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AND EXTENSION EDUCATION

2021 CONFERENCE PROCEEDINGS
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2021 AIAEE Concurrent Poster Sessions

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- **Consumer Perceptions on the Commercialisation of Chevon (Goat Meat) in Kwa-Zulu Natal Province of South Africa** by Zamokwakhe Ntshangase, Sanelise Tafa, Dr. Misery Sikwela, Dr. Johan van Niekerk, Dr. Jack Elliot

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Agricultural Entrepreneur Involvement of Eight Botswana Women: A Qualitative Study

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Introduction

In the United States and internationally, women have experienced an increased presence in the labor force and leadership positions with women becoming more influential contributors and providing diverse perspectives in the workforce (Stephens, et. al., 2018). Moreover, increased employment for women has opened opportunities in labor fields not traditionally sought out by women, specifically those in commercial agriculture as employees, helpers, operators, and farm companions (Fenton, et. al., 2010). Because of these opportunities, women in agriculture have assumed roles on and off the farm, and their involvement has expanded to that of primary decision-makers, hands-on practitioners, community development, and policy makers (Raney et. al., 2011). From 1990 to 2019, the percentage of women involved in Botswana’s labor force has increased from 49.8% to 68.5%, and this population includes women who are between the ages of 15 and 64, who are economically active, and who are employed or unemployed (The World Bank, 2020). Women in Botswana are currently overrepresented in both the general population and the working poor, as a higher proportion of female-headed households are considered poor or very poor (Government of Botswana, 2020). Overall, the decision-making in Botswana is still dominated by one gender (male), which has resulted in the hinderance for women to advance or have significant influence on national decisions (Government of Botswana, 2020).

Theoretical Framework

Krumboltz’s Social Learning Theory (1976) was utilized as the theoretical framework and includes environmental conditions and events, genetic influences, and learning experiences. This framework provided an opportunity to better comprehend the lived experiences of the women in this study. Environmental conditions involve the action of humans and natural occurrences (Krumboltz, 1976). Human actions include social, cultural, political, and economical incidences (Krumboltz, 1976; Elliott & Steade, 2008). Family and children, policies, salary, traditions, and networking and mentoring are components in the environment that heavily impact women (Elliott & Steade, 2008).

Purpose and Objective

The purpose of this study was to explore the reflective journeys of eight women in Botswana who are involved in production agriculture. The central research question asked was “What lived experiences helped you obtain your agricultural position and what leadership characteristics do you identify as essential in your success?”

Methods

A phenomenological approach was utilized to gain entry into the conceptual world of the women to understand their lived experiences (Bogdan & Biklen, 2007). The participants for this study consisted of eight women in agriculture in Botswana. The participants were assigned numbers to protect their identity. The researchers then discussed each individual’s coding schematic and agreed upon seven themes. Those themes are highlighted in the results section.
Results

Journey in Agriculture

Four out of the eight women interviewed explained they started their careers not actively involved in the agricultural industry, but began in the agriculture industry due to outside influences who emphasized the importance of agriculture.

Networking and Mentoring Learning Initiatives

The eight women interviewed described their networking initiatives mainly existed through WhatsApp and social media sites. However, forming support groups is often difficult due to competitive environments.

Leadership and Management

When asked to describe their leadership style, the women’s responses were diverse. However, their answers were similar in terms of outlook on leadership and their positional power in the agricultural industry.

Batswana Family Structure

Agriculture for these eight women involves family and/or is a family operation. “I was excited because I got time to spend with my mother, a lot of time, and it is just very peaceful when you are in an agricultural environment opposed to the hustle and bustle of the city. So that is where I found my new love and passion. I have moved to the farm and I am raising my son there” (Woman 3). In addition, the women spoke highly of their children’s love for agriculture.

Batswana Family Structure

Most of the women interviewed described Botswana as a difficult country in which to reside because of how they are viewed and treated as agriculturists. Although these women are striving to make a change for other women and youth seeking to be successful agriculturists within the industry, Botswana is making it difficult for them.

Awareness and Shift of Agriculture in Botswana

The women interviewed for this study report progress in starting to receive the recognition they deserve. Amongst the women interviewed, most of them agreed that it can be difficult working in the industry as gender specifications seem to be a priority in production agriculture, but women are beginning to overcome these assumptions.
Perspectives on Faith, Values and Motivations

Each participant expressed how difficult it can be to face the agricultural industry as a woman. They also shared how relying on their faith and following through with practices they value had the power to keep them motivated to spread knowledge and positivity to those who can make the industry successful in the future.

Conclusions/Implications

Women who seek leadership opportunities, specifically those in the agricultural industry, should understand how these leaders first became inspired and how they were encouraged to seek out advancement in their chosen career paths. These shared experiences communicate a framework for women who are inspired to lead in the agricultural industry – particularly in international settings (Stephens et al., 2018). Understanding one’s own journey provides the opportunity for reflection on self-value, and recognition of how to work with and lead others. Furthermore, acknowledgment of women in agriculture as leaders, can provide a pipeline to motivate and foster other women’s pursuit of agricultural careers.

Agriculture practitioners may take information gained from this qualitative research study to train women leaders entering the field. Research findings provide guidance to employers to better identify interpersonal stressors than may affect work performance. Industries dominated by males could find value in this information to support women in their chosen field. Similarly, understanding individual perspectives can only improve the strength of an organization and develop better professionals. Likewise, the hope is to increase the number of women who enter into agriculture industries and advance the body of literature related to women in agriculture fields.

References


https://data.worldbank.org/indicator/SL.TLF.ACTI.FE.ZS?locations=BW-ZA-US.
Consumer Perceptions on the Commercialisation of Chevon (Goat Meat) in Kwa-Zulu Natal Province of South Africa

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Consumer perceptions on the commercialisation of chevon (goat meat) in Kwa-Zulu Natal Province of South Africa

Introduction
Meat comprises the most important part of South African cooking (Erasmus & Hoffman, 2017). In reality, for the majority of South Africans, a meal without meat is not welcoming. The most dominating types of meat found in South African dishes are chicken, beef, pork, and mutton. Compared to poultry, beef, mutton, and pork, chevon is rarely seen in South African cuisine (Roets & Kersten, 2005). Chevon is often found in dishes during traditional ceremonies, but on very few occasions is it available at the formal markets. The notable thing about chevon in South Africa is that it is highly acceptable in the market as much as mutton (Simela et al., 2008). Furthermore, the chevon source, which is a goat, thrives very well in South African water-scarce conditions. Their excellent hardiness, small size, and adaptation to harsh climatic and environmental conditions suggest that they have the potential to develop into a commercial enterprise (Tibesigwa et al., 2017). Goats can be produced at a very reasonable cost; hence there is a need to explore the opportunity of commercializing goats and processing goat products in South Africa and many other African countries. According to the International Goat Research Center (2020), “growth in world population is driving an increasing demand for animal proteins, even though less land is available for livestock production. Goats provide the most animal protein worldwide and are a viable entity for increasing nutrition in developing nations.”

Perceptions of farmers and consumers are important because they influence their behaviour; hence this study sought to assess the consumer perceptions on the commercialization of chevon in the study area.

Purpose and Objectives
The aim of the study is to explore consumer perceptions on commercialisation of chevon (goat meat) in Kwa-Zulu Natal Province of South Africa.

The objectives of this paper are to:
1) Identify the factors affecting consumer perception towards goat meat
2) Examine the level of goat meat consumption in the study area
3) Determine viability of goat meat in formal market
4) Use these analyses as the basis for recommendations for commercialization of goat meat
Methodology
This study conducted fieldwork in the Zululand region which is in Kwa-Zulu Natal (KZN) Province. Agriculture is viewed as a primary economic sector in the Zululand district municipality. Zululand is perceived as an area with a potential for agricultural economic growth because it is reasonably arable, and there are enough rangelands for livestock grazing. Moreover, there is a strong market for livestock as the residents are perceived as "very traditional," and particularly, goats are used regularly for cultural and traditional ceremonies.

Probabilistic and snowball sampling was collected from 170 goat meat consumers. This sampling technique was necessary because those who consume goat meat know each other from traditional ceremonies. Snowball sampling yields a study sample through referrals made among people who share or know others who possess some characteristics of interest to the researcher (Naderifar et al., 2017). The collected data was captured in Excel and analysed using the statistical package for social sciences (SPSS) Version 24. Bivariate correlation analysis was used to determine the relationships among the key elements of consumers' perceptions towards the commercialization of goat meat. The dependent variable used in the study was “perception towards commercialization that asked if consumers would buy goat meat from a formal market.”

Results
Based on the correlation analysis, the results suggest that red meat consumption and the possibility of buying goat meat from a formal market had a positive significant relationship. The results imply that if respondents consume red meat, they are highly likely to buy goat meat from the formal market if it is made available. The results also revealed a negative significant relationship between the possibility of buying goat meat and the price of goat meat. The negative sign of the coefficient suggests that the results support the demand theory, which states that low prices of any product lead to high quantity demanded. In contrast, high prices lead to low quantity demanded. The results further showed a positive relationship between commercialization and the availability of chevon on the market. This means that consumers are waiting for the shop owners make goat meat more available.
**Recommendations**

Goats have a competitive edge within the prevailing climatic changes due to their adaptive nature. They have the potential to increase in productivity to achieve commercialization and ensure economic livelihood for household farmers and food security. Therefore, the structuring of the goat industry is necessary such that there is an effective linkage between production and market. Aggressive marketing strategies for goat meat could be applied so consumers have information about goat meat as a major protein source. The transformation of smallholder goat farmers to expand their view of goat meat beyond traditional and religious meals to a healthy, everyday protein source is important. Government support is imperative in goat production and marketing to achieve the commercialization of chevon.

**Educational Importance**

The results of this study will be useful to farmers, potential farmers, government policy makers, and the agriculture and food security industry. In addition, the results can impact policy within government departments, municipalities, non-governmental organizations (NGOs), and other stakeholders involved in goat production. Increasing protein, via goat meat, in diets can alleviate malnutrition and improve the overall health in developing communities throughout the world.
References


Lessons Learned from working in Haiti

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Key words: communication; adaptation; development; Haiti
Lessons Learned from working in Haiti

Introduction

Working in developing countries can be challenging. Many developing countries in Latin America and the Caribbean face internal and external pressures such as food insecurity, recurrent natural disasters, extreme weather events, and farmers’ limited access to information (USAID, 2020). Specifically, Haiti has been plagued with prolonged food insecurity for decades (von Grember et al., 2016). Several key strategies and activities have been put in motion to increase domestic agricultural productivity in Haiti (USAID, 2020). However, increasing domestic food production is not enough alone. One known avenue to combat food insecurity is through extension and research services to build the human capacity needed to address food insecurity (FAO, 2019). As such, human capacity building coupled with increased food production is a promising strategy and an important driver of growth to become more food secure (USAID, 2020).

Purpose

The purpose of this study was to share the experiences of the authors working on a five-year agricultural development project in Haiti.

Methods/Data Sources

The context for this study was a USAID funded project focused on enhancing Haitian capacity building for agricultural extension and research. The authors were responsible for leading development efforts associated with the agricultural universities and technical schools. Specific activities included: research to understand the current situation, developing/delivering professional development trainings, organizing a country-wide conference on innovation in teaching, curriculum assessments, outcome assessments, and initiating cross-university collaborations. All activities were planned and delivered through a collaborative relationship between authors, Haitian researchers, and local partners.

Data sources were the lived experiences of the two authors (Moustakas, 1994). Data consisted of shared reflections between the two authors. Data were collected through a multitude of peer debriefing sessions held over the five-year period and a summative reflection at the conclusion of the project. These reflections resulted in five themes.

Results/Conclusions

Cross-cultural Communication
Communication is complicated. French is the official language and the language of government and policy. Most instruction at the universities occurs in French. However, Haitian Creole is the most commonly spoken language. Most of the research and trainings which occurred involved a blend of French and Creole, fluctuating between formal and informal styles. Aside from
understanding both languages, cultural norms related to when to use French and when to use Creole was challenging for non-natives. Additionally, challenges were faced several times when misinterpreting the meaning of the volume and excitement displayed by Haitians while communicating about a given topic. Understanding both languages and the nuances of communicating in Haiti was critical for project success and hiring native speakers to be a part of the team proved to be invaluable.

**Expect Disaster**
From the start, we were advised to expect disaster. This indeed came to fruition. When our project began (2015), the country was still seeing the impacts of the 2010 earthquake, especially infrastructure. Our project began during a time of multiple postponements of the presidential election, which created considerable uncertainty of the political climate in which we would operate. Throughout the project Haiti faced many periods of political instability, which resulted in many protests and closures of government offices. Haiti was listed on the U.S. State Department travel warning list for nearly the entire five-year period. This created challenges in arranging travel for U.S. citizens. Haiti also experienced numerous tropical weather events which impacted various activities. Finally, COVID-19 caused a near stoppage of all project activities during the final year.

**Multiple Jobs**
Although we did not have empirical data to verify this observation, it seemed most everyone we interacted with through the activities outlined above held more than one job at a time and many were simultaneously looking for the next opportunity. This created challenges at several levels. Many of the people we collaborated with worked at multiple universities. It was sometimes difficult to know who they were representing at any given time. We were also uncertain if they would be with the same university the next time we met with them. Personnel hired on our project were no different, with many still being employed by a university in Haiti and the project. Understanding loyalty and motives were sometimes challenging. Additionally, there was always the worry of losing a valuable member of the team during the middle of the project.

**Resilience**
Nearly every person we met had faced hardships. Yet, almost everyone had a positive outlook and espoused a better future. Participants who we came in contact with were appreciative of the work we were doing and generally indicated a desire to improve their conditions.

**Class System**
Haiti has social class system which permeates nearly everything in the country. Social norms dictate the types of interactions which occur across classes, the level of formality, and the language used. We observed this in several ways, including interactions between students and faculty, and between faculty and other faculty.

**Recommendations**

1. **Find the right Haitian people to be part of the team.** Several of the personnel we initially hired were based on reputations alone. Many proved to not be a good fit for the project or not capable of what we needed. In the end, the most valuable members of the team were Haitians
with previous relationships with U.S. members of the team.

2. Empower in-country partners. The small amount of time invested in training our Haitian partners to implement project activities proved to pay off substantially in the end. Although it slowed our initial progress, once empowered, our local partners accomplished much more than we could have done on our own.

3. Account for unanticipated delays. Over our five-year period, we probably had 36 months in which project activities could occur as planned. In the end, we left a handful of deliverables unfinished.

4. If you build it, they will come. One of our biggest successes was the country-wide symposium on teaching innovation, which involved experts from around the world presenting various teaching-related topics. The project covered expenses of Haitians to attend. The outside experts covered their own expenses to travel to Haiti.

References


Understanding End-User Application of an Online, Interactive Climate Resilience Tool

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Key Words: Gulf of Mexico, Climate Change, Decision-Support Tools, Evaluation, Diffusion of Innovation
Understanding End-User Application of an Online, Interactive Climate Resilience Tool

Introduction and Theoretical Framework
Increasingly, climate science researchers are expected to produce tools and other resources to communicate results from their work or to improve access to data and information for decision-making. However, there is little follow-up study done after tools are released to understand the effectiveness or use of resources. When climate science tools are evaluated, the evaluation results are typically integrated into reports to the funders or used internally by the development team. It is important, as limited resources across federal, state, local, and private sectors are invested in the development of these tools and resources, to understand tool efficacy. Evaluation of how climate science tools are applied will clarify if they are achieving their intended purpose, how they can better achieve their intended purpose, and if not being utilized for their intended purpose, if they are contributing in unintended ways to the understanding and application of science.

In 2018, a new tool, Gulf TREE (www.GulfTREE.org), was released to support the selection of climate change resilience tools at the request of stakeholders in the U.S. Gulf of Mexico (Gulf). Strategic efforts to improve Gulf TREE user experience through stakeholder engagement during development coupled with positive evaluations prior to resource release suggest there would be a high rate of adoption across all potential end-users ([blinded for review] & [blinded for review], 2018; NOAA Office for Coastal Management, 2015; Raub & Cotti-Rausch, 2019); however, intention to use a technology does not guarantee implementation (Rogers, 2003; Taylor & Todd, 1995). We will use the Rogers theory and the associated models as our theoretical framework to explore the adoption and implementation processes.

Purpose and Objectives
The overall research goal is to understand if Gulf TREE, a climate resilience tool, was adopted by potential end-users. To explore this research goal, we pursued the following research objectives:

1. Assess if end-users are implementing Gulf TREE.
2. Assess if end-users are implementing Gulf TREE for the intended purpose of finding climate change resilience tools.
3. Assess if end-users from different sectors are implementing Gulf TREE similarly.
4. Determine the rate of change from knowledge to implementation.

Methods
Google Analytics was the web-use tracking software utilized for Gulf TREE. Analytics were reviewed from March 1, 2018 (the week of Gulf TREE release) to February 28, 2019 (a year after release) to establish the number of visitors to the site. Basic summary statistics were used to describe the number of times Gulf TREE has been visited, the number of visitors and where visitors are located. For the purposes of these analyses, the bounce rate was utilized to adjust the data across multiple fields to eliminate data from visitors who did not interact with the site.

To complement the web-use analytics, a digital survey instrument was employed to assess stakeholder use approximately one year after Gulf TREE was released. Survey questions were
designed to assess how respondents across different sectors learned about Gulf TREE, for what purposes they have utilized Gulf TREE, how frequently they utilize Gulf TREE for that purpose over other resources, and how frequently they use Gulf TREE overall. The sample size (n=52) provided too little data for robust statistical analyses between sectors, but trends were discernable.

Results

Objectives One & Two
Analysis of web analytics data from March 1, 2018 – February 28, 2019 indicated 750 likely Gulf TREE users throughout the year with 1,151 visits. The digital survey instrument had 52 responses total. Respondents self-identified from a variety of sectors: federal government agency (10), state government agency (16), local/county government (3), non-profit (7), academic (7), business/consultant (4), Sea Grant (4), and concerned citizen (1). Survey data indicated 26.9% (n=14) of total survey respondents had used Gulf TREE. Gulf TREE was used by the respondents an estimated 43 times over the intervening year. This resulted in an average of 3 uses per user, twice as much as estimated using the web analytics. Purposes for using Gulf TREE identified by survey respondents included understanding what tools are available, finding a tool for a specific purpose, and gaining more information on already known tools. These were all intended uses for Gulf TREE by the tool designers ([blinded for review] et al., in prep).

Objective Three
Of the 14 users of Gulf TREE there was at least one representative in each sector except for concerned citizen. The number of users from each category ranged from one to three users per category. Local/county government users (n=3) had 100% agreement among different types of uses; other sectors had a diversity of uses.

Objective Four
Of the 52 respondents to the survey, 37 had heard of Gulf TREE. Of the 37 who had knowledge of Gulf TREE, 37.8% (n=14) implemented Gulf TREE. One hundred percent of local/county government (n=3) and Sea Grant (n=3) respondents that were aware of Gulf TREE progressed to implementation. Lower numbers were seen for those who identified as academics (60%, n=3), non-profit (50%, n=2), federal government (22.2%, n=2), and state government (8.33%, n=1).

Implications & Recommendations
The collected data indicate that Gulf TREE is being used by the intended end-users and for the intended purposes. Further, they appear to be using Gulf TREE repeatedly. There were not enough respondents to conduct statistical analyses across sectors to assess any differences in use; however, there were apparent trends including a diversity among the majority of sectors as to how Gulf TREE is being implemented and minimal difference in use across Local/County Government respondents. Finally, there were substantial differences between sectors in the progression from knowledge of Gulf TREE to implementation of Gulf TREE. There may be a variety of reasons for this including response bias among different sectors; therefore, we recommend that additional research be conducted to explore elements of the diffusion and adoption-decision process around Gulf TREE among the target end-users.
References
[blinded for review], [blinded for review], Mohrman, C., Daigle, M. T., Gauthier Lowry, C., Hanisko, M., Mikulencak, S., Price, R., [blinded for review], Shepard, C., [blinded for review], [blinded for review], & [blinded for review] (in prep). *Utilizing an End-User Driven Process to Identify and Address Climate-Resilience Tool Needs in the U.S. Gulf of Mexico.*


NOAA Office for Coastal Management.
https://coast.noaa.gov/digitalcoast/training/stakeholder.html


Setting Development Agendas by the Media to Combat Threats to Agricultural Sustainability

Due to the COVID 19 Pandemic in Bangladesh, Canada, and Trinidad and Tobago

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Abstract

Introduction

COVID-19 has sparked multiple crises and unprecedented shocks to trajectories of agricultural sustainability. According to the IFPRI (2020), COVID-19 is such a pandemic which not only creates a global threat to human life but also could pose a threat to agricultural sustainability if proper integrated measures are not taken. Different actors in the agricultural context, including farmers, are under tremendous pressure due to the fear and panic arising from the rapid human to human spread of coronavirus. The current crisis will slow down the implementation of SDGs as the agricultural sector is facing multiple COVID-19 -linked challenges. Labeling COVID-19 as a pandemic and its exponential spread generate intense speculation in the news media all around the world.

Objective of this study

The research aims to give thoughts on and inform the contemporary development thinkers including extension and advisory service providers about the initiatives needed to ensure the development of on-going agricultural sustainability. In other ways, this research aims to explore media discourse (also known as media agenda) and understand the current challenges in the agricultural sector to frame necessary policy agenda. In connection with the above aims, the objectives of this research is to explore the challenges of COVID-19 and agricultural sustainability posed in conventional news media.

Methods and theoretical themes

Considering the COVID-19 outbreak as a case and by using the lens of agenda-setting theory (Lippmann, 1922), this research aims to explore the content of newspaper articles to understand the on-going challenges in the agricultural sector to frame necessary policy-agenda for Bangladesh, Canada, and Trinidad and Tobago. In this study, we included 130 newspaper articles through a systematic screening process. Applying qualitative content
analysis, we clustered the contents of news articles into nine key challenges. The study revealed that COVID-19 imposes diverse threats to the advancement of agricultural sustainability. The analysis of primary data to form a category or theme or agenda (higher level of abstraction) consists of several steps. A line-by-line coding was completed, which produced 321 codes: 130 codes from 41 Bangladeshi news articles, 91 codes from 37 Canadian news articles, and 100 codes from 52 news articles of Trinidad and Tobago's newspaper. The codes were then categorized separately for three different countries in two reduction steps. In a first reduction step, code groups or sub-categories were developed by grouping together those codes that were related to each other based on their similar conceptual basis. In the second reduction step, code groups or sub-categories were grouped again together to form the main themes or categories or agendas.

Results and conclusion

The agricultural sector faced acute crises due to unprecedented COVID-19 shocks like a disruption in supply chain and market activities, impulsive nature of market price and higher cost to buy input, shortage of labor and regular climate change events, curtailing the agri-food production due to the unavailability of highly dependent migrant labor, scarcity of farmworkers and their safety issues, delay in getting logistic support and wastage of farm product due to disruption in supply chain and market fluctuation, a dearth of cooperation and collaboration, lack of capacity and resilience, and wastage of farm produces. This study has shown that COVID-19 poses different challenges that create severe threats to agricultural sustainability. The threat of COVID-19 gets regular media coverage. We synthesized news articles to inform researchers, development workers, and policymakers “what to think,” “how to think,” and “what and how to associate” about and with COVID-19-related key challenges in the agricultural sector. Contemporary thinking on development and sustainability in the agricultural context must comprise the challenges like the scarcity of farmworkers and their
safety, the disruption of the supply chain and market, the dearth of cooperation and collaboration, the lack of capacity and resilience, and the wastage of farm produce.

**Recommendations**

Based on the findings, we recommend further collaboration at the local, national, and regional levels to strengthen the capacity and resilience against unprecedented shocks like COVID-19. Moreover, contemporary thinking on development and sustainability in the agricultural context must comprise the challenges like the scarcity of farmworkers and their safety, the disruption of the supply chain and market, the dearth of cooperation and collaboration, the lack of capacity and resilience, and the wastage of farm produce.

**References**


Beef Cattle Producers’ Behavioral Intention to Adopt Recommended Stocking Rates: Implications for Water and Land Quality

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Beef Cattle Producers’ Behavioral Intention to Adopt Recommended Stocking Rates: Implications for Water and Land Quality

Introduction and Theoretical Framework

Agricultural water pollution is a concern around the world (Tarakalson et al., 2006). Being an agricultural community affected by nonpoint source pollution, water quality protection is a high concern in the Lavaca River Watershed. Nonpoint source pollution could result from many varying contaminants, which usually travels through runoff water (Natural Resources Conservation Service North Dakota, n.d.). Two bodies of water, the Lavaca River and Rocky creek, which are home to aquatic life and used recreationally are impaired due to runoff water. These impairments include exceeding *Escherichia coli* (*E. coli*) bacteria and depleting dissolved oxygen (Texas Commission on Environmental Quality, 2019b). To encourage conservation practices the Natural Resources Conservation Service offers both technical and financial assistance to landowners who qualify for their programs. While having these opportunities is instrumental in increasing conservation practices, leaders’ question if landowners are aware of their services.

The Theory of Planned Behavior presents logic for why landowners’ may or may not adopt new practices. This theory involves predicting behavior by evaluating the relationship of behavioral intention to the three elements: attitude, perceived behavior control and subjective norms (Ajzen, 1991). There are different variables a landowner faces which can influence these three elements. Rogers’ (2003) Diffusion of Innovations provides understanding on the adoption process for an innovation, which includes the variable, knowledge.

Purpose and Objectives

The purpose of this study was to determine the effect knowledge and awareness of Lavaca County landowners has on their behavioral intention to adopt. More specifically, the objectives were:

1. Investigate the relationship between knowledge of stocking rates and awareness of NRCS influence intention to adopt grazing management practices;
2. Analyze the differences among knowledge of stocking rates, awareness of NRCS influence on intention to adopt grazing management; and
3. Examine the variance of knowledge of strategies to determining stocking rates, indicators of overstocking, results of overstocking, and advantages to using proper stocking rates and awareness of NRCS and TSSWCB on the behavioral intention to adopt.

Methods

Quantitative methods were used to collect and analyze data. A mail survey was designed using the principles described by Dillman et al. (2014). The survey instrument measured the independent variables, demographics, knowledge levels, and awareness of the NRCS and TSSWCB in relation to the dependent variable, beef cattle producers’ behavioral intention to adopt best management practices.
Statistics were evaluated following data collection for this study using the program SPSS. Inferential statistics were used to draw conclusions. T-tests were conducted on categorical data collected to determine significance of the impact of one variable on another. A Pearson’s $r$ was run on to determine relationships between knowledge constructs as well as between knowledge and awareness. A linear regression was used to assess the effect of the independent variables on the dependent variable.

**Results**

The sample majority was male, 50 years old and older, and white. Approximately 70% of the sample reported to have some college, an Associates, Bachelor’s, or Graduate level degree. Additionally, 67% of the sample receive 1-20% of their income from their beef cattle operation.

Overall, there was a low negative correlation between strategies to determining stocking rates and awareness of the NRCS and TSSWCB. Determining stocking rates based on calculated grazeable acres for my pastures and awareness of NRCS and TSSWCB had a low significant relationship, $r = -0.16$, $p = 0.04$. A low significant relationship also existed between determining stocking rates based on preparation for change in season and awareness of NRCS and TSSWCB, $r = -0.18$ and $p = 0.02$. Finally, there was also a low significant relationship between determining stocking rates based on current or anticipated market prices and awareness of the agencies, $r = -0.20$ and $p = 0.01$.

In evaluating the influence of knowledge and awareness on intention to adopt, several differences were found. There was a significant difference in several strategies to determining stocking rates as it relates to landowners’ intention to adopt grazing management practices. There was a significant difference in the indicator, visible hooves from a distance as it relates to landowners’ intention to adopt. There was a significant difference in the results, increased soil erosion and rainfall runoff and susceptibility to drought, as it relates to landowners’ intention to adopt. There was a significant difference in all the advantages of using proper stocking rates as it relates to landowners’ intention to adopt. Finally, there was a significant difference in awareness of the NRCS and TSSWCB as it relates to landowners’ intention to adopt.

A linear regression was used to analyze the effect of each independent variable on intention to adopt. The regression model was a significant and resulted in a good fit, ($F(22, 86) = 4.04$, $p < 0.000$), with $R^2$ of 0.508. The only demographic characteristic which was significant was percent of household income from beef operation, $p < 0.05$. Additionally, two strategies to determining stocking rates, based on county appraisal district recommendations and based on calculated grazeable acres were significant, $p < 0.05$. As income increased one unit, intention to adopt increased 0.35. As based on county appraisal district recommendations increased one unit, intention to adopt increased 0.15. As based on calculated grazeable acres increased one unit, intention to adopt increased 0.24. For this study, the respective model equation is as follows: Intention to Adopt = -0.28 + 0.35 Income + 0.15 Based on county appraisal district recommendations + 0.24 Based on calculated grazeable acres.

**Recommendations**
Rogers (2003) indicated knowledge is essential for a successful adoption rate of an innovation. In this case, landowners reported to have knowledge and intention to adopt, confirming Rogers’ (2003) theory. Ajzen (1991) predicted a favorable attitude and volitional control is an element leading to a higher likelihood of intention to adopt. Communication with stakeholders could be improved through mailed postcards versus emails due to the targeted population, and collaborate with local civic and farm organizations to communicate program goals and program impacts. Extension practitioners around the world could benefit from the analysis and impact of localized water quality improvement programs.

References


Access of Technology and Information Sources by Male and Female Fish Farmers in Delta State, Nigeria

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Keywords: information sources, gender, access, fisher folks, Nigeria
Food and Agricultural Organization (FAO) of the United Nations (FAO, 2006) reported that there is a huge supply-demand gap for fish and fishery products in Nigeria. Hence, Nigeria is one of the largest importers of fish in the developing world, importing 600,000 metric tons annually (Moehi, 2003). This could be attributed to the fact that small scale fish production with characteristic subsistent and low level of technology dominates domestic production. Joshi et al., (2016) stated that in developing countries most fishing activities are artisanal. 

Nlerum and Bagshaw (2015), in Nigeria for example, the coastal artisanal fishery make use of traditional dug-out canoes, ranging from three to eighteen metres in length, while the gears used include cast nets, handlines, baskets, traps, long lines, set gill nets and beach and purse seines. Artisanal fishing includes coastal, water and all inland fishery sources such as rivers, reservoirs, dams, lakes, lagoons as well as the flood plains of Niger Delta and other major rivers in Nigeria.

The idea that men do the actual fishing, with women more involved in post-harvest and marketing activities, remains prevalent across most cultures. However, women are engaged in artisanal fish farming. Especially among Ijaw and Nupe, Urobo women in Nigeria. Gender equality must be considered in agriculture (Davis, (2016).

Information is vital for increasing production and improving marketing and distribution strategies (Oladele, 2006). Chilaka, Nwabeze,. and. Odili,. (2014)The main challenge for the growth of small-scale fisheries is how to improve production performance while, at the same time, ensuring sustainable level of fisheries resources.

Artisanal Fisheries (AT) information and technologies are generated by various means agricultural research institutes and universities, social, commercial and legal institutions, agro-allied industries, multi-national companies, industries, banks among others. Their findings (improved

To sustain artisanal fisheries development, it becomes imperative that information and technologies on fish farming be provided on gears, weather and climate/early warning system and financing, obnoxious practices, marketing etc. The invention of technology in fish farming has given rise to the improved various kinds of machines and equipment like outboard engines

Access to proven information/technologies, being within reach with minimal effort is very essential for enhanced knowledge and skills for increased productivity, income and livelihood of fish farmers. It is therefore necessary to ensure that improved fish production technologies that have been developed be disseminated and accessed for subsequent adoption in order to increase fish productivity and production. The question is to what extent do female and male fish farmers (FFs) have access to the aforementioned communication channels for AFF?

Sources of proven information in Nigeria are yet to be fully exploited for reasons ranging from the high cost of communication to the absence of a proper framework within which to integrate
the necessary information into the fish farming development programme (Patrick, 2010). There is also the problem of widespread illiteracy.

Delta State is a coastal area and the livelihood of the inhabitants revolve around fisheries resources. Artisanal fish farming is predominant in the coastal states of Nigeria which Delta belongs. The state Agricultural Development Programme (ADP) and other governmental and non-governmental agencies involved in agricultural development in Delta State have been disseminating information and technologies on Artisanal fisheries over the years. It could not be ascertained whether male and female fisher folks have access to AF fisheries technologies and channels.

### Purpose and Objectives

The purpose of the study was to assess how female and male fish farmers (FFs) fish farmers’ accessed information and technologies from various sources in Delta State, Nigeria. Specifically, the socio-economic characteristics were described, technologies/information and sources/channels were examined for access and constraints to accessing fisheries information/technologies identified.

### Methods and Data Sources

The study was a survey research design. A multi stage sampling procedure was used to randomly select 120 female and male fish farmers (FFs) from zones to three LGAs (Isoko South, Sapele and Ndokwa East LGAs.) communities and AFF level. A structured questionnaire administered through interview schedule was used to obtain the primary data which were analyzed using both descriptive and inferential statistics (student t-test).

### Results and Conclusion

Findings show that 65% of the respondents were males, the modal with mean age of 54 years, majority (87.5%) were married and 63.3% of them had formal education AF experience of 10-20years. The finding contradicts Ofuoku et al (2008) that most fish farming and fishing activities are gender related and that women gender related role in fish farming and fishing may be limited to processing and marketing activities.

For male fishermen, they accessed information from friends and family, radio followed by Extension Agents, group meetings and discussion. poor access for internet and print media.

The technologies accessed males include outboard engines, gears, nets, weather and climate/early warning system and financing, obnoxious practices, marketing and similar for Females with less intensity.

Males indicated most serious constraints to accessing the information sources/channels included erratic supply of electricity, dispersed nature The most serious constraints for females time/too busy, AF is very laborious, illiteracy/low education, inadequate capital/finance to acquire equipment and facilities, were lack electricity followed by irregular extension visit.

Test for difference in accessed information sources between male and female AFFs using T-test show that there was significant difference in access between male and female artisanal fish
farmers (t=4.029; p=0.000) significant at 5% level. Male (mean= 24.283) fish farmers had mean score access than female (mean=18.100).

In conclusion, accessed sources of information and by implication, technologies, by for fish farmers were minimal due to common constraints such as inadequate electricity supply, shortage of extension workers, inadequate capital and specific constraints to women such as shortage of time, low level of education and laborious nature of AFF.

**Recommendation**

The key constraints of farmers in accessing information sources should be addressed then target women’s specific constraints.
Preservice Agriculture Teachers’ Perceived Self-Efficacy of Specific SAE Competencies

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Keywords: Supervised Agricultural Experience, agricultural education, teachers
Preservice Agriculture Teachers’ Perceived Self-Efficacy of Specific SAE Competencies

Introduction/Theoretical Framework

With the conception of the home project by Rufus Stimson in the early twentieth century, the school-based agricultural education (SBAE) model has been forever changed by creating a unique programmatic offering in Agricultural Education (Phipps et al., 2008). The idea of the home project was thought of as a way to engage students in opportunities outside of the classroom in which learning occurred through participation as opposed to only observation. Stimson believed that students could utilize what they learned and apply it to their own life (Stimson, 1919). In 1917, with the passing of the Smith-Hughes Act, Stimson’s educational initiative was incorporated in federal vocational education legislation (Phipps et al., 2008). Since then the project method has changed and adapted to meet the needs of all students, now being named a Supervised Agricultural Experience (SAE) program.

This study was developed utilizing Bandura’s (1986) Social Cognitive Theory. This theory stated that learning is achieved through interactions between the learner, environment, and behaviors. These interactions are bidirectional, built into a triad, where the factors do not have to occur in the same moment. This study focused on preservice teachers’ self-efficacy and perceptions of SAE in regards to their ability to perform.

Purpose and Objectives

The purpose of this study was to examine the self-efficacy of preservice teachers’ ability to perform the SAE Competencies developed through the American Association for Agricultural Education (AAAE). The specific objectives that guided this study were:

1. Examine the influence of core agricultural education certification courses on a preservice teachers’ self-efficacy.
   H0: the influence of core agricultural education certification courses will have no effect on a preservice teachers’ self-efficacy
   H1: the influence of core agricultural education certification courses will have an effect on a preservice teachers’ self-efficacy

Methods

To assist in determining the preservice teachers perceived abilities to conduct SAE in their programs, a paper-based pre-survey was administered to senior agricultural education students before the completion of the core agricultural education certification courses, where all SAE content is taught. The post-survey was given following the completion of their 15-week student teaching experience the following spring semester. The span between the administration of the two instruments was 9 months. The survey was administered to 15 preservice teachers who completed the agricultural education certification program at [a southern university]. Rubenstein et. al (2014) developed the survey based on the core competencies approved by AAAE. The instrument was found to be reliable by Rubenstein et al. (2014) with a Cronbach alpha of .05. The instrument was used unchanged from the previous study. The questionnaire was comprised of 20 Likert-type items on a five-point scale that ranged from five (high) to one (low). Data was
analyzed using descriptive statistics and the pre-post responses were analyzed using a dependent samples t-test to determine the change in the preservice teachers perceived ability to perform the SAE competencies.

**Results/Conclusion**

From the data, it can be concluded that after the core courses and student teaching:

- SAE is perceived to be of greater importance
- SAE Self-Efficacy increases in preservice teachers after preparation programs

The knowledge of supervised agricultural experiences increased among preservice teachers after being involved in a preparation course at the University of Georgia. Prior to the program, 7 of 15 participants believed that SAE was very important in coursework. However, the post-survey indicated that 14 participants perceived SAE as very important.

Preservice teachers’ self-efficacy towards SAE and SBAE increased from pre-survey to post-survey among many items. This indicated that after participation in the agriculture teacher preparation program, respondents believed their knowledge in executing specific SAE related topics increased.

Since the post-survey conducted among preservice teachers in an agriculture education preparation program indicated that participants perceived SAE as more important, and indicated that their self-efficacy towards specific competencies increased, there is a need for similar programs in other universities. The implementation of this study indicated that those participating in preparation programs were more prepared to become effective teachers upon completion.

**Recommendations**

Further examination of agriculture educators who are new to teaching and those who have been teaching for many years is recommended to determine the differences among teacher preparation.
References


Facilitating the Scholarship of Discovery: Utilizing the Mini-Ethnographic Case Study

Design

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Facilitating the Scholarship of Discovery: Utilizing the Mini-Ethnographic Case Study

Design

Introduction

Case study methodology allows researchers to conduct in-depth explorations of a phenomenon in a real-life setting (Crowe et al., 2011). Case study is a teaching strategy used to promote critical thinking (Popil, 2011); however, those used are often not developed by students for research training. Few studies have integrated student-developed case studies as a method for student engagement in international service-learning (ISL) experiences. One critical aspect of service learning pedagogy is preparing students to learn from the community (Bringle et al., 2013). Through a research lens, students craft questions to guide their interactions in the field which may yield a richer experience for both students and community members.

Case study was defined as “a thing, a single entity, a unit around which there are no boundaries” (Merriam, 1998, p. 27), which for this study was a fair-trade coffee organization (El Café Guatemalteco [ECG]) that worked with multiple small-holder coffee cooperatives in Guatemala. The researchers implemented a collaborative case study approach to enrich student learning outcomes during the ISL experience (Nkhoma et al., 2017). There is a need for increased experiential learning in graduate research pedagogy (Johnson, 2013), and as experiential education opportunities that promote student learning and meet community needs increase in demand (Mills-Dick & Hull, 2011), this collaborative research design can provide a mechanism for enhancing service learning and experiential education as a whole.

The mini-ethnographic case study (MECS) design, a specific type of case study research, uses an ethnographic approach within a case study methodology (Fusch et al., 2017). This design is beneficial when researchers are bound by a short time in the field. Ethnography is “the description and interpretation of a culture or social group”, and often requires extensive time and immersion in the field (Holloway et al., 2010, p. 76). However, a mini-ethnography is used for an inquiry when time constraints exist (White, 2009) and allows researchers to understand the cultural norms, values, and roles of participants within a particular context.

Purpose and Research Questions

The purpose of this study was to examine the implementation of MECS from both student and researcher perspectives during an ISL experience to Guatemala. The guiding questions for the current study included (a) what were the experiences of the students conducting the MECS research?, and (b) how did the MECS impact the ISL experience?

Methods

Four students implemented a MECS through research planning, implementation, and analysis. Throughout the experience, the first two authors performed the role of researcher and facilitator through participant observation (Hains & Smith, 2012), conducting daily participant observations and maintaining detailed researcher reflective journals and field notes to document the process of the students. Students used a semi-structured approach in the field along their selected line of inquiry.
To analyze data for narrative dissemination, Mason’s (2018) ecological way of thinking was used. In this approach, researchers were interested in the uniqueness of a phenomenon rather than identifying thematic patterns to understand the developmental process students experienced during the ISL and how the context of the ISL influenced this process. Using tools from facet methodology (Mason, 2011), the researchers looked for “flashes of insight” (Mason, 2018, p. 212). Within facet methodology, facets, such as those cut into a gemstone, metaphorically represent the reflections and intensifications of depth within the data that give insight to the larger phenomenon under investigation. The purpose of facet methodology is to “create a strategically illuminating set of facets in relation to specific research concerns and questions” (Mason, 2011, p. 77). Data dissemination occurred through crafted profiles, where researchers use the participants’ own words to describe the story told through the data. According to Seidman (2013), “crafting a profile […] of a participant’s experience is an effective way of sharing […] data and opening up one’s […] material to analysis and interpretation” (p. 122). While traditionally used with interview data, the researchers hybridized Seidman’s (2013) technique with presentation transcripts to capture the impact of the MECS during ISL.

