University will continue to enhance and offer this short course in the coming years. Building on this course, MSU plans to offer longer-term research internships. Plans are also underway to institutionalize these types of courses at local universities in developing countries. As mentioned earlier, a joint bioenergy education program is in development between MSU and TERI University in India. In addition, advanced courses and online courses are planned that will focus on specific aspects of bioenergy and will serve as a cost-effective way of sharing knowledge and information in bioenergy.

Through the network developed through this training program, collaborative research between scientists at MSU and at institutions around the world in the bioenergy field has begun. In the near future, MSU plans to organize a global forum on bioenergy to bring together worldwide expertise and experiences on bioenergy. This forum will encompass education, research, outreach, human resource development, information sharing, networking, curriculum development, online

resources, and establishing regional and global platforms for continuing cooperation on bioenergy.

Acknowledgment

We would like to acknowledge the generous support of the Great Lakes Bioenergy Research Center (GLBRC) and the faculty of MSU for this program. Also, we are thankful to the U.S. Department of Agriculture Foreign Agriculture Service (USDA-FAS) for its continued support of participants attending this course.

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Value of Education as Perceived by Mexican Immigrants and Caucasian American Citizens Employed in Agriculture in Louisiana

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Abstract

Agriculture operations benefit from the employment of Mexican immigrants through government programs that supply workers to the industry. Therefore, many crawfish farm operations in Louisiana employ both U.S. citizen and Mexican immigrant labor to operate efficiently. The purpose of this study was to compare selected characteristics of farm workers as well as to explore values related to education, as sorted by citizenship and ethnicity. The results of this study indicated significant differences in Mexican immigrant and Caucasian U.S. citizen crawfish farmers' educational backgrounds and demographic characteristics, while finding that both groups held similar values about education. In general, the Mexican immigrant group was younger and had a lower overall educational attainment than the Caucasian U.S. citizens group. However, education was perceived as equally important by both groups. The results of this study can be used by extension services and other educational programs to direct future educational activities based on collected information related to educational values and perceptions of farm employees in Louisiana. These activities can enhance the value of educational programs that are meant to serve all populations.

Keywords: Education, Immigrants, Agriculture, Louisiana, Crawfish

Rationale

The southeastern United States has seen the most rapid growth of Mexican immigration in recent years; however, the widespread population of Mexican workers in agriculture remains understudied and has proven very difficult to reach for studies due to vulnerabilities of this population (Parrado, McQuiston, & Flippen, 2005). In the U.S. agricultural industry, 43.0% of hired farm workers are of Hispanic origin (Kandel, 2008). Within the agricultural industry in Louisiana, between 10 and 18% of farm employees are Mexicans who are permitted to immigrate under government visa programs (Garcia & Martinez, 2005).

Every year, people from Latin America, the leading source of legal immigration to the United States, choose to come to the U.S. seeking a better way of life through increased wages (as defined by the theory of human capital; Cuevas de Caissie,

2008). In addition, better education for their children is a goal for many immigrants from these countries (as defined by the assimilation theory; Cuevas de Caissie, 2008). The source of income for a majority of these immigrants is unknown (Cuevas de Caissie, 2008); however, Mexican immigrant workers can earn an income considerably higher compared to wages that could be earned through other means in their countries of origin (Cuevas de Caissie, 2008). In addition, the employment opportunities provided by government programs allow Mexican immigrant workers to work toward a greater goal: an improvement in the quality of life for their children by providing the financial means to obtain a meaningful educational background (Cuevas de Caissie, 2008). The educational success of children is influenced by the ideals of parents (Batalova & Lowell, 2007; Gaetono, 2007). Given that a large proportion of Mexican immigrants coming to the United States enter the workforce immediately as a stipulation of the government farm programs, educational success for Mexican immigrants is not viewed as a selfish goal, but an aspiration to be attained by their children (Farner et al., 2005). Vega and Sribney stated that as the population numbers continue to grow, the need and desire to learn English and, subsequently, higher standards of educational achievement have become increasingly important objectives for the Mexican population (2009).

The intention of this study was to gain an understanding of the values and perceived importance related to educational goals and achievement regarding the growing Mexican community, specifically in relation to Caucasian U.S. citizens who work in farm operations. The results of this study will help educators to design educationally centered programs that can positively influence the growing population at a higher achievement rate. Due to the increasing average age of current farm managers and landowners, there is a need to assess the potential futures of farming operations and potential responses that would be deemed essential for assisting in transitions and maintaining agricultural stability.

Many of Louisiana's crawfish farm employees are Mexican immigrants. The families of these workers occasionally or eventually accompany these employees when they immigrate to the United States. Little information exists regarding the unique educational development needs of these employees and their families. This study was designed to compare the educational values held by Caucasian U.S. citizens with those of Mexican immigrants while also investigating the potential for employees to become long-term farm operation employees. On crawfish farms in Louisiana, workers identifying as "Mexican" are almost exclusively Mexican immigrants on work visas (not naturalized U.S. citizens), whereas workers identifying as "Anglo" are generally Caucasian U.S. citizens. This survey and accompanying research therefore use the terms "Mexican immigrant" and "Caucasian U.S. citizens" to describe these two populations. When citing federal statistics, which use the ethnic category "Hispanic," we consider these data relevant to our category "Mexican immigrants," since, in the 2008 Profile of Hired Farmworkers, 84% of Hispanic farmworkers surveyed were born in Mexican and almost 95% were of Mexican origin (Kandel, 2008).

Purpose and Objectives

The purpose of this study was to compare the educational values of Caucasian U.S. citizens and Mexican immigrants who are employed in farm operations in Louisiana, in order to assist

educational programs to better serve the communities. The objectives of the study were to:

1. Describe and compare the demographic and personal characteristics of Louisiana crawfish farm employees, contrasting Caucasian U.S. citizens or Mexican immigrants. The characteristics being compared are gender, ethnicity, age, and educational attainment.

2. Describe and compare the perceived value placed on education by Louisiana crawfish farm employees in general, whether Caucasian U.S. citizens or Mexican immigrants.

3. Describe and compare the value placed on education of children by Louisiana crawfish farm employees in general, whether Caucasian U.S. citizens or Mexican immigrants.

When considering poverty as a significant educational factor, it is important to consider that 21% of Mexican families in the U.S. with children under the age of 18 are defined as living in poverty (Hernandez et al., 2001). One educational outreach method to support these groups should be for educators and extension programs to set goals to bring multiple ethnic groups together, through educational opportunities for advanced leadership and employment in various industrial and agricultural sectors, in order to address the issue of poverty and educational success (Shihadeh & Barranco, 2010; Hernandez et al., 2001). Education for youth in today's society has been reported as multifaceted upon a diverse quality education (Kalogrides, 2009). The largest minority group in the U.S. is that derived from the Mexican population, and Zalaquett (2006) reports that by 2025, 25% of all students in the U.S. will be of Mexican descent. Although the total number of students was reported as increasing, the dropout percentage rate for these students also increased with little effective response by educational entities (Abraham, 2002; Zalaquett, 2006). In fact, Zalaquett indicated that the dropout rate for students of Mexican origin surpassed that of any other ethnic group (2006).

Bennett noted that students overall would benefit when programs are in place that enhance learning quality across the curriculum, with multiple individual educational opportunities offered to respondents (2007). The primary problem with traditional education, according to Bennett (2007), was that the single direct education environments that school systems are using confine students inside classrooms and are not producing students that can adapt well into adult society, primarily because they are not taught in diverse environments. Therefore, programs must be created to address these issues within education and promote student interaction in order to increase student perception of the community outside of their immediate surroundings (Abraham, 2002; Ryan, 2010).

Support groups for educational enhancement and success are among the social support programs in education that allow students to create encouraging relationships within a school setting (Bennett, 2007). Such programs have proven to be successful in reducing potential drop-out rates and increasing overall attendance in the public school settings and were established through the social cognitive theory approach to learning in order to enhance student perception, contributing to a sense of belonging in a diverse, yet assimilating society (Bennett, 2007; Stallones, 2009).

The educational practices implemented to combat student dropouts have been a primarily focused in urban areas

of the United States (Waxman, Padron, & Garcia, 2006). Waxman attributed many problems of educational reform to the following factors: lack of qualified teachers, lack of appropriate or effective teaching practices, and at-risk school environments. There has been and continues to be a need for a diverse set of classroom procedures that would assist with increasing student achievement and involvement (Fry, 2002; Waxman, 2006).

Waxman's study identified that bilingual education opportunities, effective practices that would offer culturally responsive instruction, cooperative learning, cognitively guided education, and technology enhanced instruction would offer program enhancements that would be beneficial to overall student learning (2006). Students who have been allowed to enroll in positive educational climates with diverse technological practices in terms of instruction as well as student guided objectives have ultimately proven much more successful than peers who have endured traditional direct teaching strategies and methods (Swortzel, 2006). These practices have not only been effective with students of Mexican origin, but with all student populations across the nation, without regard to ethnic group identification (Swortzel, 2006). When students have been allowed to participate in enhanced educational studies and settings, there has also been an overall correlated increase in student performance (Swortzel, 2006).

Parental Involvement in Education and the Community

Some drawbacks do exist when Mexican immigrants attempt to maintain their own cultures while assimilating into the educational system in the United States (Ayon & Aisenberg, 2010; Ryan, 2010; Saracho, 2007). Gaetano (2007) indicated that there are culture differences in the United States that may result in parents of Mexican children feeling apprehension regarding traditional school settings. As a result, schools reportedly perceive Mexican parents, at times, as uncaring when it comes to children's education, due to lack of communication (Ayon, 2010; Gaetano, 2007). Many factors may contribute to this low rate of parental activity in school settings, especially in agriculture-related communities (Gaetano, 2007). Reasons for lack of parental involvement include mistrust in school administration as well as language barriers that often exist between parents and school settings (Gaetano, 2007). However, studies have shown that there is a greater tie to family and importance place on the presentation of family character among Mexican families, compared to many other ethnic groups (Ayon, 2010; Kalogrides, 2009). Many Mexican immigrant family structures provide students with environments beneficial to their education, but this is related to parents' backgrounds and experiences in the educational environments in which they were raised (Ayon, 2010; Saracho, 2007). There are educational practices in place that allow for alternative means of educational material enhancement that can benefit a diverse group of students and enhance the overall quality of education received; however, educational systems should attempt to involve students as individuals as opposed to generalized groups (Solorzano, 2008).

Difficulties sometimes arise if students were accustomed to community based learning styles found in many ESL (English as a second language) programs, and were then assessed with alternative methods. They may not be able to succeed as well on paper-based assessments due to testing inability as opposed to lack of basic knowledge skills (Solorzano, 2008). These types of learning systems are found throughout community-based extension

services and allow adults to achieve and learn through alternative activities as opposed to traditional school methods (Chapa, 2006). This is especially important for the education of Mexican immigrant farm employees and their children who have become assimilated into the environment (Farner et al., 2005; Gonyea, 2010).

Not only do mainstream high school students have a stake in education, but also students who will enter the workforce or proceed into higher education and their parents, who may have different aspirations for their children to succeed (Goldenburg, Gallimore, Reese, & Garnier, 2001). One of those potential educational sectors as an educational and eventual career stepping stone is community college (O'Connor, 2009). Many times, there are Mexican immigrants who want to pursue an education, but are too old for high school and are hindered by the fact that many states do not allow four-year institutions to accept undocumented residents (Gaetano, 2007; Goldenburg, 2001). Community college offers many benefits of education without the expense of a university (O'Connor, 2009). There is a reported overrepresentation of Mexicans in community colleges, which shows evidence that education is perceived as important but may not be as easily accessible to the Mexican population as it is for other ethnic groups in terms of four-year universities (O'Connor, 2009).

Research has also indicated that Mexicans have a higher disadvantage in four-year universities than other students (O'Connor, 2009). There is a less likelihood that students of Mexican origin will complete their education with a bachelor's degree or higher, even if they are well educated in a school system (O'Connor, 2009). Several factors, according to O'Connor, play a role in student's inability to achieve according to educational standards set by governing school system administration, but socioeconomic status plays an important role when referring to university achievement (2009). Many farm employees who indicate a primary reason for entering the United States is in search of better wages subsequently find themselves in a lower socioeconomic level setting. Many students need to work to help support families and cannot afford to spend the time in a full time university program; therefore, the students fail to complete a program and ultimately drop out or fall back to a community college that offers flexible scheduling (O'Connor, 2009). There is also the increasing rate of all students across the board using community college as a stepping-stone to a four-year university, but Mexicans fail to make that transition in many cases (O'Connor, 2009). This may be due to main outside influences associated with family or to new members of the community coming into the area and needing assistance by current residents (O'Connor, 2009).

Maldonado (2006) reported also an overall concern prevalent in the United States with regard to potential farm and construction worker shortages in the United States as a reason to continually allow these workers to be present; however, these Mexican populations should also have equal opportunities for educational advancement as their counterparts in society (Maldonado, 2006).

Studies have indicated education as being highly supported and respected by parents of Mexican students and youth; however, the need for an income in order to survive prevents Mexican family members from obtaining a higher education (community college or university) or allowing children to do so as well in many cases (Hurtado-Ortiz & Gauvain, 2007; Maldonado, 2006). Therefore, the

improvement needed in educational achievement may be hindered by the inability to obtain high enough paying jobs to support families and allow them to be more successful in the pursuit of educational and career goals (Maldonado, 2006). While observing and making recommendations in the sector of education, it is imperative to include a diversity of student achievement and encourage families encountered to pursue higher educational values (Gonya, 2010).

However, many families may see this as impossible as the cost of education continues to rise and the job market pay continues to remain the same (Saracho, 2007). Mexican students, according to Valencia and Johnson, also have higher aspirations for educational attainment than what is reportedly perceived by their Caucasian-American citizen counterparts (2006). However, the burden of acculturation and family support often will fall on the shoulders of younger generations (Hurtado-Ortiz). Valencia defined acculturation as the process of adapting to a culture as well as accepting those changes in terms of values and behaviors (2006). Valencia and Gonyea (2010) indicated that students who are able to accept the values of their new environment and assimilate tend to fare better in educational attainment and achieve the same or higher levels of employment and educational success as their counterparts who may hold to the family values of traditional Mexican lifestyles.

Perceived economic and educational barriers have primarily been reported from students with Mexican backgrounds and their parents; however, McWhirter (2007) assessed perceptions of both Mexican and their white counterparts with regard to post-secondary educational planning (Rodriguez-Brown, Li, &Albom, 1999). These vast differences between self-perceptions and expected aspirations for success may count for many of the failures and incompletion in education observed in postsecondary schools (Rodriguez-Brown, 1999). It is imperative for educators and stakeholders to recognize this perception found in many Mexican youths and develop programs that will combat this perception and promote success in educational settings throughout the United States (Maldonado, 2006; McWhirter, 2007).

With the growing population and diversity in education, if educators fail to overcome the cultural biases and self-perception of discrimination in education, the educational system may fail to achieve in reaching potentially successful students without concerns related to documentation status and instead, create lifelong respectable learners as part of a common community (Alon & Tienda, 2007). Alon indicated that using high school grades of students not only is measuring cognitive ability but also ambition (2007).

Sample

A random cluster sample was used for this study. The random cluster sample was taken from the population of Louisiana crawfish farm employees (N = 4,844). Cochran's sample-size formula (1977) was used to determine the appropriate sample size required for the study. Since it had been estimated that there were four workers per crawfish farm, it was estimated that responses would be needed from approximately 30 crawfish farms (4 * 30 = 120, which was 1 more than the minimum 119 required). Because the expected voluntary participation rate was expected to be as low as 65%, the researcher randomly selected 47 crawfish farming operations from the database for the sample population since a 65% participation rate from the 47 operations was expected to produce approximately 30 operations that would voluntarily participate.

Instrumentation

The employee surveys were offered in Spanish as well as English in order to overcome any language barriers that could exist among the tested population. A panel of extension aquaculture professionals examined the instrument for face and construct validity. Two pilot tests were conducted. After completing two pilot tests with the instrument, it was deemed valid as a result of a visual analysis of the completed questionnaires and as a result of the reliability assessment conducted on each scale in the instrument.

Data Collection

Utilizing the crawfish operation distribution list, phone calls were made to operations managers/owners in order to obtain support from the industry prior to survey administration. In order to increase response rate and to ensure the minimal sample size was acquired, the researcher arranged to travel to crawfish farm operations to administer surveys to potential respondents. This method was deemed as the best way to obtain data from vulnerable populations who may not have access to Internet or regular postal mail service (Dillman et al., 2009). The data was collected through personal contact of farm workers, and participation was deemed voluntary by respondents. The respondents were assured that the collected information would remain confidentiality.

Findings

Almost all respondents in the study were male (97.7%, $n = 127$), while 3.2% ($n = 3$) were female. Respondents were also asked to identify their gender for the study as *Anglo*, *Mexican*, *African American*, *Asian*, or *Other*. Of the respondents, 79.2% ($n = 103$) self-identified as Anglo, 18.5% ($n = 24$) as Mexican, and 2.3% ($n = 3$) as African American.