Results

Students demonstrated significant engagement with community members and farmers due to the questioning route developed prior to entering the field. Narrative insights through crafted profiles will be further explicated in the presentation. Students gained insight on how to adapt while doing fieldwork, how to build rapport with community members through a language barrier, and how to work in a research team while abroad. While students received training on the MECS design, much of the research learning was emergent and happened throughout the trip. As the students moved through the experience, their research transitioned into an evaluation of the work conducted by ECG. Students noted they were able to personally instill a greater sense of service and reciprocity to the community during the ISL than would have occurred without the case study.

Conclusions, Recommendations, and Implications

The MECS helped students understand connections between theory and practice, develop their own exploratory research framework, and have real-world experiences with data collection, analysis, and dissemination. The MECS design specifically allowed students to design and conduct fieldwork collaboratively in a low-risk environment, not dependent on graduation requirements. Through conducting a MECS, students gained increased research experience and were more prepared for engagement with the community due to their research inquiries and semi-structured interviews.

Providing space for students to conduct fieldwork during an ISL rather than only being a subject of learning-centered research allowed students to direct their own learning and increase engagement. Shifting the responsibility from being an active learner to being an active researcher can alter the dynamic of ISL experiences. MECS is a flexible approach not limited to ISL— instructors, mentors, or internship advisors could allow students to complete their work while learning how to conduct research that benefits the university, organization, or agency. Few opportunities may exist for graduate students to conduct fieldwork, and through the MECS design, educators can capitalize on opportunities already institutionalized to combine experiential education with learning research methods. When students explore and design
research, they begin thinking creatively and critically about research they will encounter and conduct throughout their career.

References


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A Fresh Look at the Philosophy of Stoicism in Agricultural Leadership

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A Fresh Look at the Philosophy of Stoicism in Agricultural Leadership

Introduction and/or theoretical framework and/or review of literature

Stoicism is a practical philosophy originating in Greece around 300 BC. The Stoics believe in eudaemonia, human flourishing, through character development and living virtuously. They live according to nature - seeing themselves connected to all other beings - and focus only what is in their control (Long, 2002; Sellars, 2006). Practiced by leaders such as Roman Emperor Marcus Aurelius and Teddy Roosevelt (Aurelius, 1915; Aurelius, ca. 160 A.D./2002), Stoicism has made a resurgence in the 21st century appearing in the New York Times, Entrepreneur, and Forbes (Anderson, 2012; Bowles, 2019; Tank, 2019) as a resilience tool for leaders who face challenges in increasingly unpredictable environments.

Mentions of Stoicism within the field of leadership research have been scant. Stoic references have been made in contrast to desirable emotional intelligence behaviors (Grewal & Salovey, 2005; Mayer et al, 2008). The implied meaning within the leadership literature has been supported by dictionary definitions: “the fact of not complaining or showing what you are feeling when you are suffering” (Oxford Dictionary, 2020). Despite this contrast, these two constructs are both concerned with effectively managing emotions, having strong self-awareness, high levels of motivation, and being sensitive to the expression of emotion in others (Goleman, 2005; Pigliucci, 2017; Salzgeber, 2019).

Purpose and objectives

The purpose of this study was to explore the relationship between emotional intelligence and Stoicism. Student’s Stoicism scores were described and the relationship between the two constructs was examined. Scores were also analyzed for differences with regard to their demographics of age and gender. The objectives were:

1. Describe students’ stoic behaviors,
2. Identify the relationship between measures of Stoicism and emotional intelligence, and
3. Identify differences in Stoicism based on demographics of age and gender.

Methods and/or data sources; or theoretical/philosophical themes

The Liverpool Stoicism Scale was selected to measure participants’ levels of Stoicism based on three popular viewpoints: lack of emotional involvement, dislike of free emotional expression, and the ability to endure emotion (Wagstaff & Rowledge, 1995). The 20-item Liverpool Stoicism Scale used a five-point Likert-type scale with responses ranging from strongly disagree to strongly agree.

The study population (N = 445) were undergraduate students from an American public university enrolled in the leadership minor. The sample (n = 209) was drawn from leadership courses in the Department of Agricultural Education and Communication using purposive sampling. Data was collected via Qualtrics and analyzed using descriptive statistics, Independent Samples T-Test, and Analysis of Variance.
Results, products, and/or conclusions

Results of this study filled a gap in the literature as the first study to report on Stoicism in the US with an undergraduate population. It’s also the first to directly examine the relationship between participant Stoicism and Emotional Intelligence scores, two constructs deeply concerned with the regulation of emotion.

Participants Stoicism scores ($M = 52.37, SD = 9.51$) trended toward the lower end the range (20 – 100) with lower scores meaning lower levels of Stoic dispositions. Compared to studies using the LSS, findings are consistent with Wagstaff and Rowledge ($M = 52.24; 1995$), however, they are slightly lower than an Australian study ($M = 54.9; Murray et al., 2008$) and the Spanish study ($M = 56; Calderón et al., 2017$). Latvian studies from Gaitniece-Putāne (2005; 2006) reported even higher results ($M = 68.31, M = 62.08$) and proposed cultural differences for the influence. The current study is the first in a North American setting and different races were present (White = 55%, Hispanic/Latino(a) = 24%, and Other = 21%), but a follow-up investigation into cultural influence could produce insights to the difference in scores across study populations.

The sample’s age range (<17, $n = 30$; 20, $n = 48$, 21> $n = 37$) was lower than other LSS studies ($M = 59.8$, Calderón et al, 2017; $M = 69.71$, Gaitniece-Putāne, 2006; $M = 52.7$, Murray et al., 2008). This studies low Stoicism scores could be due to age which has a positive correlation with Stoicism (Calderón et al., 2017; Murray et al., 2008; Gaitniece-Putāne, 2006). A statistically significant difference in Stoicism scores based on participant gender was reported ($t (113) = 2.479; p = .015 d = .564$) with males ($M = 56.35, SD = 8.754$) scoring higher than females ($M = 51.20, SD = 9.475$). Studies in Britain (Wagstaff and Rowledge, 1995), Spain (Calderón et al., 2017), and Australia (Murray et al., 2008) had similar findings, however, the Latvian study reported female participants ($M = 71.11, SD = 9.23$) scoring higher than males ($M = 62.08$, $SD = 7.73$; Gaitniece-Putāne, 2006). Again, the cultural environment was referenced as a possible influence.

A negative and moderate relationship between Stoicism and ESCI’s competency of self-awareness was reported ($r = -0.391; p = .05$). The ability to recognize and understand one’s emotions and their impact on one’s performance is negatively correlated with a lack of emotional involvement, the ability to endure emotion, and a dislike of emotional expression. Through this lens, Stoicism appears to associate with emotional repression and lack of awareness, a finding misaligned with the philosophy’s origins. The emotional maturity of participants’ could be called into question due to their age range (17-22).

Recommendations, educational importance, implications, and/or application

Stoicism offers wisdom and guidance to leadership professionals through mainstream media, while academic leadership literature referenced Stoic behaviors as an undesirable trait for effective emotional management (Anderson, 2012; Bowles, 2019; Gambhir, 2019; Grewal & Salovey, 2005; Mayer et al, 2008; Tank, 2019). Investigation of Stoicism through a philosophical lens could benefit the field of agricultural leadership. With possible cultural influences, the role of social pressures and expectations for adopting emotional regulation practices, agriculture is a relevant context to understand this practice. Leaders in this industry strongly associate with nature and often endure circumstances beyond their control to maintain focus on the task at hand.
This personal discipline has a positive impact on the livelihood of many, an ideology strongly related to Stoicism. Further exploration of Stoicism within the context of agriculture leadership could reveal a fresh perspective on the philosophy regarded as unfavorable.

References


Using International Experiences to Reduce Xenophobia and Cultural Biases within Youth

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Key Words: Cultural Acceptance, Cultural Awareness, Cultural Growth, Cultural Biases
Using International Experiences to Reduce Xenophobia and Cultural Biases within Youth

Introduction

The 4-H Youth Development Program can create opportunities for youth to experience Positive Youth Development (PYD) programming which may influence their acceptance of others and their respect for other cultures. Through a renowned study, entitled, “4-H Study of Positive Youth Development”, it was well demonstrated that 4-H programming positively affects children, predominantly along five major areas of focus known as “the 5 C’s” (Lerner, Lerner, & Almerigi, 2005). Lerner et al. (2017) showed that among youth studied, 4-H members demonstrated enhanced competence, confidence, connection, caring/compassion and character.

Programs in 4-H, such as 4-H exchange, travel abroad, and service learning trips, are several ways in which 4-H can affect youth to potentially decrease xenophobia and enhance cultural acceptance of others. It has been posited that strategic programming efforts that build on the foundational tenets of 4-H, especially upon the ideas of enhanced compassion and caring, can lead to: (a) youth’s increased acceptance of others and other cultures, and (b) reduced tolerance of racism and xenophobia. This article highlights a state’s high touch, intervention approach to decrease cultural aversion and biases, through an international immersion experience.

Purpose and Objectives

The year 2020 noted a heightened level of negative rhetoric regarding other cultures. The COVID-19 pandemic led to enhanced discriminatory treatment toward Asians, particularly as people connected the origins of the pandemic to China, thus applying their anger biases toward anyone who appeared of Asian ethnicity (HRW, 2020). The COVID-19 pandemic, a global pandemic of the coronavirus disease 2019 (COVID-19), was first identified in December 2019 in Wuhan, China and declared a global pandemic on March 11, 2020 (“CoVID-19 pandemic”, 2020).

It has become even more important for youth programs, such as 4-H, to align programs with the intention to create awareness of cultural biases. International experiences can act as an intervention approach in order to create critical lenses that allow for more self-awareness of one’s own biases. The fear of visiting places that seem extremely different from your own place of origin can foster xenophobic and ethnocentric sentiments (Agyman, 2017). Cultural Competency within 4-H is a core intended outcome based on the National 4-H Civic Engagement Logic Model (Schillings & Fox, 2011). Trip coordinators drew on the core belief that international experiences can increase youth’s life skills, empathy, and cultural competence (Arnold, 2004; Crowne, 2013).

Methods and or Data Sources

Youth, ages 15-18, interested in gaining a culturally enriched experience were encouraged to apply for the first Maryland 4-H Agricultural Experience in Great Britain. Over a two week period, program coordinators exposed the youth to metropolitan areas of Great Britain including London England, and Edinburgh, Scotland. However, the delegation...
focused the majority of time in rural Northern England where they interacted daily with other youth as well as agriculture producers and industry.

Program coordinators drew on a reflective learning theory approach (Sugerman et al., 2000) to allow youth to have healthy debates on how they perceived cultural differences observed during the day.

An online survey was administered approximately 6 months after the Great Britain Agricultural Tour. Because the targeted population of the survey was small, taking a census was more favorable than choosing to take a sample (Daniel, 2012).

**Results/Conclusions**

A qualitative six months post-approach was taken with the ten youth delegates by providing open ended questions to gauge their perspectives that aligned with themes connected to cultural awareness and biases. The following themes represent the youths’ experiences and the most often stated benefits of this international travel experience: becoming more global minded, seeing new places, experiencing a different culture, increasing cultural awareness, increased self-awareness and actualization, influencing their future vision of traveling abroad or an international focused career, increased understanding of global agriculture, and application of the experience on world view.

The qualitative results of the Great Britain Agricultural Tour demonstrated that the program positively affected youth while meeting the program goals of providing youth with a cultural immersion experience, and allowing youth to gain a greater awareness of culture and cultural implications in addition to acceptance of others.

When reviewing the literature, it was noted that there is a gap in regard to 4-H-aged youth traveling abroad for high impact, short-term experiences, such as the experience presented here. Due to limited published studies in this area, it is noted that evaluation of similar experiences are needed more confidently assess the increase of self-awareness of cultural biases among youth and make application of the findings on a broader scale. Further, direct processing with the youth of the application of reduced cultural biases and xenophobic awareness and sensitivity would be of benefit.

Not all youth will have the opportunity to travel abroad however, 4-H clubs and groups can also coordinate activities and events to further enhance and support cultural appreciation. Youth Development Educators can use curricula that engage youth in cultural experiences without having to travel or host a delegate. Youth can choose to complete a 4-H project around diversity, global citizenship, and/or culture.

Youth are not the sole group that benefits from these types of 4-H cultural immersion experiences as 4-H Youth Development Professionals also gain skills to improve themselves and their skills to train adults and volunteers in the areas of inclusion and creating a welcoming environment for all youth. Youth Development Educators should include cultural growth and exposure-focused programs as a part of their annual program development process and planning.

Youth development professionals should understand xenophobia is a learned behavior and everyone has biases. However, through deliberate programming and experiences, awareness of these biases can be enhanced and perhaps increase cultural acceptance as well. The implication could be that as global health events occur, such as the COVID-19 event of 2020, people will consider how their actions and perspective is influenced by their concern with a global view.
References/Citations


Assessing the Virtual Summer Apprenticeship Program (SAP) at a Minority-Serving Institution

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Keywords: apprenticeships, recruitment, retention, experiential learning
Assessing the Virtual Summer Apprenticeship Program (SAP) at a Minority-Serving Institution

Introduction

Even before the debate about how schools should re-open in the Fall of 2020 in response to the Coronavirus pandemic, we had to make a decision about if and how to deliver our annual and very successful Summer Apprenticeship Program (SAP). The SAP is a competitive program where selected high school and community college students work alongside a faculty member on respective research projects (Tennessee State University, 2020). For an entire month each year, students conduct research in labs, sleep in dorms, eat in the cafeteria, and become acclimated to campus life. In the traditional program, which is our best recruitment tool in the college, students actually conduct a research project from start to finish, even submitting their research in front of fellow students, faculty, and family at the end of the SAP. In the Spring of 2020, we made the decision to offer the program virtually because of the programs’ importance to our college and the students that participate.

Purpose and Objectives

The purpose of this study was to assess the effectiveness of the Virtual SAP. The following objectives guided the study.

1. Describe students’ experiences in the virtual SAP.
2. Compare students who experienced both the face-to-face and virtual SAP.
3. Determine if the program should be continued in the case of future pandemics.
4. Determine what improvements can be made in the case of program continuance.

Methods

To accomplish the objectives qualitative research was employed. Specifically, students were interviewed via Zoom. Interviews were recorded, and the unique Zoom feature that produced automated transcripts were used for narrative analysis of 12 students who were enrolled in the SAP. Before the study began five of the Agricultural Education and Agribusiness (AEA) students were taught about qualitative research, data collection, and analysis and they were involved in actually conducting the study as part of their research experience. The AEA students actually worked collectively to draft the questions for the interview protocol. We simultaneously interviewed AEA students and trained AEA students on interviewing all the other students in the SAP. The following interview questions were asked of all students:

1. What was your favorite part of the Virtual Summer Apprenticeship Program? Explain.
2. What was your least favorite part? Explain.
3. Can you comprehend and apply information learned from presenters/professors?
4. Describe your experiences connecting online and using Zoom? How did the Virtual Summer Apprenticeship program comply with your daily life?
5. Tell me how you think the professors could improve for next time? Explain your thoughts on the length of the sessions. What about your thoughts on the morning sessions vs afternoon sessions?
6. Has your mind changed about the concentration you want to pursue? Explain how that happened.

Students who experienced the face-to-face SAP in 2019 and the virtual SAP in 2020 were asked the following questions.

7. Explain the major differences between the on-campus vs virtual Summer Apprenticeship Program.
   a. Compare the knowledge gained from the virtual apprenticeship vs the in-person experience.
   b. Compare and contrast the things that you liked and disliked about both experiences. Explain.
   c. If you advised students who could choose on-campus or virtual, what would be your advice?

We edited the Zoom transcripts of interviews, and students were asked to read transcripts for validation and identity scrubbing. Students were then asked to develop codes and themes by reading through transcripts using Google Docs. Six themes were identified.

Results and Conclusions

In terms of the Job conflict theme, the majority of students had jobs and few of them actually took off for the virtual SAP like they would have for the face-to-face apprenticeship. Another trouble spot for many of the students was Wake-up time. Many students, either seriously or jokingly mentioned the difficulty they had focusing early in the morning. Regarding the Issues with reliability and technology theme, some students had problems with an internet connection of Wi-Fi, and in other cases it was the professors who had problems. Some students experienced no problems. Those who had problems would not recommend the virtual SAP and those who had fewer problems would recommend the virtual SAP. The next theme was Learned from other concentrations. This theme developed because nearly all of the students, first timers and repeat students, admitted they learned about and became more interested in areas of agriculture they didn’t think they were interested in. Some of the returning students found the part of the program that exposed them to all areas of agriculture a big difference in the virtual SAP. In terms of the Engagement theme, many students admitted the program was not as engaging as they would like. They wished there was some way to make the learning more hands-on. They did note, however, the that the faculty member they were learning from made a lot of difference in terms of engagement. Faculty attempts at interacting with students rather than lecture were much appreciated. The last theme, Face time is better, but virtual is ok, formed out of the opinions of the students who participated in the face-to-face SAP in 2019 and the virtual experience in 2020. Not surprisingly, these students noted that the traditional program was better because of social aspects, campus familiarity, and experiential learning. However, they admitted that the virtual program was not that bad, and they seemed appreciative of the opportunity.
Recommendations

It is recommended that whenever possible, leaders choose the face-to-face version of the SAP. However, they should not be afraid of the virtual version as an alternative. If the virtual SAP must be replicated in future years, rules regarding clearing student schedules as if they were going to campus full time should be implemented. Later start times should be explored. Student and faculty connectivity should be vetted several weeks before the program begins. Faculty development in engaging students and online pedagogy needs to take place. Lastly, both the traditional and virtual options should consider orienting students to all parts of agriculture, as most students really enjoyed learning about the various areas of the industry.

References

Western Kentucky University's Agriculture Student's Behaviors and Attitudes toward Class Adjustments Due to the COVID-19 Outbreak

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Keywords: pandemic, undergraduate, agriculture, knowledge, online
Introduction

The college experience was drastically challenged in March 2020 with the Covid-19 pandemic. Many institutions were scrambling to change educational delivery systems to meet the needs of their students. Faculty, instructors, and staff were also charged with changing the way they teach and interact with students in their courses due to the crisis. The students in these courses were also forced to change the way they interpret and share knowledge during this new condition. In the educational world, students have also experienced deficits in learning as a result of new approaches to teaching that were implemented (Middleton, 2020). How would the students handle the switch from in person learning to web based learning in all of their courses in such a short period of time? Is it possible to keep students engaged in content with such a drastic change? In public schools, forty-two percent of teachers said student engagement is much lower than it was before the coronavirus (Herold, & Yettick, 2020). This study discusses the behaviors, attitudes, and opinions of Agriculture Majors at WKU in relation to the new online only classroom format due to the outbreak.

Purpose and Objectives

The purpose of the study was to determine if the students in the Agriculture Department at WKU were comfortable with the transition from regular classes to online courses during the pandemic. As COVID-19 spread across the USA, students were forced to shift from in-person classes to online only instruction. Teaching online is different from traditional class-room teaching (Nishikant, 2009; Sammons, 2003). University students had various opinions and behaviors on this change, as it was highly unexpected. But, what did WKU's Agriculture Students think about the different instruction style? Once the students were released from their regular face to face classes, would they have space, technology, or stable connections to make the transition work for them? Some of these students have unstable housing or are homeless while others lack reliable Internet access or computer accessibility (Tornay, 2020). One study conducted recognized a significant percentage of students who failed to complete assignments after the transition (Middleton, 2020). What would be the comfort level of the faculty, instructors and staff during the teaching transition? Did WKU's student face any of these same challenges? With the increase of apps for online delivery systems and of Internet access at every café and fast food enterprise across America, students can obtain an education more easily, but they can also more easily find ways around doing their own work (Nightingale, B. 2014). This study discusses the behaviors, attitudes, and opinions of Agriculture students at WKU in relation to the new online only classroom format due to the outbreak. The objectives for the study were: 1.) Determine a level of transitional awareness and acceptance in class transition and 2.) How did the COVID-19 adjustments affect WKU agriculture students learning experiences?

Methods

A survey including demographic questions and topic-based questions was distributed using Qualtrics to 280 students in an agriculture class and all the students on the WKU Agriculture email list serve. Seventy responses were received. Many of the questions included topics like "What were your opinion on the COVID-19 adjustments" and rating the ease of adjustments. The goal was to determine the behaviors and opinions of Agriculture students in relation to online learning during COVID.
Results and Discussions

Out of the seventy responses submitted, eleven were deemed unusable. Those were disposed as they were not completed correctly or had multiple missing responses. Out of the responses given, fifty five students provided negative feedback about the COVID adjustments. Their acceptance to the transition was labored and not handled as well as it should have been. Some of the issues were concerns over technology, professor ability to work over the Internet, and loss of hands on training for lab and active methodology classrooms. When students were asked to rank their likelihood to complete classroom responsibilities, they recorded a significant decrease in all four categories in attending class, turning in assignments on time, completing all exams and quizzes, and having success in the class. They believed their learning was different but not as effective as traditional classes. Five students believed their classes remained the same as far as difficulty while two reported them to be more difficult, and one reported it to be less difficult. Many students also face the changes or challenges due to COVID including postponed family visits, loss of work, and increased stress levels. Limited student-teacher social interaction is a common concern for both students and teachers in online education (Capra, 2011).

Implications, Conclusions, and Recommendations

WKU’s Agriculture student responded negatively to the COVID-19 classroom adjustments. Some contributing factors that may have not been measureable could have led to emotional instability during the pandemic delivery strategy change. Some implied factors such as help seeking and teacher feedback may play an important role to deal with their emotions in online learning environments (Xu, Du, & Fan, 2013). They also reported a decrease in grades and being less likely to succeed in their courses. Overall, students expressed concern over the lack of hands-on learning. Another survey should be distributed to see if the emotional instability has increased or decreased in the fall semester. Also, additional rates of success should be measured to determine if the continued online method, hybrid, method, or online method for the fall of 2020 has had an impact on their success.
References


To Namibia and Beyond: An Innovative Model for Virtual Study Abroad Education Programming

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To Namibia and Beyond: An Innovative Model for Virtual Study Abroad Education Programming

Due to the 2020 COVID-19 pandemic and following travel restrictions, all study abroad programs, including the Texas A&M University’s Namibia trip, were cancelled. This high impact experience was not only valuable, but required, of our students to graduate and complete two courses, agricultural photography and applying international development theories in agriculture, already in progress. To avoid the loss of valuable international experience, we developed Texas A&M University’s seminal virtual high impact experience (VHIE). Seventeen students and four instructors engaged in a 10-day VHIE through various digital and traditional tools.

Theoretical Framework

This VHIE was designed to provide a connection to Namibia, virtually. Research (Abdulwahed & Nagy, 2009) shows that combining virtual elements with interaction and reflection can successfully integrate Kolb’s (1984) model of experiential learning. We combined virtual experiences, interactive elements, and individual and group reflection to replicate Kolb’s four phases of experiential learning: Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation.

Purpose and objectives

This experience, a virtual iteration of our traditional in-person study abroad experience, had no predecessor; however, its purpose remained the same. Therefore, our objectives of this study were to:

1. Provide an impactful and reflective experience through curriculum and contact modified via distanced learning tools.
2. Create a learning environment as affecting and substantial as a traditional study abroad.
3. Integrate Kolb’s model (1984) of experiential learning to incorporate all four phases into our teaching and learning process.

Methods

Through this 10-day experience students engaged their instructors, classmates, themselves, and guest-speakers through a cycle of interactive activities, Zoom discussions, personal, and group reflections.

Students met individuals in the Namibian government, Peace Corps leadership, tourism industry experts, the Executive Director of the Namibian Uranium Association, the Namibian U.S. Embassy officials, the Executive Director and in-country Coordinator for a U.S. NGO focused on agricultural development in Uganda, and owners of an exotic wildlife veterinary service, all via zoom. Students engaged each speaker with questions after the guests had ample time to present their experience within Namibia, international development, and related topics.

The students engaged one-another using other virtual tools, such as GooseChase (2020). This application allowed students to break up into teams that competed through in-app
photography, videography, and text submissions to answer course-material based questions and practice their photography skills.

We also used Zoom to stream documentaries *Milking the Rhino* (Simpson, 2009) and *Into the Okavango* (Gelinas, 2018) to watch together, and participate in show-and-tell photography presentations.

Students were mailed a package containing postcards, a pre-made Namibian wildlife editioned bingo game, and a 360-video Google-cardboard headset. Students used the Google-cardboard to watch 360 video footage of experiences from the 2019 Namibia trip. They later engaged one-another through GroupMe (2020) to complete the competitive bingo game using the post cards mailed to different group members.

Students reflected individually through concept notes where they wrote deeply about one idea. They later shared these concepts in small-group discussions via Zoom. As a large group in Zoom we engaged in “Fireside Chats” and “Sundowners” where students came together with facilitators to have large-scale discussions and debriefs—just as we would have in Namibia.

**Results and Conclusions**

Students were able to have prolonged engagement with guest speakers and were able to access individuals both planned on the in-person trip, and outside of the traditional experience. The students were prepared with deep and thorough questions, and often chose to later contact the guest speakers for follow-up Zoom meetings to gain more insight.

The GooseChase (2020) experience enabled small-group engagement and added a positive competitive element to the experience. This game challenged the students’ skills and tested their knowledge, fostered growth in personal relationships among students, and provided another opportunity to communicate, with a student stating “this [activity] included team building, communication and creativity. What more could you ask for?”

During the documentary viewing, used the chat box in Zoom to create interpersonal dialogue, analysis of the film, and engaged one-another. Students digested the heavy concepts in the films through communication with their peers, resulting in a more engaged film-viewing than traditional (silent) in-person viewings. A student said, “I loved the commentary from watching [the film] as a group.”

Students reacted to the 360 VR footage and headset extremely positively, stating the experience was more realistic than traditional video, stating, “Namibia came to life when I got to view it through the videos.”

Student reflections relating to COVID-19 lessen through the program, and students instead focused on the opportunities within the VHIE. They expressed positivity about guest speakers, discussions had, information gained, and personal relationships developed through the VHIE. When asked about the VHIE experience a student said “Zoom won’t ever be Namibia, but I can confidently say this is still a once in a lifetime experience. It was engaging, uplifting, challenging, and life changing.”

**Educational Importance**

The impacts of COVID-19 will continue to affect the planning of future study abroad and travelling high impact experiences; however, technology gives us the ability to continue generating impactful experiences.
It is evident VHIE can be enriching, as one of our students stated, “Although I have not physically been to Namibia, I feel that a part of me has definitely experienced the culture. I know that I have more knowledge about Namibia that I thought I would, and I would do it all over again. I think VHIEs would benefit so many students who wish to go abroad but cannot for whatever circumstance. Not only did we hear from and gain insight and knowledge from many people who are familiar with Namibia, but we created a community of people within our program as well. This has been engaging, interesting, inspiring and so much more.”

This VHIE serves as a model for future programs to implement lessons that students previously could only gain abroad into accessible formats. Students do not need a trip to a foreign country to gain access to foreign resources. Technology puts these experiences at our fingertips. We can increase global competency, interpersonal communications, self-reflection, and critical thinking right on our laptops.
References


Zoom Video Communications, Inc. (2020). Zoom meetings [virtual meeting space]. https://zoom.us
A United States/Africa Collaborative International Immersion

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Introduction

Study abroad programs are opportunities for college students to gain new skills that will expand their success in the ever-globalizing world economy. The number of U.S. students studying abroad for credit during the 2017-2018 academic year grew 2.7 percent from 332,727 students to 341,751 students (NAFSA, n.d.). Although the experience is highly valued, studying abroad presents barriers and a large financial commitment. According to Dessoff (2006), financial barriers stand as the leading hindrance to student’s ability to study abroad. These barriers include credit transfer (Carlson, Burn, Useem, & Yachimowicz, 1990; Goldstein & Kim, 2006; Klahr, 1998; Shirley, 2007), lack of faculty and campus support (Mathews, Hameister, & Hosley, 1998), and lack of foreign language knowledge (Dessoff, 2006; Hembroff & Rusz, 1993; Mathews, et al., 1998), and cost (Booker, 2001; Clemens, 2003; Lozano, 2008). Additionally, there is a lack of overall information about study abroad programs (Mattai & Ohiwerei, 1989; Peterson, 2003). Due to these limitations, universities seek unique alternatives to still provide their students with global and cultural experiences. To meet this need, Texas A&M University (TAMU) provided an opportunity for a virtual learning exchange between its students and those attending Mohammad VI Polytechnic University in Morocco (UM6P) (Goldstein & Kim, 2006; Hembroff & Rusz, 1993; Mathews, et al., 1998).

Purpose and Objectives

The purpose of this collaborative experience was to engage students in developing international and intercultural competencies. Students participated in learning activities including diverse teamwork and effective communication through facilitated dialogue and various group activities. The objectives of this collaboration was to:

1. Introduce and develop intercultural communication and awareness through interaction in facilitated group dialogs.
2. Prepare students to be more competitive in a globalized world.
3. Give students the opportunity to become internationalized learners.

Methods

The exchange, identified as “ENGAGE,” funded by The Aspen Institute and developed through a team effort by personnel from both institutions (Elliot, 2020). The program utilized various communication platforms to give students the opportunity to interact with peers in the U.S. and Morocco. The program used Zoom for class, a community Facebook page, and learning platforms Canvas, Slack and Trello. The teaching was synchronous and asynchronous. The platforms delivered course content, taught through Reusable Learning Objects (RLOs).

The course had two components. During the first half of the semester, TAMU virtually taught class examined, The Scramble for Africa (Pakenham, 1991), where students presented chapters to their peers. Students also worked to develop research papers in which they selected African countries and researched them prior to the UM6P students joining the virtual portion of the semester.
When the [Moroccan University] students joined the class, the nine RLOs were the focus. The RLOs were broken down into three pillars. Each pillar improved skills such as critical thinking, problem solving, empathy, and interpersonal communication.

The class focused on the development and presentation of a joint agricultural issues project after students completed the three pillars and nine RLOs. This group project gave students from TAMU and UM6P the chance to address issues faced by both countries. Teams assigned by the facilitators and professors balanced various levels in English-proficiency, universities, and gender. At the end of RLO facilitation and Zoom group work, students had an understanding of how to effectively communicate across cultures, within their groups as they developed their joint presentations.

**Products**

This interactive learning collaboration produced many viable products seeking international funding opportunities. Collaborative classes such as ENGAGE are supported by the idea that learning can happen at any time, in any place—a concept known as transformative learning. The RLOs used during synchronous and asynchronous class time provided students with valuable skills such as conflict management, critical thinking, and problem solving.

Students finished the ENGAGE program with several long-term outcomes, such as the ability to work through problems and communicate well with anyone they may encounter. These skills and competencies will enable success within the remainder of their college and professional careers. Examples of the products students produced include the African country research paper and a jointly prepared agricultural issues and development agency presentation. Each week the students participated in “Daily Activities,” that improved skills such as academic writing, analysis of local issues, interpersonal communications, relationship building, cross-cultural competency, and presentation skills among multinational groups.

Students could also earn Cultural Competency Certificate (College of Agriculture and Life Science, 2020; Texas A&M, 2020) during this program that will go on their transcript. The College of Agriculture and Life Sciences and the Department of Multicultural Services at the TAMU created the certificate program accessible to individuals who applied, had a thought-provoking presentation, and were reviewed and accepted into the program (Texas A&M University College of Agriculture and Life Science, 2020).

**Recommendations and Educational Importance**

The ENGAGE program encountered some technical issues such as the inability to split programs like Canvas and E-campus between two different institutions. Working within existing learning platforms is cost effective, but not always feasible between different institutions.

Along with applications such as Facebook Messenger and WhatsApp, students and instructors were able to communicate at an efficient level. However, the biggest goal of the course was to facilitate group dialog, so social media platforms that were utilized did not always deliver that goal.

Internationalization of higher education involving information and communication technology such as e-learning opens opportunities for innovative learning approaches across nations and
cultures (Wihlborg, M., Friberg, E. E., Rose, K. M., & Eastham, L., 2018). These programs enable students the opportunity to interact with peers of the same area of study, half-way around the world with little or no cost. Virtual student exchanges are a cost-effective way to enhance global competence and make students competitive in the world market (Wihlborg et al., 2018).
References


Shirley, S. W. (2007). The gender gap in post-secondary study abroad: Understanding and marketing to male students (Doctoral dissertation, The University of North Dakota,


Developing Ongoing North-South Relationships through Reciprocal Exchange Learning Experiences

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Developing Ongoing North-South Relationships through Reciprocal Exchange

Learning Experiences

Introduction/Conceptual Framework

International learning experiences should be impactful and challenge participants’ ways of thinking, increase cultural understanding, and enhance their outlook as global citizens. Reciprocal exchanges add another challenge because participants are encouraged to reflect on their own cultures as they interact with counterparts. Exchanges should be based on the premise of parallel growth by all participants (Jotia et al., 2020). When developing such programs “it is [also] critical to consider the impact they may have upon fragile economies, cultures, and ecosystems” (Jotia et al., 2020, p. 280).

The exchange reported on aimed to improve the North-South relationship between a U.S. graduate student and a 2019 Mandela Washington Fellowship Institute (MWFI) participant from Kenya. Both had three key goals: improve global food security; gain an understanding of agricultural, business, and cultural practices in another country; and to form a long-term relationship. The exchange consisted of two long-term international experiences starting with the student hosting the 2019 MWFI cohort of 25 Sub-Saharan Africans for six weeks as a member of Oklahoma State University’s project delivery team. The student approached a Kenyan Fellow with similar goals and the ability to host a long-term visitor, and they agreed to collaborate. Schroeder et al. (2009) 12 questions were considered to avoid or mitigate any potential negative impacts on the receiving nations and hosts and guided creation of the exchange agenda. The U.S. student spent eight weeks working as an intern in her Kenyan host’s food business.

Purpose/Objective
The poster’s purpose is to describe the reciprocal exchange experience between a Global North student and a Global South entrepreneur. The exchange’s objective was to increase cross-cultural understanding between the two participants and create a long-term, ongoing relationship with lasting positive impacts.

Methods/Procedures

U.S. Experience

The exchange had parallel themes involving personal development, community development, and cultural immersion. Personal development for the MFWI Fellows focused on acquiring entrepreneurial skills through practical and theoretical learning experiences at Oklahoma State University. They attended topical presentations such as corporate social responsibility, grant seeking, social entrepreneurship, ethical leadership, youth development in the agriculture sector, and customer service. The U.S. students working as Institute staff also participated in classroom discussions and observed the Fellows explain their agribusinesses and ideas for development.

Experiences with community development included the Fellows participating in community service alongside their student hosts at a local food pantry and with a Habitat for Humanity affiliate. The Fellows also toured local businesses and networked with U.S. entrepreneurs. Cultural experiences were another feature of the Institute. On arrival, the Fellows moved into a university dormitory, similar to U.S. college students, cooked in a community kitchen, and shopped at local supermarkets. The Fellows also attended cultural field trips to U.S. historical sites, museums, and community events. And informal cultural exchanges occurred when the Fellows shared meals with students, visited students’ homes, and attended their places of worship.

Kenya Experience
The student’s eight-week stay in Kenya focused on the same three key areas. Personal
development included working as an intern for the agribusiness owned and operated by the
Kenyan Fellow, a further-processing enterprise that adds value to local food products, e.g.,
making millet bars. This involved technical and human-relations skills. Both participants
practiced and expanded their competencies, including oral and written communication, problem
solving, and resourcefulness.

Technical skills involved creating a marketing plan, designing promotional material, and
creating a strategic plan for the Fellow’s organization. Rebranding the Fellow’s business to
increase farmer partnerships and the demand for her food products were the exchange’s highest
priorities. The student used her agricultural communications skills to create a consistent and clear
brand. A new business logo was the first work product; she then created other material, including
business cards, a letterhead, an advertising banner, PowerPoint templates, and new packaging
labels. Her photography was used to develop the branding materials. To create a clear brand
message, the student wrote a tag line and hashtag.

Community development for the U.S. student included local schools and farmer
cooperatives. She visited three schools as a guest lecturer on agriculture and food careers and the
U.S. approach to agricultural education, including youth development for the agriculture sector.
While attending farmer cooperative meetings, the student took part in discussions that included
idea sharing, problem solving, and program development. Similar to the Fellows’ experiences in
the United States, the student lived as a local. By staying with a host family, she experienced life
in rural Kenya, which included living in a home with no electricity or indoor plumbing. She
learned how to cook traditional foods while sharing meals with her hosts. The student also
performed daily tasks on their farm, shopped at open-air markets, and attended church with her
host family. An unplanned activity for both participants was experiencing the host nations’ medical services due to illnesses, which gave each a chance to help the other navigate their respective healthcare systems.

**Selected Results/Conclusions**

North-South relationships can be developed through reciprocal exchanges, with positive impacts on the people and communities involved, as evinced by the experience described. International reciprocal exchanges stand to improve the cross-cultural competence of the participants (Ludwig, 2002), but these programs can also manifest negative consequences (Jotia et al., 2020). However, by building participants’ relationships and visitors learning about the host communities’ needs and resources beforehand, these issues “[may] be detected and mutual trust created such that problems can be discussed and addressed” (Schroeder et al., 2009, p. 146). Such an approach helped make this exchange a productive experience.

**Recommendations/Educational Importance**

Reciprocal exchanges facilitate mutual learning experiences and often create long-term collaborations. Exchanges that employ participants’ strengths and expertise are encouraged. International learning experiences, however, can be expensive and the willingness of all participants to contribute increases the likelihood of these exchanges occurring (Kunert et al., 2020), e.g., hosts providing in-country housing and local transport. It is also important to invest in ongoing interactions, including online platforms to maintain long-term and mutually beneficial relationships between the exchange participants (Kunert et al., 2020).

**References**


Ubuntu: A Pathway Towards Renewal of Stagnated Extension Services in South Africa

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Ubuntu: A Pathway Towards Renewal of Stagnated Extension Services in South Africa

Introduction

In South Africa, Extension Services is facing a crisis of stagnation. The crisis prevail despite high level government interest to position Extension at the pinnacle of agrarian transformation. Globally, Extension institutions are on the front line of innovative trends stemming from societal shifts whilst Extensionists have been a trusted source of information for decades. As a participatory, community based and applied science, the strategic role of Extension in South Africa and the continent features in socio-economic policies and political discourse on matters of land reform, food security and climate change, especially in the context of the struggle against the ‘triple challenges’ of hunger, poverty and unemployment. That Extension has a strong contributory role to play in service of the poor and vulnerable, there is no controversy. Yet, stagnation of the discipline remains a reality that manifests in many forms—the year-on-year declining budget allocations, university enrolments, numbers of Extension Agents, with concomitant societal mistrust regarding the quality of services rendered.

Philosophical Theme

‘There is nothing as practical as a good theory’ Kurt Lewin.

The ancient African philosophy of Ubuntu is one such theory and grounds this paper, especially as relates to the behavioural change approach advanced by psychologist John B Watson in the early 1900s. Ubuntu philosophy was popularised by Mbingi and Maree in 1995. Ubuntu is about ‘being self through others’ thereby expressing a form of connection amongst people that seek to say 'I am because of who you are'. Much scholarly work exist on the philosophy of Ubuntu across disciplines from exploring its role in modern society as a capitalist tool to its framing as a cherish-able Public Good but, none had articulated its nexus with Extension Service and education—an applied decision oriented science much vested in influencing human behaviour. There are two perspective to Ubuntu. One views Ubuntu as a moral quality of a person whilst the other is a worldview where communal interests rise above those of the individual. The latter espouses an existential perspective emphasizing that humans need each other in order to be human; that human beings are made for togetherness to exist in a tender network of interdependence and to constantly practice the notion of 'Being through service to Others'.

This notion of ‘otherness’ interacting in concert for purposes of, amongst other values, survival, is what Ubuntu’s behaviourism is about. Behaviourism asserts that much as an individual can introspect about their perceptions and feelings, ‘others’ can observe their behaviour. Psychologists study individuals by looking at their behaviour rather than their internal workings. Behaviourism and its subsequent outgrowth, stimulus-response psychology, brings forth some basic human behavioural characteristics. We focus here on two such characteristics that are interrelated to Ubuntu, namely, that (1) human behaviour is viable and dependent upon learning, and less regulated by instinct; and that (2) normal adult human behaviour—development into what society would consider a human being—only develops through the stimulation of other people.

Purpose and objectives

The paper seek to provide a philosophical case necessary to address the stagnation facing Extension in South Africa today. The paper argues that, for the sake of its own renewal, Extension has to re-align itself with the ancient philosophy of Ubuntu, which has a long tradition in Africa. That Extensionists with Ubuntu need to uphold this ‘African worldview’ that places communal interests above those of the individual, and where human existence is dependent upon meaningful interaction with others. Extension Service as an applied science that forges relationships aimed at strengthening people’s
capacities to innovate, echo key values of Ubuntu. These are the values of survival, compassion, solidarity, dignity and mutual respect. Our conclusion is that Ubuntu reciprocates as actors in the Extension system come to the realisation that 'I am because of who we all are'; and recommend Ubuntu as a necessary renewal pathway for Extensionists to emulate.

**Discussions and Conclusions**

1) **Root causes of the stagnation**

This crisis of stagnation owes its genesis to many factors. Sustainability of rural and agricultural development interventions worldwide depends on the quality and effectiveness of Extension Services, among other factors. In the developing countries, improvement of agricultural production depends on the willingness and ability of farmers to adopt change; their use of innovative technologies, organizational approaches, management systems, institutions; and availability of resources. The needs of Extension Services stakeholders is rapidly changing due to, amongst others, the devastating impacts of climate change (e.g., droughts, flash floods, biodiversity loss, pests/diseases) and global pandemics such as COVID-19, which further widens the poverty gap in the population.