The ages of respondents ranged from 19 years to 52 years. The mean age for the population of crawfish farm employees in Louisiana participating in the study was 34.42 years ($SD = 6.50$). The respondents were asked to indicate the number of years they had been working on a crawfish farm in Louisiana. The mean number of years the respondents reported they had been working on a crawfish farm was 8.43 ($SD = 6.13$). The most frequently reported number of years working on a crawfish farm was reported as 10 ($n = 19$, 15.0%). Less than one-fourth of the respondents ($n = 28$, 22.0%) indicated that they had 2 years or less experience working as a crawfish farm employee.

The respondents indicated their level of educational attainment by selecting one of the following options: less than middle school attendance, attended middle or high school, high school diploma or graduate equivalency diploma (GED), associate degree from a community or technical college, or a bachelor's or graduate degree. The total number of respondents reporting having earned a high school diploma or GED was 82 (63.1%); this was the most frequently reported category of educational attainment. The two categories with the smallest number of respondents were those respondents who reported they had a bachelor's degree or higher ($n = 6$, 4.6%) as well as those who indicated they had less than a middle school education ($n = 7$, 5.4%).

Inferential *t*-tests were used to compare the age of the crawfish farm employees by ethnicity. The Caucasian crawfish farm employees were significantly older ($M = 35.68$, $SD = 6.28$) than the Mexican employees ($M = 29.00$, $SD = 4.28$) ($t\ (125) = 4.94$, $p < .001$). The Cohen's *d* coefficient was 1.24, which indicates that a

large difference existed between the ages of the Caucasian(M = 35.68, SD = 6.28) and Mexican crawfish farm workers (M = 29.00, SD = 4.28).

The Chi-Square test of independent distribution indicated that the ethnicity of crawfish farm workers was not distributed independently of their reported level of education (χ^2 = 11.37, df = 2, p = .003). The *phi* coefficient for this analysis was .30, which indicates that there was a moderate association between ethnicity and education level of crawfish farm workers. The Caucasian crawfish farm workers had a moderately higher level of education than the Mexican workers.

The Cronbach's *alpha* for the scale was .90, which indicates that the scale possessed exemplary reliability according to the standards published by Robinson et al. (1991). The highest rated item was the importance of educational achievement, which was rated as highly important by the respondents (M = 3.58, SD =.54). The lowest rated item was the importance of education in their career, which was rated as important (M =3.06, SD =.83). The scale mean was 3.39 (SD =.65), which indicated that the respondents perceived that education in general was important to them. Inferential t-tests were used to compare the scale mean for Value Placed on Education in General by ethnicity. There was no significant difference found in the Value Placed on Education in General by ethnicity (t (124) = .336, p = .738).

The highest rated item was the importance of children completing high school, which was rated as highly important by the respondents (M = 3.68, SD = .50). The lowest rated item was the importance of children completing a bachelor's degree, which was rated as important by the respondents (M = 3.29, SD = .77). The scale mean was 3.49 (SD = .61), which indicates that the respondents perceived that their children's education was important to them. Inferential t-tests were used to compare the scale mean for Value Placed on Children's Education by ethnicity. There was no significant difference found in the Value Placed on Children's Education by ethnicity (t(124) = .520, p = .604).

Conclusions and Recommendations

Mexican Immigrants Are Younger and Have Lower Educational Attainment than Caucasian U.S. Citizens Working on Farms

Kandel reported that a large percentage of the Mexican population entering the United States lack education when compared to the Caucasian U.S. citizen population in similar industries (2004). This study confirms Kandel's findings and conclusions that many Mexican migrants come to the United States with limited education. Kandel (2004) also reported a correlation between educational achievement and poverty gaps found among ethnic groups. The findings from this study support the conclusions related to educational attainment when compared to Mexican crawfish farm workers in Louisiana.

Both Mexicans and Caucasian U.S. Citizens Working in Farm Operations View Education in General as Important

Vega and Sribney (2009) stated that educational achievement has grown as an important factor of accomplishment for Mexican workers in the United States. In addition, as the gap related to education is realized, both ethnic groups should view educational achievement as equally important (Altschul, Oysermann, & Bybee, 2008). This study supports the conclusions that as populations work with each other, the ideals related to education will become more closely related as a definition of the

Assimilation Theory (Johnson & Marchi, 2009).

Both Mexicans and Caucasian U.S. Citizens Working on Farm oOperations View Their Children's Education as Important

This educational importance found in the study supports conclusions stated by Batalova and Lowell (2007), who indicated that the educational success of children is directly influenced by the ideals of parents. Also, Vega and Sribney indicated that educational success has continually grown as a primary objective for Mexican migrants (2009). Results from this study support the high importance placed on education in general and the high importance placed on their children's education by both ethnic groups.

Recommendations are most applicable for educational institutions and extension services as they strive to improve programs that are designed to reach populations of farm workers as well as to address the gaps found between Mexicans and U.S. Anglos in relation to educational attainment and income. Educational faculty should increase program outreach that would include newly developing regions that are including more Mexicans as a growing population (Hobbs, 2004). Educational programs could also be used to increase program awareness and increase participation and assimilation rates in regions where ethnic segregation voluntarily occurs due to mutual misconceptions between cultures and ethnic groups, where educational values are concerned (Martinez-Espinoza, 2003).

With an increased interest related to diversity in educational settings and the growing number of Mexicans moving into rural regions as permanent residents, it is important for educational programs to reach out to this growing population and encourage more involvement among Mexican immigrant workers as well as younger workers who may come into management within crawfish farm operations (Remble, 2010). Also, working with the current Caucasian U.S. citizen employees to encourage cooperation among all workers could develop programs that would encourage a higher perception of importance of farm workers who may perceive immigrant workers as job threatening as opposed to a potential source for expanding workforce.

If educational entities were to encourage the growing populations of Mexican farm workers to be included in educational programs, a potential leadership group in the crawfish farm industry could rise from this population that is currently defined as vulnerable (Mazonni et al., 2007). In order for educational entities to respond to the growing population of Mexicans in many rural areas, including Louisiana, it is important to provide services to this population. By offering educational services, the rate of assimilation in these regions can be increased.

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Understanding Afghan Opinion Leaders' Viewpoints About Post-Conflict Foreign Agricultural Development: A Case Study in Herāt Province, Afghanistan

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Abstract

This investigation sprang from a yearlong immersion in post-conflict agricultural development environments in Herāt Province Afghanistan and from observing an array of NGO development projects. The purpose was to understand better the viewpoints of Afghan opinion leaders regarding the adoption–integration of foreign agricultural development. Objectives included (a) the identification of perceived strengths of foreign agricultural development, (b) perceived weaknesses, (c) opportunities, (d) threats, (e) anomalies, and (f) incentives and barriers. The case method fit the qualitative research design, and IRB approved the protocols. Researchers selected 15 opinion leaders (OLs) based on their knowledge, experience, and positional responsibilities. An interview guide framed 13 open-ended questions. A researcher fluent in Farsi/Pashto/English assisted with each interview. The findings from 15 interviews emerged as 11 themes. Fourteen OLs recognized agriculture and natural resources as strengths for

development. Opinion Leaders recognized government, infrastructure, and corruption as fundamental weaknesses. Opinion Leaders were slow to identify opportunities but generally identified opportunities to exploit labor, land, and water coupled with improving management and mechanization. They universally recognized threats related to personal security and safety but had difficulty separating internal weaknesses from external threats. Two anomalies emerged as incongruous expectations about Afghan government and foreign NGOs. Improving market chains and increasing governmental subsidies were incentives for development. The authors conclude that indigenous knowledge is a fundamental resource and a foundation for local-level decision making and sustainability. Opinion Leaders serve as channels to move the society from poverty and conflict toward security and peacebuilding. The tension between Maslow's hierarchy of needs and Max-Neef's interrelated and interactive needs should be explored.

Keywords: Extension and Advisory Services, Indigenous Knowledge, NGO, Post-Conflict Agricultural Development, Safety and Security, Sustainable Development, Value Chain Development

Introduction

World headline news during 2011 reported a world population that surpassed 7 billion people, significant regional variations in world climate, and widespread social chaos resulting from poverty and conflict. Eight of ten children born during 2011 were in developing countries, where poverty, social chaos and political conflicts have nested in these societies. Physical climate variations had significant impact on food prices and contributed to a 50% spike in food prices in least-developed countries. A global economic recession, double-digit unemployment, increasing national debts, and civil unrest resulted in social turmoil. With disproportional population growth rates, existing social chaos, and political conflicts in the world, it is important to study post-conflict scenarios and to focus on the roots and means of resolving agricultural problems.

Scholars Easterly (2006), Collier (2007) and Sachs (2011) argue about strategies and tactics, but continue to search for an efficient, effective, sustainable development model that is appropriate for least developed, post-conflict countries, and interdependent economies. Futamura, Newman, and Tadjbakhsh (2010) concluded, "Peacebuilding, and by extension state-building, has therefore increasingly become integral to the security agenda" (p. 2). To attain sustainable development, indigenous opinion leaders must accept and integrate innovations into locally adopted practice. A global environment of economic, political, and social chaos prompted the researchers to identify the strengths, weaknesses, opportunities, threats, and interactions associated with post-conflict agricultural development. The findings provide a holistic view of foreign aid in the agriculture-agribusiness sector of Herāt, Afghanistan.

Purpose and Objectives

This inquiry emerged during a post-conflict agricultural development mission in Herāt Province, Afghanistan, in 2010–2011. The purposes were to understand better the viewpoints of Afghan opinion leaders (OLs) regarding foreign agricultural development and to identify strategies and tactics for integrating innovations into sustainable agricultural practices. The six objectives of this study included the identification of (a) perceived strengths of foreign agricultural development, (b) perceived weaknesses; (c) opportunities, (d) threats, (e) anomalies, and (f) incentives and barriers for agricultural development.

Methods and Data Sources

The case method (Yin, 2009) fit the criteria of the qualitative research design, and protocols were approved by the Texas A&M University IRB. Grounded theory and sensitizing concepts (Carlile & Christensen, 2005; Lincoln & Guba, 1985; Merriam, 2009; Patton, 2002) guided the conceptual framework. Qualitative and quantitative techniques (Acker & Gasperini, 2008; Mwaijande et al., 2009; Rogers, 2003) provided focus for integrating data collection, analysis protocols, research tools, agricultural specialties, and technical and social knowledge systems. SWOT—strengths, weaknesses, opportunities, and threats—was selected as a method to understand better the strengths/weaknesses of foreign agricultural development and the opportunities/threats in the environment (McLean, 2006). A series of open-ended questions posed to key opinion leaders (OLs) guided the interviews and discussions. Prolonged engagement, member checks during interviews, peer debriefing, triangulation of information from multiple sources, and the use of audit trails strengthened trustworthiness of data (Lincoln & Guba, 1985; Merriam, 2009).

Researchers selected 15 OLs for their knowledge and experience in a topic of interest and their positional responsibilities in agricultural education, extension, and development. An interview guide consisting of 13 open-ended questions was used to frame the discussions. Multiple researchers engaged in the interviews, and after-action reviews provided triangulation. Bass and Bass (2008) warned, "Language clearly distinguishes cultures" (p. 982). In order to understand the nuance of language, a researcher fluent in Farsi/Pashto/English assisted with each interview. The researchers acted as natural participants with long-term relationships with the OLs. Interviews were qualitative, in-depth, time-oriented, and semi-structured. To augment the interviews, the researchers used direct observation over a 12-month deployment. Researchers used a detailed daily log to record observations at project sites, during conferences, and during personal visits. Field notes documented on-going activities, processes, discussions, social interactions, conflicts, and observable outcomes. Observation data were collected June 2010 through December 2011, and interviews were conducted January 2011 through November 2011. Individual respondents formed the unit of coding. A continuous process of analysis and transcription occurred during data collection. Patterns, codes, consistencies, anomalies, and themes emerged during the analysis phase (Erlandson et al., 1993; Merriam, 2009). This study was delimited to indigenous opinion leaders with whom the researchers developed positive, collaborative relationships and shared visions of peacebuilding. An assumption was that benefits come from participatory processes and trusting relationships. A limitation of this study could be that some OLs may have expressed their views with reservation on sensitive agricultural issues. This paper does not reflect the views of the general Afghan population in Herāt Province.

Findings

The findings from 15 interviews with opinion leaders (OLs) emerged as 11 themes—personal security and safety, government policies, natural resources, NGOs, economics and market chains, technologies, change, crop production, corruption, cold storage, and infrastructure. As an "ice-breaker," each interview began with an inquiry about the opinion leader's work history and responsibilities of the positions. Each OL was positive about his/her experiences and contributions to Afghan agriculture. Several OLs reported multiple work experiences. Six of the OLs (02, 03, 06, 07, 08, 09) described their work related to education and training. Five OLs (02, 04, 05, 07, 14) described their work with the Ministry of Agriculture, Irrigation, and Livestock. Four OLs (01, 04, 06, 12) described their work in technical agriscience, particularly crop breeding, horticulture, entomology, and water engineering; four OLs (06, 09, 11, 13) described their work in agribusiness. Four OLs (01, 02, 03, 14) described their work in the agricultural university, and three (10, 13, 15) described their work in farming. The OLs ranged in age from 20–25 to 55–60 years old. The median age of the group was 40–45 years. All OLs had from seven to more than 30 years of experience in Afghan agriculture. The median agricultural experience was 20–25 years. All participating organizations in this study were institutions serving agricultural and rural development in Herāt Province, Afghanistan.

The emergent themes traversed the six objectives of identification of: (a) perceived strengths of foreign agricultural development, (b) perceived weaknesses, (c) perceived opportunities, (d) perceived

threats, (e) anomalies that emerged from discussions, and (f) incentives and barriers for development in this environment.

Objective 1

Fourteen opinion leaders (OLs) agreed that agriculture and natural resources are the greatest strengths of Herāt Province. Opinion Leader 06 said, "Agriculture is the main income of people in Afghanistan. Afghan people are experienced in agriculture. We have good land, water, and people." Opinion Leader 15 agreed but added, "Conditions will continue to improve, especially if the water is managed properly." Opinion Leader 09 opined, "The greatest strength of Afghan agriculture is the knowledge and experience of the farmers." However, OL-05 said, "There are no strengths—farmers survive on gifts from NGOs. Otherwise, if the NGOs leave, the farmers will die or move to the city."

Objective 2

There was variability among opinion leaders when asked to describe weaknesses of the agricultural sector. Among the themes, 15 OLs commented on weak government, five (01, 02, 04, 06, 15) identified weak infrastructure, and four (02, 03, 04, 14) identified corruption as a weakness. Opinion Leader 02 said, "There is a weak management system in government, poor infrastructure, and general corruption." Opinion Leader 12 recognized the "lack of capital, equipment, extension, and know-how" as big weaknesses within the sector. Opinion Leader 12 stated that, "because of poor integration, you see wonderful alfalfa and poor cattle." Opinion Leader 14 said weaknesses included "old cultural practices in agriculture such as keeping small parcels of land that are difficult to mechanize. Farmers do not sell their land easily. There is a lack of governmental support to farmers. Farmers have a lack of good markets and transportation and they lack use of modern machinery." Opinion Leader 15 promptly listed three weaknesses in rank order: "A lack of agricultural machinery, poor pest management, and a poor economy, particularly no government budget for subsidies or incentives." These findings support the work of U.S. Agency for International Development (2006) and the Peacebuilding Commission (2011).

Objective 3

The word "opportunities" typically did not occur until late in the conversations. When asked specifically about opportunities in the agricultural sector, OL-14 said, "The opportunities that exist are availability of cheap labor force, plenty of land, and water; all we need is good management skills to utilize these opportunities." Six respondents (03, 06, 08, 11, 13, 15) recognized the opportunities to increase saffron production. Three OLs (03, 10, 15) acknowledged opportunities to improve markets and processing, and OL-09 recommended increased greenhouse production. Two OLs (04, 05) saw no opportunities for agriculture. OL-04 said, "There is a lack of opportunities—this is a big problem—there are no opportunities in Afghanistan. If you were to move to Herāt, you would face multiple problems—security, economics, language, employment, and others." Opinion Leader 05 was less pessimistic but warned, "If these conditions continue, there are no opportunities unless we correct the weaknesses—lack of technology, market changes, cold storage, price support."