Rural communities and farmers presently require different kinds of support from Extension than they received in the past. The conventional model no longer cut it and, in the case of South Africa, mistrust in the quality of the Extension is of concern. Evaluations reveal that beneficiaries of government interventions invariably identified Extension as the weak link militating against the impacts of agricultural programmes. Minimal inter-sectoral leveraging exist between research and Extension.

2) **Pathway towards renewal**

The Extensionist’s manner of engagement has to shift towards Ubuntu for relevance and relate-ability to stakeholder needs, as well as the survival of the Extension education discipline. In large part, “Extension education involves conscious use of communication of information to help people form sound opinions and make sound decision…with an educational objective; to learn to form opinions and to make decisions”. Extension reforms and adoptions of new approaches to influence behaviour towards said objective, is a necessity. Extensionists need to interact with their network of clientele with compassion, dignity and mutual respect. Similarly, Extension institutions have to integrate knowledge from more diverse fields to meet the even more diverse needs of their clients. An Extension Service that carries itself with Ubuntu tend to be visible to ‘others’, and to trigger reciprocal responses.

**Recommendation/s**

“An Extension Agent who understands the relationships between class, kinship and power in a community will be in a sounder position to introduce what he or she considers to be desirable changes”. Doing so with Ubuntu eases the task.

**References**


Evaluation of Client-based Extension Programs: An Integrative Review of Frameworks and Methods

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Evaluation of Client-based Extension Programs: An Integrative Review of Frameworks and Methods

Introduction

The application of evaluation frameworks and methods is necessary to demonstrating the public value of extension (Murphrey et al., 2018). With limited resource allocations, funders place great emphasis on evaluation of extension programs (Lamm & Lamm, 2018). While extension professionals must evaluate their programs, it is unclear how formal evaluation frameworks are used to demonstrate program impact.

The literature articulates the importance of evaluation and identifies it as a core competency for extension agents (Harder, 2015; Suvedi & Kaplowitz, 2016). However, Murphrey et al. (2018) found most evaluation-related research articles in the Journal of International Agricultural and Extension Education (JIAEE) lacked formal evaluation frameworks. Further, it is unclear how extension professionals used these methods in their practice to evaluate client-based extension programs. This study provides insights on the presence, scope, and extent of evaluation in extension practice.

Theoretical Framework

Many formal evaluation frameworks draw their underlying logic from Bennett’s original Chain of Events model (Bennett, 1979) and Kirkpatrick’s four-level model (Kirkpatrick, 1994; Kirkpatrick & Kirkpatrick, 2006). Logic models follow Bennett’s Chain of Events model and its succeeding Targeting Outcomes of Program (TOP) model (Israel, 2010; Rockwell & Bennett, 2004). While Bennett’s model was originally applied to evaluating extension programs, Kirkpatrick’s model is widely used to assess program outcomes in many educational contexts.

Kirkpatrick’s model offers a simple framework by focusing on four metrics of program outcomes: (a) Level 1 - Reactions, (b) Level 2 - Learning, (c) Level 3 - Behavior, and (d) Level 4 - Results (Kirkpatrick & Kirkpatrick, 2006). Level 1 is a basic measure of program performance and relates to participants’ satisfaction with the program. Level 2 relates to participants’ cognitive changes (e.g. knowledge gain, skill development, attitude shifts, intention) that occur immediately after the program (i.e. short-term outcomes). Level 3 relates to behavior change (e.g. adoption of a new technology) and occurs sometime after the program (i.e. medium-term outcomes). Level 4 occurs only when Level 3 is realized and represents ultimate changes in participants’ lives (i.e. long-term outcomes).

Purpose and Objectives

This study sought to identify and describe extension professionals’ use of evaluation frameworks and methods to evaluate client-based extension programs. Objectives were to (a) describe general methodologies used by extension professionals to evaluate extension programs, (b) describe the levels of evaluation inquiry in extension programs based on Kirkpatrick’s model, and (c) describe common indicators of program outcomes in extension programs.
Methods and Data Sources

This abstract followed an integrative literature review (ILR), analyzing evaluation articles through the lens of Kirkpatrick’s model. Torraco (2005) defines ILR as research that synthesize a topic to form new contexts. This ILR provides a critical analysis of evaluation methods used in client-based extension programs. Here, a client-based program was any extension program targeting primary end-users of extension (e.g. farmers).

This ILR defined inclusion parameters to existing extension research and included articles (a) published in an online extension journal between January 2000 to April 2020, (b) clearly stating an intent to evaluate a client-based extension program, and (c) providing evaluation results of, at least, immediate program performance (Level 1). Four extension journals were selected: Journal of International Agricultural and Extension Education, Journal of Human Sciences and Extension, Journal of Agricultural Education and Extension, and Journal of Extension.

Each article was reviewed to discover the (a) type of evaluation methodology (e.g. qualitative, quantitative), (b) level of evaluation inquiry based on Kirkpatrick’s model, and (c) type of indicators used to measure program outcomes. Application of Kirkpatrick’s model allowed an in-depth analysis of evaluation methods in client-based extension programming.

Results

A total of 126 articles met the criteria for inclusion (N = 126). Most extension evaluation articles (69%, n = 87) used quantitative methods, 21% (n = 26) applied mixed methods, and 10% (n = 13) used qualitative techniques. Eighteen articles (14%) identified a formal evaluation framework. Most quantitative evaluations used self-administered surveys to gather data, qualitative studies used focus groups, and mixed methods studies used a combination of both.

For evaluation inquiry, 8% (n = 10) of articles focused on Kirkpatrick’s Level 1, about 47% (n = 59) focused on Level 2, with 41% (n = 52) focusing on Level 3, and 4% (n = 5) on Level 4. Both levels 2 and 3 provide acceptable evidence of program success (Kirkpatrick, 1994). Level 4 evaluation focuses on long-term program impacts and requires significant time and resources. While Level 4 evaluation provides ultimate evidence of program success, results indicated this level of inquiry was less common in extension.

Extension professionals used various outcome indicators to evaluate programs. For Level 1 articles, indicators included participants’ satisfaction with the program and interest in the topic. For Level 2, outcome indicators included perceived or actual changes in participants’ knowledge, attitudes, and skills. For Level 3, outcome indicators related to participants’ behavior change within a relevant context (e.g. changes in crop and livestock equipment). Level 4, outcome indicators included number of jobs created, and number of new farms. Level 4 indicators varied by program since it represents interactions between Levels 1 to 3.

Conclusions, Recommendations, and Implications
Using Kirkpatrick’s model as an analytical lens, this IRL showed the extent to which evaluation was used to demonstrate the outcomes and impacts of extension programs. Most studies focused on short-term outcomes, fewer assessed medium-term program outcomes, and many adapted a wide range of outcome indicators. However, a limited number of studies adopted formal evaluation frameworks, and even less assessed long-term program impact.

The evaluation designs used in all articles in this IRL were successfully categorized into Kirkpatrick’s model. This shows its applicability as an evaluation framework for a wide range of programs. This study recommends extension professionals (a) explore, adapt, and apply formal evaluation frameworks to effectively evaluate extension programs, (b) capitalize on mixed methods designs to add depth to evaluation findings, and (c) use long-term follow-up surveys to make assumptions of program impact. Extension professionals are encouraged to explore existing frameworks or find innovative approaches to demonstrating the impact of their programs.

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Innovative Models of Extension Programming: Diagramming Food Systems
Utilizing FAO’s 10 Elements of Agroecology in Order to Incorporate Agroecology into Extension and Rural Advisory Services

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Innovative Models of Extension Programming: Diagramming Food Systems Utilizing FAO’s 10 Elements of Agroecology in Order to Incorporate Agroecology into Extension and Rural Advisory Services

Introduction and Theoretical Framework

Agroecology is gaining interest globally as a science, a practice, and a social movement that applies ecological principles and concepts to the design and management of sustainable food systems. Recently, it has been championed in international venues as a way to help make agriculture and food systems and more sustainable, to help farmers’ improve their livelihoods, and as a way of achieving the SDGs (FAO, 2018a). In order to help countries and other actors operationalize agroecology, FAO developed the 10 Elements of Agroecology (FAO, 2018b). The 10 Elements were developed via a synthesis process that combined Gliessman’s 5 Levels of Transition (Gliessman, 2014), Altieri’s 5 Principles of Agroecology (Altieri, 2018) scientific literature, and shared knowledge and experience of global experts during FAO’s Regional Consultations on Agroecology. By identifying important properties of agroecological systems and approaches, as well as key considerations in developing an enabling environment for agroecology, the 10 Elements can be used as a guide for policymakers, practitioners and other stakeholders in planning, managing and evaluating agroecological transitions. It is in this flexibility that the 10 Elements offers the potential of being used as a mental modeling framework that can be applied to various systems (farms, communities, territories, etc.) with applicability to any context as a means of thinking about the whole food system, its current status, and future directions (Barrios et al., 2020).

Purpose and Objectives

The purpose of this work was to explore the theoretical use of the 10 Elements of Agroecology as a flexible framework for exploring agroecology within a particular system and context to help users and other key stakeholders think critically about the interconnectedness and interdependence of 10 key elements that touch on the three dimensions of sustainability. This purpose was accomplished by testing the use of the framework as a mental model or visual narrative tool with different stakeholders in order to share its potential with other stakeholders in extension and rural advisory services. It is hoped that the tool will be used more widely in various global contexts in order to move thinking beyond sustainable production and to encompass the entirety of food systems and multiple dimensions of sustainability.

Methods and Theoretical/Philosophical Themes

This research was conducted in September 2018 and 2020 with a cohort of 22 and 25 students involved in FAO’s Mountain Partnership GROW Summer School. During the course, participants were given an overview of the 10 Elements of Agroecology, dissecting the elements and discussing them one by one to show the different nature of the elements (foundational practices: 1) Diversity, 2) Co-Creation and Sharing of...
Knowledge, 3) Synergies, and 4) Recycling; emergent properties: 5) Efficiency and 6) Resilience; context features: 7) Human and Social Values, 8) Culture and Food Traditions; and enabling environment: 9) Responsible Governance and 10) Circular and Solidarity Economy) before showcasing the interconnectedness and interdependence of the elements in their final visual form. Then, the students were grouped into pairs and decided on a particular system of interest (e.g. a farm, community, watershed, territory) in time, space and space and diagrammed aspects of their system corresponding to the various elements and to showcase their connections and interdependencies. Students were given 1 hour and asked to be as creative as they liked; in 2018 the exercise was conducted on paper and in 2020 it was conducted virtually. Groups were then asked to share their diagrams with the rest of the class and describe their multiple entry points using the framework. Once all groups had discussed, they were asked to use the diagram and think about what components of the system were weak or missing and how those elements could be strengthened.

Results and Conclusions
The use of the 10 Elements framework was a very valuable activity for both cohorts, ranking this exercise as one of their favorite classes over their 2-week study period. Students commented on the accessibility of the framework and its potential of being used for any type of system as long as boundary conditions were placed on that system in order to help think about it. Students used a range of creative liberties in their approximations but all agreed on the model being helpful to think about how food production fits into the larger socio-economic, geographic, and political framework of the food systems in which they were working. They also agreed that the exercise offers potential to document a current status of a system and to serve as a springboard for further discussion about what elements were weak or lacking and how to improve those elements. This was the natural entry point that most students saw for community participatory learning and appraisal in conjunction with extension and rural advisory service providers but also with diverse stakeholders, such as farmers, government officials, traders, marketers, consumers, etc. in order to bring a holistic point of view to that particular system. This is consistent with other studies that have examined the usefulness of mental modeling and diagramming tools for extension related to conceptualizing complex systems (Blackmore, et al., 2017; William, 2002; Hoffman et al., 2014). In conclusion, both cohorts validated the exercise and encouraged FAO to continue to promote the 10 Elements as a way to help operationalize agroecology as a peopled-centric approach that moves from food production to thinking about food systems in their complexity, different contexts, and across the dimensions of sustainability.

Recommendations, Educational Importance, Implications, and Application
Based on this work and validation from this diverse cohort of students, we are happy to share this methodology of using the 10 Elements of Agroecology as a mental modeling exercise to create visual narratives of food systems in order to help
drive constructive change that benefits people and the planet. This framework of the
10 Elements offers a rigorous, yet flexible, way to think about complex systems and
can be easily integrated into participatory exercises of extension best practices in
order to help identify current systems trends of agriculture and entry points for
increasing the sustainability of those systems.

References

Boca Raton, Florida: CRC Press.

Barrios, E., Gemmill-Herren, B., Bickler, A., Siliprandi, E., Brathwaite, R., Moller, S.,
Batello, C., & Tittonnel, P. (2020). The 10 elements of agroecology: Enabling
transitions towards sustainable agriculture and food systems through visual

Blackmore, C., Foster, N., Collins, K., & Ison, R. (2017). Understanding and
developing communities of practice through diagramming. In S. Oreszczyn, & A.
Lane, A. (Ed). *Mapping environmental sustainability: Reflecting on systemic practices

FAO. (2018a). *FAO’s work on agroecology: A pathway to achieving the SDGs*. Rome:
FAO.

FAO. (2018b). *The 10 elements of agroecology: Guiding the transition to sustainable
food and agricultural systems*. Rome: FAO.

Boca Raton, Florida: CRC Press.

mental models of sustainable agriculture. *PNAS, 111*(36), 13016-13021.

Planting Seeds of Victory: Creating Shared Meaning while Gardening Amidst a Pandemic


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Planting Seeds of Victory: Creating Shared Meaning while Gardening Amidst a Pandemic

Introduction/Literature Review

On January 30th, 2020 the World Health Organization declared a Public Health Emergency of International Concern, the WHO’s highest level of alarm, due to the outbreak of the novel coronavirus, known as SARS-CoV-2, in Wuhan, China (World Health Organization, 2020a). Individual states started declaring states of emergency and taking precautions to keep residents safe (Executive Order 20-91, 2020). However, this was not the first time our world has faced a pandemic (Qiu et al., 2016).

Social distancing is one of the most important strategies for decreasing spread of the virus (Venkatesh & Edirappuli, 2020). However, connection is a human instinct and when people are forced to distance themselves from each other, feelings of loneliness can occur (Baumeister & Leary, 1995). Social scientists in China found a higher rate of depression, anxiety, and a combination of the two during the COVID-19 outbreak (Gao et al., 2020), which aligned with public health concerns amidst previous public health emergencies or crises such as Earthquakes (Xie, Xu, & Wu, 2014), Ebola (Ji et al., 2017), and SARS (Mak et al., 2009) implying governments need to pay more attention to the holistic health of individuals during emergencies.

Furthermore, the Cooperative Extension System addresses needs and provides solutions to current issues facing citizens at a local level by acting as liaisons of information between research and the public (Borron et al., 2019; Holt, Leal, & Hurt, 2019). Historically, extension agents are on the front line of current events around the world and strive to serve the public as communication liaisons delivering science-based information to improve the lives of the public (Holt, Leal, & Hurt, 2019).

During World War I, the United States was burdened with feeding soldiers fighting overseas and the National War Garden Commission was organized encouraging Americans to do their part for the war by planting, harvesting, and storing their own vegetables (Pack, 1919). Clubs organized by the Extension Service involved more than 15,000 children and were responsible that “gardens sprang up everywhere as if by magic – in the backyards, by the railroad tracks, in the cotton patches and in the new ground” (Kilgore, 1917, p. 9).

In situations of crisis, extension agents that typically operate in programmatic silos, are called to find the greatest solutions that exist between the silos of their individual programs (Cartwright et al., 2002). In early 2020, when Extension Agents in Florida saw the same sort of needs: people beginning to homestead and families and individuals in isolation at their homes, they decided to serve the population through something that had previously worked in our nation while “providing rapid response in regard to disasters and emergencies” (USDA-NIFA, 2018, para. 6). As an effort to help with food insecurities and holistic wellbeing during the COVID-19 Pandemic, extension Agents developed the Victory2020 Garden Community to endure the pandemic.

Purpose and Objectives

The purpose of this study is to explore the role that extension plays in community education during a pandemic utilizing plant sciences. The research objectives for the Victory2020 Garden program were to

1) Increase participants knowledge of gardening and home food production techniques.
2) Build social connections and cultivate an online community.
3) Improve participants well-being in their daily lives.

**Methods**

A group of twelve University of Florida extension agents was formed to deliver education and online experiences for the Victory2020 Garden program. As the COVID-19 pandemic restricted traditional program delivery, the program was executed in two phases. Phase one consisted of a pre-assessment and access to online learning tools while phase two relied on examining forms of social media and techmediate learning that captured shared meaning through a post-assessment at the conclusion of the program.

**Results and Conclusions**

Victory2020 Garden survey respondents (n=285) reported an increase of gardening knowledge (88%), they reported their household consuming more fruits and vegetables (73%), and an increase in use of food safety techniques in the garden and kitchen (82%). For 1,624 participants, this was their first ‘serious experience’ with gardening and growing food at home. Over 40 vegetable and fruit crops were recorded as grown to harvest on our survey with a total of more than 3,000 pounds of food grown from respondents. Participants indicated they shared the knowledge with an average of 34 people, which included their family, neighbors, and social media sites. The total reach of people impacted by the program is estimated at 225,000. This includes the number of people per household and number of people they shared the information with. Participants reported their mental health improved (76%), their physical activity level improved (80%), saved money on fresh fruits and vegetables (57%), and reduced their stress level during COVID (79%). With 98% of participants indicating an interest in gardening in the future, the impacts of the Victory2020 Garden program will be long-lasting. With this international, intergenerational program, collaborative efforts reached over 225,000 individuals and families to create community and experiences that covered gardening basics, well-being, food safety, historical importance, and careers.

**Recommendations and Implications**

As the world experiences an ongoing battle to fight global food insecurity, there is an overwhelming need for programs, such as the Victory2020 Gardens to assist food banks, farmers, and extension efforts across the world in equipping and informing the general public on topics ranging from food education, food safety, and becoming self-sufficient in growing one’s own food during times of crises (Carroll, Sadowski, Hruska, Nixon, Haines, 2020). Increased evaluation parameters to establish a mixed-methods approach enhancing the rigor and credibility of the program is needed for international and domestic audiences (Lamm A. J. & Lamm, K. W., 2018). Continued programming addressing mental health, financial health, nutrition, and gardening is recommended across extension nationally. Further proving the efficacy of community-based programming, such as the feedback received from participants in the Victory2020 Garden Program who reported an overall level of reduced stress, increased consumption of vegetables, gained knowledge and experience growing food leading to greater food security, reported better health, and potential for life-long benefits of a healthy life (Van Den Berg & Custers, 2010).
References


Vinkatesh, A. & Edirappuli, S. (2020). Social distancing in covid-19: What are the mental health implications? *BMJ, 369*, 1379. [https://doi.org/10.1136/bmj.m1379](https://doi.org/10.1136/bmj.m1379)


Needs Assessment Model for Guinea Extension Education

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Keywords: Borich needs assessment, Guinea agricultural extension education, strategic planning, Farmer-to-Farmer
Needs Assessment Model for Guinea Extension Education

Introduction
Hunger is an important real-world issue. Many farmers in Guinea, Africa, rely on subsistence agriculture for survival (FAO, n.d.). These areas are prone to food insecurity and nutrition-related diseases (FAO, n.d.). A recent “increase in crop production in response to strong global demand and higher prices” has created the additional challenge of ensuring that Guinea farmers use practices that do not negatively impact biodiversity (Monteiro et al., 2017, p. 1). The “need for sustainable alternatives to industrial farming has led to a revival of interest in traditional agro-ecosystems,” necessitating an understanding of the social and physical-technical communication systems that allow for the intergenerational transmission of sustainable agriculture practices (Fraser et al., 2015, p. 1). Lack of access to new technology and improved farming methods limit potential yield and sustainable agriculture practices (FAO, n.d.). Extension education through the Farmer-to-Farmer program is an essential component of improving agricultural sustainability by diffusing innovations that increase crop yield and alleviate poverty.

Purpose and Objectives
The purpose of the study was to identify educational program leader planning needs to increase the likelihood of future Farmer-to-Farmer program participants achieving educational outcomes. Three objectives guided the study:
1. Identify program participants training needs on essential extension program aspects; and
2. Identify knowledge gained from delivery of a customized program to address educational priorities; and
3. Identify program participants perceived post-workshop training needs on essential extension program aspects to improve future trainings.

Methods
Needs assessments assist program leaders in establishing needs that will be addressed by the program. Organizations that identify their core competencies can tailor professional development training to those specific needs, leading to improved outcomes (Ghimire et al., 2017; Lamm et al., 2017; Liles, 2004; Moore & Rudd, 2004). Developing countries face an additional challenge in identifying extension program needs for program leaders and farmers in their regions (Strong, 2011). Using the Borich (1980) Model for Needs Assessment can help program planners define priorities that maximize learning outcomes (Barrick et al., 1983; Garton & Chung, 1995; Layfield & Dobbins, 2002). It is crucial to the success of the organization that local educational leaders are involved in the process of identifying potential educational strategies (Waters & Haskell, 1989).

We collected data in the first two days of the 10-day program to identify the participants’ educational needs; we used the remaining days to prioritize educational content to fill the identified gaps that surfaced from the initial assessment. Questions for the pre- and post-assessment were drawn from a training module used by the United States Agency for International Development (USAID) project, which is identified as Modernizing Extension and Advisory Services (MEAS), and served as the content base of this project while also addressing validity and reliability (Strong, 2011). This included 29 items of content knowledge; however, participants indicated interest in “overall program comprehension” and “teaching with a
PowerPoint,” creating a total of 31 content areas. All thirteen participants fully contributed data, leading to a response rate of 100%.

We used the Borich Needs Assessment Model and Mean Weight Discrepancy Scores (MWDS) for data analysis to calculate the program participants’ levels of importance for each of the evaluated items (McKim & Saucier, 2011). Ranking the data is essential for extension agents to establish future educational program priorities that meet the needs of their participants (Conklin et al., 2002).

**Results**

We applied the Borich Model for Needs Assessment (Borich, 1980) to the 31 educational content areas to measure participants’ educational needs. The top five content areas with the greatest reported needs were: Power Point presentations (MWDS = 5.72), teaching financial management (MWDS = 5.51), using SWOT analysis (MWDS = 4.5), teaching marketing concepts (MWDS = 4.36) and incorporating stakeholders (MWDS = 4.35). The content areas of lecturing and conducting a workshop had the lowest MWDS and were not an area of focus for the training. Following a Pre/Post-Test, the top five content knowledge improvement areas and percent increase in reported knowledge were: utilizing strategic planning (176%), using Borich (1980) for program needs assessment (153%), using SWOT analysis (122%), analyzing external influences in educational programs (115%) and strategies to conduct farm trials (67%). We conducted a final needs assessment following program delivery and training completion for all 31 content areas. This additional assessment of needs represented continued training needs, which assist in future training plans. Teaching with PowerPoint presentations remained the top content area for reported need. The remaining four content areas of the top five needs identified in the pre-assessment decreased in rank after the training. Respondents also reported increased confidence in seeking stakeholder needs and building resources to increase program value.

**Recommendations and Implications**

We suggest the following recommendations to improve similar programs in Guinea. Given the program’s location, access to electricity and internet technology was lacking. A location with better internet accessibility would facilitate increased access to support resources, leading to program improvement (Avci et al., 2020). Continuing the use of participant involvement in program planning will also increase value and participation (Karmelita, 2017; Whisler et al., 2017). We recommend a follow up evaluation with the program participants to ascertain how they are using the knowledge acquired during the training as well. A final recommendation is to incorporate the use of capstone projects that connect course content to real-world situations in the agricultural industry.

A major implication of this research is to better direct the focus on developing strategic programs that increase sustainability and resource funding (Liles, 2004). A further implication is that the research builds education equity and independence, which can improve program relevance and sustainability (Liles, 2004; Waters & Haskell, 1989). The results of this research also have implications to enable Farmer-to-Farmer program leaders to understand how the diffusion of innovations process works in Guinea and how new technologies are disseminated through social and geographical networks (Fraser et al., 2015; Mwololo, 2019). A long-term implication of this study is that the results can be used to minimize Farmer-to-Farmer program leader burnout, thus enhancing retention (Kitchel et al., 2012).
References


The Hypertension Management Program: A Chronic Disease Self-Management Program Delivered through Cooperative Extension

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The Hypertension Management Program: A Chronic Disease Self-Management Program Delivered through Cooperative Extension

Introduction and/or theoretical framework and/or review of literature:
Worldwide, approximately 40% of adults over the age of 25 have been diagnosed with hypertension (high blood-pressure), a condition which is a major risk factor for heart disease (WHO, 2013). In the US, the most recently reported prevalence of hypertension (2017 to 2018) was 45.4% (Fryer, et al. 2018). Previous data showed that this number increases with age; from 7.5% in 18 to 39-year old adults to 63.1% in adults over the age of 60 (Fryer, et al. 2018). In South Carolina, the Department of Health and Environmental Control reports that 1 in 3 South Carolinians have hypertension (DHEC, 2019). Because hypertension is associated with heart disease, stroke, and kidney disease, this data reflects the magnitude of hypertension as a major public health problem across the globe.

While hypertension can be managed, less than ½ of individuals have controlled blood pressure levels (48%). Strategies for improving outcomes related to hypertension include proper blood pressure monitoring, reduced salt intake, and weight control. Data suggests that people with high blood pressure are more likely to get it under control if they monitor their blood pressure at home and share the results with their healthcare provider (Rice, et al., 2018). Reducing dietary salt intake is accepted as an effective way to reduce blood pressure. WHO suggests that reducing population wide dietary salt intake from average levels of 9-12 mg to the recommended 5-6 mg will help to decrease the number of deaths from hypertension, cardiovascular disease, and stroke (Sung et al., 2014). The American Heart Association suggests that for people who are overweight, losing as little as five to 10 pounds may help lower blood pressure and to lose weight, eating well and moving more are keys to success (AHA, 2016). A comprehensive program that addresses these strategies for blood pressure control can be implemented through the Extension service to improve the health of people managing their hypertension disease.

Purpose and objectives:
Health Coaches for Hypertension Control (HCHC) is an Evidence-based curriculum that educates and encourages self-management strategies aimed at controlling blood pressure for those with hypertension. This curriculum was tested through in collaboration with Area Agencies on Aging in South Carolina (SC) in 2015 (Dye et al, 2015) and in 2018 was adopted for delivery through the Extension system. The objective of this project was to determine if this curriculum, when delivered through the Extension system model, would result in improved knowledge, behaviors and biometrics associated with hypertension self-management.

Methods and/or data sources; or theoretical/philosophical themes:
The Rural Health and Nutrition (RHN) Extension Program Team adopted HCHC curriculum in SC as our approved curriculum for the overarching Hypertension Management Program (HMP). The goals for the program were to increase knowledge and behaviors of participants related to home blood pressure monitoring, improved nutrition with lower salt intake, increased physical activity for stress and weight management, and improved or maintained blood pressure readings and body weight. RHN agents were trained as health coaches for delivery of the HCHC
curriculum. HMP participants were recruited from the community through physician referrals, community centers, senior centers, and faith-based organizations. Participants with a self-reported diagnosis of hypertension over the age of 18 were included. Participants attended 8 group sessions using the HCHC curriculum. Lessons covered nutrition, physical activity, stress management, blood-pressure monitoring, and medication adherence. Agents addressed barriers to behavior change and assisted participants with resource navigation (such as referrals to physicians, medication and food assistance programs). Pre and post program evaluations were completed by each participant using validated survey instruments that measured knowledge of hypertension, food and physical activity behaviors, frequency of blood-pressure monitoring, as well as self-reported weight in pounds and self-reported systolic and diastolic blood-pressures.

Results, products, and/or conclusions:
HMP was delivered to 13 cohorts with 142 people enrolled in 5 counties. Average participant age was 71 years old. Of those participants, 26% were male, 74% were female, 17% were African American, 84% of participants were Caucasian, and 82% (116 participants) completed the program (at least 6 of the 8 sessions). To determine changes in knowledge and behaviors from pre to post program participation, participants completed a knowledge and behavior test before and after the program. Participants provided self-reported blood pressure readings and body weight to determine impact of the program on these variables. Participation in the HMP facilitated through the Extension model resulted in 87% of participants with increased knowledge scores, 72% with improved nutrition behaviors, 53% with increased physical activity behaviors, 53% with lowered or maintained normal blood-pressure readings and 26% with reported weight loss at program completion. These findings are in line with findings from the pilot study, indicating that the HMP delivered by Extension agents is an effective delivery model for improving knowledge, behavior, and blood pressure control in people who are seeking to manage their hypertension disease.

Recommendations, educational importance, implications, and/or application:
Health programs like HMP can be successfully delivered through the Extension model with positive results that demonstrate improved self-management of blood-pressure, knowledge of hypertension and healthy lifestyle behaviors. Expanding this program to other states and countries could assist with public health goals for reducing incidence of stroke, heart attack and death associated with hypertension and heart disease.
REFERENCES

American Heart Association (AHA). (2016). Managing Weight to Control High Blood Pressure: Losing even a few pounds may make a difference. HEART.org. 
https://www.heart.org/en/health-topics/high-blood-pressure/changes-you-can-make-to-manage-high-blood-pressure/managing-weight-to-control-high-blood-pressure.


A Public Edible Ornamental Landscape: Demonstrating the Use of Sustainable Agriculture to Improve Local Food Production & Environmental Awareness

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Keywords: edible landscape, edible ornamental landscaping, demonstration garden
A Public Edible Ornamental Landscape: Demonstrating the Use of Sustainable Agriculture to Improve Local Food Production & Environmental Awareness

Introduction

As urban populations have increased to more than 80%, the number of rural farming families has decreased substantially in the United States. In 1935, there were 6.8 million farms that were relatively small in size (155 acres on average) and diverse. But in the 21st century, the number of farms has dropped dramatically to just over 2 million with an average size of over 400 acres, therefore concentrating the majority of agricultural production today on large, less diverse operations where less than a fourth of the U.S. population lives (Kassel, 2020). This trend towards greater urbanization is largely consistent world-wide (Satterthwaite et al., 2010).

The impacts of increased urbanization are expansive (Satterthwaite et al., 2010). From decreasing water quality and wildlife habitat (Feinberg & Hostetler, 2017), loss of environmental and agricultural awareness, to rising rates of obesity, heart disease and diabetes (World Health Organization, 2010), these issues are difficult and multifaceted. Edible landscaping and educating the public about how to develop an edible landscape at home is one viable option to promote environmental and agricultural sustainability to combat the negative impacts of a growing urban population that is disconnected to the land.

Edible landscapes, also called foodscapes, are “created from the artful combination of edibles and traditional ornamentals in the garden” (Hansen, 2013). Whether one has several acres to landscape or just a few square feet, edible landscaping can provide an individual with the opportunity to produce their own food using sustainable agricultural practices that protect water quality, provide wildlife habitat, and reduce the use of chemical inputs (Çelik, 2017). These principles of sustainable landscaping that promote attractive, low-maintenance landscapes that protect water quality and conserve water quantity are further defined by the Florida-Friendly Landscaping Program™ at the University of Florida Center for Land Use Efficiency (The Florida Yards and Neighborhoods Handbook, 2015).

Purpose and Objectives

To design and install an edible ornamental demonstration landscape that can be used for public extension education programming. The edible ornamental landscape would merge the principles of Florida-Friendly Landscaping™ with the principles of edible landscape design to develop a landscape that will require minimal maintenance or inputs including irrigation, fertilization or chemical pesticides. The plants selected for the landscape would be a diverse mix of edible and non-edible ornamental plants, both native and Florida-friendly non-native, that are best adapted to the site and climatic conditions for the public to see and be empowered to incorporate into their own edible landscapes.

Methods
The edible demonstration landscape was designed by faculty at the University of Florida Center for Land Use Efficiency and utilized the principles of edible landscape design (Hansen, 2013). Grant funding was provided to purchase 170 cubic yards of pine bark mulch to cover the approximately 11,000 square foot garden to add organic matter to the soil, retain moisture and suppress weed growth. Faculty and Master Gardener volunteers were used to plant over 80 Florida-friendly edible and ornamental plants, and to install an arbor and microirrigation to conserve water and prevent disease pressure from over-head irrigation. More than 20 cultivars of edible and ornamental plants were planted to demonstrate a diversity of low-maintenance, productive plants that would require minimal inputs after establishment. Plant identification signs to inform the public about the plants’ requirements and characteristics will also be installed by the end of 2020. Two online classes on edible ornamental landscaping were provided to the public in August in lieu of in-person programs due to COVID-19. In 2021, a public grand opening of the edible landscape will be hosted in late spring pending the pandemic situation. The edible landscape will be used for in-person extension programs, combined with online classes, to educate the public about Florida-Friendly Landscaping™ with edibles, landscape design, irrigation installation, edible plant selection and maintenance, and propagation techniques.

Results

More than 500 people participated in the two online programs and over 1400 registered and received the class recording. Survey results (n = 99) demonstrated knowledge gain about the Florida-Friendly Landscaping™ principles and provided positive feedback reinforcing the need and demand for edible landscaping programs. A follow-up survey will be distributed six months after the program to evaluate long-term behavior changes that may have resulted from the programs. Future program participants at the newly established edible ornamental demonstration landscape will similarly be surveyed to evaluate knowledge gain, the adoption of behavior change, and potentially longer term social, environmental and economic impacts that may result from those changes.

Implications

Edible landscapes can provide multiple benefits to a growing urban population and may help mitigate several of the environmental and social impacts that have resulted from urbanization. Additionally, with the onset of the COVID-19 pandemic that brought many people indoors and in isolation, providing online edible ornamental classes has helped meet the educational need of many that wanted to learn how to develop productive, low-maintenance, attractive landscapes that provide fresh healthy food for their families. With the installation of a public edible ornamental demonstration landscape, landowners can now see and learn by experience how to design, install, and maintain an edible ornamental landscape utilizing sustainable agricultural practices that protect our natural resources and promote greater production of fresh locally grown food in our urban communities.
References


Analyzing the Intersection between Social Media and Cultural Identity to Inform International Agricultural Education and Communication

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Keywords: cultural identity, science communication, social media, social identity, social representations theory
Analyzing the Intersection between Social Media and Cultural Identity to Inform International Agricultural Education and Communication

Introduction and Theoretical Framework

Attitudes are rarely formed in isolation from a community; therefore, cultural identity impacts the creation of opinions (Veldman, 2019) and is expressed through our communication with one another. Communication is foundational to our understanding of the environment, which is largely influenced by how we talk about the world (Cox, 2013). However, social media platforms and other online networks have radically changed human communication patterns, impacting how people interact with one another as well as scientific information (Cheung & Lee, 2010). Agricultural extension education and communication organizations around the globe are increasing their use of social media platforms to deliver agricultural information (Agha et al., 2018; Saravanan & Bhattacharjee, 2013; Thakur & Chander, 2018).

Traditionally, agricultural communication efforts focused on disseminating scientific projections to galvanize public response; however, this focus fails to account for differences in contexts existing between social groups (Munshi et al., 2020). Research shows cultural orientation influences preferences for online information (Arpacı & Baloğlu, 2016; Valaei et al., 2017). Due to changing dynamics in communication proliferated through social media, there is a need to emphasize culture and identity in science communication research (Munshi et al., 2020). The role of culture and identity in agricultural extension and communication research related to social media is limited despite the increased use of social media platforms to disseminate agricultural information.

Moscovici’s (1988) Social Representation Theory (SRT) guided the study. Social representations (SRs) are “systems of opinions, knowledge, and beliefs particular to a culture, a social category, or a group regard[ing] objects in the social environment” (Rateau et al., 2011, p. 478). SRs help establish social realities around the environment for members of social groups (Howarth, 2006; Jaspal et al., 2014) as they facilitate communication processes by providing norms for an individual’s understanding of social reality (Moscovici, 1973). While SRT is widely used in science communication, few studies integrate the concepts from SRT with social media research.

Purpose and Research Questions

The purpose of this study was to explore how cultural identity impacts use of and engagement with agricultural extension education and communication content on social media. Three research questions guided the study: RQ1) How do social media users identify themselves culturally while engaging on social media? RQ2) How do social media users’ cultural identities impact their choice of who to follow or interact with on social media? and RQ3) How do social media users’ cultural identities impact their engagement with social media platforms when seeking agricultural and environmental information?

Methods

In this qualitative study, a systematic literature review of 76 peer reviewed journal articles was conducted (Borenstein et al., 2009; Gough et al., 2012). Articles selected included those
published in English between 2009 and 2019. Two international databases (Google Scholar and Web of Science) and two international scientific journals (Journal of Applied Communications and Agriculture and Human Values) were selected as sources of the most current research exploring social media use in agricultural education and communication. We excluded the Journal of International Agricultural and Extension Education after a review showed only research investigating social media related to innovation and diffusion, not cultural identity, was present. Article titles and abstracts were reviewed to identify articles for inclusion using key words such as social media, cultural identity, and cross-cultural communication strategies within agriculture and the environment (Mayring, 2004). Using document analysis, two authors both coded four articles to establish interrater reliability, after which the authors proceeded coding articles independently in MAXQDA, a qualitative data analysis software. The projects were merged for analytical induction (Glaser, 1965) and themes were identified that were peer debriefed.

**Results**

Two themes emerged for RQ1. The literature indicated social media users go through stages of an identity cycle to establish their online identity: identity formation, identity reinforcement, and identity performance. Thus, social media identity was distinct from social identity as it was an extension of an individual’s identity into the online environment.

Two themes emerged for RQ2. Social media allowed individuals to feel part of a community, despite the lack of a physical location. Social identity and community membership were often linked in the articles reviewed. Presence of similar interests influenced an individual’s choice of social media community. Having similar interests also influenced individual’s motivations for use as forming and maintaining relationships as well as social support, gathering information about current events, and entertainment were key factors for membership within a social media community.

Two themes emerged for RQ3. Individuals were likely to accept messages aligned with their beliefs and reject contrary messages. Additionally, message acceptance was mediated by demographic characteristics such as political ideology. While individuals interacted with diverse viewpoints on social media, the interaction was often negative.

**Conclusions**

Increasing knowledge around the impact of cultural identity on social media engagement is critical as the public increasingly relies on social media as a source of agricultural information. As the impacts of COVID-19 persist, social media platforms provide an alternative channel for agricultural extension education and communication. Therefore, the results encourage science communicators to consider culture when developing communication strategies (Medin & Bang, 2014). Consistent with literature, the results supported the idea that when scientific information messaging contradicts an individuals’ beliefs learned through an identity group, individuals often conform to group belief rather than accept the message (Merzdorf et al., 2019). Despite its importance, cultural identity was almost non-existent related to social media engagement research.
Overall, few studies described how an individual’s holistic social identity impacted their perception of science communication messages. Additionally, while the discipline focuses on information and communication technologies (Lamm et al., 2019), few if any studies capitalize on the growing momentum of social media and cultural implications of this communication practice. The increased reliance upon online communication due to COVID-19 makes understanding the nexus of social media and cultural identity critical. Reaching beyond traditional audiences to communicate will enhance the use of Extension as a resource among diverse populations. If people’s social identity makes them feel they do not belong within channels used to communicate, Extension risks missing key audiences.

References


VISUAL STRATEGIES IN INTERNATIONAL DEVELOPMENT: A CONTENT ANALYSIS OF IMAGERY AND COMMUNICATION ASSETS

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Introduction

International agriculture development seeks to improve the lives of millions of people across the globe (United States Agency for International Development, 2019f). President John F. Kennedy created the United States Agency for International Development (USAID) following the passing of the Foreign Assistance Act of 1961. The USAID aims to lead international efforts to advance the development of foreign countries (United States Agency for International Development, 2019i). Agriculture and food security dominate one sector of such development with the Logical Framework Approach (LFA) as the model for development, but communication is not analyzed as a variable in the LFA model (Khang & Moe, 2008, p. 75). This lack of focus on communication can make reaching success based on the LFA difficult. This study was one phase of a larger research study that looked at the perceptions of international agriculture development using photographs to gather the perspective of implementers in the Farmer-to-Farmer agricultural development program.

Purpose and Objectives

The purpose of this study was to identify images used as representations of international agricultural development programs. The objective of this study was to conduct a quantitative content analysis for current visuals used to communicate about programs and projects. We met this objective by measuring the frequency of image content across databases and describing the most common and prevalent images.

Methods
Agriculture is one subsection in international development. USAID contributes about 40% of the total financial contributions to support development through various programs. This stakeholder was selected to narrow the visual search. By narrowing the search further to include only static images and measurable characteristics of “impact”, we identified one platform. To conduct the research, we purposively sampled ten images from the USAID Flickr account. Five were selected from the “Most Viewed” page. Five were selected from the “Most Faved” page.

Results and Conclusions

Of these photographs retrieved from the USAID Flickr account, seven countries were represented: Guatemala, Uganda, Ethiopia, Rwanda, Kenya, Namibia, and Tanzania. Image one captures women surveying the uses of disposable cameras and had a total of 30 favorites and 4,932 views. Image two displays an individual with a laptop in Uganda totaling 24 favorites and 5,677 views. Image three shows a facilitator with a group of women discussing feeding practices and child nutrition. This photo gathered 18 favorites and 4,019 views, the lowest amount of views of the ten images. Image four reveals an Ethiopian man sifting through grain with five favorites and 10,092 views. Image five tallies seven favorites and 13,174 views and displays a hand holding produce in Rwanda. Image six demonstrates researchers working with women’s groups in Rwanda with 56 favorites and 8,808 views. Image seven records the most views, 12,254, and totals 14 favorites as two women hold sweet potatoes in Kenya. Image eight shows children being corralled in lines for an educational program in Namibia. This photo collected four favorites and 11,455 views. Image nine shows two Tanzanian females working with a microscope, collecting seven favorites and 12,785 views. Image ten shows women and children in a line in Uganda totaling 22 favorites and 6,166 views. The researcher traveled with the photos to Bangladesh, Nepal, Egypt, and Lebanon. Each image was shown to a purposive sample of
program directors, agriculture development practitioners, and program implementors of the Farmer-to-Farmer programs.

The results display a range of likes among those sampled in the Farmer-to-Farmer program. Of the pictures shown, 90% are African countries (images 2-10). Image one shows representation of Guatemala while the remaining nine photos represent African countries. Even more so, the photos display no representation of the Middle Eastern countries or Asian countries which are also representational of international agriculture. In fact, individuals surveyed for this study have zero representation among the photos. However, the researchers concluded the selected photos represent what stakeholder perceptions of agriculture development for USAID communications. Ultimately, researchers determined that images leave a skewed view of development that draws largely from regional tropes and visual stereotypes, conventions and norms.

**Recommendations**

We recommend additional research, technical applications of photography techniques and cultural competency for volunteers and communication decision-makers. Further research can use analytics from USAID for more information on the public response to photographs other than “views” or “favorites.” Another recommendation for research uses the mental model methodology (Eitel & Scheiter, 2015) to gain perspectives on visual preferences of practitioners. The last recommendation for research involves conducting a Q-Sort to understand the perceptions of visual representation of international agricultural programs by funding agency stakeholders. Recommendations for further study for practitioners include documentation through photographs to further describe visual literacy for evidence of programs and work being done to promote international agriculture. Training for photographers featured on the USAID
Flickr account would also prove beneficial for better analysis of subject matter and compositional elements of the photographs. In addition to their training, other means of capturing photos will improve program representation. Not every stakeholder in the Farmer-to-Farmer program has time dedicated only to photography of the involvement; stand-alone cameras or additional people designated for photography can capture international agriculture at work when resources are sparse. Recommendations for educators simply require them to encourage active engagement with images to build visual literacy skills in learners. The more familiar subjects become with practices, the easier the concept of visual literacy becomes. Consumers learn on the foundation of capturing what visual consumers respond to, and in turn, focus on better photography skills. Recommendations for teachers also include improving on search engine optimization (SEO) and instruction of metadata and file management. Researchers and photographers need better analytics to guide students through interaction and engagement from the visual content.

Interacting and engaging with visual forms of literacy in the Farmer-to-Farmer agricultural development program found that perceptions of international agriculture development are often depicted in African countries, but do not equally represent the concept. Countries in the Middle East and Asia severely lack representation; Further research and teaching practices possess the opportunity to improve representation and generate a better depiction of international agricultural development.

References


Water Governance: An Effective Model for Sub-Saharan Africa

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Water Governance: An Effective Model for Sub-Saharan Africa

Introduction/Conceptual Framework

According to the Organization for Socio-Economic Development and Cooperation [OECD] (2015), 40% of water sources for human consumption worldwide are under water stress and the demand will increase by at least 50% by 2050. In sub-Saharan Africa, the water resource situation is characterized by overexploitation, pollution, and scarcity (United Nations [UN], 2014). Akpabio et al. (2017) explained an urgency to ensure equitable access to the quality and quantity of water necessary for a decent life. Lack of water holds significant power over other factors of human well-being and contributes to increasing the social inequality gap and the vulnerability of households in the highest levels of poverty (Akpabio et al., 2017).

The initiatives to improve the current water resource situation are as varied as the results of distribution models and capacity building on water quality and access. On many occasions, knowledge and technical solutions to water challenges are available, but the implementation and governance of these initiatives continue to be deficient (Aquae, 2018). Water governance has been deemed essential in developing, designing, and implementing more efficient and inclusive public water policies. Water governance has a determining role in economic growth, poverty reduction, and environmental sustainability in developing countries (U.S Government, 2017).

According to Rogers and Hall (2007, p.3), “water governance is the range of political, social, economic, and administrative systems that are in place to develop and manage water resources and the delivery of water services at different levels of society.” The Food and Agriculture Organization [FAO] (2019) stated that water governance includes the rules, mechanisms, and processes through which water resources are accessed, used, controlled, transferred, and related conflicts managed. The importance of this study is the need for coherent water governance systems in which the actors are correctly coupled under comprehensive regulatory frameworks.

Research Purpose

This study aimed to examine the body of scholarly knowledge, research, and practice related to water governance systems. The objective was to identify the components of an adequate water governance system for the Sub Saharan Africa region.

Methodology

For this theoretical study, researchers conducted a desktop review using multiple primary and secondary data sources, including international cooperation organization documents, journal articles, government reports, and websites. This research study is part of the Water for Governance Research project (GROWS) funded by USAID. The goal of GROWS is to identify and disseminate learnings around innovative governance models and tools that will help improve rural water service delivery in sub-Saharan Africa.

Results & Conclusion

The four components found for an adequate water governance model are trust, accountability, equity, and transparency.
Trust

The OECD explains that “trust is important for the success of a wide range of public policies that depend on behavioral responses from the public. Trust is necessary to increase the confidence of investors and consumers. Trust is essential for key economic activities, most notably finance. Trust in institutions is important for the success of many government policies, programs, and regulations that depend on cooperation and compliance of citizens” (OECD 2018). In a water system’s operations, trust is built in a bi-directional relationship between the service provider entity and the users. Those in charge of supplying water must ensure the quality and quantity of the service while respecting the operating conditions that govern the system. Users must adopt responsible consumption patterns and comply with the water system's obligations of payment and care (Gianotti et al., 2018).

Accountability

The USAID defines accountability as “the systems, procedures, and mechanisms that ensure that public officials and institutions perform their stated duties and uphold their responsibilities to the public while imposing restraints on their power and authority and providing for redress or sanction when these duties and responsibilities are not met” (USAID, 2013). In water governance, both the scheme and the users must be hold accountable for the performance of the water distribution system. Accountability is a priority to (1) strengthen government policies so that they are responsive, inclusive, and adaptable, (2) ensure compliance with the obligations of each stakeholder in the system, and (3) as a vehicle for equitable participation in the management of the system, especially in decision-making.

Equity

In a water system’s governance, the benefit must be equal and equitable among the users. This includes access and availability of water to all marginalized groups within a community. Finally, decision-making must be brokered between stakeholders or through an organizational structure that ensures the same opportunity for participation, especially for women and young people, in water governance.

Transparency

According to the USAID (2013,p. 38), transparency creates “an environment where governments and public officials engage in the clear disclosure of rules, plans, processes, and actions in a form that is readily accessible to all. Transparency promotes accountability by providing the public with information about what the government is doing.” Although transparency is an ethical duty of those involved in managing a water system, recently, it has become a tool to increase trust and promote accountability. Transparency allow setting specific and measurable water system's objectives.

Implications and Recommendations

Central and local governments should guarantee safe drinking water to all its inhabitants. However, it is most often the communities themselves that organize and ensure the distribution of water in sub-Saharan African countries. The inadequate supply of water by government entities and the increasing demand for water resources has forced new
policies to encourage private sector water supply (Foster, 2010). We recommend that future studies examine more closely the relationship between each of the governance elements identified; and use this model to evaluate governance in other water supply systems.

The implementation of water governance models capable of achieving transparency, accountability, equity, and trust could significantly reduce the private sector’s hesitance in investing in community water distribution systems. A water governance model only makes sense when it incorporates all actors in the system, including users, service providers, and government (Gianotti et al., 2018). It is recommended to include and disseminate this model of water governance in those initiatives that seek to improve the conditions of water resources in Sub-Saharan Africa.

References
Attributes Empowering Women in the Sub-Saharan Agricultural Industry: Utilizing a Quantitative Content Analysis to Assess the UN's Sustainable Development Goals

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Attributes Empowering Women in the Sub-Saharan Agricultural Industry: Utilizing a Quantitative Content Analysis to Assess the UN’s Sustainable Development Goals

Introduction and Theoretical Framework

Africa is the second most populous continent and has the fastest growing population (Rosenberg, 2018). Scholars have investigated important concepts such as analyzing smallholder farming, land ownership, cooperatives, mobile technology, and agriculture education, and extension upon the African continent (Lecoutere, 2017; Njura, et al., 2020; Sekabira & Qaim, 2017). Gender equality is critical to individual’s sustainable futures (United Nations Sustainable Development Goals, 2015). Only three African countries- Rwanda, South Africa, and Zimbabwe have equal rights for men and women written in law (Madsen, 2018; Moodley et al., 2019).

Komives and Wagner’s (2017) Social Change Model (SCM) focuses on three areas; individual values, group values, and societal values. Individual values include the development of consciousness of self, congruent with an individual's beliefs, and committing to their beliefs. Group values include collaboration with others, having a common purpose, and embracing controversy with civility. Societal values focus upon citizenship and being connected to the community. The inclusion of the SCM will scaffold this study to help discern individual group community values on social change impacts on working women.

Purpose and Objectives

This study sought to use the SCM to understand regional efforts, to achieve Zero Hunger and Gender Equality (United Nations Development Program, n.d.). The objectives were to describe social change impacts on working women and examine education’s influence on women in Sub-Saharan Africa.

Methodology

Researchers used a content analysis to determine and find common themes found in the literature (Krippendorff, 1989). This method will give future researchers insights into problems that can be solved in more direct methods (Fraenkel et al., 2019). Using the United Nations Sustainable Development goals as a springboard for literature, the study focused on keywords mentioned in those goals (United Nations Development Program, n.d.). Thematic areas investigated were "women empowerment," "gender equality," "Sub-Saharan Africa," and "agriculture.". The second step of the analysis was to analyze the texts in relation to the United Nations Sustainable Development goals of zero hunger and gender equality (United Nations Development Program, n.d.).

Results and Conclusions

The data was coded into four central themes; land, cooperative membership, education, and technology.

Land

In the Food and Agriculture Organization of the United Nations (2020) recent report, it was determined that out of the ten countries assessed, nine countries women had less ownership and control over the right to their agricultural land. Three of those countries were not found in Sub-Saharan Africa, but Malawi was the only country above that 50% threshold of equal
ownership (FAO, 2020). Sekabira and Qaim (2017) found households with mobile phone use owned 63% of their productive assets, while those without a mobile phone owned less than 50%. Having land is not enough to improve a woman's well-being. They may lack resources such as "labour, oxen or credit, making it difficult to obtain inputs to make the land productive. As a result, they are frequently forced to sharecrop their land from a weak bargaining position" (African Development Bank, 2015, p. 71).

Cooperative Membership/Groups
Being a part of farmers' organizations can significantly increase the amount of information available to small shareholders. Information can be obtained faster and more effectively by owning and using a mobile phone (Sekabira & Qaim, 2017). Lecoutere (2017) found in his study in eastern Uganda that women were more empowered if they were a part of a local cooperative. Women members of the coop had more sources of household income, greater knowledge of improved agricultural production and innovations, and increased power and abilities to influence decisions on all levels (Lecoutere, 2017).

Education
In many countries in Africa, agriculture education is a part of their secondary education (Njura, et al., 2020). This gives students applicable skills to use in their potential future. The World Bank defines gender-sensitive agricultural extension services, socio-emotional skills training, and information programs that support women switching sectors as skills training that increase women's productivity and earnings (Calderon, et al., 2019). The German Federal Ministry for Economic Cooperation and Development, in partnership with the African Union Commission, has an example that targets the three areas defined by The World Bank, and targets marginalized women to develop their opportunities for leadership (Moodley et al., 2019).

Technology
Mobile phone use in Uganda was statistically correlated with gender equality, nutrition, and household income (Sekabira & Qaim, 2017). Tata and McNamara (2017) found information communication technologies improved the livelihoods of rural Kenyan women. The World Bank (2019) plans to invest $25 billion into the digitalization of Africa. This includes financing high-speed internet and helping young African entrepreneurs access technology to improve education, transport, and health services (World Bank, 2019). One Acre Fund (2019) integrated tablets to over 2000 field staff in Kenya and Malawi to increase farm enrollment, marketing, and data tracking. PAD (2019) partnered with the Rwandan government in a campaign to improve farmer’s adoption of hybrid maize.

Recommendations
Organizations like One Acre Fund or Digital Green use technology to teach and train farmers on a small scale. Women will become more empowered to participate in cooperatives, and educational programs with access to trainings via technology. Cooperative membership will assist women expand their achievements and community engagement (Komives & Wagner, 2017). These organizations should partner with larger institutions such as agricultural-based universities, the European Union, and USAID. These practitioner and academic collaborations can train farmers and explore strategies to mass distribute this information via ICT's, or agriculture extension agents.
A quasi-experimental design should focus on three villages where women are all a part of a cooperative or farming organization. One village would be taught an agricultural practice via a tablet. The second would be given data via mobile messaging only. The control group would receive extension information traditionally. With the data obtained practitioners could then disperse information to farmers from anywhere in the world. Farmers would receive up to date information more quickly from credible sources. Educational programs and policies could be enacted to implement more technology into rural communities to help empower women farmers.

References


Communication Networks Among Wheat Growers in Afghanistan: Implications for the Diffusion of Agricultural Innovations

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Communication Networks Among Wheat Growers in Afghanistan: Implications for the Diffusion of Agricultural Innovations

Introduction

Agriculture is essential to food security, family livelihoods, and the national economy of Afghanistan, with over 61% of Afghanistan citizens directly engaged in the agriculture sector which contributes 23% of the country’s gross domestic product (Muradi & Boz, 2018). Wheat is the most important staple crop in the country, with 66% of average family caloric intake coming from bread and other wheat products (Hassanzoy, 2016). Unfortunately, wheat production in the country fails to meet the domestic demand, with average wheat yields well below average yields for similar climates, with low yields attributed to antiquated production techniques, poor quality and poorly adapted seeds, and issues related to soil nutrition and irrigation (Tavva, 2017).

Engagement with change agents such as agricultural extension and advisory services, access to mass media, and higher socio-economic status are generally correlated to early adoption of innovations (Rogers, 2003). Agricultural extension and advisory services, key change agencies in Afghanistan and other countries, are important to the diffusion of research-based agricultural technologies and practices, particularly among lower income farmers in developing countries (Mwangi, 1998). Similarly, mass media such as radio, television, and social media are immensely effective means of information dissemination in the diffusion of agricultural innovations (Rogers, 2003). Still, community opinion leaders and other informal communication networks are often the most influential in the innovation decision process (Rogers, 2003).

Purpose and Objectives

Understanding formal and informal communication networks among producers is essential to identifying opportunities to improve information dissemination in promoting agricultural best practices and technologies with the potential to increase wheat quality and yields. As part of a broader multi-country study of farmer technological adoption, the purpose of this particular study is to gain a clearer understanding of the formal and informal communication networks upon which wheat farmers rely for information about agricultural practices and technologies. Specific research questions include:

1. What is the degree of contact between formal change agencies and wheat farmers in rural Afghanistan?
2. What informal communication networks do wheat farmers access in seeking information about agricultural practices and technologies?

Methods

This study employed a descriptive-analytic survey using an orally administered questionnaire of 40 forced-choice and five open-ended items developed based on the conceptual framework of this study and employing items previously piloted in similar studies (Fowler, 2013; Fraenkel, et al., 2019). The lead author, a former Afghan extension officer, fluent in both Dari and Pashto, and competent in the subject matter areas, led the survey interviews in the field.
(Fowler, 2013). The two provinces selected, Herat Province in the Western Region and Nangarhar Province in the Eastern Region, for this initial study represent very different agroecological zones as well as notable differences in majority ethnicity and languages. In these provinces, researchers purposively selected two districts with the greatest total wheat production while also considering security and accessibility, reflecting the reality of conducting field research in a relatively insecure country (Cohen & Arieli, 2011). Working with provincial agricultural extension officers, researchers selected three villages per district and fifteen wheat farmers per village at random, for a total of 90 respondents (N=90).

**Results**

All respondents (n=90) identified as men (a notable limitation of this study), with 60% (n=54) between the ages of 36 and 55 years old, 21% 35 years old or younger, and 19% (n=17) above the age of 57. The majority of respondents (n=56) reported having no formal education, with most reporting owning or leasing 10 acres or less (n=55).

In investigating respondents’ participation in community organizations, researchers found that 68% (n=61) reported no membership in formal community organizations, 29% (n=26) reporting membership in one organization, and 3% (n=3) reported membership in more than one community organizations, with no respondents indicating service in a leadership role within these organizations. Nearly all (98%) of the respondents reported a low level of extension contact, defined as having two or less interactions with an extension office or officer per year. The majority of respondents (82%, n=74) of the respondents reported that they have not attended any formal agricultural training in the past year. The 18% (n=16) of wheat growers that reported attending wheat production technology training in the past year shared that training included topics such as: wheat cultivation techniques, disease control, storage, and marketing.

In responding to items related to sources of information, 48 respondents reported no interaction with formal information sources while 37 respondents indicated at least one interaction in the past year with a public agricultural development officer, i.e extension officers. Of the informal information sources explored, neighbors were reported as the most frequent and reliable information source, followed by friends and relatives, and progressive farmers in the community.

**Implications and Recommendations**

Wheat grower contact with formal information systems, change agents and agencies, and access of mass media sources for information about agricultural technologies or practices are quite low. Notably, no respondents reported awareness or access of the Ministry of Agriculture, Irrigation and Livestock’s farmer call center, indicating limited reach of the government’s provincial and national extension education programs. Conversely, these results point to the significant reliance on information sources within wheat growers’ informal communication networks. There is tremendous room for improvement in the implementation of extension education efforts that reach these rural communities. By working within existing informal communication networks and engaging existing opinion leaders, agricultural extension programs may more effectively communicate with rural farmers to encourage adoption of wheat production innovations. Still, further research is needed to expand the scope of inquiry to other regions of the country and with a more diverse sample of the population to better understand how
gender, socio-economic status, location, literacy, ethnicity, and other socio-economic factors influence access to formal extension services and reliance on informal communications networks.

References


The Case of the Underground Forest:  
How a Non-Governmental Organization Change Agent  
Encouraged Change that Continues to Change Lives and the Landscape

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The Case of the Underground Forest: How a Non-Governmental Organization Change Agent Encouraged Change that Continues to Change Lives and the Landscape

Introduction and Theoretical Framework

Many Non-Governmental Organizations (NGOs) serve as agents of change with the intent of diffusing agricultural innovations to smallholders around the world that help adapt and mitigate climate change (Flanagan, 2015), requiring their NGO leaders and staff to be change agents of specific innovations (Brown, 2015).

Rogers described diffusion (2003, p. 5) as "the process by which an innovation is communicated through certain channels over time among members of a social system." Change agents are used to facilitate communication of an innovation from a change agency to members of a social system (Rogers, 2003). Change agents' success has been related to the change agent's effort, client orientation, compatibility of the diffusion program with clients' needs, and the change agent's empathy with the client (Rogers, 2003).

Purpose and Objectives

The purpose of this poster is to illustrate an example of an NGO leader in promoting climate change innovations as a change agent. The objective is to describe the factors a leader of an NGO, as a change agent, display in the process of introducing an agricultural climate change innovation. Further, the poster is a visual depiction of introducing an innovation initiated on a small scale and has expanded internationally, providing lessons for those seeking to be a change agent within international development initiatives.
Methods

The case study approach (Fraenkel et al., 2019) was employed to document the process by which Tony Rinaudo addressed the issue of deforestation in Niger using an innovation termed the Farmer Managed Natural Regeneration (Stephens & Barnard, 2018), better known as FMNR. This case study is shared with the permission of the subject. Content analysis (Berelson, 1952; Krippendorff, 2004) of an in-depth interview conducted with the subject provided the foundation for the case study along with a review of written materials associated with the innovation.

Results and Discussion

The case of the "Underground Forest" resulted from the keen observation of Tony Rinaudo (change agent) that the perceived bushes growing in Niger were trees. Each year, farmers would cut back or burn the trees as they prepared their fields for planting (Reij & Garrity, 2016). His observation and the actions taken would eventually be called Farmer Managed Natural Regeneration (Stephens & Barnard, 2018), better known as FMNR (the innovation). What made diffusion of this innovation successful was that diffusion was encouraged via social change rather than introducing a new technology.

Two primary factors influenced the innovation's adoption, which included a change in mindset and a change in governmental law. Originally, there was a collective mindset of viewing the trees in the fields as a weed that needed to be cut down. This mindset was altered through a demonstration program in which farmers were incentivized to allow the "bushes" to grow. This allowed others to observe the results and see the relative advantage of this innovation. The benefits of the innovation included items such as firewood and building timber, land reclamation, increases in crop yields and animal production, improved biodiversity, improved local economy, and overall enhanced quality of life. Concerning governmental law,
the laws allowed the government to control trees, not bushes. Thus, this discouraged farmers from allowing bushes to grow into trees. By relaxing the country's laws, farmers were inclined to adopt the innovation. The adoption of FMNR spread quickly over the next several years through opinion leaders' influence and with the innovation having a significant impact.

The factors contributing to this innovation's success are directly connected to the change agent's characteristics and actions: careful observation, actively seeking a solution, connection to the people and environment, and desire to make a difference. Further, their belief in the innovation, commitment, networking skills, ability to organize, communication skills, strategic thinking, and connecting with opinion leaders significantly impacted success. The diffusion started on a very small scale and has grown to a much larger scale. As is true with many innovations, once farmers can see potential benefits, they are much more likely to adopt the innovation (Rogers, 2003).

**Implications**

With desertification and land degradation continuing around the world, there is a need for solutions that address these issues in the context of small-scale farmers around the world. FMNR is an agricultural innovation that positively influences small-scale farmers' social, environmental, and economic aspects. It has been adopted in Niger and 17 other Sub-Saharan African countries, Southeast Asia, Timor-Leste, India, and Haiti (Francis et al., 2015) and has potential in many other countries. Further, the change agent's characteristics are worthy of study and provide a relevant example for those seeking to work in international development.
References


Assessing Pennsylvania Farmers’ Perception on Stress Factors

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Introduction

This study aims to document the nature and extent of occupational stress in farming. Psychologically and physically, farming has been described as one of the most stressful occupations (CDC, 2020; NIOSH, 2020a, 2020b; Rudolphi et al., 2020; Truchot & Andela, 2018; Yazd et al., 2019). Farmer populations, compared with the general U.S. population, report higher levels of psychological distress, depression, and anxiety (Rudolphi et al., 2020; Yazd et al., 2019). Some of the significant farmers' stressors reported are government policy, weather, and market conditions (Walker et al., 1986). Similarly, personal finances and time pressures were sources of substantial concerns in young adult farmers and ranchers (Rudolphi et al., 2020). Booth and Lloyd (2000) served stress among farmers from the South West of England. The authors found that 35% of respondents scored positively on the health-related domain related to the stress where female respondents showed significantly higher scores than males.

The stress caused by COVID-19 in the farmer population has been understudied across the world. However, it is known that the coronavirus outbreak has impacted in physical and mental health and wellbeing globally. This impact has been higher among marginalized individuals and farmer populations (Hossain et al. 2020), adding new uncertainties on top of other stressors in most sectors of agriculture. Recent psychosocial challenges due to the COVID-19 lockdown had brought endless suffering in farmer's lives (Hossain et al. 2020). A neuropsychiatric linkage has been established between the outbreak of acute respiratory infections and mental disorders (Shah et al., 2020). Rosmann (2020) indicates that people in quarantine areas may experience boredom, anger, and loneliness. The symptoms of the viral infection (such as cough and fever) may also cause worsening cognitive distress and anxiety among people due to the fear of contracting COVID-19. In 2016, Afifi conducted a study in Iran and explained the experience of uncertainty as a lack of confidence in one's ability to predict an outcome, which is often an unpleasant, anxiety-producing state that people cannot reduce. Increased anxiety and stress are particularly likely with uncertainties that present a risk to safety and wellbeing (Afifi et al., 2016). The 'unexpected' is a mismatch between perceived reality and expectations, not immediately manageable through comprehension and/or action (Paries, 2017). The disruptive potential of an unexpected event depends on several features, including its development and pervasion speed, the time-criticality and irreversibility of decisions to be made, and their potential consequences. (Starcke & Brand, 2012) state that stress affects decisions under various degrees of uncertainty and alters underlying decision-making mechanisms. Stress can lead to disadvantageous decision-making even when explicit and stable information about outcome contingencies is provided (Starcke et al., 2008).

Purpose and Objective

The purpose of this study is to investigate factors that affect farmers' stress in [State] and determine how uncertainty factors such as COVID-19 differ from other stress factors.

1. Determine the relationship between farmers' stress level and the farmers’ stressors like off-farm stress, on-farm stress, personal stress factors, and stress from uncertainty factor (COVID-19).
2. Determine to what extent does uncertainty factor (COVID-19) predict farmers' stress controlling for off-farm factor, on-farm factor, personal factor.

Methods
This study will use a survey methodology based on a descriptive - correlational research design to address its objectives. An online survey will be used for data collection. The researchers adapted and developed a questionnaire from existing instruments used in the literature. The instrument includes stress domains identified and adapted from existed stress surveys (off-farm factor, on-farm factor, and personal factor). The uncertainty factors domain (COVID-19) has been developed. Demographic questions include the following: farm size, farmers' age, work hours a day, disability, or chronic health conditions, as well as minority-owned or socially disadvantaged farm operators. Thirteen field experts (Extension educators, academic faculty members with expertise in survey methodology, and farmers) will help to establish face and content validity of both instruments. Survey participants will be asked to express how often they experience feelings related to off-farm factors, on-farm factors, personal factors, uncertainty factors (COVID-19 factor), and farmers' stress level.

**Study Population.** This study will use a census approach to reach [State] farmers, ranchers, farm managers, and agricultural workers.

**Data Collection and Analysis.** We are planning to collect our data between December 2020 to February 2021. The Qualtrics platform will be used to collect online data. The online survey will be distributed via the [State] State Extension website and farmers related organizations websites, and three reminders for the survey completion will be sent over six weeks period. SPSS version 26 will be used to analyze the survey data. The Pearson correlation coefficient will help measure the association between farmers' stress and off-farm factor, on-farm factor, personal factor, and uncertainty factor (COVID-19). A hierarchical approach of multiple regression will be used to examine to what extent does uncertainty factor (COVID-19) predict farmers' stress while controlling for off-farm factor, on-farm factor, personal factor. We will use standard Davis Conventions (1971) to describe the magnitude of the correlation between independent and dependent variables.

**Expected Results & Conclusions**

Acceptance of this abstract will allow us to share pertinent findings obtained from this study. As preliminary results, we expect to

- Identify stressors that affect [State] farmers’ stress.
- Understand and determine the relationship between farmer's stress with the one caused by the uncertainty factor (COVID-19).

As hypothesized conclusions, we expect to conclude that:

- There is a positive relationship between farmers' stress level and the independent variables of off-farm factor, on-farm factor, personal factor, uncertainty factor (COVID-19).
- Uncertainty factor COVID-19 is a predictor of farmer's stress.

More specific implications based on findings will be discussed in the oral presentation if this proposal is accepted.

**Implications**

Assessing [State] farmers' stress is crucial to determine farmers at risk nationally and internationally. Results from this research and recommendations will be helpful for Extension and outreach professionals across the world who are working with farmers and planning to develop educational and extension programming to build stress resilience among farmers that positively influence the viability of farming operations.
References


Reacting in a Time of Crisis: Evaluating Latin America Extension Efforts During COVID-19 Pandemic

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Reacting in a Time of Crisis: Evaluating Latin America Extension Efforts During COVID-19 Pandemic

Introduction

The COVID-19 pandemic has drastically impacted the lives of people around the world (Wu et al., 2020). In addition to the loss of human life, the global economy has also been affected, including agriculture and agricultural extension (Nicola et al., 2020).

Latin America provides an interesting context for exploring the dynamics of agricultural extension because of the unique blend of both the public and private sectors in the provision of extension. Also, in most Latin American countries, agriculture represents an important economic source and much of it is produced by smallholder farmers (World Bank, 2018). In much of Latin America, extension experts have a key role in agricultural production since they share innovative agricultural practices with small-scale producers (Landini, 2016).

The importance of the extension sector in helping producers in Latin America understand and mitigate agricultural crises, such as crop failure, is well-understood (Alemany & Sevilla-Guzmán, 2006). However, there is no information on how agricultural extension in Latin America is working with producers during COVID-19 and if they have the resources to do it (Timilsina et al., 2020). There is a lack of information about how extension in Latin America has been operating during the COVID-19 pandemic.

Purpose and Objectives

The study aims to identify and assess Latin-American Extension’s response to the COVID-19 pandemic of 2020. To accomplish this purpose, three research questions were implemented to guide this study.
1) How prepared are Latin-American extension professionals to implement knowledge-sharing activities during COVID-19?

2) What are the modifications to outreach activities used by Extension professionals in response to COVID-19?

3) Are extension professionals accessing information resources on topics related to COVID-19?

**Methods**

For this exploratory study, data was gathered using snow-ball sampling from Latin-American professionals who were working in agricultural extension activities (N = 70). The instrument used was previously implemented by Narine & Meier (2020) with Utah extension professionals. The instrument was adapted to the Latin American context and translated to Spanish. The instrument was composed of three sections: (a) individual capacity, how extension professionals perceive their abilities to meet residents’ necessities, (b) actions, the outreach actions to respond to COVID-19, (c) knowledge, professionals’ perceived knowledge, and access to new information.

The translated instrument was validated with a panel of native Spanish speakers. Ranges of reliability were from .80-.89. Extension workers were asked to rate their capacity to implement factors of outreach capacity (1 = terrible, to 5 = excellent), rate the changes to their activities after the onset of the pandemic, and rate their knowledge on implementing actions related directly to COVID-19. An online questionnaire using Qualtrics was shared for data collection. Data were analyzed using descriptive statistics and bivariate correlations were implemented.

**Findings**
Descriptive analysis of the participants revealed that participants came from 13 different Latin-American countries (Mexico, Guatemala, Belize, El Salvador, Honduras, Costa Rica, Panama, Colombia, Ecuador, Peru, Dominican Republic, Brazil, Chile). The study participants included field technicians (31.4%, \(n = 22\)), program coordinators (27.1%, \(n = 19\)), program directors (15.7%, \(n = 11\)), thematic area specialists (14.3%, \(n = 10\)), extension professors (7.1%, \(n = 5\)), and monitoring and evaluation specialists (4.3%, \(n = 3\)). Most of the participants were men (71.4%, \(n = 50\)), with women comprising a small portion of the sample (28.6%, \(n = 20\)).

For objective one, extension experts were asked about the new skills they developed for working during COVID-19. The highest ranked response was “Partner with other organizations to coordinate efforts” (\(M = 4.21, SD = 0.86\)), while the lowest-ranked response was “Providing information to community media” (\(M = 3.50, SD = 0.97\)).

The purpose of objective 2 was to provide a before-and-after comparison of the actions that extension experts had implemented. The net change in actions represents the responsiveness of extension to the initial pandemic outbreak. Results showed that the greatest change for extension professionals was “Learning to work from home throughout the pandemic.” Over 80% of participants are working from home due to the pandemic, but before the pandemic only 18.6% was working from home. This represents a 330% increase in working from home. The net change with the lowest percentage (13%) was “Contact with local leaders about how the extension team could support the to address farmers’ needs”. Before the pandemic, 57.1% of the extension professionals were doing this task, while during the COVID-19 pandemic, 64.3% addressed.

Objective 3 sought to evaluate their perceptions of extension’s response to COVID-19. Overall, participants ranked extension’s response to COVID-19 as high (\(M = 4.01, SD = 1.48\),
and the lowest ranking was the experience of making the transition from in-person education to online education ($M = 3.59$, $SD = 1.59$).

In addition, participants were asked if they were addressing different activities related to the prevention of COVID-19 in their programs. Overall, from the 70 participants, personal hygiene was the action that most people addressed ($n = 54$). The tasks most respondents were implementing included the creation of emergency kits ($n = 26$), followed by telehealth ($n = 25$) and financial management ($n = 25$).

**Recommendations and implications**

Overall extension professionals perceived that extension in their countries demonstrated a fast response to COVID-19, but they experienced challenges in implementing certain actions related to their jobs. Recommendations include creating new trainings for extension professionals in communicating with communities during a health crisis and conducting ‘drills’ for alternative approaches to outreach during a time of crisis.

As part of the research, participants were asked if they would be willing to participate in an in-depth interview to talk about how extension is grappling with COVID-19. Thirty-five participants indicated a willingness to be contacted and data collection is underway. While the quantitative results provide a good overview of issues in Latin American extension during COVID-19, qualitative research should provide more detailed explanations of the experiences of extension workers during the pandemic.
Introduction and Theoretical Framework

The Food and Agriculture Organization of the United Nations (FAO) has partnered with the International Center for Advanced Mediterranean Agronomic Studies (CIHEAM) to address the rapidly evolving problem of water scarcity in one of the most climate-responsive regions of the world. According to CIHEAM (2017), the agriculture sector uses 69% of exploitable water in
this region, classifying 10 Mediterranean States as water insecure. Increased urbanization, population growth, and land use have placed constraints on water availability and are expected to continue to increase climate pressures, indicating a need for improved water management strategies (Verkerk et al., 2017). As a result of depleted rivers and aquifers, FAO and CIHEAM (2016) recommended improving water use efficiency (WUE) to achieve food security and promote sustainable farm management.

While impacts and immediate concerns of water scarcity are evident, adoption of WUE technologies has been historically slow, even when the technology proves to yield desirable results (FAO & CIHEAM, 2016; Tuberosa et al., 2007). Socio-economic impacts, legal framework, and the lack of knowledge-exchange programs are more salient on adoption of sustainable water management than technology alone (Chartzoulakis & Bertaki, 2015; Levidow et al., 2014). Literature indicates an increasing demand for participatory approaches aiming to identify the scope of farmer concerns in order to actively target research objectives and actualize adoption (Shelburne et al., 2016; Tuberosa et al., 2007; Verkerk et al., 2017). The Concerns-based Adoption Model (CBAM) enables researchers and practitioners to increase understanding of innovation implementation (Hall et al., 1973).

**Purpose and Objectives**

This study explored the potential implications of using the CBAM as a participatory tool for agricultural development projects in the Mediterranean region. More specifically,

1. Identify studies which have successfully applied the CBAM to an agricultural setting; and

1. Discuss the potential implications of integrating the CBAM into existing models of adoption to address the concerns of WUE program stakeholders in the Mediterranean region.

**Methodology**

A content analysis was implemented as the research design to accomplish the objectives of this study. Recent reports generated by international agricultural agencies within the last 5 years were first examined to determine immediate challenges faced by farmers in the Mediterranean region (CHIEAM, 2017; FAO & CHIEAM, 2016). After the identification of pertinent issues within this region, a Web of Science database search was conducted using the keywords “water management”, “Mediterranean”, “participatory approach”, “stakeholder concerns”, and “adoption”. Research articles containing two or more of these keywords were reviewed for common themes and synthesized based on relevance to the research objectives of this study.

**Results and Conclusions**

The need for participatory approaches to WUE agricultural development projects was identified as a primary concern experienced by stakeholders in the Mediterranean region. According to Tuberosa et al. (2007), participatory approaches that cooperate with farmers should be encouraged to reflect the socio-economic needs of all parties involved thus, accelerating the WUE program adoption process. Verkerk et al. (2017) reported similar results by stating, “to ensure that adaptation strategies for water management are credible, informed and achievable, they need to be developed through an open and transparent process with the active participation of diverse stakeholders...” (p. 2). Conclusively, Nguyen et al. (2016), suggests a need for irrigation management practices that prioritize farmer perceptions, listing these perceptions as the main determinants of program success.
Mize et al. (2020) surveyed a group of Cambodian vegetable farmers using the Concerns-based Adoption Model (CBAM) to identify concerns with the adoption of a particular innovation. Mize et al. (2020) used Rogers’ (2003) diffusion of innovations theory as their framework and added a participatory component, the CBAM, placing the user at the center of the change process to acknowledge they will experience stages of concern associated with their level of use. While the model has been widely used in traditional education settings, the literature specifies 3 studies which apply the CBAM to an agricultural project development context (Cashman, 1990; Mize et al., 2020; Myers et al., 2012). The results of those applications suggest the potential of the CBAM to bridge the gap between all parties involved in agricultural development research, allowing for more efficient and targeted allocation of resources.

Mize et al. (2020) explored the applicability of the CBAM to a new context by analyzing 2 studies in which the model was applied to agriculture (Cashman, 1990; Myers et al., 2012). Mize et al. (2020) concluded the CBAM successfully integrated a participatory component into the existing theoretical framework, fulfilling the need for an inclusive approach. Specifically, these studies concluded the model to be a useful tool for identifying farmer concerns, monitoring concerns throughout the change process, and using integrative feedback to tailor research efforts to address farmers’ needs (Cashman, 1990; Mize et al., 2020; Myers et al., 2012). In addition, participants of the study reported the CBAM helped identify areas where project development goals were misaligned with farmer concerns (Mize et al., 2020). While the CBAM instrument proved to be adaptable to an agricultural setting, a limitation included rewording the questions to result in accurate translation to Khmer, the official language of Cambodia (Mize et al., 2020).

**Recommendations**

Agricultural extension practitioners should consider using the CBAM to address stakeholder concerns, improve the likelihood of stakeholder involvement in the program development process, and enhance stakeholder innovation adoption. CBAM should be applied to areas where WUE program adoption is low to identify barriers reducing the rate of adoption (Hall et al., 1973).

Research should seek to determine if a significant difference exists between the use of the CBAM and the use of contemporary adoption techniques to increase adoption rates and level of stakeholder satisfaction. The data would offer insight into the efficacy of the CBAM as an agricultural development tool.

The Mediterranean region encompasses diverse official languages. More exploration is needed to determine which languages would pose significant barriers to translation and context of the model (Mize et al., 2020). Thorough training should be required of instrument developers and administrators, as well as data analysts to prevent misinterpretations from language differences.
References


Developing and Piloting an Index to Assess Program Fidelity in Extension

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Developing and Piloting an Index to Assess Program Fidelity in Extension

Introduction

Mowbray et al. (2003) described program fidelity as the degree to which the delivery of a program follows predetermined protocols or an evidence-based model. Hohmann and Shear (2002) detail that valid fidelity standards are an essential element of program evaluation. Program fidelity is critical in the public sector where there is a need to account for outcomes of tax-funded programs (Hohmann & Shear, 2002). Without evidence of a program’s conformity to a predetermined plan or model, it is difficult to judge whether unfavorable program outcomes relate to failure of implementation (Chen, 1990). Mills and Ragan (2000) cited poor implementation as the primary cause of unfavorable program outcomes.

This study sought to develop an index to measure program fidelity. It discusses the conceptual framework of fidelity, creation of a standardized index, and application of the framework to the Master Remote Work Professional (MRWP) course, a major extension program in [State]. The MRWP course seeks to improve the human and economic capacity of rural communities by educating residents on securing stable remote jobs. This study proposes a framework to assess fidelity of extension programs in process evaluation using the MRWP course as an example.

Theoretical Framework

Carroll et al. (2007) developed a conceptual framework which defined implementation fidelity as the degree to which implementers adhered to program protocol as originally intended. The framework, applied to medical interventions, highlighted three elements of implementation fidelity: adherence, essential components, and moderators. Adherence consisted of four sub-elements (i.e., content, frequency, duration, coverage). Essential components consisted of highly
contextual activities (e.g., peer support) crucial to the program’s success. Moderators referred to factors that can adversely influence fidelity. High levels of adherence and essential components can result in high program fidelity, while moderators negatively impact fidelity (e.g., complex program description, variations in program content and delivery). Carroll et al. (2007) suggested a program likely has a high level of fidelity if (a) it adheres to its intended program protocols, (b) performs essential activities, and (c) minimizes negative influences from moderating factors.

**Purpose and Objectives**

This study proposes a methodology for assessing program fidelity in extension. The objectives were to (a) develop an operational framework for a program fidelity index (PFI), and (b) apply the PFI to the MRWP course.

**Methods and Data Source**

Extension programs are highly contextual, therefore, the adapted conceptual framework for the PFI accounted for two main components: adherence and essentials. The first step identified activities of adherence. The second step determined essential activities necessary for course success. Adherence relates to the basic operational activities for program delivery. Using the MWRP as a pilot, there were five activities (i.e., sub-components) of adherence; grading modules, delivering workshops, providing assessment feedback, attending events, and participant recruitment.

Essentials refer to activities that strengthen the connection between adherence and desired program outcomes. In the MWRP, there were two essential activities: course promotion and participant mentoring. The PFI was estimated using data from a researcher-developed instrument. The PFI instrument was pilot tested during the May 2020 cohort of the MWRP course. During the course, three program staff were asked to indicate their completion status for
activities related to adherence and essentials: 0 = Not Achieved, 1 = Achieved. Program leadership determined the ideal status for each activity based on the program protocol.

For adherence, “Grading” scores ranged from 0 (no modules graded) to 9 (all nine modules graded). “Workshops” scores ranged from 0 (no workshops delivered) to 2 (both workshops delivered). “Assessment Feedback” scores ranged from 0 (no assessment feedback given for workshops) to 2 (assessment feedback given for two workshops). “Events” ranged from 0 (no events attended) to 2 (at least two events attended). “Recruitment” ranged from 0 (recruitment efforts did not secure future participants) to 1 (at least 15 participants recruited for future classes). For essential activities, “Promotion” ranged from 0 (no attempts made to promote the course) to 8 (two weekly attempts to promote the course). “Mentoring” ranged from 0 (no peer-mentoring) to 4 (four peer-mentoring tasks completed).

The PFI was created by (a) standardizing sub-scores to a range of 0 to 1 for each activity of adherence and essentials, and (b) calculating an aggregate mean score from the standardized sub-scores. Therefore, equal weights were applied to all activities such that one activity did not exert greater influence on the PFI than others. The PFI ranged from 0 (Poor) to 1 (Excellent); a PFI of 1 indicated the program was implemented exactly as intended. Conceptually, the proposed PFI measured the degree to which program staff performed necessary tasks to ensure achievement of program outcomes.