Objective 4

All 15 of the OLs agreed that threats included personal security and safety and voiced concern regarding both Afghan and Taliban violence. Opinion Leader 06 advocated, "Security—we need more security and more investment. By security, I

mean personal safety." Others identified threats from weak market chains for exports (01, 03, 07, 08, 09), neighboring countries price-support policies for export of agricultural commodities (01, 02, 05, 15), and scarce use of transnational water (03, 09, 12, 15). Opinion Leader 09 warned, "The greatest threat to Afghan agriculture is the scarcity of water. . ." Opinion Leader 15 agreed, while OL-02 warned, "The greatest threat is from Iran and Pakistan. They are trying to have a strong influence." The proposal from OL-05 was that "the government should charge a tariff on imported agricultural goods from Iran and Pakistan." Opinion Leader 15 warned, "Continued production of poppy and insecurity are the greatest threats to the local population."

Objective 5

The researchers identified two anomalies—views about local government and foreign *NGOs*—that emerged from discussions. There was widespread distrust of "government" *(*01, 02, 03, 04, 06, 07, 08, 09, 11, 13, 15), yet there was a general expectation for "government" to provide solutions to transform weaknesses and threats into strengths and opportunities. Opinion Leader 02 said, we must ". . . increase the financial resources that create job opportunities. If the government provides jobs, the people support the government. People without jobs are motivated against the government. This creates bad conditions and insecurity for the country." Opinion Leader 06 said, "If there were more jobs, there would be more opportunities. This problem must be solved by the government." Opinion Leader 04 said, "Government should provide more subsidies to farmers for their crops." Opinion Leader 11 said, "The government should help the farmers more, to train them in better livestock management procedures and in better cultivation, fertilization, and pruning practices."

When examining the theme of NGOs, 12 OLs *(*01, 02, 03, 04, 05, 08, 09, 10, 11, 12, 13, 15) were generally positive about technical and financial support by NGOs in Herāt. OL-03 remarked, "Foreigners [NGOs] have helped a lot" and OL-10 acknowledged, "NGOs have brought new technologies and capacity building projects." Opinion Leader 15 attested, "NGOs have greatly assisted farmers, particularly with the distribution of saffron corms and improved wheat seed, thereby reducing poppy production . . ." However, OL-02 lamented, "Most of foreign aid is spent on administration charges, security, vehicles, and their own salaries with only a small amount spent directly on farmers." Opinion Leader 06 said disparagingly, "Most NGOs think only about getting money." . . . "NGOs do not think about the future, only about their profits." There was a majority support for increased foreign aid, but a negative viewpoint on foreign control of development projects and programs. Opinion Leader 14 opined, "Donors do not give according to our needs, but they give according to their desires or to the sectors that they choose and usually these priorities do not match." These findings corroborate the proposition of Futamura, Newman, and Tadjbakhsh (2010) that ". . . peacebuilding often neglects the welfare needs of local populations and fails to engage with indigenous traditional institutions" (p. 3).

Objective 6

Opinion leaders identified six incentives to enhance agricultural development. All OLs recognized the value of improved market chains as an incentive, and 10 recommended governmental subsidies for crop production (01, 02, 03, 04, 06, 07, 08, 09, 11, 13) and better marketing policies (01, 02, 03, 04, 06, 07,

08, 09, 11, 13). These findings support the work of Kock and Edwards (2007) and Kock, Harder, and Saisi (2007*)*.

Six OLs opined that better NGO policies and priorities would incentivize development (01, 02, 03, 04, 06, 11) and improve infrastructure (04, 06). Opinion Leader 02 recognized that, **"**To bring significant change in a big system is difficult. The people who are expected to run agriculture must know about agriculture—they must have management and technical knowledge."

All OLs agreed that personal security and safety is a barrier to agricultural development under the current circumstances. Seven OLs (01, 02, 03, 04, 05, 06, 10) viewed Iranian and Pakistani policies as barriers while four (02, 03, 04, 14) identified national corruption as a barrier to development. OL-06 lamented, "When investors come to Herāt, they will not invest because of the lack of security. I am concerned about security for my family. Let's say I invest US$150,000 in a farm. Criminals will kidnap my son and ask for US$250,000. Investors are afraid because of the lack of security."

Table 1. Emergent Themes in Foreign Agricultural Development and Their Frequency and Distribution by Afghan Opinion Leaders

Theme	Frequency by opinion leader	Frequency by theme	Distribution by opinion leader
Government	15	44	01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15
Personal security and safety	15	44	01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15
NGOs	14	41	01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 15
Water	12	61	01, 02, 03, 04, 06, 07, 08, 09, 11, 13, 14, 15
Markets and economics	11	39	03, 04, 05, 07, 08, 09, 10, 11, 13, 14, 15
Technology	11	15	02, 03, 04, 05, 06, 07, 08, 10, 11, 12, 15
Wheat	8	35	01, 03, 04, 05, 07, 11, 12, 15
Change	6	24	02, 03, 06, 09, 12, 14
Cold storage	5	7	04, 05, 09, 11, 13
Infrastructure	5	6	01, 02, 04, 06, 15
Corruption	4	10	02, 03, 04, 14

Conclusions, Recommendations, and Implications

Poverty, conflict and security are intertwined—with each condition exacerbating the other and obscuring the vision for peace and wellbeing. However, Afghan opinion leaders seek safety and security as a precondition to agricultural development. Opinion leaders—elders and shura members—possess community knowledge, appreciate cultural values, and have authority and influence over how, when and if a community will accept foreign development. The spirit of foreign agricultural development and basis of sustainable development should be more about people, cultures, and knowledge exchange and less about objects and ambitions. This finding is consistent with the conclusions of Subba Rao (2006), that indigenous knowledge is the key resource for development and forms the basis for local-level decision making in agriculture.

There was a history of mistrust of foreign development agencies by Afghan OLs. Trust was slowly being built by demonstrating respect and sensitivity, improving cultural understanding, and immersion into local activities. Accountability and transparency played important roles in building trust. These findings are consistent with those cited by Neufeldt et al., of Lederach's work (1997) that ". . . peacebuilding needs to be (a) comprehensive, (b) strengthen interdependent relationships, (c) be sustainable, (d) be strategic in its focus and (e) construct an infrastructure for peace" (p. 94).

Fifteen OLs appeared to hold comparatively consistent viewpoints on seven of eleven emergent themes regarding foreign agricultural development and the post-conflict goals and strategies for Herāt Province. Opinion Leaders recognized strengths and weaknesses associated with agricultural development, but were challenged or reluctant to recognize opportunities and threats to development. There was a pervasive lack of self-reliance and an external locus of control exhibited among OLs. These findings are consistent with that of Rola-Rubzen, Hardaker, and Dillon (2001), who concluded that farmers need to be empowered, take more control of their own activities, and reduce dependency on external factors that they cannot control. OLs have incongruent expectations about government. OLs generally view government as a weak, corrupt system while at the same time as a principal source of solutions to social and economic problems.

Recommendations

Six strategies and tactics are recommended to improve the integration of innovations into sustainable agricultural practices.

1. Post-conflict development should advance personal safety and security as a basis for sustainable development. Post-conflict development must address personal security and safety of local people and investors. This is consistent with findings of Kock, Harder, and Saisi (2007*).* Caan (2005) cautioned, "The interdependence between security and reconstruction must not be overlooked in post-conflict reconstruction and stabilization operations. Security strategies must therefore be inextricably linked with reconstruction strategies" (para. 12).

2. Foreign agricultural development workers should use methods that show respect, trust and appreciation of indigenous opinion leaders and their authority. Foreign workers should be aware of spiritual and cultural events and the specific roles of men and women. Activities should be appropriate with culture and holidays.

3. Engage opinion leaders in the adoption and diffusion process. Opinion

leaders are the guardians of indigenous knowledge, principal change agents, and the ones who provide legitimacy and sustainability for post-conflict development practices. Fitzhugh (2011) opined that the fundamental factors for success in foreign agricultural development are focus, flexibility, partners, and ownership. Opinion leaders may not always advocate the latest knowledge or technology, but they serve as channels to move incrementally from knowledge to confirmation and from poverty and conflict toward prosperity and peacebuilding.

4. Indigenous knowledge is a crucial element for sustainable development, but indigenous knowledge must be coaxed and encouraged. It is crucial that opinion leaders feel that subject matter experts (SMEs) are interested in learning what local leaders believe are their genuine needs. Additionally, it is important for SMEs to appear willing to help opinion leaders reach their goals before opinion leaders are willing to engage in foreign development projects. Balance competing goals by planning sustainable agricultural development initiatives while initiating flexible tactical projects that fit the current priorities of indigenous opinion leaders and communities.

5. Strategies should purposively encourage individual responsibility and ownership while minimizing powerful others and the locus of destiny or chance for sustainable development.

6. SWOT is an approach to strategic planning. While internal strengths and weaknesses may be openly discussed early in a relationship, it will take time before opinion leaders are willing to discuss external obstacles and threats to agricultural development.

Lesson learned: Ask the right questions and listen carefully to the opinion leaders' aspirations. This is consistent with the recommendations of Shinn and Briers (2009). Caan (2005) concluded, "High hopes and lofty promises are no substitute for sound planning and prudent expectations" (para. 9).

Implications

Four implications emerged from this study.

1. Foreign NGOs who come in-country with a prescribed scope of work, a predetermined "burn-rate," and with little inclination or power to adapt or accommodate indigenous knowledge will more likely produce bitterness and unsustainable projects. These conditions fail to connect foreign investments to the priorities of local people or traditional institutions. Sustainable development is coupled with sound policies, accountability, ownership, and effective local projects. Sustainability relies on complementary networks among opinion leaders, the work, and the larger community.

2. There is a tendency by some NGOs to implement and control projects that are more aligned with their personal goals, expertise, and experience. Sachs (2011) corroborated saying, "The extent of contracting vastly exceeds agencies' ability to oversee the contractors' work" (p. 246). Sachs concluded, "The proper approach is to rebuild public management, not to turn it over to voracious private firms" (p. 246).

3. Opinion leaders are more likely to embrace development when a clearly articulated vision and mutually negotiated strategies are communicated. Maslow (1954) and Max-Neef, Elizalde, and Hopenhayn (1987) agreed that sustainable development begins by satisfying fundamental human needs. Human needs and wants change over time as issues and challenges are resolved. Consequently, the scope of development work should be well planned with flexibility and creativity to

integrate activities into existing local priorities. Max-Neef, Elizalde, and Hopenhayn (1987) proposed that human needs, self-reliance, and engagement are pillars that support human development. Unlike Maslow, Max-Neef, Elizalde, and Hopenhayn posit there is no hierarchy of needs other than safety and security. Rather, they hypothesized nine human needs, such as subsistence or freedom, can be juxtaposed against four existential categories of "being, having, doing and interacting," resulting in a 36-cell matrix. They caution, "This matrix is neither normative nor conclusive. . . . In fact, this matrix of satisfiers, if completed by individuals or groups from diverse cultures and in different historical moments, might vary considerably" (p. 32). Max-Neef, Elizalde, and Hopenhayn concluded, "development is about people and not about objects" (p. 19). The authors have concluded that post-conflict foreign agricultural development is complex but satisfying.

4. Enabling or empowering opinion leaders with an internal locus of control will increase empowerment, self-determination, and control of their destiny. The lesson learned: Listen carefully to the desires, dreams, and hopes of local opinion leaders—these priorities will continue long after the project team is gone.

Note: The opinions and recommendations expressed herein reflect the authors' personal observations and do not imply endorsement by or official policy of The Norman Borlaug Institute for International Agriculture, Texas A&M University, Prairie View A&M University, or the U.S. Department of State.

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Agricultural Extension and Market-Led Agrarian Reform: Findings from an Exploratory Case Study in Limpopo Province, South Africa

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Abstract

In 1994, as South Africa was transitioning out of the apartheid era, the new, democratically elected government was forced to confront a largely polarized agricultural sector. Colonial rule and apartheid policies had systematically dispossessed the African majority from land. At the end of apartheid, the white minority, comprising less than 10% of the population, controlled 87% of total agricultural land. To confront the harsh realities of food insecurity and poverty, South Africa's post-apartheid democracy implemented land and agrarian reform policies. The purpose of this study was to understand the experiences and perceptions regarding these policies of emerging black farmers and agricultural extension officers in Limpopo Province, South Africa. The province has been an active participant in land and agrarian reform initiatives, but over 70% of resettlement projects have been deemed as not functioning. With such a high failure rate, the experiences of the people most directly impacted by reform initiatives in Limpopo can help clarify those elements of policy that are currently working and those that are not. This research utilized a qualitative case study approach to data collection. Analysis of data identified a series of consistent themes: Dependency*,* Knowledge and Skills*,* Networks*, and* Realistic Expectations*. Based on these findings, a series of implications and recommendations regarding future research and agricultural extension programming are presented.*

Keywords: Extension, Governmental Organizations, Case Study Research, Qualitative Research, Farmers, Social Change

Introduction

In 1994, as South Africa was transitioning out of the apartheid era, the new, democratically elected government was forced to confront a largely polarized agricultural sector. Colonial rule and apartheid policies had systematically dispossessed the African majority from land (Thompson, 2000). At the end of apartheid, the white minority, comprising less than 10% of the population, controlled 87% of total agricultural land (Atuahene, 2011). In contrast, millions of black South Africans lived in impoverished conditions with little opportunity to secure land rights or ownership (Cousins, 2007; Lahiff, 2007; Mather, 2002; Thompson, 2000). To confront these harsh realities, the African National Congress (ANC), the ruling party of South Africa's post-apartheid democracy, implemented land and agrarian reform policies. By 1997, a policy framework for land reform had been developed in the effort to address the racial disproportion of landholdings and the historical injustices of colonialism and apartheid (Cousins, 2007; Lahiff, 2007).

Guiding land redistribution efforts was a framework known as market-led agrarian reform (MLAR), which fully compensates landowners according to market price for the voluntary sale of their land (Borras, 2005). As opposed to state-led interventions, which often expropriate land below market prices, MLAR seeks to support intended beneficiaries to access land through markets (Neto, 2004). Through government grants and loan financing, qualifying individuals are able to make offers on white-owned property (Lahiff, 2007). In addition, through tenure reform, the South African government also attempted to improve land access for those South Africans who had been living in

former homelands. Those individuals, especially women, living under customary law, had difficulty securing formal rights to land, which was often held by the state and administered by traditional leaders. In response, South Africa has attempted to address these tenure issues by assisting individuals to gain occupancy land rights within communal systems (Cousins, 2007; Rangan & Gilmartin, 2002).

As a policy framework for land reform, MLAR is squarely entrenched within the neoliberal agenda (Lahiff, Borras, & Kay, 2007). Supported by institutions like the World Bank, the intent of MLAR is for "new 'family farmers' [to] be drawn into increasingly liberalized markets for land commodities and agricultural services" (Lahiff et al., 2007, p. 1420). This approach intended to both address racial injustices and preserve the strong commercial agricultural sector that had been previously established by white farmers (Lahiff, 2007). Despite these aims, scholars have critiqued this policy framework for failing to achieve its objectives (Borras, 2003; Kepe, 2009; Lahiff, 2007; Lahiff et al., 2007). For example, although the goal of the South African government was to have 30% of all white-owned commercial farmland redistributed by 2014 (Lahiff, 2007), only 8% had been achieved by 2010 (Atuahene, 2011). Beyond the actual distribution of the land, MLAR has also been criticized for its high failure rate of land transfer cases due to lack of social, economic and technical support services (Atuahene, 2011; Lahiff & Cousins, 2005). Government-run agricultural extension is often viewed by the South African public as inaccessible to resource-poor farmers (Ngomane, 2010). Given these stark realities, rhetoric regarding land reform in South Africa has become increasingly fiery, and some politicians, such as ANC Youth League Leader Julius Malema, have advocated for land expropriation without compensation (Mthembu & Monthso, 2011).

Conceptual Framework

As land reform policy debates are waged, efforts to successfully incorporate black South Africans into a highly functioning commercial agricultural sector continues. Government-run agricultural extension is helping coordinate land reform efforts by working to provide new black farmers with financial and educational opportunities in order to integrate them into markets. Oftentimes, the vision for these emerging farmers is to develop their operations into large-scale, highly efficient and productive commercial businesses (Lahiff, 2007). As policymakers negotiate long-term decisions, the immediate work of agricultural extension cannot be overlooked. Assessing the perspectives of extension officers and the farmers with whom they interact contributes to understanding the opportunities and constraints that intended beneficiaries of land reform currently face.

Studies to assess the current status and make improvements to agricultural extension in various countries have been consistently conducted (Bedo & Dooley, 2004; Cho, 2002; Dragon & Place, 2006; Reynar & Bruening, 1996). Ngomane, Thomson, and Radhakrishna (2002) recommended that extension in the Northern Province, South Africa incorporate participatory methods in order to become more responsive to farmer needs. In Limpopo Province, South Africa, Bruening et al. (2002) recommended that agricultural extension officers could better serve emerging black farmers with better access to technical information, improved communication skills, and more opportunities to utilize technology. Since that study, South Africa's Department of Agriculture has implemented the Extension Recovery Plan. Five pillars inform the plan, which specifically focus on enhancing organizational accountability, strengthening its image, expanding skill sets among personnel, building its information and communications technology infrastructure,

and recruiting capable new personnel (Mudau, Geyser, Nesamvuni, & Belemu, 2009).

With land reform debate intensifying, the time is ripe to continue the investigation of agricultural extension in South Africa. Assessing the perceptions and experiences of both farmers and extension officers can foster mutual understanding, aiding their joint effort to capitalize on opportunities and adapt to challenges. In addition, these perspectives can help inform policymakers' comprehension of the realities regarding South Africa's land and agrarian reform.

To conduct this research, sensemaking provided an apt theoretical framework. Sensemaking is the process by which individuals interpret and give meaning to their experiences. Among the millions of bits of data that individuals encounter, people tend to focus on only a few to organize their experiences in the world (Chia, 2000). As individuals identify and label pieces of their experience, meaning is then negotiated through communication. Sensemaking is a social activity that occurs within the boundaries of specific social and cultural contexts (Weick, Sutcliffe, & Obstfeld, 2005). Sensemaking occurs most explicitly when individuals encounter problematic situations that are contrary to their expectations. To make sense of the situation, individuals search for understanding, a process that often involves relying on strands of various "frameworks such as institutional constraints, organizational premises, plans, expectations, acceptable justification, and traditions inherited from predecessors" (Weick et al., 2005, p. 409).

Given the underperformance of South African land and agrarian reform, it is likely perceived as problematic by those most directly impacted. From a sensemaking perspective, assessing perceptions of extension officers and emerging black farmers provides insight into the meanings that both are constructing regarding land and agrarian reform. This type of information is valuable to both extension officers and emerging black farmers, for it can foster mutual understanding. Agricultural extension will be better positioned to adapt to farmers' needs, and farmers will have a better sense of the services and opportunities that extension can provide. Furthermore, assessing perceptions of extension officers and farmers from a sensemaking framework also provides valuable information to policymakers. Land policy decisions made by the government can be more solidly based on the realities and priorities of the people most immediately affected by land reform.

Purpose and Objectives

The purpose of this study was to understand the experiences and perceptions of emerging black farmers and agricultural extension officers in Limpopo Province, South Africa. Limpopo Province, located in the northeast of South Africa, provides a compelling case study. An arid region, Limpopo lacks resources such as fresh water and arable land. Confronting high poverty rates and severe income inequality, most of the population lives in rural areas (Pauw, 2005; Ramathoka, Masekoameng, & Jacobs, 2009). As such, Limpopo Province has been an active participant in land and agrarian reform initiatives, but over 70% of resettlement projects have been deemed as not functioning (Lahiff et al., 2007). With such a high failure rate, the experiences of the people most directly impacted by reform initiatives in Limpopo can help clarify those elements of policy that are currently working and those that are not. Specifically, the objectives of the study were to:

1. Explain the experiences of emerging black farmers and agricultural extension officers in Limpopo Province regarding land and agrarian reform projects over the last decade, and

2. Identify themes within agricultural development projects that agricultural extension officers and emerging black farmers in Limpopo Province perceive as challenges and opportunities.

Methods

This research, intending to identify important themes for future study, is an exploratory qualitative case study. Qualitative methods were used in order to pursue in-depth understandings of experiences and perceptions (Creswell, 2007). The case study approach was suitable because it provides a detailed understanding of a bounded, "integrated system," which was Limpopo Province for the purposes of this study (Stake, 2000, p. 436). Case studies also provide a methodological framework to conduct an in-depth investigation of how wider structures help shape and form realities in specific contexts (Burawoy, 1991). Considering structural influences was particularly appropriate for this study since sensemaking contends that individuals' meanings are influenced by social and cultural contexts.

Site Selection and Population of Study

Limpopo Province, comprised of five municipal districts, served as the case. This location was chosen because of its diverse local population, history of land redistribution, and agrarian reform activities underway. The population for this study was emerging black farmers in the five municipal districts of Limpopo Province who were participating in land and agrarian reform initiatives and the extension officers who were coordinating these initiatives. Purposive sampling was utilized in order to ensure that farmers and extension officers working in each of the five districts of Limpopo participated in the study. Officials at the Limpopo Department of Agriculture (LDA) were asked to identify agricultural development projects of emerging black farmers in which agricultural extension was involved. The researchers also requested that the LDA select projects that were on both communal land and formerly white-owned land and ranged in success.

Data Collection

Onsite data collection took place during June, 2011 throughout Limpopo Province. A key informant interview protocol was constructed by the research team. In total, eight agricultural development projects were visited covering all five municipal districts. A total of 21 interviews were conducted with farmers, extension agents, and governmental representatives. In order to document diverse perspectives, farmers of different ages, backgrounds, gender, and ethnicities were interviewed. Extension officers accompanied the researchers to each project visit and participated in the interviews and focus groups with the farmers. The extension officers also aided with translation, when necessary.

To collect data, the researchers used semi-structured interviews, focus groups, and participant observation. Enhanced validity resulted from triangulating the data through using multiple methods of data collection (Stake, 2000; Cho & Trent, 2006). Triangulation was also achieved by interacting with individuals with diverse perspectives, including men, women, farmers, extension officers, those who had projects on communal land, and those now occupying land that was formerly white-owned.

During the interviews, focus groups, and participant observation, hand-written notes were relied upon to document participants' perspectives and field notes were taken to reflect researcher observations. One researcher conducted line-by-line coding of the notes and extensively memoed in order to generate emergent themes, which allowed for an inductive analytical process (Emerson, Fretz, & Shaw, 1995). As themes arose, the

researchers collectively explored negative cases in order to ensure that the themes were integrative and representative. Credibility of the data was strengthened through member-checking (Cho & Trent, 2006). Drafts of this article were shared with officials at LDA, and their perspectives and reactions were considered before submitting the article for review. Actual names of individuals have been replaced by fictitious names to protect confidentiality.

Results

Analysis of the interviews, focus groups, and other data identified a series of consistent themes: *Dependency, Knowledge and Skills, Networks,* and *Realistic Expectations.*

Dependency

Farmers' dependence on government financial and programmatic support emerged as a consistent theme among both farmers and extension officers. In the effort to support emerging black farmers, the LDA offers a variety of grants to purchase new technology, farm infrastructure, machinery, and inputs. Government funding also exists for farmers to attend educational courses on technical information and life skills. From many of the farmers' perspectives, the future success of farm operations depended on government support. At one cooperative, farmers identified the expense of inputs as their primary concern; without additional government funding, they worried that plans to expand their broiler project would go unrealized. Four women who ran another broiler project on communal land in another municipality echoed this sentiment. They recognized that their goal of building a processing plant largely depended on the degree of financial support they received from the government.

Some farmers recognized dependence on the government to be problematic. One female farmer, Lucy, had successfully established a broiler operation after taking possession of a white-owned commercial farm. Although she valued the support she had received from the government, Lucy believed that her success derived from her passion in farming, her strong work ethic, and her desire to be successful. The reason for the high failure rate among emerging black farmers, Lucy determined, was others' expectations of handouts from the government. From Lucy's perspective, too many intended beneficiaries of land reform had failed because they expected the government to keep them afloat, instead of using government support to strive toward independence: "at the end of the day, the government cannot support all of the farmers." This attitude seemed to be based on Lucy's personal experience: of the more than 91 farmers who initially entered a cooperative agreement to run Lucy's operation, only six remain. Many of those who had left the operation simply "thought the government would just deposit 15,000 Rand into their account."

This concern regarding government dependency was also expressed by agricultural extension officers. One female extension officer, upon considering difficult challenges facing project success, immediately responded "the dependency syndrome." Another extension officer wondered aloud how to "graduate" emerging farmers from government support and then told the story of a young black farmer who is currently farming a large vegetable production operation. Although the government had recently helped fund a new tractor and drip irrigation tape, the farmer had just submitted another grant application for more funding.

Taken together, these perspectives indicate the dominating role that government fills for emerging black farmers. Although MLAR intentionally pursues a neoliberal course, the government

has nonetheless emerged as the major institutional support for many farmers. Farmers are leaning on the government for assistance to such an extent that many fear that the fates of their operations will be determined by government funding.

Knowledge and Skills

According to Lahiff (2007), one of the reasons for the high failure rate of agricultural development projects is due to inexperienced black farmers taking over large, white commercial operations. Without the knowledge, experience, skills, and training to manage a commercial venture, failure is almost guaranteed. Both extension officers and farmers place high value on educational and technical support, although not all of the farmers had been able to capitalize on these opportunities. While all of the farmers in the sample had received grant support to purchase materials or build infrastructure, only a percentage had enrolled in courses related to technical and/or life skills. Those who had received educational support perceived their operations as more secure and viable than those who had limited access to educational opportunities.

Those who had received training emphasized its importance. At one of the broiler cooperatives, two members had been sponsored by the government to participate in intensive educational training on production and business management. According to both men, their participation had allowed them to teach other cooperative members their new skills, and in turn, strengthen the viability of the operation. A similar sentiment was shared by three members of another cooperative that had recently blossomed into a successful export business. Each readily referred to the technical assistance they received as a primary reason for their cooperative's financial growth. Likewise, Lucy, the owner of the large broiler operation, identified her active participation in technical courses as an important aspect to her financial stability. Lucy continued her line of thought, expressing that the success of land and agrarian reform largely depends on the transfer of knowledge and skills to new farmers.

Extension officers also identified the development of technical skills as essential for organizational improvement. Although re-skilling extension serves as one pillar of the Extension Recovery Plan, several officers noted a lack of adequate monitoring and evaluation. At an event celebrating young farmers, both farmers and LDA officials highlighted that the outcomes of previous participants had not been traced over the years. Without baseline data, they noted, agricultural extension was limited in its ability to document the experiences of these young farmers. This is particularly unfortunate since many of these farmers likely represent the bright spots of agricultural development in Limpopo. Such a shortcoming is recognized by members within LDA. For example, one LDA official indicated that LDA is dedicated to forming partnerships that build organizational capacity for monitoring and evaluation.

Networks

Although farmers perceived government linkages as crucial to success, those in the most secure situations also acknowledged the value of other social and information networks. Members of one of the broiler cooperatives explained that their positive relationships with local community members translated to a solid market base. The community also supported the cooperative in other ways, such as providing advice on business management. Members of an egg cooperative on communal land also indicated the benefits of developing networks and partnerships with local

community members and institutions. In addition to building an informal market among community members, the cooperative had also linked with local schools. The cooperative provided students educational tours of the operation and sold eggs to the school as part of its nutrition program. In another municipal district, Thaba, a middle-aged farmer who grew vegetables on a small plot, recognized other benefits to social networks. His membership in the local agricultural association provided a platform to communicate his needs: "I am part of a group, an association of farmers…they are really helpful in communicating with the government and sharing information."

Lucy spoke enthusiastically of her processing and marketing partnership with a white neighbor, who also had a large commercial chicken operation. These types of linkages form a strategy that the government and universities are advocating in order to enhance post-settlement support. Facilitated by agricultural extension, Lucy has formed a business partnership with her neighbor, who owns a slaughterhouse and has solid connections in the market. In return for selling her broilers to her neighbor, Lucy receives monetary payment, a stable source for inputs, and technical assistance. Lucy and her neighbor have also agreed to dedicate a portion of her profit each month to pay off her debt to government lending agencies, a goal that Lucy anticipates achieving within three years. Upon reflection, Lucy has found this partnership so beneficial that she expressed skepticism when considering a more radical land reform policy that would expropriate land without compensation. She worried that such a policy would eliminate the potential for these types of partnerships.

Realistic Expectations

According to the LDA, all eight of the agricultural projects visited were considered to be "emerging," since commercial viability was the aim of each. However, as told by the farmers and extension officers, the status of these projects varied widely. Some of the participants expressed that their projects had realistic potential for market viability. Lucy, for example, produces an estimated 240,000 broilers per year and is confident that the partnership with her neighbor will continue to provide her a stable market so that she can invest in her operation. Supporting Lucy's vision, an extension officer detailed Lucy's business plans, which included buying into a share of her neighbor's slaughterhouse. Members of a fruit cooperative also conveyed optimism for the future. With the technical support of agricultural extension, they have seen their exports and profits increase steeply over the last several years. In another municipal district, the members of the egg cooperative on communal land have successfully developed links to both formal and informal markets. Several of the members explained that after a percentage of the profits have been dedicated toward paying off loans, profits are then distributed, extra income that members have invested into their children's educations. For one member, the education of children was also linked to the future success of the cooperative: "The children in school now will help the cooperative with their computer skills and accounting skills."

Unfortunately, these hopeful operations only tell a part of the story. Other project beneficiaries were in more tenuous situations. Members of an irrigation cooperative on communal land described a lack of participation among members, noncompliance with cooperative by-laws, youth disinterest, and a non-functioning packing plant. Food

production was under capacity, and internal dissent and tension plagued the cooperative. Cooperative members displayed their lack of cohesion when several argued as to whether more land could be incorporated into their project. Further fueling ill sentiment were several conflicts that had arisen between the cooperative and other community members over land use. As members spoke dispiritingly of the cooperative's current situation, the local extension officer attempted to encourage enthusiasm by speaking about the spirit of cooperativism. Later, however, during an individual conversation, another extension officer doubted the cooperative's viability, noting that too many cooperatives exist in name only.

Thaba, the vegetable farmer growing a small plot of cabbage, maize and tomatoes, had been able to develop a local market. Encouraged by his local success, he supported more radical land reform policy so that he could expand his operation from his current eight hectares to 100 hectares. The viability of such a vision was cast into doubt when Thaba later identified his ability to access new markets as a major challenge. The four women operating a broiler project also wanted to expand their operation but doubted their ability to do so considering limited market opportunities. LDA administrators and extension officers concurred, as both consistently identified market development as a primary need to be addressed.

Developing realistic visions for land and agrarian reform is even more pertinent when the natural constraints of land productivity in Limpopo are considered. A former agricultural extension officer indicated that lack of arable land and irrigation sources in Limpopo limits agricultural productivity. From his perspective, visions to expand crop and livestock production were overly optimistic, especially considering the climatic pressures and variations that are likely to intensify. Therefore, beyond skewed market plans, the availability of natural resources must also be taken into account when developing realistic expectations for Limpopo agriculture.

Conclusions

This study reflects input from key informants, focus groups, and observational data from farmers, extension educators, and government officials in Limpopo Province, South Africa. Overall, several key themes were identified as being particularly relevant to understanding the complexity of agricultural development in the context of land and agrarian reform. For this study, sensemaking provided a framework to better understand the experiences of emerging black farmers and the extension officers with whom they work. Experiencing the complicated consequences of land reform policy, farmers and extension officers alike must navigate the tenuous situation. Aiding them in this process is the co-construction of meaning, indicated by the themes that emerged as both farmers and extension officers interact with one another. For both groups, their reflections on land and agrarian reform revealed four distinct themes: dependency on the government, the importance of educational support, social networks, and realistic expectations. These themes help participants structure their own understandings of their experiences with land reform and are the areas in which opportunity and vulnerability most prominently exist. Attention by policymakers to these constructed understandings of intended beneficiaries will help determine the future of land and agrarian reform; as individuals directly impacted by land and agrarian reform policies, farmers and extension officers can help productively steer appropriate and responsive policy decisions in the future.

The results of this study indicate a complex reality for the individuals immediately affected by land and agrarian reform in Limpopo Province. Some farmers, on both communal land and land formerly owned by whites, have followed the script envisioned by MLAR supporters. Through government grants and loans, they have secured land and established agricultural operations that are likely to be commercially viable. Others, however, represent the failed or failing majority of land and agrarian reform projects. Their financial dependency on the government, coupled with unrealistic business plans, provide further evidence for those who claim that land reform in South Africa needs a new approach. Most of the individuals who flooded farms after 1994 are long gone. The required hard work, dedication to continuing education, and access to information presented challenges too daunting to overcome.

As the policy debates continue, farmers and agricultural extension will need to continue to navigate the difficult landscape of land and agrarian reform. From the data collected in this study, several important themes emerged that help give meaning to the agrarian reform experiences of farmers and extension officers. First, both groups emphasized the dominant role that government support has come to fill for emerging black farmers. For farmers to develop their operations so that they are commercially viable, agricultural extension and the farmers with whom they work need to develop strategies to avoid unhealthy dependence. Secondly, both groups recognized enhanced knowledge and skill sets as essential for success. Many of the research participants valued opportunities for learning and identified new skill sets that they needed to improve for the future. Thirdly, participants indicated that access to market opportunities, business relationships, information sources, and other types of support were important for long-term economic feasibility. These types of networks are a social infrastructure that agricultural extension and farmers should work to strengthen. Finally, business viability frequently entered conversation with both farmers and extension officers. While some of the farmers were in the process of successfully integrating their operations into markets, others were struggling or had unrealistic expectations.