Results

Results indicated the sub-component score for adherence was 0.99 (Grading = 0.96, Workshops = 1.00, Assessment Feedback = 1.00, Events = 1.00, and Recruitment = 1.00). This indicated program staff performed almost all activities related to adherence. The sub-component score for essentials was 0.80 (Promotion = 0.92, Mentoring = 0.67). This score suggests some
essential activities, mostly related to mentoring, were not performed as expected. The overall PFI score was 0.89. This indicated the course was implemented with a reasonably high degree of fidelity; staff performed most tasks as outlined in the program protocol. Possible threats to fidelity related to staff performance on essential activities of promotion and mentoring.

**Conclusions and Recommendations**

This abstract provided an overview of an operational framework to assess the fidelity of extension programs. It describes the development of a program fidelity index (PFI) and tested the model using data from a major extension program at [State] University Extension. The PFI provided a summary statistic of fidelity, with sub-indices indicating area of concerns. While extension professionals commonly focus on evaluating program outcomes, it is worthwhile to acknowledge the connection between activities and results; a poorly implemented program (i.e., low fidelity) is less likely to produce desired outcomes (Mills & Ragan, 2000). The PFI can provide explanations for deviations in actual program outcomes. It is recommended extension professionals adapt the PFI for process evaluations of their programs as they demonstrate the value of extension to stakeholders.

**References**


They Said What?! A Practical Reflection on the Use of Paid Qualtrics Panels for a Large-Scale Community Needs Assessment

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They Said What?! A Practical Reflection on the Use of Paid Qualtrics Panels for a Large-Scale Community Needs Assessment

Introduction and Review of Literature

Online surveys have majorly impacted research in the United States, Europe, and other parts of the world (American Association for Public Opinion Research, n.d.) and provide many advantages such as quick data collection, large geographic coverage, low cost, convenience, and the flexibility of the online format design (Comley, 2002; Evans & Mathur, 2005). Survey respondents’ motivations to complete surveys have been complex, but evidence points towards incentives as the leading motivation to complete a survey (Baker et al., 2010). However, the use of incentivized, pre-recruited online panels has led to a “willful disregard of the survey taking instructions with the purpose of gaining a personal reward (i.e. respondent fraud)” (Brazhkin, 2020, p. 490). Survey respondents have been known to use various strategies termed satisficing including techniques such as straight-lining (i.e. same answer for contiguous questions), speeding through questions, or providing vague answers such as “don’t know” (Vannette & Krosnick, 2013, p. 7), negatively impacting survey response quality.

Researchers have developed fraud prevention strategies in response to low quality data: (a) panel selection criteria, (b) software choice, (c) instructional manipulation checks (e.g. minimum cutoff times, (d) attention check questions, (e) internal consistency, and (f) data cleaning (Guin et al., 2012; Vannette, 2017). Vannette (2018) offered three recommendations for protecting against straight-lining such as avoiding grid or matrix questions and presenting one question per page. However, commonly used strategies may not actually be effective. Kennedy et al. (2020) found 84% of fraud respondents passed a trap question and 87% passed the check for answering too fast. Fraud prevention strategies come at a cost, such as loss of respondent trust (Vannette, 2017) and higher survey completion times leading Alvarez et al. (2019) to encourage more research regarding fraud indicators and guidelines for data analyses.

Purpose and Objectives

The purpose of this application-based abstract was to share our experience implementing fraud prevention strategies in an attempt to decrease the use of satisficing strategies and increase data quality in a large-scale community needs assessment conducted using a paid Qualtrics panel. Our objectives were to describe the most common types of satisficing strategies observed, and to provide qualitative examples of fraud responses.

Methods

We contracted with Qualtrics in April 2020 to provide 1,500 respondents for a statewide community needs assessment being conducted for UF/IFAS Extension. Our survey instrument was adapted from a study conducted by Narine et al. (2020) and contained matrix items, side by side items, multiple choice items, and open-ended items. Initially, our instrument included three attention check questions, and we conducted a data quality check in collaboration with Qualtrics after the first 39 responses were obtained. Additional fraud prevention strategies were implemented at that time, including a Qualtrics-recommended question about commitment to answer truthfully, a longer minimum cutoff time, and an additional open-ended question designed to gauge respondent effort. We collected data from May to early July and received
2,397 responses. We discarded 343 of those as unusable partial responses. Qualtrics discarded 217 responses for failing their internal quality checks; our results will describe an additional 337 responses that we discarded and why.

Results

Multiple responses were discarded from the data after screening for satisficing strategies and other disqualifying factors (e.g., age, non-residency). In late May, Qualtrics sent the first 750 responses to be reviewed for quality. Notable issues included respondents with non-Florida zip codes, speeders, straight-liners, and vulgar or gibberish responses to open-ended items. Following the cleaning process, 576 responses were retained for a 23.2% scrub rate. A second quality check was conducted after 1,513 responses were received. The primary issues in the second set of responses were poor quality open-ended responses, non-Florida resident zip codes, and straight-liners not caught by Qualtrics’ scrubbing threshold (95% straight-lining). An additional 154 responses were discarded, including a few earlier responses that were reevaluated, raising the scrub rate to 27.0% overall, well exceeding Qualtrics’ stated norm of 5%. The final response set sent by Qualtrics had 1,509 responses, of which 9 were discarded for failing one or more quality checks.

Determining if a respondent has submitted a fraud response can be subjective. In our case, some respondents submitted answers so egregious that there was no doubt whether their responses should be excluded. We asked respondents to identify what the most pressing issue was for Florida and why. Fraud responses included, “The cat ran down the hill and got ran over,” “The most pressing issue is the lack of care that I give to this survey,” and “I don’t even know cuz I just want the freaking Robux so ye (sic).” Evidence of the satisficing strategy of vague responses was also found in responses such as “I'm really not sure,” “idk,” and “i (sic) like that.” Finally, small numbers of vulgar and/or gibberish responses were documented.

Implications and Recommendations

As suggested by Kennedy et al. (2020), the use of some fraud prevention strategies did not appear particularly effective at improving data quality. It is impossible to know what percentage of responses would have been scrubbed if we had not used any fraud prevention strategies. We found using an open-ended descriptive question helpful for identifying bogus respondents. Selective use of a few open-ended questions, including descriptive, list, and formatted numerical types (Dillman et al., 2014), interspersed throughout the questionnaire may be helpful in slowing speeding respondents and unveiling fraudulent respondents. The attention check items and Qualtrics-recommended commitment item did not discourage some respondents from implementing satisficing strategies (Vannette & Krosnick, 2013). We recommend researchers try a different strategy to improve survey quality by using separate vendors for survey administration and recruitment of respondent panels. Cornesse et al. (2020) provided useful criteria for selecting a source for a respondent pool that will generate higher quality data. Researchers interested in using paid survey panels should carefully review the literature about panel selection and fraud prevention strategies early in the study planning process and share their experiences to contribute to best survey practices afterward.
References


Intercultural Competence in Extension Education: A Professional Development Model

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Intercultural Competence in Extension Education: A Professional Development Model

Introduction

The need to build cultural competence among extension professionals has been well established in the literature (Banks & Banks, 2009; Nieto & Bode, 2007). Population trends indicate extension clientele are becoming increasingly diverse, underpinning a growing need to plan and implement culturally responsive extension programs. According to the International Organization for Migration [IMO] (2019), it is estimated that there were almost 270 million immigrants globally, accounting for 3.5% of the world’s population. This figure already exceeds the projections for the year 2050, originally estimated at 2.6% or 230 million.

These immigration trends are particularly salient in the United States, which remains the top destination country with 50.7 million international migrants (IMO, 2019). These trends are expected to continue with Hispanics accounting for the largest proportion of growth. The U.S. Hispanic population reached a record 59.9 million in 2018, which was 1.2 million more than the previous year and up from 47.8 million in 2008 (Flores, Lopez, & Krogstad, 2019). Hispanics accounted for 52% of all U.S. population growth from 2008 to 2018 (Flores, Lopez, & Krogstad, 2019).

Conceptual Framework

The literature suggests that educational programs that do not consider participants’ cultural differences are frequently less effective compared to those that acknowledge and account for such differences (Banks & Banks, 2009; Gay, 2002; Nieto & Bode, 2007). A gap currently exists between wanting to educate diverse audiences and being prepared to do so, indicating a need for cultural competency training. A conceptualization of a cultural competency framework is necessary to developing culturally responsive extension programs. This framework must identify intercultural professional development needs among educators and strategies to address those needs.

There are several existing frameworks; however, these were not developed systematically and/or within the context of extension education. For example, the Culturally Responsive Teaching framework (Gay, 2002) was developed for the traditional classroom and did not account for the intricacies of nonformal education. Another example is the Navigating Difference (Deen et al., 2014) competency framework that was created for the extension context, but the competencies were not systematically explored and identified through a collaborative process. These examples demonstrate a need to systematically explore and develop a competency framework that works for the wider extension education context to better position extension professionals to meet the needs of all clientele.

Purpose and Objectives

The purpose of this study was to systematically develop a competency framework for extension educators through a collaborative and consensual process. Objectives were to:

1. Determine the cultural competencies necessary for working with multicultural audiences
2. Determine the core culturally responsive teaching competencies necessary for working with multicultural audiences.
3. Determine the core competencies for facilitating civil discourse for community development projects.

**Methods**

We utilized a three-phased Delphi study approach to leverage the expertise of a panel of cultural competency professionals and educators in academia. The panel included 36 experts across the United States and includes authors of highly recognized curricula such as Navigating Difference, Coming Together for Racial Understanding, and Intercultural Development Inventory.

The first phase of the study asked the panel to identify the competencies they perceived to be important for the development of a culturally competent extension educator. This included competencies related to culturally responsive teaching and facilitating civil discourse. The responses from the first phase resulted in the identification of over 200 competency items.

We utilized the second phase to refine the list based on the panel’s agreement (i.e., consensus) on the importance of each competency for working with multicultural audiences using a 7-point Likert-type agreement scale. We utilized the *a priori* definition of consensus to be 2/3 of the panel selecting “Strongly Agree” or “Agree”. This resulted in the elimination of 17 competency items from the initial list developed in phase one.

For the third and final phase, we asked panelists to identify the career phase that each competency should be developed in, and the importance of developing it in that career phase. The phases included: (a) in the first year, (b) 1 to 3 years, (c) 4 to 7 years, (d) 8-10 years, and (e) 10+. The intention of this last phase was to determine the career phase specific list of competencies to develop a career-long intercultural competency model.

**Results and Conclusions**

The Delphi panel achieved consensus on an extension cultural competency model that outlines 171 competencies over the 5 career phases related to general intercultural competence, culturally responsive teaching and facilitating civil discourse. The model further breaks down these competencies into: (a) personal traits and attitudes, (b) knowledge and (c) skills. The results will inform an intercultural professional development model that will outline a pathway towards cultural competence based on the career phases of extension professionals. While the study was conducted with experts in the United States, we believe the competencies developed are meaningful for working with multicultural audience both domestically and internationally. Cultural competence is paramount in these efforts to ensure culturally relevant and responsive programs.

**Recommendations**

The results of this study will lead to a competency framework that facilitates the development of a culturally competent extension system. The framework can be integrated into ongoing professional development needs assessment efforts. This improves the robustness of professional
development targeted to extension educations since it addresses cultural competency gaps. Identification of such gaps enables modification of existing curricula to ensure extension educators develop the competencies needed to plan and deliver culturally responsive programs to clientele. Additionally, this framework can be used to map the cultural competency development of extension professionals during the course of their career at various stages.

Using the results will allow agricultural education and extension organizations to develop a proactive and systematic approach towards related professional development efforts. The findings of this study will contribute to building the cultural competency among the extension professionals enabling them to better serve an increasingly diverse clientele. The major implication of this framework is its systematic guidance in planning professional development programs to build the cultural competency of extension professionals.

**References**


Early-Career Challenges of Extension Agents: Implications for Training Extension Educators

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Early-Career Challenges of Extension Agents: Implications for Training Extension Educators

Introduction

When new extension workers are hired, they will have to go through a steep learning curve during the first three years of service. This early-career phase is a very critical stage of extension educators because during that period they will have to develop the required professional competencies to face the real-world challenges they encounter in their job. These challenges include relationship building, communication, needs identification, educational programming, working with clients, balancing work and life, etc. If these challenges are not resolved, early-career extension worker burnout can take place. Retention of extension agents is a challenge for Cooperative Extension (Safrit & Owen, 2010). If early-career extension workers receive well-planned professional mentoring, they will be very successful as extension professionals. Smith, Hoag, and Peel (2011) reported the contribution of mentoring in the reduction of the extension agent turnover. New employees need onboarding training and mentoring to be successful (Baker & Hadley, 2014). It is important to understand the challenges faced by early-career extension workers to plan a professional development program for them. Professional development of extension educators is essential in accomplishing the mission of extension (Cummings, Andrews, Weber, & Postert, 2015).

Any extension agent could benefit from knowing how seasoned extension agents have become and remain successful in their program efforts and requirements to cultivate success (Smith, Hoag, & Peel, 2011). The faculty-staff relationship is the most important factor for someone to be successful as an extension agent followed by program planning, implementation, evaluation; public relations; and personal and professional development abilities (Cooper & Graham, 2001). Youth development is an essential part of extension work in the United States, and 4-H extension agents are responsible for providing youth development programs at the county level. Understanding how seasoned 4-H extension agents develop highly effective youth development programs will have implications for new extension agents to gain insights about the factors contributing to their success in youth development extension programming in any country. A study conducted with youth development extension professionals concluded that helping youth development extension professionals effectively manage conflicts contributes to their elevated level of job satisfaction (Stark, Vettern, Gebeke, Lardy, G., & Eighmy, 2012). Increased job satisfaction is necessary to minimize the extension worker burnout.

Purpose and Objectives

The purpose of this study was to determine the challenges youth development extension agents faced during their first three years and how they managed those challenges when developing an effective youth development program at the local level. More specifically, this study aimed to find answers to the following research questions:

1) What were the challenges that youth development extension agents faced in the first three years of their service?
2) What strategies did they use to manage the challenges they face in the early career phase?
3) What factors contributed to their success as youth development extension agents in their early careers?
Methods

We used the three-round modified Delphi technique to collect the needed data to find answers to research questions from a panel of experts comprised of 24 youth development extension agents in two south eastern states in the United States. Youth development extension agents were selected based on the criteria that they have very successful and effective youth development programs in their respective counties. The state program leaders, state program specialists, and district extension directors were asked to nominate youth development extension agents based on these criteria and identified these 24 extension agents. Delphi technique is useful in reaching consensus among experts selected purposively (Stufflebeam, McCormick, Binkerhoff, & Nelson, 1985) for finding helpful information (Hsu & Sandford, 2007). “It aims to guide group opinion towards a final decision and to answer questions through triangulation of subjective group judgments, analytical techniques and the experience of the researcher” (Cantrill, Sibbald, & Buetow, 1996, p. 67). We used the Qualtrics online program to gather data and asked research questions in the first round of the Delphi panel. Twenty-three panel members responded to the first round. The first round resulted in a unique list of 13 challenges, 15 management strategies for challenges, 15 factors contributing to success. Twenty-one panel members responded to the second round. We used the second and third rounds to build the consensus. We identified the items rated by 2/3 of the respondents as extremely important or important in round two and strongly agree or agree in round three.

Results, Conclusions, Recommendations, and Implications

This study led us to identify the most important challenges youth development extension agents face during their early career and the strategies they used to overcome those challenges successfully. We also identified the factors that contributed to their success as youth development extension agents at the local level.

Youth development extension agents face various challenges in their early careers. Unless those challenges are identified and help extension agents addressed through in-service training programs, they will not be able to develop successful extension programs. Sometimes, the unaddressed challenges may cause some of them to burnout in their early career. The findings of this study are useful for developing in-service educational programs targeting early-career youth development extension agents. This study has a direct application for the youth development extension in the United States. In addition to that, the findings have implications for the development of in-service training programs to build the program development capacity of early-career extension workers in any part of the world because extension workers at the grassroots level are facing similar challenges in their early career.

References


Only Examining Potential Relationships Between Mentor Relationship Quality and Organizational Commitment in U.S. Extension Professionals

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Keywords: mentor, organizational commitment, psychosocial support, retention
The motivation and morale of extension professionals have been lacking in many countries (Vijayaragavan & Singh, 1997), potentially negatively impacting extension organizations’ impact on critical issues such as food security (Food and Agriculture Organization of the United Nations, 2020). In the U.S., formal mentoring programs attempt to positively motivate and engage new extension professionals. Typically, such programs pair experienced professionals with a new hire based on considerations such as similar job responsibilities and/or similar communities served. Mentoring relationships are conceptualized as consisting of three behavior types: (a) career development, (b) social support, and (c) role modeling (Kram, 1983; Scandura & Ragins, 1993). Past research suggests that mentoring relationships with positive displays of these behaviors yield multiple benefits, including increased organizational commitment (Kram, 1983).

Organizational commitment “involves an active relationship with the organization such that individuals are willing to give something of themselves in order to contribute to the organization’s well-being” (Mowday et al., 1978, p. 4). Employees with strong organizational commitment believe deeply in an organization’s goals and values and are willing to work hard on behalf of the organization. Most relevant to this study, highly committed employees express a strong desire to stay in the organization (Mowday et al., 1978). The potential existence of relationships between mentoring and organizational commitment within an extension context has not been adequately explored. If similar results could be substantiated within an extension context, it could highlight new possibilities for strategically using mentors as part of an organizational strategy to increase organizational commitment.

Purpose and Objectives

The purpose of the study was to determine if mentoring is related to organizational commitment within an extension context. The objectives were to describe perceptions of career development, social support, role modeling, and commitment; and to identify and describe any relationships between organizational commitment and the three mentoring behaviors.

Methods and Data Sources

A descriptive and correlational design was followed to address the study objectives. A census of early career extension professionals ($N = 216$) working in three southern U.S. states – Florida, Georgia, and Mississippi - was attempted in May 2020. Potential participants were emailed a survey link using Qualtrics (https://www.qualtrics.com). The instrument contained sections investigating participants’ perceptions of mentoring relationships, best liked co-worker relationships, and organizational commitment. Items were adapted from Raabe and Beehr (2003), Benge and Harder (2017), and Mowday et al. (1978). An ex post facto analysis of the internal constructs found their reliability ranged from .85 to .93.
The best liked co-worker relationships were excluded from this study’s analysis and results. Multi-professional U.S. Extension offices are common and U.S. Extension agents often work collaboratively on jointly delivered programs. This is dissimilar from the work arrangements for many international extension professionals.

A usable response rate of 58% \((n = 126)\) was achieved following a survey pre-notice, the invitation, and two reminders. Since a census was not obtained, the respondents were treated as a sample of the population. A comparison of early and late respondents was conducted to check for possible non-response error (Lindner, 2002). No significant differences were found for the variables of interest. Similarly, no significant differences were found between respondents from Florida and Georgia for the variables of interest despite known differences in how the mentor programs are operated. Mississippi was excluded from data analysis due to its low number of usable responses, which was not unexpected given it only had 23 potential participants.

The use of bivariate correlational analysis is a study limitation because it can provide evidence of relationships but not causation. Adapted from Raabe and Beehr (2003), mentoring relationships were operationalized as three constructs measured on a 7-point Likert scale: (a) Career Development (CD, five items), (b) Psychosocial Support (PS, six items), and (c) Role Modeling (RM, four items). Organizational Commitment (OC) was also measured on a 7-point Likert scale consisting of 15 items. Means and standard deviations were reported for each construct, and bivariate correlations were examined using the Pearson’s correlation coefficient \((r)\). Construct means were interpreted as follows: Strongly Disagree = 1.0 – 1.49, Moderately Disagree = 1.50 – 2.49, Slightly Disagree = 2.50 – 3.49, Neither Agree/Disagree = 3.50 – 4.49, Slightly Agree = 4.50 – 5.49, Somewhat Agree = 5.50 – 6.49, and Strongly Agree = 6.50 – 7.00. The strength of association between mentoring relationship constructs and organizational commitment was interpreted following Cohen’s (1988) convention for effect sizes.

**Results and Conclusions**

With respect to perceptions toward mentoring relationships, respondents neither disagreed nor agreed their mentors provided psychosocial support \((M_{PS} = 3.77, SD_{PS} = 1.47)\) and performed career development roles \((M_{CD} = 4.25, SD_{CD} = 1.55)\) in their mentoring relationships. In contrast, respondents somewhat agreed their mentors served as a role model \((M_{RM} = 5.63, SD_{RM} = 1.12)\). For organizational commitment, respondents tended to slightly agree they were committed towards their organization \((M_{OC} = 5.44, SD_{OC} = 0.95)\). Results indicated statistically significant and positive bivariate correlations existed between psychosocial support and organizational commitment \((r = 0.25, p < 0.01)\), and career development and organizational commitment \((r = 0.20, p < 0.05)\). Both sets of bivariate relationships were categorized as medium based on Cohen’s (1988) convention. Based on the coefficient of determination \((r^2)\), psychosocial support and organizational commitment shared 6% variance \((r^2 = 0.06)\), while career development and organizational commitment shared 4% variance \((r^2 = 0.04)\). These results suggest comparatively stronger organizational commitment existed among respondents when their mentors provided psychosocial support and performed career development roles. However, respondents perceived their mentors to be best at role modeling behaviors, which were unrelated to organizational commitment.
Recommendations and Implications

Mentoring can play an integral role in the development of new employees. Extension systems interested in using mentoring to build organizational commitment should consider focusing their mentor trainings on the psychosocial support and career development behaviors. Additionally, extension systems should review their mentor selection criteria to ensure their mentors are perceived as role models by their employees and not just management. Further research is needed to understand how organizational commitment is established to better guide mentor and professional development trainings and activities.

References


Food and Agriculture Organization of the United Nations. (2020). *Extension and advisory services: At the frontline of the response to COVID-19 to ensure food security*. https://doi.org/10.4060/ca8710en


An Exploration an Entrepreneurship Program with Marginalized Youth in Panamá: Developing Agents of Change

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An Exploration an Entrepreneurship Program with Marginalized Youth in Panamá: Developing Agents of Change

Introduction

Colón, Panamá was once the proud Atlantic gate of the Panamá Canal. This city had colonial buildings, a booming economy, a fast-growing population, and was a tourist hub (Rowe & Gil Borges, 1924), but now looks like an “intimidating labyrinth of vertical slums”(Bernandez, Arias Vallarino, Krivatsy and Kaufman, 2012). The authors argued that this transformation started at the beginning of the 21st century after the closure of the U.S military bases. The thriving city became a community on the edge of collapse.

Colón is now described as being in crisis with high crime and a low standard of living for most citizens (Bernandez et al, 2012). As described by Sowell (2007, 2009), education became of poor-quality, citizens started getting sick and some of them left, property value dropped, criminals settled in and businesses and investment left in increasing numbers. Consequently, the city's “Free Trade” Zone built walls separating their businesses from the rest of the city and started employing their workforce from outside of Colón. Bernandez et al. (2012) declared that unemployment rose to 40% among the working-age local population, helped by poor-quality schools. Crime and drug trafficking operations moved into the province, drawn by the strategic location and unemployment. Bernandez et al (2012) stated that the government saw Colón as dangerous, opting to build walled communities with private security in specific areas. These walled communities, referred to by Bernandez et al. (2012) as “green zones” make circulation very complex for those segregated outside of those zones.

To elevate the living standards in Colón among already existing young leaders a two-week intensive entrepreneurship and leadership program named “Youth Entrepreneurship Program” (YEP) was implemented. Local organizations working with the U.S. Embassy in
Panama selected the 25 participants and secured the location for the program. This program was conducted in Colón to ensure high impact, efficiency, and collaboration with organizations.

YEP addressed the need to engage youth in an underserved region and provided an intensive skill-building workshop that focused on entrepreneurship and leadership. Experiential learning (EL) was the educational theory used. EL engages participants and enhances learning; this comes from the assumption that ideas are not fixed, but instead, concepts change or adapt through continuous experiences (Kolb, 2015). The program was taught in Spanish and provided the participants the opportunity to improve their quality of life, elevate their future living standards, and build self-confidence to succeed in a globally interconnected world and competitive marketplace.

**Purpose and Objectives**

Despite their limited resources and the social exclusion they experience, several young leaders have emerged in Colón, Panamá and are working to create opportunities for themselves and others in the community. The objective of this study was to determine the role of the YEP program played in the youth leaders. By determining the role, future programs could use this experience as a base of a teaching alternative program for marginalize youth to create agents of change. The following questions were used to guide our study:

RQ1: How do these young leaders describe their experience in the Panamá YEP?
RQ2: How did the YEP program created an impact on the life of its participants?

**Methodology**

The use of a case study was determined to explore this real-life bounded system through detailed, in-depth data collection involving multiple sources of information, such as observations, memos, audio material, interviews, and national statistical data (Creswell & Poth,
2018). For this qualitative study, data were collected in a week and a half period via ZOOM from a total of 15 participants. After collecting the data, the constant comparative method of data analysis began. We used multiple sources for triangulating results and to ensure credibility (Denzin, 1978). Data was collected until saturation was achieved.

**Results**

Research question one results indicated that by building their self-confidence and skills they felt that they could become whoever they wanted to be. One of the participants shared what job prospects would be without the program:

“If it was not for the program it would be throwing “bultos”. Do you know what it is to throw “bultos”? The cargo packages that ships bring. They need to be carried to shore in huge denim “bultos” (packs). They are very heavy; that’s what I would be doing”.

This result is supported by the idea that personal expectancy can influence behavioral instigation, direction, effort, and persistence (Schunk, 1991). By realizing that their life could be modified their goals in life also changed.

Results of research question two showed a life perspective change in the participants. We discussed about their life goals before the program. One of the participants phrase it like this:

“Everyone thinks in a job in the warehouse; three hundred dollars maximum per month, we are fine. Then I can get a loan of twenty years, or, I don't know how many years to buy a car and to fix my mother's house. So that was my mentality. It is the mentality that exists is in the environment here. Have that job until life ends for you”

That same participant mentioned having different goals after the programs:

“I am ambitious now, I am ambitious! My professional goals are many, look, I want to graduate because I have not graduated yet....Now, I tell myself, opportunities need to be look for...Now
I'm going to offer work for others, because, I cannot take it anymore. I feel that my mind cannot be locked in a warehouse, now.. I can't!. So my goals are to create a couple of companies and live from them”

Conclusions and Recommendations

Overall, the experiences lived by this participant shows us that if education opportunities are given to youth, they will thrive by realizing their own potential. Youth reported having a different perspective of their life opportunities after the program. There is a need for empowering marginalized youth through education in Colon to reduce the presence of poverty and crime. By providing youth with skills, the community will thrive again. To develop productive and empowered youth into our communities must be taken as a priority.
Evaluation of Cacao Projects in Colombia: A Case Study of ‘Rural Productive Partnerships Project’ (PAAP)

Alejandro Gil, Mark Brennan, Anil Kumar Chaudhary, and Siela Maximova
Introduction and/or theoretical framework and/or review of literature

In 2016, the Colombian government signed the most important peace agreement in the country's history (Colombian Government & FARC, 2016). A core point of the agreement addressed the solution to illicit drug production, making voluntary crop substitution one of the primary alternatives for illegal crop cultivation. In this context, the Colombian government declared cacao (*Theobroma cacao* L.), the primary raw material for chocolate, as a peace crop with the most potential as a substitute for illicit coca (Swisscontact, 2016). Colombia has appropriate environmental conditions for establishing cacao crops (UPRA, 2020), which could support the production of more than 1,500 kilograms/hectare/year of cocoa (Rodriguez-Medina et al., 2019). However, country-wide productivity is less than a third of its potential and higher yields have been reported for producer countries behind the world's average, like Brazil and Ecuador (FAOStat, 2020). The challenges the Colombian cacao sector faces are coupled with one more flaw in the country's agricultural sector: the limited extent of program evaluation. According to a recent report of the Organisation for Economic Cooperation and Development, most of the ongoing programs are implemented with an unclear impact (OECD, 2020). Effective evaluation of existing and past programs is the foundation for successful future program planning (Newcomer et al., 2015; Rossi et al., 2004). Thus, we consider the development and implementation of new effective evaluation mechanisms it is extremely important for the future of the cacao sector and agriculture in Colombia.

Purpose and objectives

This presentation aims to report on the evaluation of cacao projects within the Rural Productive Partnerships Project (PAAP). The PAAP project aimed to increase rural competitiveness in poor rural communities in a sustainable manner through demand-driven partnerships with the commercial private sector (World Bank, 2015). Two specific objectives guided this research. The first one was to evaluate the entire set of local projects (*n*=52) using quantitative secondary data. The second objective aimed to corroborate the previous objective's findings, for which 22 local projects located in the northern part of Colombia were evaluated using both quantitative and qualitative data.

Methods and/or data sources; or theoretical/philosophical themes

This evaluation used an objective-based approach (Luo & Dappen, 2005) to determine to what extent the PAAP project’s objectives were attained. We selected to evaluate local projects older than six years, the time in which the cacao trees stabilize yields (Fedecacao, 2015). In order to conduct the evaluation of the target population of 52 cacao local projects (objective 1 of this research), secondary data available in PAAP’s Monitoring and Evaluation (M&E) platform were
used. For evaluating the 22 local projects (objective 2), empirical data from the producers’ organizations were obtained through face-to-face interviews with 15 organizations’ representatives. As qualitative and quantitative data were collected for the second objective, a mixed-methods design was applied for the analysis. According to the level of interaction between quantitative and qualitative analysis, we utilized a convergent design (Creswell & Clark, 2017).

**Results, products, and/or conclusions**

Our attempt to obtain data from the publicly available M&E platform (M&E) at the time of this study (2018) revealed out-of-date and inconsistent information, explaining why we used 2016 records. Data available on the M&E platform suggested that in 2016, 44 local projects were linked to their commercial partners, which represents 84.6% of the total. However, and contradictory to the previous percentage, real sales delivered to commercial partners (USD 2.4 million) were far below the targeted value (USD 12.6 million). Information provided by the managers of 13 associations confirmed that the expected sales of cocoa were not accomplished. The average accomplishment of targeted sales for 2015 and 2016 was 9.8% (SD=17.3%) and 4.5% (SD=5.7%), respectively; for 2017, the average was 6.0% (SD=9.3%).

Findings related to the managers’ perceptions of the program were qualitatively and quantitatively analyzed. Using evaluation coding methodology (Saldaña, 2013), 101 codes were created and among those, 88 were classified as positive or negative codes and 13 were recommendations codes. Each code had at least one comment (or reference) made by one of the 15 organization managers interviewed. From the 497 references generated, 331 (67% of the total) were classified within negative findings codes, 125 (25%) within positive findings codes, and 41 (8%) were classified as recommendations codes. External factors (drought), insufficient resources, and short-term and medium-term outcomes difficulties were among the categories where more representatives reported problems. Although recognizing the mistakes during the program’s implementation, organizations’ managers reaffirmed the importance of this opportunity for increasing their experience on cocoa crops and their willingness to keep participating in these types of programs.

**Recommendations, educational importance, implications, and/or application**

Based on our research findings, we present four specific recommendations that could benefit the planning, implementation, and evaluation process of cacao programs in Colombia and across the world where cacao is produced. Our first recommendation for program planners is that establishment cacao projects should last more than three years. In our evaluation, the PAAP project addressed the social, productive, and environmental aspects of agricultural production for only a short period (1 year). Then, in perennial crops, such as cacao, recommendations for farmers’ needs at appropriate times during the agricultural cycle are missed. We also recommend that program planners have to make sure that water requirements for the cacao trees are met, as we found that 10 out of the 15 organizations’ representatives expressed affections to the establishment projects due to periods of drought. Our third recommendation directed to program implementers is that programs must be flexible with their schedules due to the program’s beneficiaries' workforce availability. As one of the participants commented, “…it must be considered that the farmers make a living not only from their cocoa crops... they [program
"coordinators] must be flexible with the project schedules." Our final recommendation to program evaluators is to develop key project indicators. The M&E platform of the PAAP project included too many variables—103 in total. For these reasons, we suggest relying on few key variables that reflect the local projects' performance. Examples of the possible indicators are yield (World Cocoa Foundation, 2016) and farm tree density (Fedecacao, 2015), being the latter more relevant in establishment programs.

References (not included in the 1,000 word limit)


Exploring Self-reliance in Smallholder Coffee Farmers’ Pursuit of Commercialization

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Exploring Self-reliance in Smallholder Coffee Farmers’ Pursuit of Commercialization

Introduction

Smallholder farmers play critical roles in providing the world’s food and supporting the global economy (Food and Agriculture Organization, 2014; World Bank, 2016). Yet, many smallholders continue to be food insecure and live in poverty (United States Agency for International Development [USAID], 2019). According to Suvedi and Kaplowitz (2016), smallholder producers have used farming methods unchanged for generations, largely due to lack of access to improved technologies. This has diminished smallholders’ capacity to produce and sell surplus in markets (Arias et al., 2013). Thus, governments, donors, and the private sector encourage smallholders to improve productivity and commercialize through enhanced extension support and development efforts.

This study examined drivers of smallholder coffee farmers’ commercialization in Peru. Small-scale coffee producers often suffer from volatility of international markets, and along the value chain, disproportionately experience income reductions (Talbot, 1997). However, commercialization outcomes have improved through collective capacities: forming associations and cooperatives has resulted in price increases, better post-harvest handling, and collective marketing opportunities (United States Department of Agriculture Foreign Agricultural Service, 2018; Wollni & Zeller, 2007).

Despite the constraints of many smallholder farmers, researchers and international development organizations have called for investments in agricultural development (Fanzo, 2017; IFAD, 2016). For strategic investments in commercialization, external facilitators are essential to build capacities, provide technical support, and mobilize farmers for marketing activities (Best et al., 2006; Devaux et al., 2017). However, practitioners are cautioned to avoid creating over-dependency on the external support they provide, which can diminish farmers’ self-reliance to achieve long-term improvements in behaviors (Bebbington et al., 1996; Community Empowerment Network [CEN], 2010).

Conceptual Framework

Self-reliance concepts have been applied by researchers and development actors at the community and country levels (Binns & Nel, 1999; Jamieson & Chisakala, 2016). For example, USAID (2018) developed self-reliance metrics to reposition relationships with foreign countries based on their commitment and capacity to pursue their own development and reduce dependency on foreign aid. The Hunger Project, a nonprofit organization, claims self-reliance is determined at the community level by members’ confidence and commitment to perform as agents of their own development (The Hunger Project, n.d.). Furthermore, the CEN (2010) contrasts dependency as “learned helplessness” with self-reliance as the capacity to think and act independently. Self-reliance was explored in the present study at the smallholder household level aligning with research indicating significant diversity exists among rural households’ agricultural and marketing systems (De Janvry et al., 1991; Steinke et al., 2019).

The researchers integrated the aforementioned conceptual definitions of self-reliance within the evaluation framework. Self-reliance is determined by sub-variables, capacity and commitment (capacity as a function of knowledge and skills, and commitment as a function...
of attitudes and aspirations) (Rockwell & Bennett, 2004). To explore whether self-reliance is a prerequisite to achieving commercialization, the instrument was developed to measure both farmers’ commercialization behaviors and their self-reliance level.

**Purpose and Objectives**

This study explores a self-reliance concept to evaluate smallholder farmers’ capacities and intrinsic factors that impact their commercialization behaviors. Our objectives were to (a) develop a framework to measure smallholder farmers’ commitment and capacity to commercialize, as key dimensions of self-reliance; and (b) examine relationships between farmers’ engagement in extension and learning and their self-reliance.

**Methods**

We interviewed 40 smallholder coffee farmers (57.5% men and 42.5% women) in the central-highlands of Peru. Purposive sampling and data collection were made possible by coordinating with academic and private sector partners based in Peru.

The self-reliance questionnaire measured variables of interest using primarily Likert-type scales with additional closed-ended questions pertaining to farmers’ demographics and extension and technical assistance (TA) in the previous year. Farmers were asked to self-assess their commercialization knowledge and skills, attitudes, and aspirations (KSAA). We used a frequency scale to examine farmers’ commercialization behaviors. The accuracy and consistency of the indices were estimated using Cronbach’s alpha coefficient.

We analyzed farmers’ demographics and previous external assistance using descriptive analysis and calculating frequencies. Then, to explore associations, correlational analysis was applied for all KSAA and behavior variables. Finally, we built multiple linear regression models to better illustrate relationships between KSAA and behavior variables.

**Results**

Most farmers lacked pluralism in their TA over the past year: 80% of the farmers reported their TA came from the private sector. Exploring types of TA, only 7.5% of farmers indicated assistance on business planning and likewise, 7.5% reported TA on financing and credit.

The self-reliance construct (all KSAA variables), correlated positively with farmers’ engagement in extension and learning. Knowledge and skills correlated positively with farmers taking written marketing records. When examining individual items, three knowledge and skills (transport product, access agricultural loan or credit, and know more productive coffee varieties) and three aspiration variables (invest in my ag business for growth, explore new marketing opportunities, and committed to commercialization for increase household income) associated (>.400 coefficient) with commercialization behaviors. Finally, the regression models further supported evidence for relationships between farmers’ knowledge and skills, aspirations, and their commercialization behaviors.

**Implications and Application**

The self-reliance concept in this study demonstrates potential to help practitioners
better understand capacities and intrinsic factors impacting smallholders’ commercialization behaviors. Key findings suggest farmers’ knowledge and skills and aspirations impact their commercialization. This study also uncovers potential links between smallholders’ self-reliance and engagement in learning and extension. Findings imply farmers who embody self-reliance, and especially those who are highly aspirational, engage in more extension and learning. Literature also suggests farmers who engage in more extension have increased opportunities to connect with markets and technologies (Suvedi & Kaplowitz, 2016). Considering TA and extension sources and types, farmers’ lack of pluralism may inhibit their self-reliance. Moreover, pluralism may develop farmers’ knowledge and skills and reduce risk when one provider withdraws or cannot offer desired services.

Practitioners can integrate self-reliance into targeting and evaluation tools. When planning commercialization interventions, self-reliance criteria may inform strategic screening and recruitment of participants. Practitioners could also use a self-reliance evaluation tool to track smallholders’ progress pursuing commercialization and modify facilitation to reduce long-term dependency. Ultimately, this study contributes to optimizing external facilitation in designing and implementing smallholder commercialization interventions.

References


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World Bank. (2016). *Who are the poor in the developing world?*  
Factors Influencing the Failure of Agricultural Cooperatives in The Eastern Cape Province of South Africa

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Factors Influencing the Failure of Agricultural Cooperatives in The Eastern Cape Province of South Africa

Introduction

The history of cooperatives can be traced back to the 1800s, having operated in the form of stokvels (Thaba & Mbohwa, 2015). In these stokvels, people come together and collect money, whether weekly, months, or quarterly. The money collected in the stokvels is usually used for special functions such as Christmas celebrations, funeral, initiation celebrations, weddings, etc. The purpose of these stokvels was not for generating profit, most of them were informal, and for that reason, many of them were not registered as a cooperative. Another reason which could have contributed to them not being registered was the past apartheid laws.

Over the past 16 years, the government of South Africa has promoted cooperatives at both national and provincial levels. The sole aim was to enable smallholder farmers to tap into national economic activities. For that reason, the number of registered cooperatives in South Africa has been growing steadily, from 4,061 in 2007 to 22,030 in 2016 are registered with Companies and Intellectual Property Commission (CIPC) (Wessels, 2016). The majority of these cooperatives are registered with Kwa-Zulu Natal, 26%; followed by the Gauteng, 20%; Eastern Cape, 16%; Limpopo, 12%; Mpumalanga, 8%; North West, 7%; Western Cape, 5%; Free State, 4% and the Northern Cape, 2%. However, the country is characterized by a high mortality rate of cooperatives having Northern Cape with a 97.5% mortality rate, followed by the Eastern Cape, 93%, and the Free State, with 92% (Dyalvane, 2015).

Purpose and Research Objective

This study aimed to assess the factors that lead to the failure of agricultural cooperatives. In doing that, the study focused on primary cooperatives that are based in Eastern Cape Province. The Province has about 287 surviving cooperatives, while dead cooperatives are about 3,957 Department of Trade and Industry (DTI, 2016). This study's specific objectives were to examine the status of agricultural cooperatives in Eastern Cape Province and assess the factors that could be leading to the failure of cooperatives.
Methodology
To collect data, the study used structured questionnaires, desk review, and cooperatives documentation acquired from the agricultural extension officers. The collected data were analyzed using correlation and regression techniques with the Statistical Package for Social Sciences Version 24.

Results
Because the study included failed and active cooperatives, the factors that were observed to influence the failure of cooperatives include: lack of youth involvement, poor application of cooperative principles, low level of accountability and transparency, excessive dependency on government, lack of incorporation amongst other cooperatives and poor financial management.

Recommendations
The researchers recommended that all primary cooperatives should be incorporated in the secondary cooperatives. The secondary cooperative will be responsible for the value addition and marketing of the produced products. Furthermore, instead of giving more inputs, the government should intensify the cooperative training in the Eastern Cape.

References
Engaging Youth in Agribusiness through Private Sector Extension and Advisory Services:

Lessons from Rwanda and Uganda

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Engaging Youth in Agribusiness through Private Sector Extension and Advisory Services: Lessons from Rwanda and Uganda

Introduction

Engaging youth in agribusiness is critical for livelihoods in Africa’s rural areas where millions of youth are unemployed and face many barriers to entry into agribusiness, such as limited education and lack of land (IFAD, 2019). There are initiatives where youth are engaging in private, demand-driven extension and advisory services (EAS), overcoming these constraints (Yami et al., 2019). These initiatives involve youth as either private, for-profit EAS providers (such as when private companies hire young extension agents) or as recipients of private or public sector EAS that guide youth toward self-employment (such as when EAS providers train youth in entrepreneurship).