The failing projects provide evidence for critics of MLAR in South Africa. The government, interested in maintaining a strong agricultural sector, has not generally encouraged the subdivision of large land tracts, which, according to Lahiff (2007):

> is arguably the single greatest contributor to the failure and general underperformance of land reform projects, as it not only foists inappropriate sizes of farms on people (and absorbs too much of their grants in the process) but also forces them to work in groups, whether they wish to do so or not (p. 1588).

Business plans are often developed by government agents or consultants, who pursue highly efficient and productive models that require substantial investment, even when the beneficiaries lack the stability to make such plans come to fruition (Lahiff, 2007). The participants in this study were no doubt influenced by the emphasis on large-scale commercial operations, even when it seemed unfeasible. Success to them meant expanding their holdings, intensifying their production, and successfully competing in domestic and global markets. For some, these visions will become a reality, but for others they are unrealistic goals that all but assure failure.

Recommendations and Implications

While this study was exploratory, several implications and recommendations

emerge from the findings. Perhaps the most critical recommendation is to encourage agricultural extension to include farmers in the earliest stages of planning. Working together in the very initial stages might help to temper unrealistic expectations related to marketing and land productivity. Early interaction will also help extension understand the educational needs of emerging farmers. Performing a needs assessment together will help both groups negotiate realistic perspectives on viable project outcomes. Doing so will likely require indicators for success other than commercial viability in national or export markets. Although the government has been reluctant to subdivide large land tracts, agricultural development must do more than maintain the highly advanced commercial sector that necessarily limits its number of participants. The degree of agrarian inequality that continues to exist indicates a need to incorporate alternative models for agricultural development.

Including farmers into the planning process can also be beneficial to begin to address government dependency. Together, extension officers and farmers can iteratively develop individualized plans that outline the extent to which government support will continue to play a role. By doing so, a clear understanding between both parties can emerge regarding government capacity to provide future support. Although this is not likely to end the problem of dependency, it will explicitly enter dependency into the conversation between agricultural extension and beneficiaries. In addition, by co-generating realistic goals and outcomes, these plans can serve as excellent starting points for amount of money accessed through grants and loans. Discovering variables that influence project success will help extension tailor realistic business plans for farmers.

agricultural extension to enhance its monitoring and evaluation of their agricultural development projects.

As the development of business plans occurs, agricultural extension must emphasize the importance of other types of support beyond buildings, materials, and technology. Educational support and training opportunities must emerge as an integral aspect of agricultural development to ensure that emerging farmers not only have land and tools but also the ability to succeed. In addition, agricultural extension should incorporate the development of social and informational networks into its work. Pursuing frameworks that recognize that social, natural, and human assets are vital to development will help guide agriculture extension in efforts to build new and strengthen existing networks (Dani & Moser, 2008; Scoones, 1998). Doing so would likely further address dependency issues by connecting farmers with other sources of opportunity and support.

From a research perspective, this study must be understood as exploratory. More comprehensive studies with larger sample sizes in both Limpopo Province and elsewhere must be conducted to further explore the challenges and opportunities facing farmers and agricultural extension. Qualitative studies should use the themes identified in this study as starting points and also pursue more nuanced understandings of how social, economic, and political dynamics change as updated policies are enacted. Quantitative elements should be incorporated to better understand success and failure rates of reform projects based on size of land occupancy, type of land (communal or formerly white-owned), amount of technical training received, and

These recommendations are made with a full awareness of the complexities and challenges of land and agrarian reform in post-apartheid South Africa. The viability for many of the suggestions will depend on political

deliberations, which are, in turn, intertwined with global structures far beyond the sphere of emerging black farmers and agricultural extension officers in Limpopo Province. Nonetheless, while policymakers debate paths forward, the actual experiences of the farmers on the ground provide an entirely different perspective, for they are the ones living the consequences – good or bad – of reform policies. Continuing to value these types of perspectives can at least make available important information to policymakers for them to make decisions responsive to the material realities of the farmers who are the targeted beneficiaries.

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Association for International Agricultural and Extension Education
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Professional Paper Presentation Abstracts

Editor's note: The following abstracts are listed by thematic categories, with the lead author's last name listed alphabetically. They were derived from professional papers presented at the 28th Annual AIAEE conference.

Agricultural Innovation

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.

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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.

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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-able 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 of 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.

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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.

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University Teaching and Learning

Evaluating the Department of Agricultural Extension, College of Agriculture, University of Baghdad

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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.

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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.

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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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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 $\geq$ 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.

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

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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

else." "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.

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Professional Development

Competencies and Experiences Needed by Entry Level International Agricultural Development Practitioners

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Introduction

Competency-based metrics are often used as frameworks to provide structure for developing employees and meeting organizational goals (Martone, 2003). Stone (1997) posited competencies could be used to guide the training and development of extension practitioners. Training of new extension practitioners may happen as part of an undergraduate degree. In looking at the undergraduate experience, the National Research Council (2009) recognized a need to expose agriculture students to international perspectives in preparation for their future careers. Similarly, Shinn, Wingenbach, Briers, Lindner, & Baker (2009) indicated the importance of international agricultural and extension education at the university in order to produce graduates that effectively meet the needs of the stakeholders. Although the literature suggests college graduates need to be prepared for a global workforce, it fails to offer specificity as to the competencies and experiences needed by entry-level international agricultural development practitioners.

Purpose and Objectives

The purpose of this theory-building study was to determine what entry level international agricultural extension practitioners need in order to successfully work in an international setting. The specific objectives were:

1. Identify global competencies that entry-level international agricultural development practitioners should obtain before entering the profession.

2. Identify global experiences that entry-level international agricultural development practitioners should experience before entering the profession.

Methods

This study used a modified Delphi method due to its acceptance and ability to identify a consensus from a panel of experts (Dalkey, 1969; Helmer, 1966; Stufflebeam, McCormick,

Binkerhoff, & Nelson, 1985). Three rounds of data collection were utilized. Expert panelists were selected based on: (a) current involvement in international agricultural extension and (b) experience working with entry-level international agricultural practitioners. The snowball sampling method was used to help identify the participants (Goodman, 1961). A total of 22 potential panelists were invited to participate in the study. A total of 13 experts representing non-governmental organizations, government organizations, and academic institutions from around the world agreed to participate.

An online survey tool called Qualtrics was used to collect data for this study. Email notifications were sent to each participant and included a link to the questionnaire. The timing of the pre-notice, notice, and follow-up emails were constructed based on Dillman, Smyth, and Christian (2009) Tailored Design Method.

Results

In *Round 1*, the open–ended question used to construct the lists was "What competencies and experiences would college students' need before they graduate to prepare them to work in the field as an entry–level international agricultural development practitioner?" Panelists suggested 42 potential competencies and 18 potential experiences. In *Round 2*, panelists suggested retaining 31 competencies. Eleven competencies were dropped for failing to have two-thirds agreement. Panelists also suggested retaining eight experiences. In *Round 3,* panelists came to agreement on 27 competencies and 7 experiences. Of the final 27 competencies on the list, 13 had 100% agreement: (a) *Explain how natural resource management affects agricultural development,* (b) *Explain global agricultural development issues,* (c) *Apply program planning techniques,* (d) *Work well with practitioners, researchers, and policy-makers*, (e) *Discuss how socio-cultural issues affect agricultural development*, (f) *Discuss the principles of a needs assessment,* (g) *Demonstrate communication skills*, (h) *Work well with practitioners, researchers, and policy-makers,* (i) *Exhibit good listening skills,* (j) *Exhibit flexibility,* (k) *Discuss the principles of a needs assessment,* (l) *Appreciate and understand cultural differences,* and (m) *Exhibit critical thinking skills.* The final seven experiences were: (a) *Have enjoyed living in a different cultural setting*, (b) *Successfully work within a different cultural setting,* (c) *Successfully complete a field experience in a developing country*, (d) *Complete a development course*, (e) *Interact in person with people of different cultures outside the United States*, (f) *Work with people involved in managing a project*, and (g) *Work with people involved in evaluating a project*.

Recommendations and Implications

The findings suggest that job preparedness consists of some combination of competency development and experiences. Those charged with preparing the next generation of entry-level international agricultural development practitioners should use this list to develop appropriate educational programs and experiences. The extensive list of competencies and experiences produced in this study reaffirms Shinn et al.'s (2009) call for universities to produce graduates that meet the needs of stakeholders. The findings of this study also fit into the knowledge domains developed for doctoral graduates in the field (Shinn et al., 2009). Future research needs to be conducted to determine the extent that the identified competencies and experiences are being addressed in current agricultural development training programs.

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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.

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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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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.

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Community Development

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.

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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.

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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.

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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.

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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.

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College of Agriculture Students' Perceptions of International Education Experiences

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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.

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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.

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

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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 TLO 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 TLO will challenge many of my assumptions and beliefs (M=3.44; SD=.749); All students should participate in a TLO 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.

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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 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 non-governmental 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 non-governmental 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.

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Re-establishing Sustainable Agricultural Systems in Afghanistan: Assessing Extension Efforts by U.S. Agricultural Support Personnel

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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. personal 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.

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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.

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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.

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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.

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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.

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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 agriculrual 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.

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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.

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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.

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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.

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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.

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Agricultural Communication & Technology

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.

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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 myriads 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 25.5^0 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 $n \geq 30$ (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.

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

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Keywords: Learning Styles, Technology Acceptance, Africa, Students, eLearning

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.

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Extension Methods

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

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Keywords: Agricultural Extension Model, Community Self-Reliance, Thailand

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:

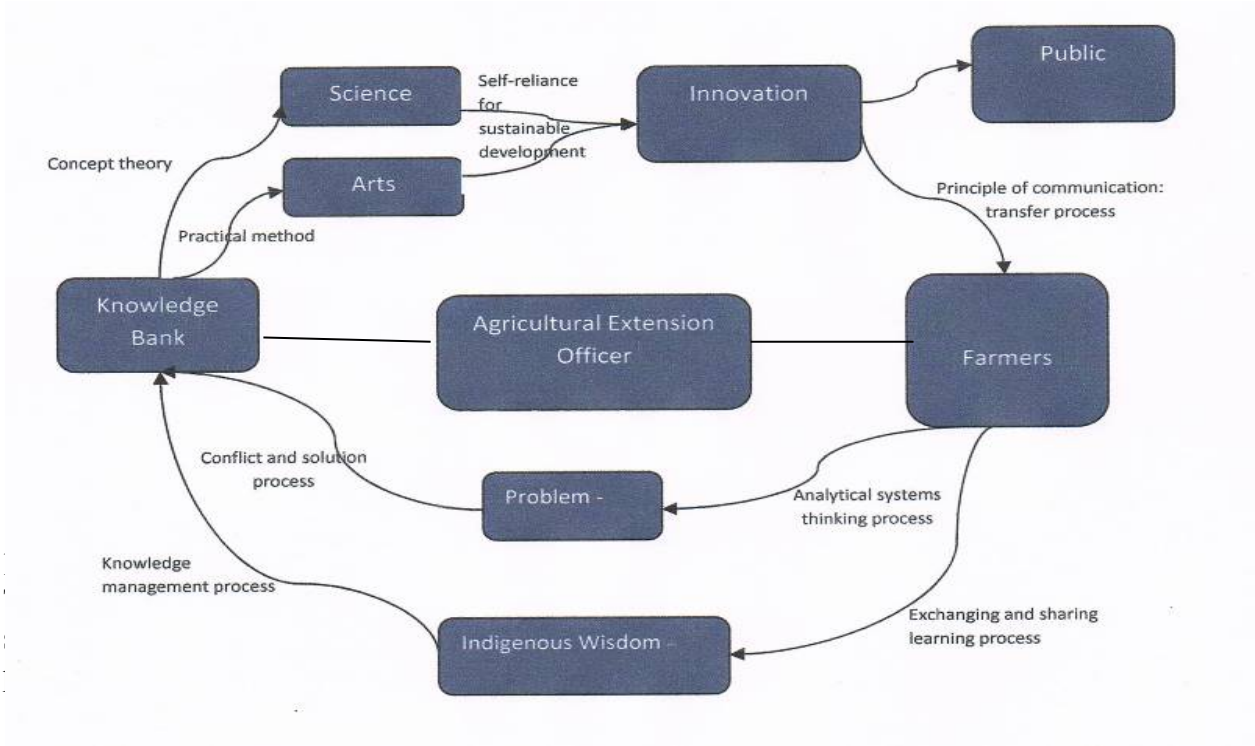

Figure 1. Dissemination of knowledge by the community and extension agents

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.

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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 immanent 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.

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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.

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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.

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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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Keywords: Adoption, Agriculture, Distance Learning, Tertiary Education

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, Donnermeyer, & 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.

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Technology Preferences of Belizean Extension Officers

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Keywords: Extension Officers, Professional Development, Technology Preferences, Technology Acceptance Model, Theory of Reasoned Action

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 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 task 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 to 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).

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Understanding Informational Needs of Mexican Lending Institutions for Improving Loan Distribution

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Keywords: Dissemination of Information, Lending Institutions, Diffusion of Innovations, Ministry of Agriculture

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).

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Study Abroad/University Teaching & Learning

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 indentify 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.

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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.

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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.

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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, preflection/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 preflection 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 preflection 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.

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Extension Reform & Strategies

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.

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

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Keywords: Climate Change, Agriculture, Agricultural Extension, Impact and Coping Measures

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 ofiicers 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.

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

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Keywords: NGO–Government Collaboration, Cross-Sector Partnership, Incentives, Barriers, Contexts, Developing Countries, Vietnam

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 & Opuku-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.

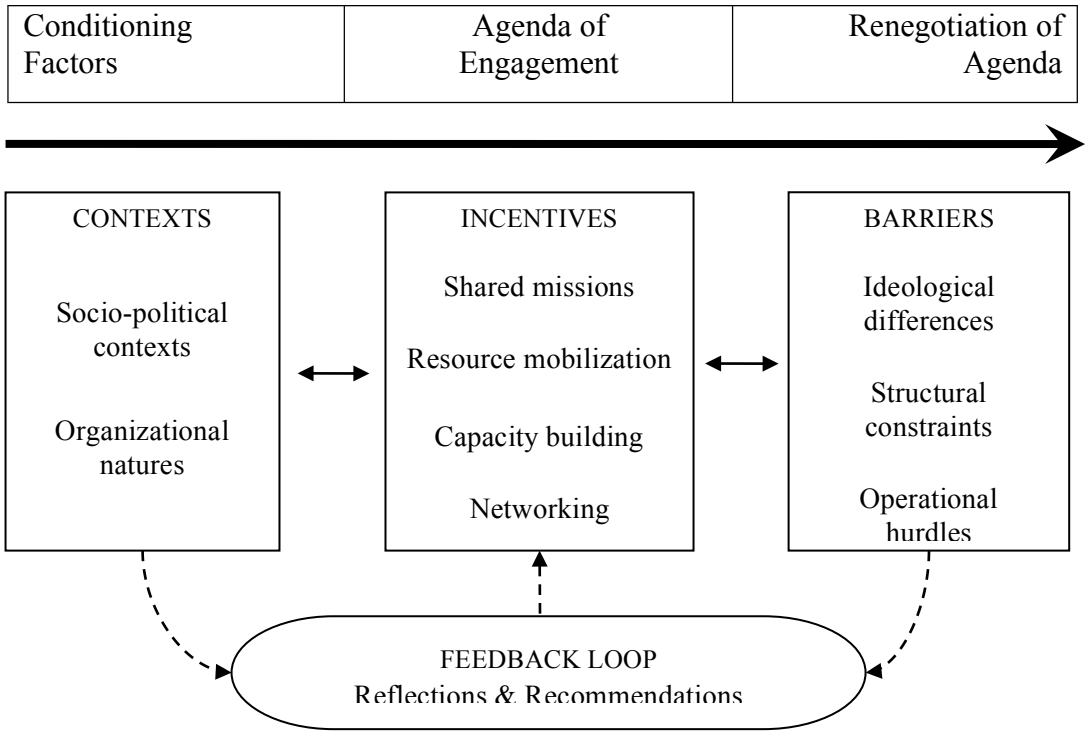

Figure 1. A Dynamic Continuum of Partnership Development.

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.

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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.

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Extension Initiatives in Latin America

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 (Zakrzevski, 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.

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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.

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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.