For-profit, private EAS is emphasized in this study because of the rapid growth of commercial agriculture, greater public policy emphasis on private market mechanisms and the sector’s potential for providing EAS on a sustainable basis (AUC, 2015; DLEC, 2019). While not a substitute for public EAS, private EAS often complement them effectively (Zhou and Babu, 2015, DLEC, 2019).

Purpose and objectives

This study assesses how private EAS engages youth and what the potential is for greater engagement. Specifically, the study
• describes models of youth engagement in EAS, involving youth as providers and recipients, in Rwanda and Uganda;

• assesses model performance and the factors affecting performance; and

• makes recommendations for how stakeholders can facilitate promising models.

**Methods**

The authors used a case study approach (Yin, 2014), gathering primary data through purposively-selected key informant interviews with 37 “implementers,” that is, representatives of private sector, government and NGOs implementing initiatives engaging youth in Rwanda and Uganda. The sample size was guided by the quality of information obtained and the saturation principle (Merriam & Tisdell, 2016). In about one-third of the cases, field staff and youth participating in the initiatives were also interviewed. Interviews were also conducted with policymakers.

**Results**

Seven models that involve youth in EAS as both providers and recipients of extension were identified. All models were pluralistic, involving government, private sector, and NGOs.

Programs *training youths to become agripreneurs* included training on business plans, record keeping and marketing. A weakness of some was that they did not link youth to other services needed to start a business, such as coaching or credit.
Village agents link farmers to input suppliers and produce buyers. Five companies interviewed in Uganda employed on average 106 agents and served 130,000 farmers in total.

Youth-led and other fee-based extension services was another model. Youths started fee-based extension companies, focusing on niche enterprises and services such as horticulture and irrigation. In Rwanda, HoReCo contracted with government and donors and employed 104 extension staff. Agriwin contracted with private, large-scale farmers and employed 20 extension staff.

Paraprofessional EAS provide opportunities to youth. A Ugandan program trained 150 youths to provide fee-based advisory services to beekeepers. Young Rwandan community animal health workers provided fee-based services to dairy farmers.

Internships offer an effective way for youth to strengthen skills and gain experience (PSDAG, 2018). In Rwanda, a government agency, donor project and a youth network developed an internship program, placing university graduates in private companies.

Credit and financial services supported youth in Uganda. One government initiative gave loans to youths but repayment rates were low and there was no link to extension services. In the other initiative, a private bank partnered with a development project to give loans to youths. EAS staff supported them and repayment rates were 95 percent.

Youth agripreneurship awards can be implemented at low cost while generating important benefits, such as learning, recognizing and raising the status of winners, and changing attitudes.
among youth towards agriculture.

The research team compared performance on five criteria:

- Numbers of youth benefiting. Beneficiaries refer to EAS providers or recipients. The models training youth to become agripreneurs involved the most youths, numbering in the thousands per year. Other models benefited hundreds per year.

- Benefits (income earned) per young beneficiary. The programs employing university graduates such as fee-based extension providers ranked highest. Interns did not earn income, but being an intern increased one’s chances of getting a high-paying position. Many young paraprofessionals started their own businesses.

- Mean percentage of females. This averaged 40 percent across all models and ranged from less than one-third for paraprofessionals to two-thirds for internships.

- Financial sustainability. Private sector models such as fee-based extension providers and village agents were rated by the research team as more financially sustainable as they were generally not dependent on subsidies.

- Scalability. Village agents and fee-based extension both had high potential because the demand for their services rises as farmers become better integrated into markets.

**Recommendations**

Develop effective policies. Rwandan policies include streamlining regulations to make it easier to operate businesses and tax exemptions and reduced airtime rates for rural enterprises.
Ugandan policies include a national strategy for youth employment in agriculture and university departments that train students in EAS and provide research and policy expertise.

Dedicate resources for youth assessments. These should be required in project planning and should include youths’ views. Targets should be set and monitored for achieving youth inclusion.

Understand heterogeneity. More consideration is needed to understand youth heterogeneity. More programs should target vulnerable youth segments, such as poor rural youth who lack high school degrees.

Help young women. Implementers need to consider gender at the same time as youth; otherwise, the benefits accruing to youth may help only young males. Data on youth should be broken down by gender to show the number and percentage of young women targeted or benefitting.

Integrate services to help youth develop businesses. Programs offering training to agripreneurs should ensure that they offer or link beneficiaries to services such as coaching and financial services to help their businesses develop (EDC, 2018).

Evaluate digital tools. The emphasis on digital tools in EAS needs to be enhanced. Subsidies are justified for helping to develop and evaluate such tools as long as there is a business plan and timeline for exiting.

Conduct impact assessments. Research to rigorously assess the performance of different models
and how to improve them can benefit youths, companies and the markets they work in.

References


Experts’ Opinions about the Potential of Luxury Niche Agricultural Products for Rural Economic Development: A Delphi Panel of Producers

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Keywords: agriculture; economic development; luxury niche markets; SWOT analysis
Experts’ Opinions about the Potential of Luxury Niche Agricultural Products for Rural Economic Development: A Delphi Panel of Producers

Introduction/Theoretical Framework

Economic development is essential for nations to realize growth and prosperity and sought in most societies (Le Blanc, 2015). In many lesser-developed nations, however, aspirations exceed possibilities provided by production, and the differences between economic strata are widening (Costa & Bazzanella, 1958; Phillips, 2017). Strategic and innovative responses are needed to achieve economic growth (Meza & Webb, 1990). Luxury products and services are classified as rare, exclusive, and unique (Hauck & Stanforth, 2007; Lynn, 1991); if compared to other products or services of this kind, these display characteristics beyond the essential and usual, including relatively superior aesthetics, extraordinarity, prices, quality, rarity, and symbolic meaning (Heine & Phan, 2011). Some specialty crops have global prestige, e.g., certain berries, citrus (Lee & Ehsani, 2015), grapes, and olives (Fuks et al., 2016), and select ornamentals (Zhang & Wilhelm, 2011), that may be feasible alternatives for smallholder farmers to produce. The potential for improving the economic livelihoods of these farmers while also lifting rural communities may rest in developing their human capital (Krutova, 2015; Zvarych, 2018) to produce specialty crops intended for luxury niche markets.

Purpose/Objectives

The study sought to describe the perceptions of selected producers regarding the potential of smallholder farmers to successfully grow products intended for luxury niche markets, including crops such as high-value, ornamental flowers and specialty produce, with the intent of developing rural economies to diminish poverty. Two objectives guided the investigation: 1. Determine a consensus of agreement among a panel of experts regarding the growing of luxury
niche agricultural products by smallholder farmers in rural Mexico and other nations with similar
economic development needs. 2. Apply a SWOT analysis framework to describe and interpret
the panelists’ opinions.

**Methods/Data Sources**

As a descriptive-exploratory study, a survey research design applied the Delphi method
in conjunction with a SWOT framework to gather, analyze, and interpret data (Hossain &
Hossain, 2015; Rehmat et al., 2014; Schmelzenbart et al., 2018). Key informants (Rogers, 2003)
provided a preliminary respondent frame. This snowballing technique (Mason, 1996; Sedgwick,
2013) was a form of purposeful sample selection to identify the study’s 16 expert panelists.
Electronic questionnaires were sent to the panelists. The first-round instrument included three
questions to gather the panelists’ views on the potential of smallholder farmers to grow plant
products intended for luxury niche markets, to identify the unsatisfied demands of such markets,
and to describe the existing competitive advantages of these producers. A SWOT analysis
framework was used during the study’s second and third rounds. SWOT analysis is often used as
a strategic planning tool (Dyson, 2004; Helms & Nixon, 2010).

Round one yielded 179 items. Similar or duplicate statements were either combined or
eliminated, and compound statements separated. Ninety-four items were returned in round two.
Items for which more than 75.00% of the panelists selected either *Agree* (5) or *Strongly Agree*
(6) using a six-point response scale during round two were considered to have reached *consensus
of agreement*. And items for which more than 50.00% but less than 75.00% chose either *Agree*
(5) or *Strongly Agree* (6) were returned in round three, and the panelists were asked to indicate
either *Agree* or *Disagree* (Lamm et al., 2020). The remaining items were removed from further
investigation. The items for which more than 75.00% of the panelists specified *Agree* during
round three were considered to have also reached agreement; the others were discarded.
Fourteen panelists participated in rounds two and three for response rates of 87.50% and 100.00%, respectively.

Selected Findings and Conclusions

Most panelists were Latino males ranging from 20 to 39 years of age, had earned a bachelor’s degree, and were business owners. More than one-half had more than 10 years of work experience. Most specialized in producing fruits and vegetables followed by floriculture.

After three rounds of data collection, the panelists reached consensus of agreement for 79 items. The distribution of those items was three categories of plant products: flowers, vegetables, and other with 39 specific examples; 59 SWOT-related items; and 17 items regarding smallholder farmers’ competitive advantages. Consensus of agreement was achieved for 13 Strengths, 20 Weaknesses, 16 Opportunities, and 10 Threats; 15 items did not reach consensus.

Our study revealed internal factors such as Strengths, including an available and cheap workforce, local production capacity, and available land. Some Weaknesses were the high initial costs of growing these kinds of crops; the lack of organization to sell products; a lack of knowledge about business administration, the entire value chain, and business communication skills. External factors included Opportunities such as consumers are searching for organic products; if training is provided about how to grow such products; NGOs and private institutions want to help rural areas; a better quality of life for the producers; and a market for products offering value addition, e.g., through packaging. And Threats included competition from larger companies, lack of appropriate facilities, natural phenomena, lack of capital, and middlemen. Many factors supported a need to develop the human capital of potential producers (Krutova, 2015; Zvarych, 2018).
Selected Recommendations

Not recognizing the importance of agriculture to rural economies and its impact on the global economy often hinders the vision of policymakers and the leaders of rural communities to effectively plan for future economic opportunities (Singh & Tabatabai, 1993; Swanson, 2006). Therefore, the development needs of smallholder farmers to successfully produce plant products targeting luxury markets should be used to persuade these leaders to support projects to prepare producers to grow for these outlets and evaluate their performance and likelihood for long-term competitiveness. Thereafter, opportunities for scalability may exist. We also recommend that SWOT analysis guide explorations in specific regions and communities to determine approaches to leverage their unique strengths and opportunities while mitigating weaknesses and threats. Extension’s involvement, public and private, and essential role in the diffusion of innovations, including the transfer of new knowledge and practices for farmers to adopt (Rivera & Sulaiman, 2009; Rogers, 2003), is also recommended.

References


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Selected Recommendations

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References


https://www.aiaee.org/attachments/article/160/Swanson%202013.3-1.pdf


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Collaborative Learning Networks: An Expansive Learning Approach in Support of Just Agrarian Transitions

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Collaborative Learning Networks: An Expansive Learning Approach in Support Of Just Agrarian Transitions

Introduction

As a primary source of formal and informal livelihoods in South Africa, the food system has been highlighted as a central pillar in the national strategy to address unemployment (NPC, 2012). Despite the fact that the large-scale commercial agriculture sector has shed jobs over the past 20 years, an inclusive agricultural future capable of turning the tide on poverty and rising inequality is possible if South Africa’s four million subsistence farmers can incrementally expand production to create income-generating surpluses (Hall, 2009; Aliber & Hall, 2012; Cousins, 2013).

However, despite identifying the need for a structural transition within the food system, little of the literature advocating for change grapples with the critical question of skills and farmer support. Spielman et al. list the difficulties farmers face in integrating into networks of technical and commercial experts as “one of the main hurdles that diminish small scale farmers’ innovative capabilities” (Spielman et al., 2009, p. 401). In a study of farmer innovation and learning in North Africa, Dolinska and Aquino observed that “farmers belonging to communities of practice [were] more empowered for innovation than those working individually with expert support” (Dolinska & Aquino, 2016, p. 2).

This study focuses on the Imvotho Bubomi (Water is Life) Learning Network (IBLN), which was established in the Eastern Cape in 2014 when the Water Research Commission (WRC) of South Africa partnered with the Environmental Learning Research Center (ELRC) at Rhodes University to pilot a systems-oriented knowledge dissemination model for agricultural rainwater harvesting and conservation techniques.

Purpose and Research Objective

To introduce a new approach to the development of a relational social infrastructure for adaptive and emergent co-learning that enhances agricultural capacity building and farmer support in small-scale farming.

Methods

Net-Maps were developed to better understand multi-stakeholder networks by gathering in-depth information about resource networks, the goals of actors and their power to influence system outcomes (Schiffer & Hauck, 2010). The Net-Map process supports network actors to surface their invisible webs of relationships and exchange by directly indicating who the relevant actors are and the ways in which these actors are connected to one another.

This paper took a qualitative, interpretive, mixed methods approach to analysing nine Net-Maps based on interviews with network members that took place in 2019. Sampling attempted to ensure that at least one actor representing the diversity of actors within the network was included. The sample size used is congruent with other leading Net-Map studies (Johnson, et al., 2009; Schiffer & Hauck, 2010).
Nine respondents from the IBLN were interviewed and nine network maps were developed and digitised individually using Kumu software and then collated into one overarching map representing a multi-perspective impression of the learning network.

Results and Conclusions

The nine network maps varied in their make-up and a series of noteworthy observations emerged from the Net-Mapping process. Firstly, the incongruences of responses in defining the network boundaries revealed the fluid nature of the network both spatially and temporarily. This was due to the fact that the relationships established around certain knowledge pathways opened up for broader exchanges to take place and this resulted in respondents beginning to appreciate the network from varying viewpoints depending on one’s position in the network. For instance, initial pathways established around RWH&C topics started ranging to seed and tool exchanges as well as soil fertility management practices.

As noted by research into social ecosystems, institutional ‘anchoring’ by established, better resourced players are both normal and desirable (Hodgson & Spours, 2018). This explains why Rhode’s University and Fort Cox AFTI accounted for 48 % of the total weighted contribution to the network being central connectors. The opportunity for the Fort Cox AFTI to lead the convening of the network was strategic and convenient in that the network’s focus aligned with the former’s teaching and learning as well as the community engagement mandates.

The presentation of the network as a learning and sharing platform that could offer no direct material benefits helped to avoid the encroachment of what Aliber (2019) refers to as problematic cycles of expectancy. Those who joined the network with an incorrect understanding of the network’s existence fell by the wayside when their expectations were not sustained. While learning and knowledge sharing remained at the core of the network’s activities which often took place on social media, it appears that the focus on tangible actions and activities laid the foundations for many of the relationships which the Net-Map process identified as central.

Turning to social media platforms as digital fora for effective interaction between the IBLN members, the platform that proved most effective in sustaining of the network is the WhatsApp free messaging service which supported an active online culture of sharing and communication. This has included the exchange of personal updates, films and photos of practical work, posting opportunities, requests for assistance, meeting logistics among others. Other digital platforms such Facebook and certain specialised apps proved less effective.

Overall, the network’s collaborative focus on co-learning and mutual investment of time and resources, suggests potential significance in overcoming many of the capacity limitations of the existing formal agricultural extension and training system. Therefore, we conclude that course-activated learning networks are a promising arena of emerging practice.

Recommendations

Far from being an exhaustive evaluation on the ‘how to’ of setting up effective learning networks, this paper discussed a number of emerging insights based on a momentary snap-
shot of a single, ever-changing, web of relationships. However, given the scarcity of tried methodologies for establishing effective agricultural learning networks, ongoing empirical work to improve this practice is needed.

References


Transformative Learning in Nicaragua: A Retrospective Analysis of University Agriculture Students’ Long-Term Changes in Perspective After a Study Abroad Course

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Transformative Learning in Nicaragua: A Retrospective Analysis of University Agriculture Students’ Long-Term Changes in Perspective After a Study Abroad Course

Introduction

A shift has occurred in recent decades by which the world has become more globally interconnected. Institutions of higher education have responded by championing study abroad courses as a way to help graduates become more culturally, professionally, and socially prepared to navigate this new reality that is fraught with increasingly complex problems (Blake-Campbell, 2014). Despite this, the value and validity of short-term study abroad courses have consistently been called into question (Tarrant & Lyons, 2012). Common critiques of short-term experiences include: (a) a lack of immersion, (b) little exposure to customs and traditions of the host country, and (c) only marginal understandings of complex issues and problems (Vanden Berg & Schwander, 2019). A need emerged to better understand whether the reported outcomes, such as changes to students’ perspectives, of study abroad courses endure over time.

Theoretical Framework

Mezirow’s (2000) transformational learning theory (TLT) served as the theoretical lens used to interpret this study’s findings. TLT describes how individuals ascribe meaning to their lived experiences, which has been theorized to influence important changes in perspective on issues and topics (Kiely, 2004, 2005). Previous evidence has demonstrated the transformative potential of study abroad courses in agriculture (Dobbins et al., 2019; Roberts & Edwards, 2016). Although some previous work (Roberts & Edwards, 2016) has explored whether such transformations are integrated into students’ lives after returning home, more knowledge is needed to distill the long-term outcomes of study abroad courses. As such, data from this study served as a follow-up to an investigation on students’ experiences during a study abroad course to Nicaragua to document how such resulted in long-term shifts regarding how they approached their daily lives.

Statement of Purpose

The purpose of this retrospective study was to explore how university agriculture students’ shared experiences during a one-week study abroad course to Nicaragua influenced their long-term changes in perspective after returning to the U.S. in 2018.

Methods and Data Sources

We grounded this study in Moustakas’ (1994) phenomenological approach. Phenomenological research focuses on understanding the lived experiences of individuals and meaning regarding “…a phenomenon (or topic or concept) for several individuals” (Creswell & Poth, 2018, p. 314). We purposefully (Creswell & Poth, 2018) selected five (n = 5) university agriculture students who participated in a study abroad course to Nicaragua in 2018. Two different researchers conducted interviews using the same semi-structured interview protocol. We also captured fieldnotes and students’ video reflections from the course to triangulate findings (Creswell &
To analyze each source of data, we employed Moustakas’ (1994) phenomenological approach. First, we identified significant statements through the use of an open-coding (Moustakas, 1994). The identification of significant statements allowed us to create categories of the open codes, a concept known as horizontalization (Moustakas, 1994). After data was reduced, we entered the imaginative variation phase by which we viewed the data from the different lenses, which helped emerge Mezirow’s (2000) TLT to ground our findings. As a result, we were able to explain what and how university agriculture students experienced regarding the long-term changes to their perspective after the study abroad course to Nicaragua. The product of this process was described through three themes (Moustakas, 1994).

Findings

Dichotomous Learning Outcomes

Participants’ learning outcomes seemed to vary based on their level of maturity. Anna offered insight into this finding: “I think being a freshman, it kind of negatively impacted me during the trip because I didn’t know what I was even wanting to do at that point.” On the other hand, upperclassmen and students who had more international experience had a different perspective. Beth provided insight into the long-term outcomes she had experienced in Nicaragua regarding her future career: “The study abroad connected to my undergrad, because of the science [focus] ... but then they also connected to the education part of [my current major].”

Recognition of Power and Privilege

When students arrived in Nicaragua, they were confronted with gender inequality, political corruption, and disparities regarding power and privilege. Comparisons between their lived experiences in Nicaragua and their existing assumptions of the U.S. appeared to elicit powerful shifts concerning how they viewed the world. Beth explained: “…I didn't realize before just how far back they are as far as women’s rights and things. Sexism is rampant. I mean, I know that that stuff is everywhere, but I didn't realize how deeply ingrained it is.” She then added, “It's not like it was outwardly aggressive, but you felt it.”

Advocacy for Global Experiences

After having their eyes opened to the realities of power and privilege in Nicaragua, participants reported they began to advocate for global experiences among their peers, international students, family, and friends after returning to the U.S. This commitment to advocacy appeared to take on an array of forms. On this point, Morgan shared: “I actually worked with the Global [Agriculture] Ambassadors at Louisiana State University. [We] help a bunch of visiting scholars... and bring them to Walmart, and helped them move in their apartment.” All participants in this investigation also reported they advocated for study abroad courses to promote enhanced global thinking and understanding among their family and friends.

Conclusions/Implications/Educational Importance

This investigation provided additional evidence of the transformative potential of study abroad
courses for agricultural majors. We conclude that each theme formed the basis of the essence of the phenomenon, i.e., *although the students experienced dichotomous learning outcomes, their recognition of power and privilege fomented a change in perspective by which they began to advocate for international experiences for others*. Because students in this investigation experienced dichotomous learning outcomes, future research should focus on how students’ maturity influences their long-term impacts. We also recommend that faculty and other practitioners of study abroad address such differences prior to departure and plan for how to navigate these complexities during the course. Moving forward, we also suggest that faculty expose students to issues of power and privilege to encourage a transformative shift that may encourage them to advocate for global experiences for others.
References


Measuring Intercultural Competence Using an Interpretative Phenomenological Pre and Post Reflective Comparison of Graduate Student International Service Learning

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Key Words: Intercultural competence, reflection, graduate education, international education, service learning
Measuring Intercultural Competence Using an Interpretative Phenomenological Pre and Post Reflective Comparison of Graduate Student International Service Learning

Introduction and Theoretical Framework

Most higher education institutions promote learning outcomes for intercultural competence, inclusivity, and diversity as a part of the undergraduate core curriculum. These opportunities are often limited within graduate school; yet, graduate students often work in settings that require the ability to solve problems and work collaboratively across multiple perspectives (Dimitrov et al., 2014; Hei et al., 2020). The intensity and complexity of a contextually-rich environment can provide opportunities for graduate students to develop intercultural competencies and promote success in a global professional environment (Schulz et al., 2007; Witkowsky & Mendez, 2018).

Intercultural competence is defined as “knowledge of others; knowledge of self; skills to interpret and relate; skills to discover and/or to interact; valuing others’ values, beliefs, and behaviors; and relativizing one’s self” (Byram, 1997, p. 34). One method for developing intercultural competence is service learning, where students apply what they are learning in real-world settings through a cycle of action and reflection (Eyler, 2002; Kuh, 2008). The context of a service learning project in an international setting adds another dimension to developing global competencies.

The Process Model of Intercultural Competence (Deardorff, 2006) served as the study’s framework. The process begins with attitudes at the individual level, such as respect, openness to intercultural learning, and curiosity. The learner moves from personal attitudes to interpersonal outcomes as they develop the knowledge for cultural self-awareness. Developing flexibility, empathy, and adaptability promote an informed frame of reference for a desired internal outcome. As a student develops intercultural competence, they may reach external outcomes of behaving and communicating effectively based upon the knowledge, skills, and attitudes gained through an experience. It is an iterative process of continuous learning with an “emphasis on the internal as well as external outcomes of intercultural competence (Deardorff, 2006, p. 255).

Purpose and Research Objectives

The purpose of this study was to determine growth in intercultural competence after participating in an international service learning (ISL) experience. The research objective was to compare intercultural competencies (attitudes, knowledge, skills, desired internal outcomes, and potential external outcomes) before and after the ISL for two student groups to (a) determine if regardless of context, the growth in intercultural competence was similar, and (b) to assess growth or change based upon pre and post open-ended reflective writing using the Process Model of Intercultural Competence (Deardorff, 2006).

Method

This study used an interpretative phenomenological analysis (IPA) related to the lived experience of eight graduate students selected to participate in two intensive ISL projects: Timor-Leste in 2018 or Guatemala in 2019. IPA requires a process of engagement and interpretation with a small number of participants. The analysis searches for patterns across themes, but retains the individual detail and nuance, with analysis of convergence and divergence within its participant sample. All graduate students completed a pre-experience reflection (preflection, Jones &
Bjelland, 2004) prior to the service learning experience. Students submitted a post-experience reflection after the experience.

Themes emerged qualitatively through open-coding and peer debriefing was used for determining connections between the emerging themes among the project evaluators, who also participated in the experiences. Deardoff’s (2006) theoretical framework was used for a priori code identification. For data dissemination and triangulation, the researchers used crafted profiles, a narrative data reporting technique in which the findings are co-constructed by the participant and the researcher, using the participant’s own words to describe the story of the data (Seidman, 2013).

Results included an emic narrative for each participant to demonstrate the process of intercultural competence development across individual and interaction processes. Thick description, using the participants’ own words, was used to give voice to the personal experiences and transferability to the reader (Lincoln & Guba, 1985). An audit trail was used to trace data across participants and contexts (Smith & Shinebourne, 2012).

Results

Within the preflective narratives, students exhibited more within attitudes (Deardorff, 2006) than knowledge, internal outcomes, and external outcomes. Students demonstrated knowledge gains after the experience, and several internal and external outcomes in their post-reflective narratives. There were also differences between reflective narratives from students who traveled to Timor and Guatemala. There were fewer internal outcome codes in the Guatemala group than the Timor group. The Guatemala group had more negative thoughts in their post-reflections. Few negative sentiments were present in the post-reflections from the Timor group. Overall, the two groups of students demonstrated similar intercultural outcomes. Results related to emic narratives and crafted profiles (Seidman, 2013) will be further explored during the presentation.

Conclusions and Recommendations

This study utilized an innovative framework for analyzing pre- and post-reflective narratives to measure learning outcomes. Analyzing using Deardorff’s (2006) framework for graduate students revealed a potential gap between assumptions for undergraduate students (who primarily travel abroad during their studies) and graduate students who often do not have international experiences during their studies. These graduate students were focused on outcomes for professional development. Despite differences between the two experiences, the two groups of students demonstrated similar intercultural outcomes along Deardorff’s (2006) framework, indicating that despite contextual differences in experience, this framework maintains a robust perspective for analyzing student experiences during ISL.

After examining potential differences in perspectives, we discovered a discrepancy between students (on the Guatemala trip) with non-white identities and the sentiments from students who identified as white. The students who identified as white reflected on concepts such as Guatemalans being happy with so little (materialistic focus) or sentiments such as “I learned these are people with hopes, dreams, and goals”. These students maintained a positive look back on the experience in the post-reflections. However, the two students with non-white identities maintained a more negative reflection on the experience, focusing more on systems of oppression and corruption than the others. We were unable to analyze from this perspective for
the Timor-Leste group as all students identified as white. Future research could investigate the relationship between non-white identities (within the U.S. specifically) influence intercultural competency, within Deardorff’s (2006) framework and lived experiences while abroad.
References


International Service-Learning in Ireland: Discovering the Underlying Motivating Factors of Undergraduate Students

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Abstract

Introduction

Expectancy-Value Theory (EVT) encompasses how an individual's motives are based on their expectations and the value they place on success (Atkinson, 1957, 1964, 1966; Eccles et al., 1983; Eccles & Wigfield, 2002; Anderman, Eccles, Yoon, Roeser, Wigfield, & Blumenfeld, 2001; May, 2017). EVT integrates three components of the theory, expectancy, instrumentality, and valence, which in turn encompasses the schematics of motivation (Lunenburg, 2011). Undergraduate students expected success depends upon their belief in how they think they will do in the service-learning study abroad program (Panchal, Adesope, & Malak, 2012). The incentives for success for undergraduate students include both internal and external motivation. Four categories were identified that express value: attainment value, intrinsic value, utility value, and cost (Panchal et al., 2012). This list was expanded to include “impact value (influence on participants perspective on life), camaraderie value (quality of interactions with team members) and community value (quality of interactions with community members)” (May, 2017, p. 4). The categories that emerged from the current study’s journal entries include: Reflection (attainment value), Mindfulness (intrinsic value), Bonding (camaraderie value), Uncertainty (impact value), Attitudes (cost), Communication (utility value), Needed/Usefulness (community value). While previous research on motivation and service-learning study abroad programs may be limited, there is still research that illustrates their relationship. Students’ intent to study abroad, whether it be service-learning or academic focused, is affected by their motives, values, and expectations (Raczkoski, Robinson, Edward, & Baker, 2018; Relyea, Cocchiara, & Sluddard, 2008).

Purpose and Objectives

The purpose of this study is to examine students' journal entries through the EVT lense from pre-departure through to the end of the ISL study abroad program program. Journals one and five were analyzed and coded through the lens of expectancy value theory (EVT). The study objectives include the
following, which will utilize the naturalistic inquiry approach (through the lens of EVT) to evaluate reflections (written journal submissions) from pre-departure through the end of a six-week ISL study abroad program: 1) discover emerging EVT themes; 2) explore if the expectations, motivations and values of an undergraduate student affects their own experiences; 3) understand if the expectations, motivations and values of an undergraduate student affect other people on the program.

**Method**

The researchers used a purposive sample that included twelve undergraduate seniors from The University of Florida completing their practicum through an ISL study abroad program. All participants in this study consented. Two separate journal submissions from twelve (2018 n=4; 2019 n=8) participants were analyzed. The methodological approach is naturalistic inquiry (Erlandson, Harris, Skipper, & Allen, 1993). The methods of data collection were journals submitted beginning with pre-departure orientation through the completion of ISL study abroad program during two consecutive years: 2018 and 2019. The working hypothesis is utilizing EVT through the lens of naturalistic inquiry. The journals were coded using Constant Comparative Method – Grounded Theory, including triangulation (preflections, guided journal entries, weekly group reflections, and observations), member checking, peer debriefing, and an audit trail (Glaser & Strauss, 1967).

**Results**

The results of this study include the connections made from journal entries to the seven EVT categories. The following are some main findings for each category:

1. “When with the children, I felt great, it is the exact population I hope to work with” (Attainment, Impact, and Intrinsic Value).

2. “Reflecting has helped to realize what we expect from our time at Galway Autism Partnership” (Attainment Value).
3. “I have built a relationship with one of the boys that come in and I love spending my time playing with him” (Intrinsic and Impact Value).

4. “Being able to reflect back on the extremely busy week that I had, and seeing that I was successful in navigating the bustling streets and deciphering how to get from point A to B, I can say that I feel excited and adventurous towards the following weeks to come” (Attainment Value, Utility Value, Cost, Community Value, and Intrinsic Value).

5. “I am building professional relationships with the staff and forming stronger bonds and friendships with my team” (Camaraderie Value).

**Recommendations**

The following recommendations are based on results of a two-year ISL study abroad program.

These are linked to the seven values of EVT, which include attainment value, intrinsic value, utility value, cost, impact value, camaraderie value, and community value. Provide up to five separate pre-departure meetings, which would include a preflection meeting; discuss transitions; enhance on-site orientations, including transportation, culture, expectations, motivations, and values; streamline communication; enhance scheduling procedures; continue weekly written and group reflections; develop project board; and include a final post reflection upon returning to home country.
References


Hierarchical Regression of Students’ Perceived Thesis/ Dissertation Completion Confidence: An International Study of Agricultural Education & Extension Graduate Students from Africa

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Introduction

Graduate students' attrition is an occurrence that, if not addressed, could perpetually cause economic and intellectual drains from concerned universities and funding agencies (Onwuegbuzie et al., 2015, p.166). The authors opine that attrition is rampant and mainly stems from students' inability to successfully implement the research and writing phases, amounting to premature drop-out or delays in graduate programs. A survey undertaken by Kluever (1997) revealed that most doctoral students perceive engagement in research as a novel experience. Kluever depicted students' involvement in the dissertation/thesis writing as overarching and challenging for many. Elmes (2016) asserts that graduate students get into their programs with weak prior research knowledge. The students, however, are often ill-prepared for the rigor needed in graduate-level research. Harris (2011) alert instructors for falsely assuming that the students are often ready for research phases upon enrolling in graduate studies and completing first-year courses (Seagram et al.,1998). Lack of research experience generally undermines the capability of conducting a thesis or dissertation study (Kearns, Gardiner & Marshall, 2008). Furthermore, it limits the intellectual growth and opportunities of masters and Ph.D. (Kluever, 1997).

The problem has persisted despite massive scholarly work and recommendations on terminating it (Lunenburg & Irby, 2008; Paré, 2011; Dunleavy, 2003). One possible explanation could be that higher learning studies overly focus on undergraduate learning issues failing to reveal problematic factors impacting graduate students’ motivation and well-being (Sverdlik et al., 2018, p. 362). Exploring confidence in graduate study completion could reveal more ways of rectifying non-completion, especially in Africa. The current study has looked at the role of research knowledge, gender, and program-related factors in predicting students' dissertation completion confidence.

Purpose and Objectives

The study purposed to determine model improvement in the prediction of thesis/ dissertation completion confidence among Agricultural Education and Extension (AGEDEX) students from selected universities in Africa.

The study objective was:

To determine if gender, graduate program level, coursework completion, and prior statistical skills significantly predicted thesis/ dissertation completion over and above research knowledge alone at .05 alpha level set a priori.

Hypotheses included:
H$_0$: $R^2$ Change (weighted research knowledge level) - $R^2$ Change (gender, graduate program level, coursework completion, and prior statistical skills) = 0 in the population

H$_a$: $R^2$ Change (weighted research knowledge level) - $R^2$ Change (gender, graduate program level, coursework completion, and prior statistical skills) ≠ 0 in the population.

**Methods**

A census of sixty-five (65) graduate students (masters and PhD) from the universities in Kenya, Uganda, Tanzania, and Ethiopia participated in the study. Data were collected online through Qualtrics™. A cross-sectional, predictive non-experimental survey design was applied in collecting and answering research objectives (Fraenkel, et al., 2015; Johnson, 2001). Four independent variables in this study included: weighted research knowledge captured using 38 statements on various topic areas in research methods and statistics, each measured on a Likert type of scale (1= below average to 5 = above average); gender 1 = male, 2 = female); graduate level (1 = Masters, 2 = PhD, 3 = other); prior research/ statistical experience (1 = yes, 2 = no); completion of coursework (1= yes, 2 = no).

The dependent variable was students’ thesis/ dissertation completion confidence measured on a Likert type of scale (1 = no confidence to 5= very confident). Hierarchical regression analysis involved two blocks where weighted research knowledge was used to predict thesis/ dissertation confidence in the first block (1). Gender, graduate program level, prior statistical experience, and coursework completion were entered to predict students’ confidence over and above knowledge in block two (2). Descriptive statistics used to determine the mean (M) and the standard deviation (SD) of each continuously measured variable in the models (Field, 2018, p. 299)

**Results**

All assumptions (Field, 2018) were met by: linearity (partial regression plots and a plot of studentized residuals against the predicted values); independence of residuals (Durbin-Watson statistic value = 1.091); homoscedastic residuals ( Plot of studentized residuals verses unstandardized predicted values); absence of multicollinearity (Variance Inflation Factor (VIF) = 1.000 to 1.330); normality (Q-Q plot); and Cook’s distance above 1.

The full model of research knowledge, gender, graduate program level, coursework completion status, and stage in the graduate program to predict students’ confidence to complete dissertation or thesis was statistically significant, $R^2 = .623$, $F (5, 59) = 19.488$, $p < .0005$. The model ($R^2 = .623$) explained approximately 62% of the variance in students’ confidence to complete thesis or dissertation. Including gender, graduate program level, coursework completion status, prior statistical experience in the prediction of students’ confidence resulted to a statistically significant increase in $R^2$ by .497, $F (4, 59) = 19.450$, $p < .0005$. The decision was that H$_0$ is untenable with a <.001 probability of making type 1 error.

**Implications**
With regards to the purpose of the study, research knowledge alone significantly predicted the confidence of graduate students from Africa to complete thesis/dissertation on time. Addition of gender, graduate program level, course work completion status, and prior statistical experience improved model prediction by approximately 50%.

Drawing from the results, graduate students from Africa had above average research knowledge; however, they still lacked full confidence needed for timely graduate completion. The findings suggest the need explore other factors that could be restraining students’ confidence for instance the role of the advisors, scholarship availability, institutional processes, among others. Results present an opportunity to encourage completion by providing low-cost professional development modules on research design, data analysis, data interpretation, data presentation, and components of a thesis or dissertation. Perhaps international partners would be willing to collaborate in developing these modules which graduate students could utilize to boost their research knowledge and confidence.

References


Agriculture Education Curriculum Adoption by Ugandan Secondary School Teachers Fostered by the INGO Field of Hope

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Agriculture Education Curriculum Adoption by Ugandan Secondary School Teachers Fostered by the INGO Field of Hope

Introduction

In Uganda, 56% of the population is under 18 years of age, but 78% of the entire population is below the age of 30 (Ahaibwe, Mbowa, & Lwanga, 2013). While Uganda is a nation full of youth, the average age of a farmer is 54 years old (Lunghabo, 2016). Knowing the population is growing exponentially and the average age of a farmer outweighs the median age in Sub-Saharan Africa doesn’t allow world leaders to have a positive economic outlook due to the lack of interest in an agriculturally related career by youth (Mukembo, Edwards, Ramsey, & Henneberry, 2014).

“Obtaining a quality education is the foundation to improving people’s lives and sustainable development” (FAO, 2017, para. 1). Rather than providing students with practical knowledge and skills that would support application and self-sustainability upon leaving school (Basaza, Milman, & Wright, 2010; Lugemwa, 2014; Mukembo, 2017), focus is placed on preparing students to pass final examinations urging lower-order thinking through rote-memorization (Mukembo, 2017). Because rural youth are disinterested in agriculture, this is concerning regarding agricultural education (Bennell, 2007).

Theoretical Framework

The Framework for Curriculum Implementation in Developing Countries, by Rogan and Grayson (2003), guided this study. The framework (2003) is based on three main constructs: profile of implementation, capacity to support innovation, and support from outside agencies. The profile of implementation recognizes ways to implement the new curriculum designed to foster learning. The capacity to support innovation recognizes that schools differ in terms of their capacity to implement innovation including: 1) physical resources, 2) teacher factors, 3) student factors, and 4) school ethos and management. The construct support from outside agencies concerns outside agencies that are not within the school but help facilitate innovation.

Purpose and Objectives

The purpose of the study was to derive meaning from the experiences of the instructors teaching agricultural education in secondary schools partnered with the INGO Field of Hope. The questions guiding this research are organized into two objectives:

1. Determine the influences impacting teacher adoption of agricultural education curriculum.
2. Determine the intrinsic and extrinsic motivations of using S1 through S4 agricultural education curriculum.

Methods

Purposeful sampling was used to determine the sample of eight participants for the basic qualitative study. The selection criteria included: teacher must have taught the S1 curriculum provided by Field of Hope to students and attended the teacher training offered.

One-on-one semi-structured interviews were conducted in an attempt to understand and derive meaning of their experience (Brinkmann & Klave, 2015). To assist with triangulation, a field notes journal was kept and a reflexive journal captured important memories, conversations, and interactions.
First-round coding utilized vivo coding to segment the transcripts into phrases and words to “honor the voices of the participants and their perspectives” (Saldaña, 2013, p. 61). Then, the researcher utilized axial coding to reorganize data to create a categorical, thematic, and conceptual organization (Saldaña, 2013).

Findings and Conclusions
Italicized themes captured the interpreted experiences and meaning the participants attributed to the INGO agricultural education curriculum implementation and adoption.

Research Objective 1:
Individuals expressed gratitude toward the professional trainings they received. Because the curriculum shifted from theoretical to practical application, teachers interacted with students through the activities and practical experiences. Students were excited to learn and the teacher-to-student relationship was positively affected by the curriculum. Teacher-centered to learner-centered emphasized that students felt more ownership of their learning. Fred stated “Because it is actually learner oriented, it seeks to involve the learners more in the learning process.”

Survival is something Ugandans actively try to achieve. Teachers in Uganda knew this was a reality their students will face in the future if not already facing. As Dowda said, “Agriculture is the backbone . . . every home has to practice agriculture. Whether you went to school or not, you have to practice agriculture.” Teachers wanted to be able to prepare their students with the valuable skills of growing crops and rearing animals to secure their survival spot.

Recommendations and Implications
1. Due to students going home over holiday and practicing what they have learned, investigate whether children’s new agriculture knowledge transfers over to relatives.
2. Research should be conducted to follow students who complete S1 through S4 curriculum to understand the practicality of learned skills related to survival.
3. To ensure that teachers implementing the curriculum understand project-based learning and critical thinking, a formal process for training teachers should be developed using local Ugandan trainers to enable sustainability beyond when Field of Hope trainers and volunteers return home.

4. The addition of agricultural clubs to schools that have previously implemented the curriculum should be explored as an avenue to increase interest in agriculture careers and extend opportunities for personal growth in students and advisors.

5. A formal network of teachers should be formed to expand the resource sharing among teachers.

References


Addressing Food Insecurity in Conflict Zones: Describing Agricultural Assessment Priorities Aligned with Basic Human Needs

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Addressing Food Insecurity in Conflict Zones: Describing Agricultural Assessment Priorities Aligned with Basic Human Needs

Introduction/Theoretical Framework
Experts in international agricultural and extension education lead the charge for educating and communicating about food (in)security issues. However, assessing food (in)security can be challenging in emerging-, current-, and post-conflict nations as several factors influence access to basic human needs (Food and Agriculture Organization of the United Nations [FAO] & World Food Programme [WFP], 2019). If biological or physiological needs are not met through sustainable food security, a system or community could become off-balance, which may create a new dynamic in conflict zones (Katsos, 2017). Likewise, as individuals seek to meet their basic needs, human motivations could become a concern in conflict zones (Shinn et al., 2012). When a population reaches food (in)security at the emergency to famine phases, conflict can be exacerbated (FAO & WFP, 2018; FAO & WFP, 2019). Hence, mobilizing populations who work in or near conflict zones, such as organizations through the U.S. Department of Defense and U.S. Department of State, is key to supporting international agricultural development.