	Plant 1. Municipal (n=11)		Plant 2. Private (n=9)		Plant 3. TIF (n=189)		ANOVA	
	mean	s.d.	mean	s.d.	mean	s.d.	F-ratio	p-value
Overall Climate	5.16	.63	5.94	.19	5.53	.71	3.164	.047*
Work Unit Commitment	5.62	.45	5.65	.39	5.51	.77	.226	.798
• WUC1	5.80	.39	5.64	.83	5.70	1.01	.074	.928
• WUC2	5.86	.58	6.13	.58	5.93	.92	.254	.776
• WUC3	5.13	1.57	5.67	2.02	5.13	1.80	.389	.678
• Supportive Communication	5.11	1.04	4.51	1.77	4.33	1.49	1.611	.202
Personal Understanding	5.00	.63	4.92	.94	5.11	.92	.271	.763
• Roll in food safety	4.04	1.25	3.67	.56	4.14	1.38	.539	.584
• Task Knowledge	5.96	.78	6.17	1.44	6.07	1.18	.083	.920
Food Safety Training	4.79	1.38	6.28	.58	5.59	1.28	3.703	.026*
Management Commitment	5.23	.66	6.43	.44	5.81	.88	5.277	.006*
• MGTC1 – Actions	5.67	.71	6.44	.56	5.70	1.07	2.275	.105
• MGTC2 – Leadership Shown	5.81	.52	6.52	.78	5.97	1.17	1.197	.305
• MGTC3 – Resource Commitment	4.38	1.25	6.36	.53	5.44	1.23	7.255	.001*
Infrastructure	4.83	1.12	5.98	.73	5.30	1.25	2.235	.111
• Food Safety System Support	4.59	1.59	6.11	.74	5.50	1.37	3.356	.038*
• GMP's 1	5.54	.72	6.11	.89	5.36	1.41	1.386	.254
• GMP's 2	4.69	1.31	5.81	1.28	5.17	1.50	1.489	.229
Behavior	4.89	.87	6.26	.38	5.64	.91	6.461	.002*
• Worker Negative	4.50	.93	6.06	.98	5.46	1.46	3.475	.033*
• Various Positive	5.08	1.02	6.36	.52	5.74	1.00	4.451	.013*

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.

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Gender Issues and the Needs for Extension Services in the Implementation of Reward for Environmental Services Program

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Introduction

Gender equity and equality are important goals when providing extension services, such as in the Rewards for Environmental Services (RES) program of environmental management. The RES program is "dedicated to developing practical environmental services schemes that can be adapted to work in different countries with different circumstances" (http://rupes.worldagroforestry.org/). To improve environmental sustainability and improve rural livelihood in Singkarak—West Sumatra, a scheme of RES has been implemented since the early 2000s. Farmers, through local institutions, have made a contract with the sponsor of RES and play a role as providers of environmental services. For services provided, the farmers receive reward in accordance with achievement of measurable conservation as listed in the contract between the provider and the sponsor of RES. This program could contribute a more positive impact on society if it were managed in a way that involved all members of society in a fair and equitable role. However, there remain gender gaps in some aspects of the program. The purpose of this study was to analyze gender issues and how they relate to the role of extension services in promoting a better environment.

Research Methodology

The study was conducted in Singkarak—West Sumatra Indonesia. The subjects of the study were farmers' groups who engage in business cooperation with buyers of environmental services through the planting of crops on marginal land near the hills around Singkarak. Data were obtained through a short survey to 33 service providers. In addition to the survey method, in-depth interviews, focused-group discussion, and field observation were used to gather facts and information. Data were analysed Harvard Gender Framework, Moser, and Gender Analysis Pathway.

Results

Research results showed that that there were still gender gaps in the implementation of rewards for environmental services, especially in the planning and evaluation phases. Also, involvement of women in the decision-making process of the sustainability of reward for environmental services was low. On the other hand, women played more dominant roles in the domestic sphere, with influence over the maintenance of heritage, dietary adjustments, and

children's school needs. In the public domain, there were gender gaps in productive economic activities and in social activities. In terms of division of labor, there is a close relationship between the values and norms adopted by society, stereotypes about the "place" of women and men based on physical conditions, and priorities in allocating the reward from environmental services. There were limited numbers of extension officers available, and rural advisory services haddifficulties in providing gender sensitive program, developing innovative extension approaches, and networking. Gender sensitive extension and rural advisory services are needed for a better RES. Improving extension officers' facilitation skills is also needed to support farmers in managing environment.

Conclusions

There were gender gaps in the planning and evaluation phases in implementation of RES and extension services in practice. The more sensitive RES is, the better the condition of farmers will be.

Recommendations

The government, together with the private sector and civil society, needs to strengthen extension institutions in order to provide better extension services and to improve quality of life of the small farmers.

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TEACH: Modernizing Extension and Advisory Services to Feed the Future

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Keywords: Extension, Teaching and Learning, Feed-the-Future

Introduction and Need

Extension systems in Africa, the Middle East, Eastern Europe and Central America need to undergo significant change if they are to serve the food security and economic development needs of resource-poor men and women farmers. New approaches must draw on the full breadth of resources in public and private organizations and utilize available advanced information and communication technologies. *Modernizing Extension and Advisory Services* (MEAS) is a project funded by the U.S. Agency for International Development (USAID) that seeks to promote and support such endeavors.

The MEAS project includes three components.

1. TEACH – disseminating modern approaches to Extension; user-friendly materials and training programs.
2. LEARN – documenting good practices; success stories, case studies, evaluations, pilot projects and action research.
3. APPLY – designing Extension and advisory services; assistance to selected host countryorganizations for reform.

This poster addresses Component 1: TEACH, which is designed to deploy immediate, high impact Extension and advisory services training modules and technical papers and develop a system to sustain their continuous creation and use.

How it Works

In Year One (2010–2011), the focus included developing training modules, teaching those training modules, and developing technical notes/good practice papers. While the ultimate beneficiaries of the components are *producers* in selected countries, Component 1 is designed to build/re-build a viable Extension system to deliver knowledge and skills to *field agents* throughout the Extension system. Faculty from partners in the MEAS project were tasked with

writing modules and technical papers on topics identified as high priority for technical expertise in developing and enhancing Extension and in delivering content (teaching).

Results

A Call for Papers was issued in January 2011. During Year 1, the following are 13 examples of the 18 modules and technical papers that were prepared for immediate use.

- Extension Administration – From Vision to Operation
- Financial Management
- Group Management
- Innovation
- Working with Community
- Developing an Extension Program
- Needs Assessment
- Presentation and Evaluation Processes
- Preparing Educational Materials
- Teaching and Learning
- Women and Gender Issues
- Policy Issues
- Institutional Analysis

Conclusions/Implications

As MEAS becomes more demand driven, a new approach to assigning technical notes and developing and delivering training materials will be pursued. Continuous input from potential host countries will be utilized to identify needed content, and reviewers in host countries will be engaged in testing and evaluating materials. Additional modules and papers will be prepared in Years 2–5 of the project for use in host countries.

Recommendations for Practice

The overall objective of the MEAS project is to continue to define and disseminate good practice strategies and approaches to establishing sustainable rural extension and advisory systems. In subsequent years, content for training materials will emanate from information gleaned from the work in Components 2 and 3, namely case studies, lessons learned and action research.

Cost/Resources

The MEAS project is funded by USAID. The initial five-year project is funded at approximately US$5 million, with extensive "match" from partner institutions and potential investment from USAID missions in selected countries.

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Two Continents, Two Universities, One Vision: Collaborating to Deliver a MSc Program in Agriculture

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Keywords: Africa, Faculty Capacity, Higher Education, Mozambique

Introduction/Need for Innovation

Faculty capacity is a serious constraint crippling many African universities (Sawyerr, 2004). Policies creating significant growth in school enrollments have resulted in African youth clamoring for post-secondary education. However, many universities are unable to keep pace with demand for new faculty (NASULGC, 2007). Recognizing the problem, NASULGC issued its *Africa U.S. Higher Education Collaboration Initiative* describing an urgent need the continent faces to increase faculty capacity to serve its predominantly youthful populations. NASULGC called on U.S. institutions to collaborate with African universities to assist in mitigating this need.

Faculties of Agriculture are not immune to this phenomenon. Accordingly, Eduardo Mondlane University, Mozambique and Oklahoma State University, USA are collaborating to provide a MSc program in agriculture. The program's primary objectives include (a) preparing MSc degree graduates to serve as lecturers at public universities, and (b) preparing a portion of graduates to pursue terminal degrees.

How the Innovative Program Works

The MSc program is non-thesis and spans two years. Enrollment includes 33 students specializing in one of three areas: Extension education, agricultural economics, or plant protection. Each specialization requires 12 courses. Students are also required to complete a creative or action research component. Faculty of Eduardo Mondlane University are teaching eight courses and Oklahoma State University faculty teach the other four courses in each strand. All courses are taught face-to-face.

This program was first proposed by Mozambique's Minister of Education and Culture when he visited Oklahoma State. The program is funded by Mozambique's Government. The Ministry's Scholarship Institute is providing bursaries (scholarships) for the students. Eduardo Mondlane faculty teach in English primarily, so students must be somewhat proficient in English. (Portuguese is the national language.) Pending future funding, officials are hopeful the MSc program will extend to additional cohorts.

Results to Date

The initial course serving the Extension education strand, i.e., methods of technological change, was taught during February and March of 2011. A course on agricultural economics was taught in July 2011, and a course on principles of pedagogy and andragogy will be taught during November 2011. The courses provided by the Oklahoma State faculty are being taught as "modules," i.e., 44 hours of instruction offered through 12 class sessions in three weeks. Eduardo Mondlane faculty are teaching their courses spread over the institution's usual academic term.

Recommendations/Implications for Practice

The poster presentation will explore challenges faced by this collaboration: (a) clarifying the program's
objectives and procedures; (b) negotiating with "upstream" and "downstream" actors; (c) dealing with funding delays; (d) facilitating project promotion and faculty recruitment; (e) managing the U.S. institution's concerns regarding international efforts in an era of constrained resources; and (f) addressing transparent as well as "hidden" agendas (Christiansen, 2000).

Cost/Resources

Oklahoma State University contracted with its Mozambican counterpart to deliver courses for $9,500 USD
each, including faculty airfare, per diem in Mozambique, faculty remuneration, visas, administrative overhead, and miscellaneous expenses. Eduardo Mondlane provides lodging for the visiting faculty member and in-country transport. Oklahoma State faculty negotiate absences and how remuneration may be used with their administrative heads.

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Popcorn and a Movie—Opening Diversity Conversations Across the State

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Keywords: Diversity Education, Videoconferencing, Extension Professional Development

Introduction

Cooperative Extension educators must develop the skills and abilities to work effectively with an increasingly diverse population. Building the cultural competencies of extension educators has become an important goal and a timely focus for professional development.

Reduced budgets and reductions in staff are challenging the ability to provide professional development in the traditional face-to-face delivery method (Conklin, Hook, Kelbaugh & Nieto, 2002). Online conferencing systems that allow voice-over-IP provide new ways to meet professional development needs for audiences over large geographic areas at less cost (Murphrey & Coppernoll, 2006). A study by Senyurecki, Dworkin, and Dickinson (2006) found that 95% of Extension educators were "very interested" or "interested" in professional development opportunities available on-line versus attending a traditional class or workshop.

Diversity training can help extension educators become more aware of unintentional biased behaviors and beliefs that may affect their interactions with others, thus helping them to work more effectively with people of different backgrounds and experiences. Li, Dianmond, Chang, Primm, and Lu (2008) found that viewing a documentary film that deals with issues of diversity was more effective than lectures or small group discussions. They suggest that films make a difficult topic safer by objectifying it, and that "Films also allow viewers to experience emotions vicariously, thus allowing them to acknowledge and process such emotions in a less personally threatening environment"(p. 292). Lee, Kane, and Drane (2009) also found film to be a valuable media form that can positively contribute to diversity education.

Diversity in Two-Part Harmony

The video/discussion series was conducted over videoconferencing during the noon hour. Part I consisted of watching a diversity-focused non-feature documentary film in the comfort of participants' own local setting. Part II consisted of an open discussion of the diversity topic that was presented/experienced in film. Films ranged from 25 to 45 minutes. Sessions ranged from 1 to 1½ hours.

To allow for effective conversations, participation was limited to nine county sites for each film. Bridge reservations were based on a first-come, first-served basis with a minimum number of participants required for each county site. Participants were encouraged to engage in open discussions with no right or wrong responses. A total of 112 participants were registered for the four sessions. Ninety-eight completed and returned a 5-question evaluation using a Likert-type scale.

Results, Conclusions & Implications

Ninety-five percent (95%) of participants "strongly agreed" or "agreed" that viewing the video increased their awareness of the diversity topic, and that the discussion following the video helped them to consider other perspectives on the topic. Eighty-five percent (85%) "strongly agreed" or "agreed" that as a result of the session they would approach the topic differently. And

100% "strongly agreed" or "agreed" that a video followed by an open discussion is a good strategy for diversity education.

Open discussion of diversity-focused documentary films using videoconferencing can create a valuable professional development experience with limited cost in time and finances for participants. This program is also recommended for use in agricultural education classrooms.

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Gender Issues and Policy Reforms Needed for the Agricultural Development in Developing Countries

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Keywords: Empowering Women Farmers, Agricultural Development, Development Policy Reforms

Introduction

Women play a significant role in agricultural production in many developing countries. Women contribute to 50–75% of the labor for food production in sub-Saharan Africa. In Asia this ranges from 30–65% (FAO, 2011a). However, their contribution to food production is underestimated when planning agricultural development policies. The perpetuation of this undesirable situation is closely associated with women's limited access to education, resources, civic engagement and decision making. Two thirds of the women of the world are illiterate. Of them, 98% live in developing countries (SIL International, 2001). Male-dominated governments have not made proactive reforms to empower women in most of the developing countries. Cultural traditions are male-biased and not favorable for granting women's access to education, resources and civic engagement. Lack of favorable policy environment for women to reach their full potential as productive citizens has hindered the sustainable agricultural development

process in many countries. Agriculture can be the development engine for achieving food security and reducing poverty (FAO, 2011b). This is possible only if women are empowered and ensure their access to education, resources and civic engagement. This poster is based on a review of literature. It critically reviews the current situation of policies limiting women's access to education, resources, and civic engagement and presents a framework for needed policy reforms to achieve sustainable agricultural development in developing countries.

Conceptual Framework

Women's access to education is critical for achieving sustainable development. Educating women means they will have the access to written information about agriculture, value addition, the market, health and the rest of the world. This access to information can contribute to life-long self learning for women. As a result of education, women will be able to make informed decisions for themselves, their children, their families and communities. Education will empower women for active civic engagement leading to advocate for their rights. Educated women can break the vicious cycle of perpetuating generational illiteracy because they know the value of education and are more attuned to the benefits of educating their children. Women's limited access to resources, including land and credit, is a major constraint for agricultural development in many countries. Without land ownership, it is difficult for women farmers to secure credit and invest for agricultural development. Cultural taboos and unfavorable policies prevent women's active civic engagement and limit their responsibilities to raising children, farming, and household chores around the clock. Breaking this situation is a must for achieving a sustainable development. However, it is a power transferring process in social, cultural, and political context and needs development donor interventions for positive changes.

Conclusions and Recommendations

Women's access to education and resources is key to achieving sustainable development in many developing countries. International development donor agencies should use their funds as incentives for encouraging national governments to adopt proactive policy reforms granting women's access to education, resources and civic engagement for achieving a sustainable agricultural development.

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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

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

Theoretical Framework

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 giving 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 firstborn 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) and Kock (2010) suggest 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 timeframe 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.

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Promoting Value Chain Partnerships in Agriculture: Experiences from a Midwestern State University

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Keywords: Value Chain Partnerships, Midwestern State University Extension, Educational Resource, Value Chain Working Groups

Introduction

Understanding the concept of value chains is becoming more relevant in agriculture than ever before. They add value to agricultural products, thus helping meet the market demands of different stakeholders. Land-grant universities in the United States are promoting sustainable value chain agriculture. Iowa State University Extension has been playing a pivotal role in fostering value chain partnerships in agriculture among different groups in the state.

Purpose

The purpose of this poster is to share the success stories of two offices of this Midwestern State University in promoting sustainable value chains in agriculture. The poster will present information on the activities and efforts that are being undertaken by these two offices.

Methodology

The Value Added Agriculture Program (VAAP) (office under Iowa State University Extension) and the Leopold Center for Sustainable Agriculture (office under the College of Agriculture) promote sustainable value chain agriculture in this state. VAAP developed a web-resource named Agricultural Marketing Resource Center (www.agmrc.org) with funding from the USDA—Rural Development. This resource provides critical information to value-chain participants through publications related to commodities & products, markets & industries, business development, and renewable energy. This resource also helps promote a local foods marketing tool called Market Maker Iowa, used for sourcing as well as market research. Open access to this web resource provides transparency of information from producers all the way to the consumers. The Leopold Center for Sustainable Agriculture provides leadership for the Value Chain Partnerships (VCP) project, which is a state-based network for agriculture working groups. VAAP serves as a key partner in this project and offers leadership in several of the working groups in VCP, which are organized as communities of practice that identify challenges in food and agriculture, promote learning and implement solutions.

Results

The number of visitors on the web-resource of the VAAP has been increasing, indicating people are utilizing this resource. Different working groups in the VCP project are focusing on the different aspects related to agriculture, thus promoting sustainability. Also, the funding VCP has been receiving from different sources since its establishment in 2002 has been on the rise, indicating the utility of this project.

Implications

The information shared through this poster could serve as a guide for university and extension personnel worldwide, especially in developing countries, and for other stakeholders interested in promoting sustainable value chain partnerships in agriculture in their areas. Also, new collaborative opportunities may open up internationally as a result of sharing the information presented in this poster.

Assessing Youth Leadership Lifeskills Development of Female Youth Within the Nampula, Mozambique Farmer Youth Club

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Keywords: Youth Leadership Life Skills Development, Leadership, Female, Farmer Youth Club

Introduction

The need for leadership development for community and agricultural leaders has long been recognized (Diem & Nikola, 2005); however, youth leadership enrichment programs are not always readily available to all, and it is oftentimes the disadvantaged youth who are not served (Hobbs, 1999). Projects such as Farmer-to-Farmer are made possible through the joint efforts of government and non-profit groups and are making strides in agricultural leadership development. While programs such as Farmer Youth Clubs are new in Nampula, Mozambique, efforts are being made to reach youth audiences and prepare them for future leadership roles.

The purpose of this study is to evaluate the leadership and life skill development of female youth in the Farmer Youth Club located in Nampula, Mozambique as a result of Farmer Youth Club training (Seevers, Dormody & Clason, 1995). The literature shows a significant increase in the in the role of Zimbabwean women in agriculture (Mudukuti, & Miller, 2002). Forty percent of households in communal areas of Zimbabwe are female headed. Men have left their rural homes in search of jobs in urban areas (Zwart, 1990). This new trend has been called the "feminization of agriculture" and is most notable in Sub-Saharan Africa (World Bank, 1996).

The culture and method of procedure of African organizations tend to reflect male cultural norms, with men being directed toward political considerations and women toward social considerations (International Fund for Agricultural Development, 2010). However, additional research shows that because African women participate in church-related activities, income-generating groups, and self-help associations, they frequently had more experience than men in creating and sustaining associations (Tripp, 2001). This strongly supports the need for additional leadership development programs and research for female audiences.

Female youth ages 12–24 will participate in a training series focused on principles of personal leadership development, organizational development, group dynamics, business management, and income generation within Farmer Groups. Data collection will occur at the end of the training series using the Youth Leadership and Life Skills Development instrument developed by Seevers, Dormody and Clason (1999). The research format will depend heavily on the number of participants in the study. The sample will be fifteen (n = 15) female agricultural leaders. However, a qualitative study would require a minimum of twelve participants.

Recommendations for Research

A number of research articles have been published on the topic of youth and leadership, and one such study was even conducted with a global audience utilizing the YLLSD instrument (Navarro & Ricketts, 2008). However, little research has been conducted concentrating on an all-female youth audience such as the one from Nampula, Mozambique participating in Farmer Youth Clubs. This area of Sub-Saharan Africa has its own unique need for leadership development among female citizens and therefore deserves further research.

Cost/Resources

CNFA is a non-partisan, not-for-profit organization that utilizes private enterprise to stimulate global economic growth. Through the education of trained volunteers, CNFA continues to link markets, education and people. CNFA will serve as the underwriter for this unique research endeavor in Nampula, Africa.

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International Benchmarks for Student Achievement in Science: Developing and Testing a Contextually Rich Experientially Based Curriculum

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Keywords: Curriculum Development, International Benchmarks, Student Achievement, Professional Development, Experiential Learning

Introduction

The *Trends in International Mathematics and Science Study* (TIMSS, 2008) highlights the need for innovative curriculum to assist teachers in reaching international benchmarks for student achievement in science. Factors associated with achieving this goal include: Resources available to teachers and students, books in the home, parents' education, access to computer, students' attitudes toward science, self-efficacy, attendance in school, and working conditions. The results presented in this abstract looks at resources available to teachers and students. According to the *TIMMS* report, middle school students internationally are taught science primarily through lecture and problem solving activities. Testing was the primary method of authenticating student achievement. The Partnership for Environmental Education and Rural Health (n.d.) has developed a contextually-rich (applications of the scientific method, use of animals in research and education, e.g.) experientially-based program that integrates scientific concepts across the curriculum.

Purpose and Methods

The purpose of this poster is to visually depict the Partnership for Environmental Education and Rural Health's (PEER) middle school program designed to enhance health science education (grounding in an agricultural context) in secondary schools. This poster will also depict professional development activities undertaken by participating teachers to ensure quality instruction.

Data from for this poster was gathered from teachers (N=263) participating in one of ten professional development workshops designed both to introduce teachers to the curriculum and to test the curriculum.

Results

Approximately 75% of the teachers participating in the workshops taught middle school science courses. The number one reason for attending the workshop was to enhance their competence and improve their teaching abilities (33.8%). The number two reason was for professional staff development (32.3%). Almost 50% of the participants did not have prior knowledge of the PEER curricular materials and had no plans for doing such. Approximately 20% of the participants had heard of the materials and made the decision to try using them in the future. Strengths of the curriculum as reported by the teachers included: Aligned with standard, topics covered, and integratability of materials. Teachers noted that they could easily incorporate the curriculum into their classrooms as is or with little change, that the quality of materials was high, and that the curriculum could be used to improve student learning.

Educational Importance and Implications

This study is pertinent given the need for high quality and contextually rich curricula that can be used to help students reach international benchmarks for student achievement in science and for improved teacher professional development to help teachers incorporate needed changes to reach international benchmarks. The results of this study indicate that the curriculum developed through the PEER project will be well-received by teachers and has potential to improve student achievement.

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Tree Planting in Uganda: A Way to Teach Sustainable Agricultural Practices while Reducing the Poverty of School Dropouts

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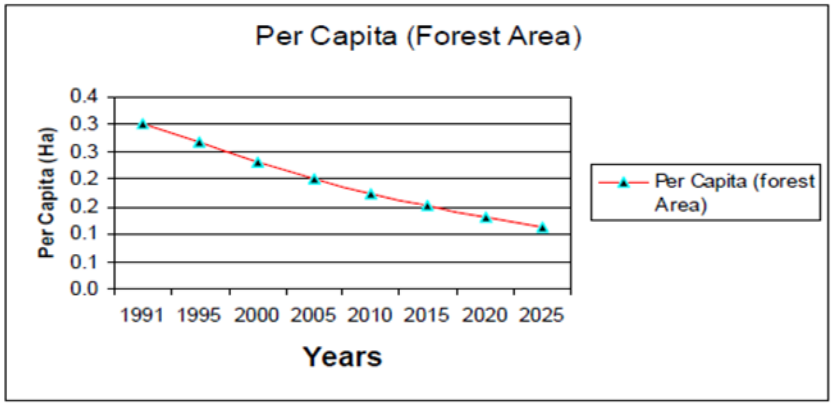
Keywords: Poverty, School Dropouts, Tree Planting

Introduction/Need for Innovation

Uganda's forests are being destroyed at an alarming rate: on average 88,150 ha. or 1.86% annually. Between 1990 and 2010, Uganda lost 37.1% of its forest cover, around 1,763,000 ha. (Mongabay, n.d.). Increased demand for timber, charcoal and firewood has worsened this; 99% of the population uses firewood or charcoal for fuel (Womakuyu, 2010). Uganda's population growth rate is among the world's highest, with a fertility rate of 6.9, and its current population of ~34.5 million (69.9% ≤ 24) is estimated to reach 103.4 million by 2050 (Oluka, 2011).

Per Capita Forest Area in Uganda



Source: Forest Department, 2003

Figure 1. Reduction of forest area in Uganda over time

The people of Kamuli are mainly subsistence farmers. Kamuli is among the top 10 charcoal producers in Uganda (Komuhangi, n.d.). Charcoal production is done mainly by youth who view it as easier than growing crops to earn a living. This behavior has increased deforestation and land degradation. As the demand for charcoal has gone up, trees have become more scarce. The price of charcoal in Kampala, Uganda's capital, increased from 30,000 Uganda shillings (~$11 USD) to 80,000 (~$29 USD) in the month of August 2011 alone (Nantaba, 2011). According to Uganda's National Forestry Authority (Lutaya, 2011), the price may reach 120,000 shillings (~$44 USD) by the end of December 2011.

How the Program Works

The innovation targets youth who are mainly school dropouts. They are organized into groups and set up nurseries to raise seedlings for planting and sale. All group members are encouraged to establish their own tree plantations. Those without enough land are advised to plant two lines of trees along the boundaries of their property to establish boundary markers. They can harvest the trees at maturity.

Results/Conclusions/Implications

Approximately 15,000 pine seedlings and 20,000 *eucalyptus grandis* trees have been planted. About 5,000 clones of eucalyptus were planted in 2011. Eucalyptus trees are harvested from two years onward and used for firewood, fencing, electricity poles and timber. Pine trees have not yet yielded any economic benefits because of the time they require to mature. Pine trees are considered a long-term investment, but eucalyptus trees can be short or midterm depending on the intended use. Twenty youth and four adults have participated in the project to date. The average gross income earned annually by each participant has been about 3,400,000 shillings (~ $1247 USD) of which ~75% is profit.

Challenges encountered**:**

- The need for quick returns, while trees take a long time to mature.
- Some participants lack enough land on which to plant trees.
- Termites, which destroy eucalyptus trees in particular.
- Prolonged droughts.

The poster presentation will explain how tree planting can be used to model sustainable agricultural practices and alleviate poverty in rural areas through at least three ways:

- By providing employment for youth, especially school dropouts.
- By encouraging conservation of soil and water, which is essential for growth of food and cash crops.
- By reducing environmental degradation and mitigating global warming.

Resources

- Pine seedlings and eucalyptus clones, because they are not grown easily
- Ground rent
- Pesticides and growth hormones

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Free and Low Cost eLearning Tools to Meet the Needs of International Agricultural Extension and Education Professionals

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Keywords: eLearning, Technology, Distance Education, International Reach, Collaboration

Abstract

Collaboration and capacity building are critical elements of international development, and advancements in the area of eLearning are creating opportunities to facilitate these activities. In Ireland, adults are using new technologies such as the Internet, eLearning, and CDs to utilize higher education opportunities that were previously not available (Phelan & Mulhall, 2007). Mass media technology such as Internet, radio, and television have been used with success to disseminate knowledge in countries like India that have low extension worker-to-farmer ratios (Prathap & Ponnusamy, 2006). As a result of "relatively cost-free" extension training programs, Albanian farmers increased production and quality, showing that low-cost technology can be just as effective as high-cost solutions (Androulidakis, Freeman, Peqini, Agolli, & Korra, 2002, p. 50). Information and communication technologies (ICTs) are being used in developing countries to help them meet and achieve the needs of the citizens and are seen as a tool to help strengthen countries politically, socially, and economically (Bada & Madon, 2006). In western China, Teachers' Learning Resource Centers (TLRCs) were set up to measure the rural teachers' needs. The TLRCs allowed many learning opportunities to take place and increased participation in the learning process (Robinson, 2008). However, individuals working in international agricultural extension do not always have access to the resources to purchase innovative eLearning tools. The perception is often held that eLearning tools are too expensive or too difficult to deploy and use effectively. However, free social networking technologies, such as Weblogs, Wiki, Flickr, and YackPack, allow students the flexibility and opportunity to engage in learning outside of the face-to-face environment (Baird & Fisher, 2005). This poster will provide a pictorial overview of free and low-cost tools that have been proven *useful*, *easy to use*, and *accessible*. Tool categories include: Online communications (e.g., video conferencing and whiteboards), collaboration (e.g., document sharing and editing), scheduling, presentation, and opinion collection (e.g., polls and surveys). Individuals involved in international agricultural extension need tools to facilitate collaboration and encourage interaction and learning. The tools shared in this poster have the potential to meet that need by facilitating the design and delivery of engaging eLearning.

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An Overview of Agricultural Extension Service System: A Comparative Analysis between Malaysia and the United States

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Keywords: Agricultural Extension, Agricultural Extension Service System, Comparative Analysis, Cooperative Extension Service Systems, Technology Transfer.

Introduction

Agricultural extension service is crucial in supporting and advancing the agriculture sector. The responsiveness of the agricultural extension service system to address the needs in a country is influenced by many factors, among them are the historical background of how the agriculture sector and its agricultural extension developed, the purpose and focus of agricultural extension, the characteristics of its farming population and the roles of education and research in supporting the agricultural extension service and the clients. Malaysia, a developing country, is dependent on agriculture as its third engine of growth for the economy. Contrarily, agriculture is the major industry in the United States. This developed country is now geared toward building its capacity, technical assistance, and food assistance program to meet the needs and issues of the global agriculture and food securities. The different positioning of the agriculture sector in both countries gives an initial idea how they approach their agricultural extension service. Therefore, this comparative analysis of the agricultural extension service system between Malaysia and the United States will help to provide an overview of how their agricultural extension service systems differ.

Purpose and Objectives

The purpose of this poster is to present the findings of a comparative analysis of the agricultural extension service system in Malaysia versus in the United States. This poster will present an overview of information regarding the differences in the agricultural extension service systems of the two countries.

Methodology

A comparative analysis was employed to analyze the agricultural extension service systems in Malaysia and the United States. A list of important features of agricultural extension services, for comparison, was formulated using the relevant literature and validated through a discussion with an expert in agricultural extension. Relevant documents such as national policies; blueprint of the national plan, relevant acts, books and journal articles about the agricultural extension services of the two countries were used to retrieve information for the comparative analysis.

Results

Among the major differences in the agricultural extension service system in Malaysia versus in the United States are: (a) Agricultural Extension Service is an essential element for accelerating agricultural and rural development in Malaysia, while in the United States it is the element that accelerates agricultural research, extension and education; (b) The conceptual model used in the Agricultural Extension Service in Malaysia is technology transfer; on the other hand, the United States applies three conceptual models in combination—technology transfer, problem solving, imparting knowledge—in its agricultural extension service to form the Cooperative Extension Service; (c) The provision of Agricultural Extension Service in Malaysia is the responsibility of agricultural and developmental related agencies but not of the public universities. On the other hand, in the United States Cooperative Extension Service, extension is the outreach component of USDA and the state land-grant institutions, while the system component is the educational effort that is provided as a service of the land-grant universities; (d) Public funding is used to finance agricultural extension service in Malaysia, but mixed funding is used for extension service in the United States.

Conclusions, Recommendations and Implications

An overview of the comparative analysis of the Agricultural Extension Service Systems of the two countries shows that they are significantly different in all listed features. The findings suggest that there should be a series of platforms for sharing views and exchanging experiences and expertise among the policy makers, providers and experts of the Agricultural Extension Service in the two countries. Among the suggested areas for this purpose are (a) programming in extension, (b) training of extension educators, (c) agricultural education efforts and initiatives, and (d) how public universities can play a significant role in supporting agricultural extension service systems that apply the technology transfer model, such as in Malaysia. Further systematic and thorough comparative study of the agricultural extension services of Malaysia and the United States is recommended to provide stronger evidence and more details that can be consulted to improve each system.

Agriculture Teacher Workshop for Agriculture High Schools in Afghanistan

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Introduction and Purpose

Helmand Province, once the major center of agriculture in Afghanistan, has faced considerable difficulties as a result of the war in Afghanistan. Helmand Agriculture High School (AHS) has suffered incredible hardships as a result of the war. This high school educated everyone from government officials to farmers and served much of the south and east of Afghanistan. In its current location, Helmand AHS has been destroyed, and attempts to rebuild were impossible as fighting shifted back to the area of the school. Now nothing more than a shell, Helmand AHS is lacking both a structure and educators.

Procedures

Through an intensive teacher in-service in Kabul, 49 agriculture teachers participated in a workshop covering the use of best-practice teaching methodologies and the delivery of educational content. The teachers received the lesson plans that had been developed and were able to experience some of the activities.

Major Findings/Results/Observations

Feedback from the participants indicated they enjoyed the workshop. Many of the teachers felt better able to prepare and edit the lessons to better fit the contexts of their classes. Concerns of the teachers included accuracy of the translated information, as the lessons were written in English and translated to the local languages. Also contributing to this problem was the lack of technical knowledge of the interpreters when translating the content to the group. Another concern was the large number of participants in the workshop. Teachers were concerned the large number of participants restricted the amount of hands-on activities conducted.

Recommendations include engaging the teachers in an activity that will help them focus more specifically on their individual teaching and learning process. Along with the teachers focusing on themselves, there may be a need to develop a core of trained individuals that are knowledgeable about the technical and pedagogical concepts of teaching. In addition to these, workshops should be developed which will help the teachers to develop their own lesson plans. The development of these additional lesson plans will give the teachers ownership of their classrooms and provide material more appropriate in their situation.

Conclusion and Implications

Participating in these workshops gave the agriculture teachers of Afghanistan the knowledge, skills and abilities to successfully teach the curriculum in their own classrooms. By providing the teachers with the skills to reflect on their own teaching, they will continue to improve their teaching effectiveness. The successful training of these high school agriculture teachers will positively impact the entire agriculture high school system in Afghanistan. The collaborative international effort that provided these services will certainly benefit Afghanistan for many years to come.