Meeting basic human needs is paramount to international agricultural development (Association for International Agricultural and Extension Education [AIAEE], 2019). Maslow (1943, 1954, 1970a, 1970b, 1993) suggested, without meeting basic human needs, humanity cannot survive. The importance of these fundamental elements can be magnified in areas of conflict (Katsos, 2017). Because most conflict zones are unpredictable and unstable, maintaining and meeting basic human needs—such as a constant, nutritious food supply—can be challenging. Many times, the source of the instability can also influence a household’s or community’s ability to rebuild after or during conflict because of damaged infrastructure, disrupted transportation, and collapsed economies (FAO & WFP, 2018). Because Maslow’s (1943) hierarchy of needs provides a foundational and rudimentary perspective for basic human needs, we chose it as a conceptual framework for investigating basic agricultural assessment considerations in conflict zones.

Purpose and Objectives
The purpose of the study herein was to describe agricultural assessment priorities related to meeting basic human needs in conflict zones. The following objectives guided this study:

1. Describe agricultural assessment priorities related to meeting basic human needs in households and communities located in or near conflict zones.
2. Describe agricultural assessment challenges related to meeting basic human needs in households and communities located in or near conflict zones.

Method
We used qualitative, semi-structured interviews with soldiers (n = 19) in the 5th Special Forces Group (Airborne) of the U.S. Department of the Army at Fort Campbell, Kentucky. The purposive sample included soldiers who completed at least one deployment where they conducted an agricultural assessment in a conflict zone in the U.S. Central Command, which includes nations in the Middle East, Afghanistan, and Northern Africa. We used a naturalistic
approach, guided by a constructivist paradigm and researcher positionality, to allow inductive questions to emerge based on statements made during the interviews. To mitigate personal bias, we used a reflexive journal during the semi-structured interviews (Lincoln & Guba, 1985). We used an inductive data analysis process (Bryman, 2016) to identify themes that emerged as existing agricultural assessment priorities supported by anecdotal statements.

Results
Three prominent themes emerged as assessment priorities related to meeting basic human needs in conflict zones—basics of food production, supply chain relationships, and personal security and physical safety risks. Soldiers expressed the need to understand the basics of food production (P01, P02, P03, P06, P07, P08, P10, P11, P12, P14, P15, P16, P18). Agricultural assessment in conflict zones is different than in normal settings as food production can be disrupted by conflict zones, which can hinder households or communities from having access or availability to food production (P01, P03, P10, P18). P12 claimed that U.S. Army soldiers and experts working in international development need to understand the “holistic picture” of agricultural systems in conflict zones, including supply chain relationships. He added that “one way to do this could be to provide a training regarding the basics of food systems” that would be “culturally-relevant” and “related to the entire value chain.” Providing this holistic approach to agricultural assessments can often be “challenging” in conflict zones as several layers influence household and community dynamics (P06, P07).

Physical security and physical safety risks served as the third agricultural assessment priority in conflict zones. Agriculture intersects several prominent elements that soldiers and experts in international development assess frequently (P01, P02, P04, P10, P11, P15, P16, P17): political, military, economic, social, information, and infrastructure. “Families are desperate to provide for their families” (P02), which leaves families making the tough call on how they can provide the next meal (P02). Furthermore, understanding motivations and decisions family members must make as a result of food insecurity is important to community assessment because sometimes these tough decisions can involve violence (P05).

Recommendations and Application
Increasing awareness of how international food and agricultural systems are influenced by conflict is a prominent step for global stability. To connect experts in conflict zones with people who serve in international agricultural settings, we recommend updating Maslow’s (1943, 1993) hierarchy of needs theory to include a layer of consideration to use when assessing human biological needs in conflict zones. Maslow (1943, 1993) highlighted a personal security consideration at the secondary level of his models; however, personal security risks add unique challenges to how humans interact in areas of conflict. In some cases, personal security risks could influence the ability to meet basic food (in)security needs, which merits investigating if it should be considered a higher priority than the secondary level. It appears that Maslow’s (1943, 1993) models are written for the developed world with low physical security threats. As such, we recommend investigating how the hierarchy of needs can be addressed in areas of conflict. In application, we recommend increasing agricultural research and extension education programs located in areas of emerging-, current-, and post-conflict nations to further investigate dynamics of human needs to strengthen agricultural development programs.
References


Consumer Acceptance of Functional Foods Between European Countries and U.S.: 
A Systematic Review

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Introduction

Functional foods (FFs) can be regarded as whole, enriched, fortified food that produce benefits beyond basic nutrition (Hardy, 2000). Many chronic diseases, such as heart disease, some types of cancer, and diabetes, are caused by dietary pattern characterized as relatively high in fat, refined sugars, salt, and cholesterol (Willett et al., 2006). Functional ingredients include vitamins, omega-3 fatty acids, probiotic, minerals (calcium, magnesium), and antioxidant extracts (Hasler, 2002). Researchers suggested that consuming certain FFs could improve physical and mental well-being, as well as reducing the risk of chronic diseases (Hasler, 2002; Mark-Herbert, 2004).

Consumers are more aware of the health benefits produced from different types of foods (Bigliardi & Galati, 2013). The development of novel FFs is a complex and expensive process involving uncertainty and risky issues (Siro et al., 2008). Besides obstacles of new food technology innovation and food regulations, consumer preference should be considered during the development of functional foods (Siro et al., 2008). However, consumers have a variety of preferences and attitudes toward different FFs, which may influence their acceptance of novel FFs (Frewer et al., 2003). Furthermore, consumers’ food choice is a complex process depending on the different food properties (Verbeke, 2005). Thus, the development of novel FFs should take account of the degree of consumers’ acceptance of FFs in order to successful communicate market opportunities and meet the global societal health needs (Bigliardi & Galati, 2013).

Purpose and objectives

The purpose of this systematic review was to compare and contrast studies examining consumer acceptance of FFs that have been conducted in Europe and U.S. in the past two decades.

Methods

Google Scholar and Web of Science were used to search the studies that investigated the consumer acceptance of FFs. The data collection and analysis procedures are guided by the AMSTAR eleven steps of recommended for meta-analysis (Shea et al., 2009). The search terms included: ‘functional food’, ‘consumer acceptance’, ‘consumer perception’, ‘willingness to pay’, and ‘consumer choices’.

Results

The primary search from two database resulted 157 articles to screen for closer inspection. Further screening resulted in 45 articles from European countries and 11 studies from the U.S. chosen for coding and descriptive analysis.

Similarities

Both Europe and U.S. studies revealed the relationships between socio-demographic characteristics (e.g. gender, age) and consumer acceptance of FFs. For example, studies indicated
that elder consumers from Belgium (Verbeke, 2005) and Switzerland (Siegrist et al., 2008) are more inclined to accept FFs. Similarly, Toma et al. (2008) indicated that older American consumers are more willing to accept FFs. Regarding gender, several studies indicated that European women tend to be more interested in FFs (Cukelj et al., 2016; De Jong et al., 2003; Kraus et al., 2017). Likewise, in the U.S., Michell et al. (2020) and Traore et al. (2016) found females rated FFs more favorably than male.

Several studies reported that certain FFs characteristics (e.g. taste, cost, functional ingredients familiarity) are the main drivers of FF purchases decisions for European and U.S. consumers. For example, researchers found European consumers showed elevated interests for the FFs if they are satisfied with the taste experience (Cox et al., 2004; Urala & Lähteenmäki, 2003). Similarly, Tuorila and Cardello (2002) reported that the occurrence of off-flavors (bitter/salty) in functional juice can dramatically decrease the likelihood of consuming the products among the U.S. consumers. Regarding the cost of FFs, several studies indicated that European consumers will not purchase FFs if the price is not reasonable (Cukelj et al., 2016; Pappalardo & Lusk, 2016; Verbeke, 2005). Likewise, International Food Information Council (IFIC) functional foods consumer survey reported that cost is a common barrier preventing American consumers from purchasing FFs (IFIC Functional Foods Consumer Survey, 2013). Moreover, both U.S. and European consumers are much more likely to accept FFs enriched with well-known or familiar functional ingredients compared with unfamiliar functional ingredients (Bech-Larsen & Grunert, 2003; Markosyan et al., 2009; Menrad, 2003; Michell, 2020; Urala & Lähteenmäki, 2004).

Differences

Studies conducted with European consumers have focused on consumer-oriented issues, including consumer attitude toward FFs and consumer perception of health claims credibility. These consumer-oriented studies revealed that European consumers are suspicious of accepting FFs. For instance, consumers from Denmark (Bech-Larsen & Grunert, 2003), Germany (Di Talia et al., 2018), and Finland (Dean et al., 2012), perceived lower health benefits of FFs and are less inclined to accept FFs. The studies conducted with American consumers found consumers are more positive toward accepting FFs. According to the 2013 IFIC functional foods consumer survey, nearly two-thirds of participants believed that FFs provided health benefits, and they are willing to integrate FFs into their diet. Unlike studies conducted in Europe focusing on consumer attributes, the studies conducted with U.S. consumers are much more focused on sensory properties of different types of FFs (Chen et al., 2020; Khouryieh et al., 2012). Adding functional ingredients targeting U.S. consumers should not be made at the expense of sensory acceptance (Lawless et al., 2012).

Discussions and Applications

According to the studies we reviewed, European consumer acceptance of FFs are less unconditional compared with U.S. consumers. Although the functional ingredients are regarded as beneficial, adding ingredients to food is presented as reducing the naturalness of FFs (Rozin, 2007), which may limit European consumer acceptance. Given the critical attitude of European consumers, health benefits communication plays an important role in determining how FFs are
accepted by European consumers. Communication links the trustworthiness of the information credibility, consumers’ attitude and healthiness perceptions (Annunziata et al., 2015; Urala, 2005). However, consumers from U.S. have expectations regarding the sensory properties for FFs, as such, certain sensory attributes are critical drivers to FFs acceptance. Thus, sensory attributes of FFs should be optimized to satisfy consumer expectations. The systematic review might provide insights for a sustainable growing and successful global market introduction of novel FFs. Future research on novel FFs innovations should consider the determinants influencing consumer acceptance behaviors to predict their choices of specific FFs in different countries.

References


Tackling Gender Inequality in University Education: A Content Analysis of U.S and Partner Government Priorities in Developing Countries

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Tackling Gender Inequalities in University Education: A Content Analysis of U.S and Partner Government Priorities in Developing Countries

Introduction

The transformative impact of investments in education is evident by strong correlations with improved health, decreased violence and conflict, and more stable economies (Bloom & Rosovsky, 2007; Milton & Barakat, 2016; USAID, 2018). Return on investment in education are highest for higher education, particularly for women and in developing countries (Psacharopoulos & Patrinos, 2018). For women and girls, each year of completed secondary education increases their average lifetime earnings by between 10% and 12%, while increased education of women and girls across education levels is correlated to reduced child marriages, improved child and maternal health, and increased women’s participation in the private and public sectors (Psacharopoulos & Patrinos, 2018; USAID, 2018; World Bank, 2019).

Significant progress towards global goals in education and gender equality in education have been made in the past decade; yet, gains are not evenly distributed between genders or across country income levels, with girls still underrepresented in many lower income countries, particularly in sub-Saharan Africa (World Bank, 2019). The barriers to education are further exacerbated by social norms and traditions unfavorable to girls’ education (particularly in fields such as agriculture, science and math), gender-based violence, early marriage, and limiting policies and physical infrastructure (Behounek, 2020; USAID, 2020; World Bank, 2019). Due to the global pandemic, women and girl’s access to education and exposure to violence and childhood marriage are creating a worsening environment for girls and women in education, eroding the global gains made in the past decade (Rafaeli & Hutchinson, 2020).

Responding to these challenges and opportunities, USAID’s 2018 Education Policy emphasizes priorities for investment in education in country development and self-sufficiency. The policy specifically addresses priorities for higher education, stating that “higher education institutions have the capacity to be central actors in development by conducting and applying research, delivering quality education, and engaging with communities (USAID, 2019, p.7).

Purpose and Objectives

The purpose of this study is to provide a focused analysis of USAID’s country and regional-level strategies to better understand the extent to which university education is emphasized at the strategic level, the extent to which women’s access to university education is emphasized at the strategic level, and the common program approaches related to women’s access to university education. Developed with partner country governments, Country Development Cooperation Strategies (CDCS) outline priorities for partnership and development programming towards a path to sustainability (USAID, 2020). We selected the CDCS as a representative document of USAID’s country and regional-level mission strategies; document structure uniformity and accessibility make these documents ideal.

Methods

Employing a qualitative content analysis method, we analyzed all CDCS published publicly as of 31 August 2020, including 62 total documents. Content analysis was first introduced as a quantitative method of research and later evolved with qualitative approaches to support richer exploration of themes within written materials (Berelson, 1952; Cavanagh, 1997; Fraenkel et al., 2019; Hsieh & Shannon,
Content analysis has been used in the international education field widely, including use in assessing policies and program designs (Murphrey et al., 2018).

Keyword searches of each document were used to screen documents for references to education priorities, followed by secondary keyword screening for reference to higher education, universities, undergraduate, graduate, or college(s). This layered screening allowed us to focus on the country documents containing explicit references to priorities in higher education, with further qualitative analysis conducted along themes representing the analytical constructs derived from USAID’s Education Policy (2018) (Krippendorff, 2018).

Results

Of the 53 strategies analyzed (nine of the 62 accessible documents were eliminated due to expired policy periods), all made mention of education within their priority descriptions. In gauging the extent to which university education is emphasized within country and regional cooperation strategies, we found far fewer strategies explicitly outline priorities for university education, with 16 (31%) including universities and/or higher education as a priority for partnership and/or implementation. Ten (18.9%) strategies specifically addressed women in university education, with two country strategies (Afghanistan and Kenya) found to explicitly address all three of USAID’s stated priorities for equality in higher education: laws and policies, physical infrastructure, and safety. Few country or regional strategies explicitly prioritized increasing women’s access to higher education in agriculture, science, or math fields. Specific programs emphasized in the strategies that addressed women in university education included, non-exhaustively: scholarships for graduate education, internships to increase competitiveness of women for employment, investment in physical infrastructure to address women’s comfort and hygiene needs, teacher education with targeted recruitment of women for teaching roles, and engagement of universities in engendered research and evaluation.

Implications and Recommendations

USAID’s commitment to women and girls’ access to education and in building higher education capacity to meet development objectives is very clear (Lebrón & DePietro-Jurand, 2018). Communicating these priorities within bi-lateral strategy documents, such as CDCSs, is essential in securing future funding for such programs. Although the results of this exploratory study found significant emphasis on education, explicit emphasis on increasing women’s attainment of quality undergraduate and graduate education in agricultural sciences does not appear in most strategies.

Increased access to agriscience education is important in increasing women’s representation in agricultural research, extension, and education, addressing a significant barrier to engendering agricultural innovation and diffusion networks globally (Meinzen-Dick et al., 2010). Given the success of international university collaborations, such as those funded through USAID Innovation Labs and the Higher Education Solutions Network, AIAEE members have tremendous opportunity to contribute to global efforts towards women’s empowerment in agriculture by 1) encouraging donor organizations to further prioritize women’s access to quality higher education, 2) partnering with host country higher education institutions to strengthen capacity to recruit and retain a more diverse student population, 3) integrating gender equality initiatives more broadly across international program designs, and 4) preparing students in international agricultural extension and education fields to assess and respond to gendered dynamics of higher education and agricultural extension programming.
References


Saving People from Injuries in the Workplace: A Behavior-Based Safety Photo-Elicitation Study

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Saving People from Injuries in the Workplace: A Behavior-Based Safety Photo-Elicitation Study

Introduction/Theoretical Framework

Over 5,000 people died from agricultural work-related injuries in the U.S. from 2003 to 2011 making agriculture one of the most dangerous industries in the nation (OSHA, 2017). Within the industry, the Bayer organization has seen a growing number of workplace injuries in recent years with workplace injury rates doubling in just a three-year period in their Crop Science division (Bayer, 2017).

For the last 30 years, behavior-based safety (BBS) programs have been implemented in many corporations and government agencies in the U.S. BBS programs have been seen to help protect employees by shifting the focus from organizational operating procedures and designs to a focus on safe behaviors performed in the workplace (Geller et al., 2001). In BBS, employees are trained to identify important at-risk behaviors or potential barriers to safety in their workplace and gather data on these behaviors through peer-to-peer observations. BBS programs have contributed to the field of safety knowledge and information and have been seen to reduce incidents in many industrial applications and implementations (Geller, 2001; Petersen, 1989, etc.). As BBS has shown potential in reducing safety incidents in the workplace, its implementation in the agricultural sector could reduce the growing safety issues seen in the industry.

Guided by Bandura’s social-cognitive theory, this study examined the environmental workplace influences that contributed to participants’ identification of safe and at-risk safety-related behavior using the BBS program. Bandura’s (1986, 1997, 2001) theory can effectively explain both human motivation and behavior through agentic capabilities such as personal self-efficacy and the collective efficacy of a work group.

Purpose and Research Questions

Very little is known about BBS program effectiveness in the agricultural production industry. A BBS program was implemented at the Bayer Crop Science Division cottonseed delinting plant in [city, state] after it experienced five work-related injuries from 2012 to 2016. This study sought to examine the use of the BBS program at this site from the perspective of the employees and was guided by the following research questions:

1. How and what do participants recognize as safe, at-risk, or barrier issues in their work environment?
2. How do participants’ perceptions of safe, at-risk, or barrier issues differ based on their work positions (e.g. front-line employee, supervisor, manager)?

Methods

Photo-elicitation interviews (PEI) were utilized in this study and when used with participant-generated photos empower research participants by positioning them as the expert in...
the interview (Rose, 2016). Eight of the 25 plant employees required to be trained in the BBS program were purposefully selected to represent a variety of positions within the site. Participants were asked to take photos of safety-related behaviors and barriers in their daily work environment using a disposable, color camera provided to them by the researchers over a two-week period. They were provided with an instructional document to guide their photos and were asked to keep a field journal to record their thoughts and the locations of their images. After photos were developed and reviewed by participants, one-on-one semi-structured interviews were conducted to investigate the photos taken and the BBS program implementation at the plant.

**Results/Conclusions**

Participants demonstrated an improved ability to recognize safety-related issues in their workplace following BBS implementation. The program seemed to change how participants viewed their work environment and safe and at-risk behaviors, as well as their thought processes toward safety. Participants’ ability to recognize behaviors and issues is likely a result of their change in awareness. They also believed the BBS program promoted their awareness, understanding, and communication related to the importance of safety signage and helped them appreciate safety equipment available in their work environment more. Participants’ improved ability to identify safety-related behaviors indicated they see their work environment differently than before BBS was implemented.

Many participants also demonstrated an improved capacity to think about safety solutions in their work environment as a result of BBS implementation. Participants were not only more aware of issues, they were also thinking about how to correct them to prevent injuries. More effectively recognizing safety concerns and behaviors gives insight into participants’ increased safety knowledge and awareness, which contributes to an increased self-efficacy about safety. This furthers their engagement in collective efficacy with other employees, which creates collective action that helps to prevent injuries through both individual and group efforts (Bandura, 2000).

Additionally, participants’ perceptions of safety issues were influenced by their roles and duties in the workplace. Although everyone received the same BBS training, the ways they used this knowledge in their work roles differed. Compared to other employee positions in the plant, front-line employees were more likely to note safety improvements made in the plant that helped them prevent injuries on the job. They also noted the importance of recognizing potential hazards in their work environment and saw this as an opportunity to communicate with others about potential dangers.

**Recommendations**

To better understand the effect of BBS programs, several recommendations for future research are offered. The PEI approach should be used in other production plants to determine how employees view their work environment and factors that influence their daily work tasks. Further research is also needed to better understand how BBS contributes to the development of employees’ safety awareness along with their increased ability to notice and prevent safety-
related incidents. A replication of this study at other sites, especially within the Bayer
organization, could build a better understanding of employees’ perceptions of safety in their
work environments.

Several recommendations for practice can also be made. The use of PEIs with BBS
programs would complement the observation process already in place and generate new ways to
observe and address safety issues. Discussing new safety designs, policies, and regulations with
front-line employees, as well as management, could bring new perspectives on safety issues.
Similar programs should be implemented within the agricultural industry after the positive
outcomes seen in this study. As one of the most dangerous industries in the nation (OSHA,
2017), it would be beneficial for other agricultural organizations to implement BBS programs to
help reduce injury rates and save lives.

References

practices that build a sustainable safety culture. Atlanta, GA: Performance Management
Publications.


Jersey, NJ: Prentice Hall.


Bandura, A. (2000). Exercise of human agency through collective efficacy. Current Directions
in Psychological Science, 9(3), 75-78. doi:10.1111/1467-8721.0006


Psychology, 52(1), 1-26. doi:10.1146/annurev.psych.52.1.1


White Plains, NY: Longman.

of Chicago Press.


An Adapted Photovoice Study of Early Career International Development Worker Perceptions of Safety and Security

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An Adapted Photovoice Study of Early Career International Development Worker
Perceptions of Safety and Security

Introduction
The safety and security of international development workers has been non-existent in academic research (Fast, 2010). Meanwhile, organizations struggle to build and grow programs in the face of safety and security incidents, without access to safety and security resources necessary to adequately protect their human resources.

Corredor (pseudonym) is an international development training program in Mexico City. Corredor is impacted by this research because it trains young adults in international development. Participants commit to training programs ranging from two months to two years in length. Programs include a homestay, language and culture classes, and a service placement project in partnership with a national agency.

Theoretical Framework
During my literature review, I identified seven categories of risk. These categories identified risks related to crime (Hartjes et al., 2009; Kennedy & Flaherty, 2015; United States Department of State, 2019; The Central Intelligence Agency, 2019), accidents (Wood, 2017; Hartjes et al., 2009), preventable disease (Bryant et al., 1991; Castelli, 2004), political violence and conflict (Buda, 2016; Hartjes et al., 2009), natural disasters (Hartjes et al., 2009), mental health (Doki et al., 2018), and mild risks (Hartjes et al., 2009).

Hudson et al. (2012) posits that one category is absent from this list—gender-based risks.

Statement of Positionality
My research was inspired by safety and security concerns I experienced during my service with Corredor. Two incidents stand out. A teammate was assaulted by a member of her homestay family and I was personally assaulted.

I believe organizations are responsible for acknowledging potential risks, providing reasonable training to mitigate risks, and facilitating access to resources to promote recovery from incidents that have occurred on site. These are minimum requirements to protect program participants.

Purpose and Objectives
The purpose of this study was to observe, document, and describe the ways new international development workers document their perceptions of safety and security risks in their extended international development experiences. I had three goals:

1. Build rapport with participants to elicit cooperation,
2. Achieve consistent submission of photos by participants; and
3. Review images with program leaders, through focus groups.

Methods
I utilized photovoice methods to collect data for this study, highlighting the gaze of new program participants. I analyzed the data using constructivist grounded theory, based on the work of Lopez et al. (2005), who combined the two techniques to “generate a conceptual framework of ‘what is going on.’”
I trained participants in photography ethics, consistent with Wang and Redwood-Jones (2001), then asked participants to submit up to five photo and description pairs per week, under the prompt “aspects of safety and security.” I adapted Wang’s (1999) photovoice method based on program structure and participant availability. Changes included weekly submission of photos, instead of one batch of photos, and conducting focus group sessions with only program leaders present, facilitating candid responses to the photos.

I invited 10 individuals to participate. I invited five members of the summer team to submit photos, four agreed. I invited the five program leaders to participate in the focus group and submit photos, all agreed to participate in the focus groups; one also submitted two photos. This resulted in a total of 38 photos submitted and reviewed.

I followed Charmaz’s (2006) three-phased approach to constructivist grounded theory. During initial coding, I coded text thought-by-thought and photos based on creator, location, and hazard. During focused coding, I utilized the constant comparative method using the photo as the unit of study. I compared images, descriptions, and focused group discussion within and between images to create categories. During theoretical coding, I explored the relationship between categories. This resulted in two major categories stemming from the two data streams. I united the two categories under a single theoretical concept.

Results and Conclusions

The theoretical concept identified was “adapting to a new environment.” Summer team participants, who primarily submitted the photos, noticed safety hazards that program leaders, who primarily participated in the focus groups, no longer noticed. Under this concept, the data was split into “hazards,” based on the photos and descriptions, and “assessment of the hazards,” based on the focus group discussions of the photos and descriptions.

I divided the category “assessment of the hazards” into three levels. Elevated threats were based on statements like, “Yes, that [hazard] is something.” Mid-level threats were based on statements indicating corroboration from another source, such as a video playing in a subway. Low-level threats were based on statements indicating cultural differences or disagreement with the hazard identified.

Under “hazards,” I identified nine mutually exclusive categories, including terrorism, natural disasters, objectification of women, dogs, sanitation, rain and drainage, new environment, hazards to pedestrians, and public transportation.

I identified a tenth, higher-order category, gender-based risks. Five (13%) images highlighted gender-based risks, spanning the categories public transportation, hazards to pedestrians, and the objectification of women, including two of the three elevated level threats identified.

Seventeen images (44%) depicted travel hazards, referencing public transportation or pedestrians. Another 12 images (31%) depicted hazards with increasing probabilities linked with increased travel, such as drainage and sanitation issues. This linked more travel within the city to increases in number and diversity of risk.

The loss of contextual safety tools from their home culture contributed to many hazards reported. Two examples were construction sites without barriers and stairways without railings.

I also observed the tendency for program leaders to belittle concerns of newer team members. This tendency could prevent leaders from sharing basic safety information with newer arrivals. It may also threaten the organizational culture, if newer team members perceive help as inaccessible.
**Recommendations and Implications**

Understanding the concerns of new international development workers is essential for designing effective training protocols. Areas for growth include addressing the risks of gender-based violence, critical for protecting human resources; and designing training materials to scale with participant experience, as concerns and awareness change over time. Leaders must be watchful against trivializing and belittling the not-yet-normalized concerns of new arrivals.

Future research should explore gender-based risks in other cultural contexts, as well as tracking participant concerns over time.
References


Agricultural Producer Mental Health and Food Systems:

A Comparative Analysis of Six Nations

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Agricultural Producer Mental Health and Food Systems:  
A Comparative Analysis of Six Nations  

Introduction, Theoretical Framework, Review of Literature

Developed countries around the world have long idealized rural communities as idyllic and characterized the independent farmer as the model self-actualizing subject (Nilsson, 2002). However, since the 1980s, academics, journalists, and politicians throughout the world have raised alarms over high levels of psychological distress among agricultural producers (Daghagh Yazd et al., 2019). The supply-chain disruptions caused by the COVID-19 pandemic brought these old issues into sharp relief with stories of desperate agricultural producers committing suicide as food around the world was being dumped into ditches and plowed unsold into the ground (Deep Singh, 2020).

A wealth of literature has documented mental health issues among different populations of agricultural producers. There is little doubt that agricultural work—defined here as cultivation, domestication, horticulture, arboriculture, and vegeculture, as well as forms of livestock management including aquaculture—exposes workers to uncontrollable and unpredictable conditions such as fickle weather patterns, unpredictable animals and machinery, role conflict, time pressure, long hours of physically demanding and repetitive labor, and social isolation (Fraser et al., 2005). Exposure to these manner of stressors in addition to the usual vagaries of living and the unpredictability of the human condition can lead to heightened levels of psychological distress, mental health issues and suicide (Mazure & Druss, 1995).

However, it has also been demonstrated that increased risk of mental health issues and suicide among agricultural producers is not a universal phenomenon; indeed, in their systematic review of mental health in agricultural populations, Daghagh Yazd et al (2019) reported 18% of
studies on agricultural mental health found farmers have a lower prevalence of psychiatric morbidity than non-farmers. Clearly, the etiology and dynamics of these issues cannot be reduced to the stress “inherent” in agricultural work.

Yet in spite of the global documentation of mental health issues among agricultural producers, there is little to no existing scholarship comparing mental health issues by country with respect to national food systems and social structures. Although international studies are often cited collectively as evidence of universal issues facing agricultural populations, the social, economic, and political circumstances surrounding the dominant food systems within a nation are unique. This is especially true with regard to the widely disparate food systems and social welfare programs in North America, Asia/Oceana, and Europe. The development of mental illness and other mental problems has been strongly linked to environmental stressors affected by public policy and social programs including education, job insecurity, income inequality and poverty, food insecurity, poor housing quality and housing instability, and poor access to mental health care (Cockerham, 2016). Furthermore, stress and mental health problems are defined, experienced, and managed differently in different cultures and locales and this heterogeneity precludes one-to-one comparisons (Gopalkrishnan, 2018).

**Purpose and Objectives**

**Overall Aim:**

In this paper, we analyze the mental health issues which have been documented among agricultural producers in the US, Australia, the UK, Sweden, Japan, and India within the context of national food systems and social structures.

**Specific Objectives:**

- To provide a critical analysis of the literature on mental health issues by nation
• To explore how nation-level food systems and social structures interact with mental health issues among agricultural producers
• To identify the nation-level social structures which are potentially protective and harmful the mental health of agricultural producers

Methods and Data Sources

Our paper synthesizes analyses of the peer-reviewed and gray literature concerning mental health among agricultural producers in the six target nations with that on nation-level food systems and social structures informed by other sources relevant to the topic including data from archives, interviews, and news media sources. This paper challenges the reductionist viewpoint that mental health issues among agricultural producers are universal, the inevitable consequence of an inherently stressful profession.

Results, Products, and Conclusions

This paper establishes how agricultural mental health issues are influenced by food systems and social structures between nation-states. Specifically, elevated levels of suicide, depression, anxiety, and substance abuse issues among agricultural producers can be linked to food-system dysfunction in countries with nation-level agricultural policy has undergone recent dramatic reform favoring agricultural corporations and the largest industrial farms, trade policy favoring market deregulation, an imbalance in market power between agricultural producers and agribusiness transnationals, and difficult and costly access to health care.

Recommendations, Educational Importance, Implications, and Application

This paper demonstrates the importance of viewing mental health issues among agricultural producers in the context of national food systems and social structure frameworks. It establishes that confronting agricultural mental health issues requires the transformation of social
structures based on the principles of social, economic, and environmental sustainability rather than efficiency and short-term productivity. Re-imagining such frameworks will require farmers, policymakers, academics, scholars, and the public to consider a wide range of reforms and alternatives. These include a greater emphasis on sustainable and low-input agriculture, local food, organic production, and food sovereignty as well as radical transformations to the healthcare infrastructure such as alternative systems of farm ownership, provider development, paraprofessional networks, and public awareness campaigns. We offer examples of initiatives seeking to realize this future, including the development of a national food strategy (Australia, the UK), nation-wide consumer education (Japan), and Climate Smart Agriculture (Sweden).

References


Implications of Food Insecurity, Agricultural Involvement and Extension Education on Women’s Reproductive Health in Developing Countries

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Implications of Food Insecurity, Agricultural Involvement and Extension Education on Women’s Reproductive Health in Developing Countries

Introduction and Theoretical Framework

Women are more apt to experience less food accessibility than their male counterparts, however, this marginalized population comprises about 43 percent of the agricultural labor force in impoverished nations (FAO, 2011) working to combat food insecurity which devastates 26.4 percent of the globe (FAO, 2017). The Millennium Development Goals sought to reconcile these discrepancies by addressing four female health factors; contraceptive prevalence rate, adolescent birth rate, antenatal care coverage and unmet family planning needs (Oluseyi, 2011).

Reproductive wellness disparities still exist in food-scarce areas as current findings reveal poor adoption rates of contraceptive methods in unstable environments (Feyisso, 2015) and that 45 percent of child deaths are a result of maternal diet deficiencies (FAO 2019). The United Nations Population Fund aims to end maternal deaths, unmet family planning needs and gender-based violence and discrimination (2020). Respective to integrating women’s agricultural participation and reproductive wellness, extension education has the potential to influence positive change in developing locations (Ivers & Cullen, 2011).

Social Cognitive Theory (SCT) proposes that human development and conduct is the result of cognitive, biological, behavioral and environmental processes interacting to cause a given response or action (Bandura, 1999). Bandura presents three types of environmental designs as imposed, selected and constructed, each of which differ in the degree they are influenced by and contribute to human decisions (1999).

Purpose and Objectives

The purpose of this research was to use SCT (Bandura, 1999) as the theoretical base to determine the impact of agricultural dependency and environmental constraints caused by food insecurity on women’s reproductive health and the potential of extension education to influence positive behavioral and social change in developing countries.

Methods

The intent of conducting a content analysis (Krippendorff, 1989) was to understand the associations between food insecurity, women’s reproductive health and agricultural education found in previous research, with the ultimate goal of discovering areas demanding further research and practical application (Fraenkel et al., 2019). Researchers are able to interpret data while considering the symbolic significance to a certain group and versatile application across various subjects to confirm validity (Krippendorff, 1989).

To gain perspective on women’s reproductive health in light of food insecurity within the global arena, information was gathered by exploring the strategic plans of international development agencies like the Food and Agriculture Organization, World Bank and the United Nations Population Fund. Having obtained a broad view of the research topic, key search terms or phrases noted as “food insecurity,” “women’s reproductive health,” “agricultural education” and “developing countries” were used to locate articles through general library databases and specific journals. Various themes emerged from the analysis, three primary categories were
defined as the social and biological benefits of women’s active participation in agriculture to obtain food security, the adverse implications of agricultural involvement as a result of food insecurity on women’s reproductive health and the potential of education and extension to influence change within the aforementioned conditions.

**Results**

*Food insecurity*

Environmental factors that may prevent women from obtaining food security include minimal credit, unemployment and inaccessible resources due to social hierarchies (Holmboe-Ottesen et al., 1989). Inadequate food access, as well as extraneous variables such as proximity to lavatories and health clinics, impose an increased risk to women resulting in nutrient deficiencies, gestational complications (Ivers & Cullen, 2011), psychological stress (Laraia et al., 2006) and sexual abuse (Gonsalves et al., 2015). A food-insecure environment encourages women to engage in promiscuous activity as a means to exchange goods and services or obtain monetary relief (Loevinsohn & Gillespie, 2003).

*Agricultural Involvement*

The cycle of poverty typically confines families to subsistence farming, thus exposing women to strenuous labor and harmful agrochemicals, often the result of poor literacy and limited agricultural extension targeting females (Chiong-Javier, 2009). In areas with a high prevalence of sexually transmitted diseases, smallholder farmers need access to farming innovations and training to ease labor demands, as human work capacity is weakened due to illness (Swaans et al., 2006). Honduran women who participated in local farming efforts reported that extension outreach fell short due to a domineering male presence, lack of structure within meetings and decreased trust as a result of poor follow-up visits (Colverson, 1995).

*Extension Education*

When compared to urban environments, women living in rural areas with low education and income attainment were more likely to improve self-efficacy through expansion of women’s rights, particularly inclusive of accessing methods of modern or traditional contraceptive (Yuan et al., 2019). Findings in Africa show that literate women are about 30 percent more likely to practice their right to refuse consent to sexual relations, with education also contributing to later marriages and fewer children (EFA, 2014). Within HIV/AIDS prevention strategies, a deficit remains in educating at-risk women and establishing male inclusivity within programs, as men play a prominent role in women’s reproductive health outcomes (Heise & Elias, 1995). Research conducted in Guatemala revealed that when each spouse had obtained some level of education and/or the woman worked to help provide income, then both were more apt to engage in family decision making together (Becker et al., 2006).

*Recommendations*

Marginalized women are provided narrow, short-term solutions to family planning and care as opposed to comprehensive reproductive health education (Yuan et al., 2019). A need remains to understand the long-term implications of reproductive health education on increasing food security (Ivers & Cullen, 2011). This would require multidisciplinary collaboration and a quasi-experimental design (Fraenkel et al., 2019) in which women living in poor, rural areas
participate in an educational program that covers a range of topics from feminine hygiene to leadership skills.

Extension agents of all genders should be properly trained to navigate various cultural nuances, primarily gender roles and disparities, to ensure equal representation of agricultural participants (Colverson, 1995). Change agents have the unique position to establish trust based on agricultural expertise which lends the opportunity to engage in more diverse discussion. Extension systems should prioritize advancing women’s societal reputation of economic contribution and decision-making authority by connecting them to available jobs within local value chains (Holmboe-Ottesen et al., 1989).

References


PICTURING PERCEPTIONS: A PHOTO ELICITION OF INTERNATIONAL AGRICULTURAL DEVELOPMENT IMPLEMENTORS

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International development took on a new form when President Kennedy created the United States Agency for International Development (USAID) in 1961 (USAID, 2019). Focus shifted from economic based development to more “basic human needs” in the 1970s (USAID, 2019). With this shift, agriculturally based programs took on a larger role in USAID’s programming. The addition of other entities such as non-governmental organizations (NGOs) and private businesses into international development caused communication to become vital for progress. Development communication became a process that is the foundation for many forms of communication today, even in agricultural programming (Servaes, 2007). To develop programs with measurable success, USAID uses the Logical Framework Approach (LFA) (Baccarini, 1999; Khang & Moe, 2008). Considering communication is one of the most important, yet least studied variables of success; it is still not a variable included in the LFA (Diallo & Thuillier, 2004; McCullough & Matson, 2016).

Among the various modes of communication, digital storytelling and mobile phones have increased in use in development communications (Servaes & Lie, 2015). International agriculture lacks in communication research, even further, visual communication is rarely discussed. Visual communication is needed to bridge the gap between local communities and implementing programmers (Briere et al., 2015). This study was the second phase of a two-phase study completed to explore the communication patterns between stakeholders in development.

**Purpose and Research Questions**

The purpose of this study was to explain practitioner’s perceptions of images used to represent international agricultural development, identify desired traits in photographs used to
represent programs, and address potential knowledge gaps between practitioners and stakeholders that impact communication in international agricultural development projects and success.

This research was guided by two research questions. Questions asked were: What are program implementors’ perceptions of the visual representation of international agricultural development programs hosted in Bangladesh, Nepal, Egypt, and Lebanon? and What collective themes exist among perceptions of the visual representation of international agricultural development programs?

Methods

Researchers completed this study using qualitative, photo elicitation interviews. Photo elicitation requires insertion of photographs into research interview protocols (Harper, 2002). Images used in this study were externally sourced from USAID’s Flickr account in the initial phase of the overall study. Researchers purposively sampled individuals who were program directors, agricultural development practitioners, and program implementors. These included both staff members and volunteers associated with Farmer-to-Farmer programs in Bangladesh, Nepal, Egypt and Lebanon. Twenty-one participants were interviewed. Interviews were conducted face-to-face using semi-structured protocol with images shown in the same sequential order to each participant.

Data was transcribed and each individual thought was recorded as a statement. Coding was completed using the elemental coding method (Saldaña, 2016). Statements were then sorted using the constant comparative method (Meriam & Tisdell, 2016). Axial coding was conducting to complete the analysis and identify themes (Saldaña, 2016). A total of 1,478 codes were found
from 21 interviews. Themes were analyzed by country to identify perceptions of participants in each county in the selected region.

**Results and Conclusions**

After individual themes were identified, researchers examined all themes to categorize the collective thoughts held by participants. From this analysis, four major elements were identified. These elements were deemed important to have in international agricultural development images among all countries.

Element one was labeled as contextual. This centers around the idea of environment, specifically farm landscapes, message clarity, and the importance of details. Participants deemed contextual information must be present in an impactful image. This information was referred to most often when participants expressed a desire to see a farming landscape stereotypical for one’s idea of agriculture.

Element two was identified as compositional. This element provided support for the contextual element by emphasizing the need for environment and details to provide structure and organization to the images. Without proper training in photography, participants still identified important elements of photo creation such as simplicity, depth of field and rule-of-thirds used by professionals. Participants expressed a desire to change some images viewed to create a better style or improve the overall quality of the image.

Element three was identified as humanizing. This was found in statements desiring visible faces, diversity in people, gender and age, and want for real emotion. Participants sought photos containing human subject over images featuring products. These desires also linked to conversations held about the importance of seeing female farmers represented. Emotion was also
highlighted as a vital part of an impactful image for participants. They wanted to see a visible
face, but also real emotion that provides connection for the viewer.

Element four was identified as engaging. Spoken more about images with human
subjects, participants discussed desires for physical motion to provide more information to
viewers. Engagement was also identified by participants as scenes of education and discussion or
cultural exchanges. Action was key to participants because of its ability to represent the reality of
the work being done in the programs.

The collection of these perceptions, both by country and holistically, provide support for
the need for specific content to be found in images to consider them impactful representations of
international agricultural development. Abilities to express desired images and identify elements
of composition indicate a level of visual literacy held by participants. Together, these statements
provide a deeper understanding of both unique perceptions and common desires sought by
development practitioners.

**Recommendations**

For further research and exploration into the field of international agricultural
development communication, the use of mental models should inform questions to understand
why the expressed desires exist. Practitioners should be more vocal and express these desires and
concerns of representation to staff and communication decision makers. Direct communication
where possible can strengthen both the quality of images being taken and the accuracy of
representation in images selected for further communication. For teaching, visual literacy
theories and concepts should be addressed and practiced in the classroom through activities and
curriculum. Instructors can also introduce students to the field of international agricultural
development in various scenarios to provide opportunities to close gaps between future communicators and practitioners.

References


ASSESSMENT OF AGRICULTURAL INFORMATION-SEEKING BEHAVIOUR OF RICE FARMERS IN TARABA STATE, NIGERIA

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ASSESSMENT OF AGRICULTURAL INFORMATION-SEEKING BEHAVIOUR OF RICE FARMERS IN TARABA STATE, NIGERIA

Agricultural information has become an important production resource, and is capable of enhancing the productivity of farmers. Farmers differ in their information need, and provision of the information to meet these needs is necessary for communication to be successful. Where information is required, the farmers will need to search for information. The mechanisms through which farmers search for information may differ (Armstrong and Diepeveen, 2008), and is referred to as their information-seeking behavior (Ekoja, 2010). It will be necessary to determine the information-seeking behavior of farmers, as it is an indicator of farmers’ desire for information, and eases the delivery of information to such farmers. Considering the importance of rice to farmers and the economy of Nigeria (Luc et al., 2010), this study was carried out to assess the agricultural information-seeking behavior of rice farmers in Taraba State, Nigeria.