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.

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Sustainable Agriculture and Conservation Practices in India

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Keywords: Sustainable Agriculture, Biodiversity, Conservation, Development, Education

Introduction

Indian agriculture is highly diversified in terms of production, use and environment (Pal & Byerlee 2001). Forest protection and restoration in India face challenges (Pandit & Bevilacqua, 2011) as does preservation of endemic animal species, due to stress from rapidly increasing population and agriculture production. Therefore, stewardship of both human and natural resources is of prime importance. Indian Agriculture Policy: Vision 2020 proposed that increased attention should be given to development of sustainable systems that protect natural resources. Miller and Mariola (2008) emphasized the importance of understanding values and practices of farmers for incorporating techniques in a manner that is concerned with future continuation and ongoing commitment.

Purpose and Objectives

The purpose of this study is to assess the surrounding community of Hazaribahg, India in order to have an understanding of current agricultural practices, potential need, and acceptance of possible change. More specifically, this study sought to:

1. Describe characteristics of the surrounding community and the availability of resources.
2. Identify agriculture and conservation practices currently in use by resource-poor farmers.

Methods and Procedures

This pilot study was conducted in Hazaribahg, India. The research design was a rich descriptive participant observation method based on the Theory of Planned Behavior (Ajzen, 1991). Prior to conducting research, the researcher established benchmarks of biases, beliefs, and expectations. During the process, artifacts such as pictures and descriptive journaling were collected. Trustworthiness was addressed using the Intellectual Research Audit Trail (Carcary, 2009).

Results and Conclusions

India's attachment to nature should encourage involvement in agricultural practices that would protect the environment. Yet, through interaction with the community and participation in daily agricultural practices, it was discovered that the resource-poor farmers lack the education or ability to produce sustainably while conserving the land and wildlife.

Education of poor female children is not encouraged in elementary school and even less in high school and beyond. Therefore, the majority of poor women are not educated in animal care, culling for breeding soundness and traits, nutrition, and housing. Land is overburdened by the number of animals present, including goats, water buffalo, cattle, swine, and dogs. Development

of programs targeting educating women in agriculture would positively impact animal care and may help decrease burden on the land while increasing value of animals produced.

Although there are conservation initiatives and management programs established by the government of India, insufficient education impedes implementation of these programs in rural areas. The increasing demands on land for food production, rapidly rising population, and industrialization has decreased desire to conserve and re-establish critically endangered wildlife.

Recommendations/Implications/Educational Importance

Joining the practices of production and management may lead to increased acceptance and dissemination of sustainable agriculture techniques, wildlife awareness, and education in conservation of natural resources and wildlife. Combining scientific and social science disciplines may outline factors causing environmental stress and potentially present easily implemented changes resulting in mitigation of environmental stressors, promoting sustainable agriculture, and conservation of biodiversity.

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"Aggies Go Global"—International Opportunities for Undergraduate Students

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Keywords: International Education, Undergraduate, Study Abroad, Experience

Introduction

In today's changing world, it is increasingly important for students and faculty to achieve global awareness (Zhai & Sheer, 2002). Employers today are seeking individuals who not only can work in diverse environments but also have the ability to respect different cultures and adapt their behavior as necessary (Barrick, Samy, Gunderson & Thoron, 2009). There are many benefits of experiential learning abroad. Kolb (1984, p.41) defines experiential learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience." International study abroad programs are excellent examples of successful experiential learning. A 50-year study shows that there is extremely positive personal, educational, and career growth among participating students (Dwyer & Peters, 2004). The American Council of Education (ACE) notes that approximately 50% of U.S. college students desire to study abroad. However, historically the number of students that actually have an international experience is very low, with undergraduates being severely under-represented. At one Land Grant University, only 3 to 4% of undergraduates have historically sought an international experience, with even fewer achieving this goal.

Purpose and Objectives

The purpose of this poster is to present graphically the mission, structure, approach and benefits of the "Aggies Go Global" program, discuss student experiences, and share results of program success based on faculty and student evaluations.

Major Points or Information To Be Shared

This poster reports an initial review of Aggies Go Global (AGG) as it continues to develop and expand its efforts. An explanation is given of how the program originated, its importance to the college as well as the university, and the steps used to create and establish its structure. Also detailed are the mission and objectives of the program. Students participating in AGG engage in an international experience individualized to meet their interest and fields of

study. Types of experiences vary from conducting research for classes or honors theses to participating in internships or conducting an individualized project. A description of the benefits to the students and the university is addressed. Cost of the program varies per student depending upon the length of the experience, location and program fees and local expenses such as transportation, meals and housing. Funding for each experience is also unique and options to reduce student portions of the experience are described.

Results and Conclusions

Since the program began in 2009, more than 60 students have been supported by Aggies Go Global in 33 different countries and 5 different continents. Testimonials from students and partners will be shared to demonstrate program effectiveness and results

Educational Importance

Aggies Go Global provides an individualized international study opportunity that focuses on undergraduate students. Participation in an international experience at this level can create interest in international studies and career opportunities as well as assist in becoming a more global citizen. This poster provides information that may aid other institutions in the development of a similar program.

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Experience + Reflection = Learning: Making Meaning of an International Food Security Fellows Program

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Keywords: Africa, Food Security, Internships, Reflection

Introduction

The term *internship* describes work experience designed for students to learn while gaining real-world experience (Green, 1997). As an element in a food security (i.e., sufficiency) project funded by the U.S. Department of State, 14 Kenyan and Ugandan policy makers, community leaders and media specialists participated in a month-long professional development program hosted by Oklahoma State University. The program's keystone was an 11-day internship, during which the Food Security Fellows (FSFs) worked in a setting similar to their professional workplaces in Kenya and Uganda. For example, a Ugandan science writer, who features agricultural topics and the intersection of governmental policies, interned in a state Department of Agriculture, Food and Forestry. A Kenyan livestock specialist from the Ministry of Agriculture completed her experience with extension educators who serve livestock producers.

The internship experience was included because, as Zemke and Zemke (1995) stated, "adults are competency-based learners, meaning they want to learn a skill or acquire knowledge that they can apply pragmatically to their immediate circumstances" (p. 40). This approach allowed the Fellows to gain firsthand insight into how their jobs are done in the United States and acquire skills that could have a positive impact on reducing food insecurity in their countries. Assessment was required as a component of the project and as a means for improving similar programs in the future.

Research Methodology/Conceptual Framework

Fellows completed a reflective journal during their stay in the United States. Journaling was selected as a part of the project's evaluation process because of its reflective nature. "The process of journal writing forces students to integrate new information with what they already know" (Alm, 1996, p. 113). Journal prompts were given as a guide for their reflection, per Dunlap's (2006) suggestion: e.g., "Describe what you learned today and how that could be applied to your professional life." The journal entries were digitized and entered in atlas.ti, a data management software program. Content analysis is being used to determine emergent themes and related sub-themes.

Results/Conclusions

Preliminary analysis of the journal entries indicate several emergent themes: recognition of the "American work ethic"; a sense of purpose associated with a person's job; belief in the importance of agriculture as an industry; involving youth in agriculture; and promoting agriculture to youth as a career. The researchers anticipate other themes and/or sub-themes emerging through additional content analysis and developing the phenomenon's account more fully.

Recommendations for Practice

Project providers of the kind described should incorporate an internship or job shadowing experience into their programs. "Real-world contexts, where there are social relationships and tools, make the best learning environments" (Hansman, 2001, p. 46). However, providing a myriad of *high gain* internship experiences for international participants requires excellent professional contacts as well as detailed planning and coordination of transportation, lodging and related logistics.

The poster's presentation will expound on a narrative account of the Fellows' journal entries as they reflected on their internships. And lessons drawn from the account useful for others charged with delivering a similar program will be shared.

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Enhancing Goat Producers' Learning

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Keywords: Goat Producers, Cognitive Domain, Reusable Learning Objects, Bloom's Taxonomy

Introduction and Need for Innovation

One of the primary resources utilized by citizens of developing countries for economic and nutritional welfare is goats (Devendra, 1981). In this regard, goats often provide the primary source of income and sustenance for members of the lower socio-economic groups in a country, and are thus crucial to their existence (Peacock, 2005). As such, any method that can improve on the production of goats or otherwise enhance their value is of vital importance to the indigenous population.

Koohang and Harman (2007) defined a Reusable Learning Object (RLO) as a stand-alone learning tool designed to focus on a singular learning objective. Reusable Learning Objects are advantageous due to accessibility, reusability, and reliability (Koohang & Harman, 2007). Strong (in press) developed RLOs with educational objectives for U.S. extension agents to teach information to goat producers.

How the Innovative Program Works/Theoretical Framework

RLOs were developed and employed in face-to-face teaching and learning environments for goat producers in two separate U.S. states (Strong, 2012). There were (N = 118) participants in the goat production programs and the response rate was 81.35 % (n = 96) for the study (Strong, in-press). Reusable Learning Objects using the cognitive domain were developed with the intent of improving farmer's knowledge of recommended goat marketing practices.

The three domains of educational objectives are cognitive, psychomotor, and affective (Bloom, 1956). The cognitive domain includes constructing knowledge and intellectual skills (Bloom, 1956). Bloom (1956) said knowledge, comprehension, application, analysis, synthesis, and evaluation are in the cognitive domain.

Results

Respondents indicated their knowledge (M = 4.71, SD = .45), comprehension (M = 4.53, SD = 46), application (M = 4.33, SD = .41), analysis (M = 3.90, SD = .78) and synthesis (M = 3.76, SD = .67) of goat marketing increased from participating in the RLOs. The only demographic variable that had a significant effect on learning was age, F (3, 93) = 6.95, ($p <$ .01). Age accounted for 5.4% of the variance in learning for goat producers.

Conclusions/Implications

Goat producers felt they could define, discuss, utilize, analyze and synthesize goat production information. The cognitive domain enhanced producers' knowledge (Bloom, 1956). RLOs developed from the cognitive domain served to improve goat producers' learning. RLOs served as effective educational tools that could be shared by multiple educators and users across

geographic regions. The employment of RLO's was advantageous due to accessibility, reusability, and reliability (Koohang & Harman, 2007).

Recommendations for Practice and/or Research

Using the cognitive domain to develop learning objectives is an approach extension personnel could employ in order to enhance goat producers' learning. Given the significance of goats to individuals in developing countries, future research should examine methods to improve goat producers' learning. Acquiring innovative methods to enhance learning could increase goat producers' profitability and nutritional welfare, as identified by van Rooyen and Homann-Kee Tui (2009) and Peacock (2005).

Cost/Resources

There is no cost related with including cognitive domain RLOs into existing teaching practices for extension workers or Ministries of Agriculture. Information could be included into professional development practices for current and future agricultural extensionists. Using cognitive domain RLOs could be taught face-to-face or with distance technologies.

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Using the Method of Equal-Appearing Intervals to Measure Student Attitudes about Ecuador

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Introduction/Need for Innovation

Undergraduate students need to become informed global citizens (Bruening & Frick, 2004). Multiple methods are needed to expose undergraduates to the world beyond domestic borders. The Teaching Locally, Engaging Globally (TLEG) project addressed this challenge by exposing faculty to the international dimensions of their disciplines (Authors, 2009).

How the Innovative Program Works

Agricultural and life sciences faculty at the University of Florida participated in a short–term professional study tour of Ecuador during the TLEG project. Faculty were charged with creating culturally rich reusable learning objects (RLOs) highlighting global perspectives to be implemented in their undergraduate courses. Ideally, vicarious exposure to a country through an RLO will positively influence students' attitudes. Developing positive attitudes is a precursor to engage in new behaviors, such as traveling internationally (Ajzen, 1991).

The Thurstone Method of Equal-Appearing Intervals (Trochim, 2004) was used to create a survey instrument to measure students' attitudes. Designed for use in classes with RLO implementation, the instrument required students to indicate their agreement or disagreement with value statements. The scale values for statements with which an individual agrees were averaged to provide a total scale score. The instrument was administered at the beginning and end of class to measure changes in attitude resulting from RLO exposure.

Results to Date

RLOs about Ecuador have been used in two courses. A comparison of 46 responses across courses revealed no significant differences between groups; therefore, the participants were combined into one group for the analysis of pre- and post-RLO attitudes. The highest possible total scale score was nine. Prior to RLO exposure, participants tended to have slightly positive attitudes about Ecuador ($M = 5.47$, $SD = .81$). These attitudes showed improvement after exposure ($M = 5.93$, $SD = .80$). There was a positive, statistically significant difference in student attitudes ($t(45) = -3.62$, $p < .05$) when comparing pre- and post-RLO means.

Conclusions/Implications

The instrument appears strong enough to detect subtle changes in attitudes in a single class session. Data indicated that RLOs may effectively influence students' attitudes about foreign countries in the absence of authentic exposure. Such results offer evidence for the use of vicarious learning in the form of RLOs as a way to internationalize undergraduate curriculum.

Recommendations for Practice/Research

Universities should invest in faculty study abroad experiences, with a formalized expectation for the creation and implementation of RLOs in their courses upon return. The Thurstone Method implemented in this project should be considered as an appropriate mechanism for measuring these impacts. Additional research is needed to determine if the observed results persist with a larger population, different instructors, and using a different country as the focus. Further research is also needed to explore how these faculty study abroad programs impact *what* and *how* these faculty teach.

Costs/Resources

The TLEG project was funded with a $459,770 from the USDA. Travel costs for each participant was approximately $3,000. Development of the Thurstone Scale instrument required only an investment of time.

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2012 AIAEE Conference

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Factors Associated with Increased Smallholder Sorghum Production in Uganda

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Gabriel Elepu, Makerere University Faculty of Agriculture
Donald Larson, The Ohio State University

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Natalie Coers, University of Florida
Mary Rodriguez, University of Florida
Grady Roberts, University of Florida
Charlotte Emerson, University of Florida
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Outstanding Graduate Student Paper Presentation

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

Timothy Silberg, Texas A&M University
Theresa Murphrey, Texas A&M University
Gary Wingenbach, Texas A&M University
Leonardo Lombardini, Texas A&M University

Outstanding Graduate Student Paper Presentation – 1st Runner-up

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

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Theresa Murphrey, Texas A&M University
Gary Wingenbach, Texas A&M University
Leonardo Lombardini, Texas A&M University

Outstanding Graduate Student Paper Presentation – 2nd Runner-up (tie)

Small-holder Farmer Adaptation and Innovation of Livestock Forage Gardens to Improve Livelihoods in Thai Nguyen Province, Northern Vietnam

Joshua Ringer, Oklahoma State University
Nathan Henry, Asian Rural Life Development Foundation
Nguyen Van Nguyen, Thai Nguyen Provincial Farmers' Union

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

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Using the Method of Equal–Appearing Intervals to Measure Student Attitudes about Ecuador

Nathan W. Conner, University of Florida
Amy Harder, University of Florida
Jessica L. Gouldthorpe, University of Florida
T. Grady Roberts, University of Florida

Outstanding Graduate Student Poster Presentation – 2nd Runner-up
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Journal **Article of the Year for 2011**

The past editor requested review and nomination of articles published in Volume 18 (**2011)** for the 10th annual **Article of the Year Award**. Criteria for article selection and nomination were the article's capacity for "enhancing the *research* and *knowledge base* of agricultural and extension education worldwide." Following are the results of this evaluation. Congratulations to all the authors on their scholarly achievements.

Outstanding *Journal* Article of the Year for 2011

Moriba, S., Kandeh, J. & Edwards, C. (2011). Diffusion of Technologies by the Tikonko Agricultural Extension Centre to Farmers of the Tikonko Chiefdome in Sierra Leone: Impactsm Problems Proposed Solutions, and an Updated Outlook. *Journal of International Agricultural and Extension Education, 18*(1), 73-86.

Runner-Up *Journal* Article of the Year for 2011

Charalanbous-Snow, E & Ingram, P. (2011). Increasing Communication Effectiveness and Efficiency between the Department of Agriculture and the Cypriot Farmers They Serve. *Journal of International Agricultural and Extension Education, 18*(3), 46-61.

Manuscript Submission Guidelines

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

General Requirements

Microsoft Word files only may be submitted. All manuscripts must indicate the type of article—Feature; Commentary; Tools of the Profession and Book Review—on the title page of the manuscript. **All manuscripts must be submitted online** at http://jiaee.ft.expressacademic.org. Manuscripts cannot be published or be under consideration for publication in another journal. The *Journal of International Agricultural and Extension Education* (*JIAEE*) follows the standards set forth in the *Publication Manual of the American Psychology Association* (6th ed.). Online manuscript submission guidelines are posted at http://www.aiaee.org/guidelines.html. **Authors must follow these formatting requirements** prior to submitting manuscripts to the *JIAEE*.

Feature Articles

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

Commentary Articles

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

Tools of the Profession and Book Review Articles

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