Purpose and Objectives

The broad objective of this study was to assess the agricultural information-seeking behavior of rice farmers in Taraba State, Nigeria. The specific objectives of the study were to:

i. describe the socio-economic characteristics of rice farmers in the study area;

ii. assess agricultural information-seeking behaviour of the rice farmers; and

iii. identify factors affecting agricultural information-seeking behaviour of the rice farmers.

Hypothesis

Ho: Rice farmers’ socio-economic characteristics have no significant effect on their information-seeking behaviour.
METHODS AND SOURCES OF DATA

This study was conducted in Taraba State, Nigeria. Taraba State lies between Latitude 6°36' and 9°36' North of the equator and longitude 9°10' and 11°50' (Taraba State, Agricultural and Rural Development programme (TADP), 2007). Agriculture is the major occupation of the State.

The population of the study comprised all rice farmers in Taraba State, Nigeria, of which 208 respondents were selected using multi-stage, purposive and simple random sampling techniques across three Local Government Areas. The Local Government Areas (Karim-lamido, Gassol and Wukari) were purposely selected at the first stage, due to high level of rice production in the areas. Two communities were then purposely selected from each of the Local Government Areas at the second stage of sampling. Simple random sampling was used at the third stage to select 1% of rice farmers who responded to a well-structured questionnaire that provided data for the analysis.

Primary data were used for the study, collected using a well-structured questionnaire, comprising three (3) sections with each section addressing a specific objective. The research instrument was confirmed to be valid by experts in the field of agricultural communication in Federal University of Agriculture, Makurdi. The data collected were tested and confirmed reliable using test-retest method, and were analyzed using descriptive and inferential statistics.

RESULTS AND CONCLUSION

Socio-economic Characteristics of Respondents

The mean age of the respondents was 41.60 years, indicating that the rice farmers in the study area were young and agile, and expected to actively seek information to boost their rice production. Majority (74.52%) of the respondents were married, implying that most of the
respondents were married, indicating availability of family labour. Ohumadu and Osahou (2014) also found married people to be more involved in rice production. Also, the mean household size was about 7 persons.

The average farming experience of the respondents was 11.68 years. This implies that majority of the farmers had reasonable experience in rice farming. This would influence their adoption of improved rice technologies, and encourage them to seek for agricultural information (Ahmed et al., 2016).

The mean income of the respondents was ₦283,387.3, implying that most of the farmers do not earn much and will require information to make their farming enterprise more profitable and increase their income. Also, the mean farm size of the respondents was 2.62 Hectares. The respondents therefore have fairly large farms, and agricultural information will be beneficial to them to efficiently use their large farms.

Agricultural Information-Seeking Behaviour of Rice Farmers

The study shows that asking friends, relations and neighbours (\(\bar{x} = 2.77\)); interaction during age grade meetings (\(\bar{x} = 2.51\) and farmers visits to extension agents (\(\bar{x} = 2.29\)) as the major information seeking behaviours. Most of the respondents therefore seek agricultural information through informal sources, a similar finding to that of Odiaka (2012) among farmers in Benue State, Nigeria.

Factors Affecting Agricultural Information-Seeking Behaviour of Respondents

Factor analysis was used to analyze factors affecting information-seeking behaviour of rice farmers in Taraba State. Two major categories of factors affected information-seeking behaviour of the respondents, namely: socio-economic and cultural factors, and infrastructural
factors. Socio-economic and cultural factors affecting information-seeking behaviour of the respondents were inaccessibility of information, ability to use modern communication devices, level of education, farming experience, income level, high call rates, affordability of mobile phone, contact with extension agents and religion.

Infrastructural factors affecting information-seeking behaviour were transportation cost, availability of mass media facilities and energy or electricity supply challenges. These findings have several implications. First and foremost, the income level may determine affordability by rice farmers of mobile phones and call rates. Secondly, farmers’ inaccessibility to information and lack of contact with extension agents may adversely affect how frequent farmers access agricultural information. Also, provision of the required infrastructure will enhance communication in the study area.

Test of Hypothesis

The effect of the socio-economic characteristics of respondents on their agricultural information-seeking behaviour was tested using the chi-square of logistic regression. Income had a negative coefficient (-3.865), significant (0.011) at 5% level of probability. This implies that increase in the respondents’ income has the probability to reduce the level of their information-seeking behaviour.

Household size had a negative coefficient (-2.043), significant (0.007) at 1% level of probability, suggesting that increase in household size reduces the probability of the respondents to seek for information. Large household size could mean that the respondents can access information from members of their household, reducing their search for agricultural information.
Farm size had a positive coefficient (0.589) and was significant (0.000) at 1% level of probability, implying that the larger the farm size, the more farmers may likely seek information from diverse sources in order to boost rice production. This result is in line with that of Owolade and Kayode (2012), who reported that farmers with larger farms may seek and utilize more information than small-scale farmers in order to maximize profit.

From the result, Nagelkerke R² is 0.1831, implying that the factors in the model accounted for 18% of the variations in the probability in rice farmers’ agricultural information-seeking behaviour. The chi-square statistics (41.15) is significant (0.000) at 1% level of probability, indicating that the variables tested significantly affect agricultural information-seeking behaviour of the respondents. Therefore, the null hypothesis of the study was rejected.

**RECOMMENDATIONS**

Based on the findings of the research, the following recommendations were made:

i. Forum for the farmers to meet regularly should be facilitated, since most of them seek information from informal sources.

ii. Infrastructure such as electricity supply, mass media facilities and transportation that will encourage the flow of information to the respondents should be provided by the NGOs and government at all levels, since they affect the information-seeking behaviour of the respondents.
REFERENCES


A Model to Support African Youth

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A Model to Support African Youth

Equipping students with skill sets to increase their competitiveness in the job market, or prepare them for higher education pursuits represents the primary educational goal for African youth. Different barriers hinder students’ abilities to find a job post-graduation, or continue on to study at the university level. The youth unemployment rate grows steadily in Africa, according to the international labor organization (ILO, 2020). The percentage of youth who are not involved in employment, education, or training has reached 20.7% and is expected to grow to 20.8% in 2021 (ILO, 2020). These statistics conclude that in 2019, one in five African youth was not employed, in higher education, or in post-secondary education training (ILO, 2020). In Africa, 12 million youth enter the workforce every year, however only 3.1 million jobs are available for these youth (AFDB, 2016). The majority of youth, instead, become workers within the informal job sector, leading to a lack of understanding of the labor market for policymakers and negatively influencing the future of youth employment (Fox et. al., 2016). The barriers for youth’s educational success can be grouped in three sectors: economic, political, and social (Haider, 2017).

Purpose and Objectives

In Africa, the youth population, 15 to 24 years old, is expected to reach 331.4 million by 2030. This figure, making up 19.7% of Africa’s inhabitants, is why it is known as the “youthful continent” (UN Economic commission for Africa, 2017). The barriers and opportunities African youth face will shape the entire continent’s development (UN Economic commission for Africa, 2017). Addressing the economic, political, and social challenges is not a new concept in Africa. Small-scale programs, focused on youth employment and training opportunities, have been previously introduced throughout the African continent. However, majority of these programs focus on formal wage employment–not the informal sector where most Africans receive employment opportunity (Fox et. al., 2016). Lacking focus on informal sector jobs, youth search for innovative ways to earn a living through pursuing agricultural and household enterprises (Fox et. al., 2016). Due to Africa’s abundant resource of fertile and arable land, Africa’s youth possess potential to enhance development and create profitable employment opportunities (Fabian et. al., 2018). Although agriculture is considered the largest economic trade in Africa, and employer, youth need high-quality education to build relevant skill sets (Fabian, et. al 2018; Fox et. al., 2016). Agricultural education programs fill this gap, as they provide opportunities to address the skills restraint youth encounter (UN Economic commission for Africa, 2017). The purpose of this study is to analyze a model to address educational needs for African youth.

Theoretical Framework
Strategies employed in agricultural education provide students with opportunities to engage in hands-on and mind-on learning (Croom, 2008; Young, 2002). School-based agricultural education (SBAE) is based on the framework of providing learning experiences for youth in an agricultural pathway, as well as learning in the classroom (Croom, 2008). Hands-on learning provides a bridge for the gap between learning in academia to the job market, while minds-on learning reflects on the experiences in order to conceptualize the learning outcomes (Young, 2002). Kolb’s theory of experiential learning cycle ties together how SBAE is used to decrease economic, political, and social barriers (Kolb, 1981). In SBAE, students initially employ active experimentation and concrete experience. Then, students reflect on their experiences and conceptualize them with their agricultural educators.

Conclusions
To address the economic, political, and social barriers African youth face, SBAE provides a four-component model to encourage youth towards a successful career in agriculture after primary school (Elliot & Redwine, 2020). These components include: classroom instruction, school demonstration farm, home entrepreneurship projects, and leadership development. The four-component model transfers the Kolb cycle of experiential learning to agricultural education.

The economic barriers are addressed through classroom instruction and school demonstration farm. Agricultural pursuits, including on-farm and off-farm processing, are predicted to create approximately 41 million jobs over the next 10 years (AFDB, 2016). Within the classroom, youth participate in experiential learning to understand agricultural language. At the school demonstration farm, youth connect the science and put it to practice (Elliot & Redwine, 2020). Economically, this practice sets youth up for success by providing a relevant skill set for the increasing demand in agricultural jobs. The political barriers are addressed through leadership development. Youth will be equipped with life skills and confidence to be successful in civil society (Elliot & Redwine, 2020). A considerable first step in addressing the political barrier is motivating youth to seek out information (Faye, n.d.). Leadership development is designed for youth to participate in leadership activities that also serve as a source of individual motivation (Elliot & Redwine, 2020). Finally, the social barrier is addressed through the home entrepreneurship project. Youth receive instruction from the classroom and spread knowledge to others in their community, including their parents and other farmers (Elliot & Redwine, 2020).

Implications
An example of a successful implementation of agricultural education exists where an African country’s Youth in Agriculture and the Youth Professionals for Agricultural Development partnered with 4-H programs (Elliot & Redwine, 2020). The mission of 4-H in this
African country is to, “Promote youth empowerment through active engagement of the young people on topical issues that affect their development,” (Elliot & Redwine, 2020). The 4-H program in this African country focuses on youth to invest in education and training, building an educated and skilled workforce (Elliot & Redwine, 2020). Implementing SBAE provides youth with skills necessary to become early adopters of agricultural innovation. Communities are also positively impacted through an emerging middle class due to increased incomes and increased agricultural education for farmers and students (Elliot & Redwine, 2020).

Minds-on learning is used in classroom instruction and leadership development. Hands-on is utilized through the school demonstration farm, home entrepreneurship project, and leadership development. Combining Kolb’s learning cycle suggests the four components address the barriers through an effective learning environment (Kolb, 1981). By implementing the four-component model, youth are given a chance to learn in a hands-on and minds-on manner, creating opportunities for the future.
References


Effectiveness of Soil and Water Conservation Practices Disseminated by Extensionists to Curb Perennial Floods in Marakwet East, Kenya

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Effectiveness of Soil and Water Conservation Practices Disseminated By Extensionists to Curb Perennial Floods in Marakwet East, Kenya

Introduction/Literature Review

Flooding has been a perennial natural catastrophe that is associated with detrimental effects on social, economic, physical, psychological, and ecological health (Okaka & Odhiambo, 2019). Globally, flooding accounts for 43% of natural calamities affecting over 2.3 billion people (UNISDR, 2020). The severity of flooding in Kenya has recently escalated both in location and the rate of occurrence resulting in massive destructions. The rising incidences of floods are associated with both human activities including invasion of water catchment areas, poor riverbank management, unsuitable land use systems, and unplanned urbanization as well as climate change (MoENR, 2016). According to OCHA (2020) the floods had been reported in 36 out of 47 counties. The floods caused considerable damage to infrastructure, particularly on dams, schools, houses, roads, and bridges. Elgeyo Marakwet County has three distinct topographical zones: highlands, escarpment, and valley, with the highlands accounting for 49% percent of the total land area (CGoEM, 2013). The escarpment and valley are characterized by perennial floods mostly occurring between the months of April to August (CGoEM, 2018). There are numerous studies that document the positive and negative effects of floods (Otuya & Ochieng, 2018). However, a gap exists in relation to the effectiveness of flood mitigation measures put in place to curb the calamity. This study aims at contributing to addressing this gap by generating factual information that will not only help in boosting farmers’ resilience in dealing with the disaster but also in formulation of effective policies.

Purpose and Objectives
The research provides clarity on the soundness of soil and water conservation measures disseminated by extension agents to curb perennial floods in Elgeyo Marakwet. The objectives were to determine; 1) If there is a significant difference in adoption of flood management practices between farmers affected and not affected by flooding and 2) The likelihood of a combination of conservation structures, land use, and tree management practices to effectively curb perennial floods.

**Methods/Procedures**

The study involved 120 farmers from Marakwet East Sub-county where 69 were men (57.50%) and 51 were female (42.50%). The sample was selected through systematic random sampling. A descriptive correlation research design involving a peer and expert reviewed semi-structured questionnaire was used as a data collection tool. To ensure the research rigor, a pilot study was conducted involving eighteen male \((n = 18)\) and twelve female farmers \((n = 12)\). Cronbach’s alpha computations yielded an alpha value \((\alpha)\) of 0.70 for adoption of practices \((M = 2.79)\), 0.77 for floods management \((M = 2.77)\), and 0.77 for extension effectiveness \((M = 2.51)\) thus meeting the recommendation \((Nunnally, 1978)\). An independent samples \(t\)-test was used to see if there is a significant difference in adoption of flood management practices between farmers affected and not affected by the perennial flooding. Binary logistic regression analysis was conducted to examine the likelihood of a combination of soil and water management practices to effectively curb flooding. The predictors’ tolerance values ranged from 0.58 to 0.81, while VIFs were between 1.23 and 1.60 indicating that the assumption was met \((Menard, 1995; Myers, 1990)\).

**Results**
Water and soil management practices, including farming along contour lines \((M = 3.55, \ SD = 1.08)\), construction of diversions to intercept run off \((M = 3.42, \ SD = 1.02)\), grading of steep land with terraces \((M = 3.37, \ SD = 0.85)\), and control of soil erosion with stone gabions \((M = 3.30, \ SD = 1.03)\), were the main practices utilized by a majority of farmers to manage floods. However, the affected \((n = 58, \ M = 42.27, \ SD = 5.88)\) and non-affected farmers \((n = 60, \ M = 42.48, \ SD = 7.09)\) did not differ significantly based upon the adoption levels of the practices, \(t(116) = 0.17, \ p = 0.86\). Binary logistic regression test results indicated that a combination of the practices significantly predicted effective management of perennial floods. The logistic regression model was statistically significant, \(\chi^2 (3) = 10.09, \ p = 0.02\) with 61.3\% of the cases classified correctly. Nagelkerke \(R^2\) showed that the model accounted for 11\% of the variation in management of the floods. Tree management practices emerged as the only statistically significant predictor \((b = 0.17, \ p = 0.04)\). Tree management practices were 1.18 times more likely to manage floods. This implied that improved adoption of tree management practices would raise the likelihood of floods management.

**Conclusion and Implications**

The recurrent flash floods witnessed in Marakwet East sub-county in the recent past were irregular; the effects of the events were devastating. The floods resulted in loss of lives and property. The main cause of flash floods, according to the farmers, was terrain, although encroachment of forests, poor land use practices, and intense and prolonged rainfall patterns were also associated with the flood events (MoENR, 2016). The adoption of flood management control practices was moderate although uniform across the affected and non-affected respondent. Contour farming, construction of cut-off drains, and grading steep slopes was largely
practiced by most farmers. This calls for intensive and extensive farmer enlightenment on the importance of management practices to boost the adoption levels (Rogers, 2003). The main tools for communicating flood warnings and control information were television and radio, although the effectiveness of these channels was found to be moderate. This may result from the ineffectiveness on the part of the county agricultural officers. Therefore, close supervision of the officers by the county executive is desired to ensure a smooth flow of agricultural information to farmers. Tree management practices were found to be more effective in managing floods than the other two categories. On this basis, it is important for extension agents to double their efforts in campaigning for improved adoption of the tree management practices including agroforestry, afforestation, and reforestation. The county extension department is required to design and implement robust conservation programs that would raise the knowledge of farmers in the subject.
References


[https://pdfs.semanticscholar.org/f947/e82e2156d978f67aa3e505a4370673a8da92.pdf](https://pdfs.semanticscholar.org/f947/e82e2156d978f67aa3e505a4370673a8da92.pdf)
Unanticipated Unity within Incidents of Independence: A Photovoice of Ugandan Gender-based Agriculture Issues

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Unanticipated Unity within Incidents of Independence: A Photovoice of Ugandan Gender-based Agriculture Issues

Introduction

Productive and sustainable global agriculture is critical for a healthy, worldwide human population (Jones & Ejeta, 2016). As the population continues to climb, so does the demand in emerging economies, and the resource use in existing developed countries, placing greater demand on natural resources like land and clean water (Tramberend, 2019). Women in developing countries take on major contributing agricultural tasks in addition to continuing responsibilities as primary housekeepers and homemakers, working harder and for more hours than their male counterparts (Satyavathi et al., 2010).

Agriculture-producing women’s problems in developing countries intensify with multifaceted issues; women own less land than men, often do not retain control over monetary assets, have less access to resources, are often ignored in policy decision-making, and have a gender-based lack of research on these issues (Satyavathi et al., 2010; Doss et al., 2018; Nelson et al., 2012). Women agriculture producers in developing African countries such as Uganda face gender-based disadvantages on many facets of their life, including agriculture production and are often left out of development research and policy-making decisions in agriculture. Stakeholders need a deeper understanding of those disadvantages and facets to effectively make policy changes to eliminate these issues.

Purpose and Objectives

The purpose of this study is to explain gender-based issues disenfranchised Ugandan women agriculture producers. Women in developing countries, specifically Uganda, face challenges that will be better visualized, identified, explained, and analyzed by themselves. A photovoice study with Ugandan women agriculture producers as participants will produce images, make meaning of those images, and codify emerging themes, theories, or issues. The objectives of this study were to:

1. Define Ugandan gender-based agriculture issues from the perspective of female Ugandan agriculture producers.

2. Identify policy gaps that hinder the advancement of women smallholder farmers in Uganda.

Methods

This study was an innovative form of participatory action research known as photovoice (Wang & Burris, 1999). Subjects observe themselves, their environment, and their issues themselves, produced self-taken photographs that documented their lives, and the subjects were observed naturalistically through the photos they produced (Wang & Burris, 1999).

Ten women in the Lira district of Uganda, all smallholder farmers living in rural villages, were purposively selected for this study. Each participant was given a camera and had 10 days to capture photos. The photos showed their perspectives, issues, triumphs, and lives as women smallholder farmers. Lastly, the participants participated in focus groups discussing the photos, and the ideas discussed as well as the photos taken were analyzed via constant comparative method to develop themes and findings.
Results and Conclusions

Feminism in Ugandan agriculture, through this study, is represented through the emergent themes: agronomic knowledge and competencies and abstract social constructs, as well as sub-themes.

Through the supporting incidents generated from the participant’s explanation of their photos, agronomic knowledge and competencies is an evident theme, with sub-themes being varied agriculture practices physical fatigue, and technical challenges.

The prevalent emergent theme of abstract social constructs appeared in the findings, with sub-themes being patriarchal society, women assume the majority responsibility, physical and financial abuse, independence, lack of help, visualization and self-actualization, pride in self-identification. Participants discussed and detailed their duties, assigned to them by society due to their gender and societal role as women. These roles reveal a disparity between men’s and women’s, responsibilities to family and income generation, issues with physical and financial abuse, and independent work completed by women, and the resulting self-identity as women-farmers.

Women in this study view their role as agriculture producers holistically, and with majority responsibility, confirming the literature in Palacios-Lopez, et al. (2015). Women view their role as producers as providers for their children; they keep their families fed and produce income that contributes to their children’s education. Therefore, this is a resilient and resourceful population that would be receptive to aid in the form of education, resources, and extension.

Recommendations

Based on the conclusion evidence in this study, and cited lack of research, I propose more research efforts be made on understanding domestic and physical violence as a threat within cultures similar to Uganda.

A better understanding of the complexities within these cultures and violent gender issues must be made. To follow a better overall understanding, I recommend research on how to implement domestic violence prevention in societies and cultures within developing countries. Recommended sample questions to investigate include: How does a patriarchal society influence the presence of gender-based violence as a tool for control? What differences in culture influence women’s ability to escape gender-based or domestic violence? How can cultural differences be used as a tool for sparking change in patterns of violence-based gendered control?

Education is continuously evolving with the discovery of new research and implementation of new practices. Therefore, the need for improvements in international development education is evident. Firstly, I recommend trainings and/or modules for gender-based issues be created: how to recognize gender-based disparities; how to identify instances that host gender-based violence, and financial control; and how to prevent or eliminate unintentional support of domestic issues, and violence towards women. Secondly, I recommend the trainings and/or modules be checked with a pilot test to ensure validity. And lastly, I recommend these trainings be implemented in the curriculum educators in international development, extension practitioners and NGOs utilize.

With extension being targeted at men (Satyavathi et al., 2010), it is important that this change, and women receive adequate extension training to overcome these issues. I concluded that women would make excellent candidates for extension trainees. Therefore, extension training in germination aid, weather predictability and accommodation, pest and predator
prevention, and other practical skills would make a great impact on their individual productivity and collective abilities as women farmers.

References


Determining Higher Education Needs for Rural Development and Agrarian Reform in Eastern Cape South Africa

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Determining Higher Education Needs for Rural Development and Agrarian Reform in Eastern Cape South Africa

Introduction

According to the South Africa Eastern Cape Province, Department of Rural Development and Agrarian Reform (DRDAR), they do not have adequate numbers of suitably qualified personnel on several technical areas to effectively pursue its service delivery mandate. The skills that are scarce are in the fields of veterinary services, research, engineering, Extension, and training. Although certain fields like Extension services could be seen to be adequately staffed in terms of numbers, the qualifications and the skills possessed by personnel are in many instances basic and inadequate to meet the dynamic nature and the demands of agriculture. Institutional and human capacity within the Province has areas that could improve. Identifying those areas and establishing strategic initiatives for improvement is the overall purpose of a full-scale needs-assessment.

Purpose and Objectives

The purpose of this study was to conduct a higher education needs assessment related to Extension and Research Services for rural development and agrarian reform in the Eastern Cape region of South Africa. Specific objectives included determining strengths, weaknesses, opportunities, and threats related to curriculum in Agricultural and Extension Education, (b) Virtual Exchanges, and (c) Youth Development.

Methods

We conducted a comprehensive on-site needs assessment with an interdisciplinary team of specialists with the DRDAR in the Eastern Cape Province. We implemented a modified SWOT analysis with a focus on the strengths and opportunities for strategic improvements in high priority and achievable short- and long-term activities.

Respondents were purposively selected based upon characteristics/criteria established by the DRDAR key informants. Our team employed a combination of focus groups, participatory rural appraisal (PRA), observational field notes, and documents/photographs to collect data. We used this variety of qualitative methods to ensure truth value, applicability, consistency, and neutrality (Erlandson, Harris, Skipper & Allen, 1993). Our team worked with DRDAR in communities in the Eastern Cape for prolonged engagement and persistent observation. Member checking was conducted by asking for verification or clarification of the information. Triangulation with multiple sources and varying perspectives was used as a trustworthiness measure. Data was analyzed using the constant comparative method (Lincoln & Guba, 1985). Detailed field notes were used to determine trends in the data from the varying perspectives in the needs assessment reporting to stakeholders.

Results and Conclusions

We identified strengths and opportunities in three emergent categories: extension, virtual exchanges, and youth development.
Extension

An overview of the Extension Service human and institutional capacity provided statistics on the number and distribution of agents, staff, administrators, etc. The coordination of the Extension Service by the Director, Deputy Directors, Assistant Directors, Production Scientists, District Directors, Managers at the local level, Supervisors, and so on was very well explained. The distribution of Extension Service personnel by gender, 65% male and 35% female, was also shared. Our team appreciated the detailed explanation on the Categories of Producers. In addition, the Extension Service budget was included as part of the Extension Recovery Plan.

Virtual Exchanges

There is opportunity for collaboration among researchers/faculty from DRDAR, Fort Cox, Fort Hare, and TARDI for professional development and virtual course exchange. Based upon the National Development Plan (National Planning Commission, 2017), 17% of the population in South Africa has Internet access which is growing at 20% annually. However, South Africa has a high cost for broadband internet connectivity, stating that “ICT infrastructure is abysmal.” The ability to promote and develop online learning materials is limited by the ability to transmit this instruction.

Some content can be developed and shared using media that requires less bandwidth. Faculty/staff could be trained on effective uses of technology in teaching through the exchanges discussed previously. Content is widely available through the internet as video clips, RLOs (reusable learning objectives), case studies, and full curricula at no or little cost.

Youth Development

Eastern Cape leaders are knowledgeable about the realities of employment and challenges their programs face. There is substantial institutional commitment, in the form of infrastructure, resources, attitude toward innovation, self-awareness, and mostly, resilience that has positioned the DRDAR institutes well for emerging as leaders in agricultural production, research, development, and empowering the food basket of South Africa. Key observed strengths were in secondary school-based programs, higher-education diploma programs, unemployment remediation programs, learnerships, and producer capacity-building programs.

Recommendations

We recommend an Integrated Agricultural Service Delivery Framework for Extension and Research to mitigate silo effects and foster greater collaboration across programs. This recommendation requires systematic changes to lead toward an integrated model that will increase efficiency and reduce job redundancy. Further, we recommend a coalescing strategy around short- and long-term programmatic changes. A strategic plan and curriculum map should be developed to clearly articulate which entities are implementing topical content among target audiences.

We recommend reducing the number of topics of trainings, and the frequency of trainings, deploying a participant tracking and matriculation data management plan and utilizing non-
monetary incentives for participation in training programs, field days, and expos. To enhance programming, we recommend adding soft skill development courses, and conducting a formal study of job and future casting job demands. Extension effectiveness can improve if extension agents create formal community partner advisory councils, establish an alumni network, and establish formal mentorship programs. Educators should integrate with other disciplines and partner with professional associations. Vocational training enhancements should include an accelerator for entrepreneurs, and vocational-specific training for non-production agricultural positions.

To enhance the Eastern Cape Province and improve faculty skills and productivity, we recommend:

- conducting workshops on grant proposal writing, submission, and collaborative expectations
- creating a broad scale market analysis
- encouraging producer entrepreneurship
- enhancing greenhouse development
- producing a more sustainable supply of fresh vegetables and fruits
- empowering youth and women
- focusing on economic development in rural areas
- accessing resources online to enhance existing curricula
- imbedding media into teaching and training programs
- developing virtual exchanges between faculty, researchers, and students using low cost, low bandwidth connectivity (i.e. Zoom).

Implementation of these programs, along with continued evaluation and monitoring, will further grow and strengthen DRDAR programs in the region and improve community livelihoods.

References


Effective Water Governance: Lessons Learned from Rural Water Supply Systems in Tanzania

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Effective Water Governance: Lessons Learned from Rural Water Supply Systems in Tanzania

Introduction

Approximately 34% of the 53 million people who reside in Tanzania belong to the highest point of the poverty line (World Bank, 2019). Forty percent of Tanzanians do not have access to clean water or sanitation (Tanzania Water and Sanitation Network [TAWASANET], 2019). Information related to statistics on access, consumption, and water quality in rural communities in Tanzania can be easily accessed, however, information about water governance cannot. Stakeholders ignore the dominant role governance plays in managing community water systems (TAWASANET, 2019). Sustainable access to drinking water is essential for individuals and communities' health and economic growth opportunities. To achieve this, effective and inclusive water governance models must be promoted (United States Agency for International Development [USAID] (2019).

This study is part of the Governance Research on Water Systems program (GROWS) aimed at identifying and disseminating knowledge on innovative governance models and tools that will help improve the provision of water services in rural areas in sub-Saharan Africa (Uganda, Kenya, and Tanzania). This research focused on the discussion about the working conditions and opportunities for innovation in rural water system’s governance. According to Delpla et al. (2015) some structural and social inequalities seriously affect food-producing families, especially women-headed households (Truelove, 2011), or businesses, due to their limited participation in water systems' management and decision-making process. This research program aims to create educational tools and resources, which promote trustworthy, transparent, accountable, and equitable water governance models.

Purpose and Objectives

This study was aimed to investigate factors that improve governance of rural water supply systems in Tanzania. The objectives guiding this research study were:

1. Explore existing and potential governance challenges for rural water systems in Tanzania.
2. Identify governance models and tools that improve the provision of water services in rural areas in Tanzania.

Methodology

For this qualitative study, ten face-to-face interviews and nine focus group discussions (FGDs) were conducted with various stakeholder groups participating in community supplied water systems management. Participants were questioned about four main themes for this study: trust, accountability, transparency, and equity. A convenience sampling methodology was used to recruit the participants, which allowed for engagement of people with specific characteristics to participate (Etikan, 2016).
Interviews were conducted in English. FGDs were conducted in Kiswahili to facilitate comfort and conversation. The research team trained and supported a local enumerator team to lead the FGDS (Olsen, 2011). Credibility and dependability were achieved through triangulation and peer debriefing (Creswell, 2015).

Results

Key informants involved in rural water provision participated in the semi-structured interviews; while community water system users took part in the FGDs. The thematic analysis is presented in the four elements of water governance: trust, accountability, equity, and transparency.

Trust

Participants affirmed how inclusive decision-making increases residents' trust in the water system. The free and popular election of water board representatives increases the trust, especially among users of a water system under a community management scheme. One of the participants mentioned, “We choose as any other national elections because all water committees are governed by the law.” Participants also believed that the use of technology in the revenue collection had been key to strengthening users' trust; a participant shared, "I think technology is always better than a human being to collect the money."

Accountability

In water system operation, an element that weakens accountability is the lack of experience in the different management aspects required. Having adequate human capital facilitates the accountability process by directly targeting the person in charge of each operation. Additionally, participants mentioned how payment for water services has benefited the accountability of community water systems. First, it allows monitoring the proper use of the system and water resources among users. Second, it has facilitated the monitoring of expenses and financial resource investment within the system; allowing for transparency to all stakeholders.

Equity

Participants considered that equity should be explicitly integrated into all activities of the system, including decision-making on the economic resources available and water uses. Efforts must be made to satisfy all users' water needs in the same quantity and quality. However, some factors such as the household's distance from the system, the capacity of the installed infrastructure, and the availability of payment may exclude some community members. According to the participants in regard to equitable decision-making, women's participation goes beyond numbers. The water users' committees want to ensure that women have the same chance of being elected in any function, the same right to vote, and the same benefits and responsibilities when they belong to the water board.

Transparency

Participants mentioned how economic sanctions are a fair way to ensure the proper use of resources, seeking to promote transparency by verifying that everyone operates within the system's guidelines. Transparency is mandatory concerning how fees and costs per service will be decided within the system. Lastly, water systems in which technologies
have been part of the governance model have improved the system's efficiency and fulfillment of objectives, while the general perception of transparency have increased.

**Discussion and Recommendations**
In Tanzania, stakeholders believe that incorporating technology into water management has improved the trust and transparency of water systems operations. Development professionals must assess technology's feasibility to ensure equitable access and benefits among systems’ users.

Participants perceived that community representatives should be elected by popular vote, and all community members should have the opportunity to participate in the election process as voters or candidates for any of the positions on the water board. Elected representatives should give a voice and seek solutions to the community’s needs. Practitioners should promote engagement in the election process among community members to ensure equal participation while exploring improvement areas.

This research was carried out within the GROWS program. Identifying these governance elements was an essential step in finding solutions to water challenges and potentially replicating those strategies that have improved access in rural Kenyan communities. Future studies should explore other Kenyan water supply systems to investigate how geographic and cultural aspects potentially affect governance and identify different successful water governance experiences.

**References**

https://doi.org/10.11648/j.ajtas.20160501.11


https://doi.org/10.1016/j.envpol.2015.08.046


Truelove, Y. (2011). (Re-)Conceptualizing water inequality in Delhi, India through a feminist political ecology framework. *Geoforum*, 42(2), 143-152.
https://doi.org/10.1016/j.geoforum.2011.01.004


The Global Classroom Model: Integrating Research, Teaching and Extension in Agriculture A Case Study in Liberia & the United States

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The Global Classroom Model: Integrating Research, Teaching and Extension in Agriculture A Case Study in Liberia & the United States

Introduction
A popular addition to college curriculums in the United States and beyond, Global Service Learning (GSL) is an in-demand, hands-on learning experience for undergraduate students to prepare for the global workplace. The GSL pedagogy is designed to “develop global awareness, intercultural competence, and critical thinking among students and communities” through “hands-on work which is academically rigorous, collaborative, challenging, valuable, and transformative” (Oberhauser & Daniels, 2017; Gonzalez, 2009).

Situated within this framework is the more recent iteration, the Global Classroom Model (GCM), which offers experiential learning opportunities to students in a project-based, cross-cultural, and virtual course conducted in partnership with an institution of higher education abroad. Students co-learn and co-work together using web-based technology towards a set of actionable goals.

Within a College or Department of Agriculture, the GCM has the potential to improve linkages between extension, research and academics through active and transformative engagement. This study posits that by creating a space that brings together students, faculty, and extension specialists from partner institutions to work on real-world, critical challenges in global agriculture, we improve these linkages and overall institutional capacity.

We examine and evaluate a Global Classroom undergraduate course co-taught in spring 2019 and spring 2020 at the University of Maryland (UMD) and the Liberia International Christian College (LICC). The course, Global Agriculture, is the first Global Classroom taught at both institutions’ respective College/Department of Agriculture. We plan to continue collecting data in 2021, and will therefore have sets from pre-COVID-19, during COVID-19, and whatever the next year has in store.

Purpose and Objectives
The objective of this research is to evaluate the efficacy of the GCM towards improving institutional capacity at Colleges of Agriculture and to establish best practices to ensure program sustainability. This study proposes that the relative relationship between the extension and/or outreach, research, and teaching units is both predicated on and an indicator of the relative institutional capacity at that College to deliver successfully across all three. Colleges of Agriculture have long sought to improve integration, however, there is a gap in the literature demonstrating how this integration leads to improved capacity in the short- and long-term.

Methods & Conceptual Framework
The process of evaluating “capacity-building” involves investigating human characteristics and perceptions, which can be intangible and difficult to access or measure. This research uses grounded theory methods that offer “systematic, yet flexible guidelines for collecting and analyzing qualitative data to construct theories ‘grounded’ in the data themselves” (Charmaz, 2006). We first identified four groups of participants: 1) UMD students (n=15), 2) LICC Students (n=12), 3) LICC Stakeholders (n=10), and 4) UMD Stakeholders (n=15), and then developed two mix-method questionnaires.
The instrument for the student groups uses a KASA analysis to address changes in attitudes, aspirations, and perceptions, examining the GCM as an innovation in education (Drechsel et al., 2001). The questionnaire instrument also draws from other assessment tools, including empowerment evaluation (Fetterman et al., 2015), the Transformational Relationship Evaluation Scale (Clayton et al., 2010), and surveys on best GSL practices (Gonzalez, 2009).

The questionnaire for the stakeholder groups is a set of open-ended questions intended to stimulate conversation and discovery around the GCM. These stakeholders include faculty guest lecturers, university leaders and administrators, and extension agents involved in the course.

All data were collected by the two researchers, recorded, transcribed, and are being analyzed using multiple qualitative coding cycles within nVivo qualitative data analysis computer software. Data are reviewed, coded and then compared to identify patterns; subsequent coding cycles aggregate findings into larger themes that connect to the three main research domains: 1) GCM benefits, 2) GCM challenges, and 3) linkages between extension, research, and teaching. Our analysis examines these data through adaptive frameworks in order to contextualize GCM within critical development studies and to ensure that we are operating within an ethical and reciprocal global partnership (Mohanty, 2003; Hartman, 2016).

Preliminary Analysis & Discussion
Early evidence strongly indicates that the GCM can improve long-term institutional capacity by promoting inter- and intra-institutional networks between students, faculty and extension agents that generate multiple pathways for collaboration. The course provides professional development opportunities for stakeholders, creating human capital for future programming and further globalizing our respective Colleges of Agriculture.

The research points to direct benefits for students, who during the interviews emphasized the unique value of the GCM within their academic experiences. Both student groups identified communication (e.g. language barriers) as a potential or actual challenge, but also emphasized that their interactions as students and exposure to new perspectives was the highlight of the course. Liberian students tended to experience cross-cultural communication and engagement as a form of problem-solving larger community challenges, while the U.S. students connected this experience to self-discovery and better understanding of the world of global agriculture and development. Professional, the course directly supports LICC students’ efforts to engage in extension, and at UMD it introduced a largely unknown career path to students, generating interest in agricultural extension and international development.

Further investigation is needed to identify additional pathways to connect students, extension agents and their beneficiaries to research and scholarship taking place within these institutions.

Recommendations, educational importance, implications, and/or application
The objective of institutional capacity-building is to “enable universities to become stronger drivers of the development of their societies through better management, better infrastructure and better support functions, resulting in a higher quality of research, education and outreach” (UCPH 2019).

This research can have a strong educational impact at UMD and LICC, and beyond. The course
was designed to be adaptive to other contexts; in the long-term, additional UMD Agriculture faculty members can offer Global Classrooms in new settings. For LICC, this course sets a precedent for other departments, opening up the school to a network of instructors, researchers, and resources beyond those available in Liberia, making the school more appealing to potential students and more successful at meeting its objectives. Particularly in a Covid-19 world, the GCM offers a meaningful, alternative form of global engagement as traditional opportunities for travel (e.g. study abroad) remain unavailable.

References


in Psychology (pp. 176-192). Sage Publications.

Gonzalez, D. 2009. A Survey of Best Practice of Global Service-Learning Programs in UGA. The Office of Service-Learning, with The Office of International Public Service and Outreach, University of Georgia.


Virtual Pivot in the Time of COVID-19: An Innovative Approach to International Agriculture Educators Training

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Virtual Pivot in the Time of COVID-19: An Innovative Approach to International Agriculture Educators Training

Secondary-school agriculture educators in developing nations often face barriers related to lack of access to curriculum and professional development (Cannon, 2019). Specifically in sub-Saharan Africa, secondary educators may have an absence of professional development and lack quality teaching methods (Spindler & Ogwo, 2014). Partnering with organizations including international non-governmental organizations (NGOs) may lead to enhanced agriculture education systems and units in Africa (Lynum & Mukhwana, 2020). Though programming by international NGOs has been greatly affected by the COVID-19 global pandemic, these entities must retain active collaboration and participation in areas affected by COVID-19 (Mor, 2020).

Field of Hope is a US-based NGO that operates successfully in Uganda by working with secondary teachers (Cannon, 2019) and smallholder farmers (Major, 2018), and follows recommendations to partner with communities for enhanced education and (Spence, 2020). A central component of Field of Hope’s work includes designing a curriculum for agriculture teachers at Ugandan secondary schools (Thurmond, Denney, & Kueker, 2018). In a typical year, Field of Hope hosts two “Teacher Trainings” in Kampala, Uganda to provide support and additional education to secondary agriculture educators in Uganda. With the inability to perform this task in-person due to COVID-19, Field of Hope adapted to create a Virtual Teacher Training [VTT] using video, Google Classroom, Google Forms, and Zoom.

Purpose and Objectives

The purpose of the VTT was to provide Ugandan agriculture teachers with training on educational techniques, using curriculum, and teaching methods through virtual delivery. Our objectives were to:

1. Provide an engaging and educational training that supports the curriculum, developed through problem-based learning and experiential design, to agriculture educators in Uganda.

2. Provide opportunities for networking, discussion, reflection, and collaboration among secondary teachers.

Products

[Organization] designed and delivered five learning modules for the VTT. Each module contained between two and four 10-minute micro-lessons, one reflection assignment per lesson, and one assessment per module. The modules focused on varied themes that supported the [Organization’s] established agriculture education curriculum and teacher’s guides to properly utilizing the curriculum.

Module 1 focused on foundational curriculum elements. Lessons included curriculum goals, development process, guiding competencies and how to use the curriculum layout and design.

Module 2 covered the importance of global agriculture. Lessons began by focusing locally and on the importance of Ugandan agriculture. Then we offered information on career
possibilities for students in Uganda and globally—providing a worldly perspective and unifying agriculture. A final lesson focused on the importance of the agriculture educator.

Module 3 expanded on experiential learning. Lessons covered “interest approaches,” different modalities, and guiding reflection in the classroom.

Module 4 covered classroom management, with lessons on setting expectations, giving clear and concise directions, managing behaviors, and teaching note taking and study skills.

Module 5 focused on individual teacher strengths. Lesson 1 described qualities of effective teachers, lesson 2 explored strengths-based teaching, and lesson 3 described levels of leadership.

The VTT incorporated self-paced modules to compensate for the often-unreliable internet connectivity in northern Uganda. Asynchronous modules were delivered through Google Classroom. Each lesson featured 10-minute videos with accompanying visuals and activities. After each lesson, teachers were provided reflection questions via group discussion boards and knowledge checks that allowed the teachers and [Organization] to assess knowledge gained. Lastly, the VTT design enabled engagement, contribution and sharing of best practices through one-hour live Zoom sessions. Weekly zoom sessions allowed real-time review of content. Trainers from [Organization] used breakout rooms to facilitate discussion and practice-sharing related to the module topic.

Results and Conclusions

A total of 141 teachers registered to participate in the VTT. Most of the registered teachers (63.1%) hold a bachelor’s degree in agriculture education and only 34 (24.1%) of the registered have not attended [Organization] training before. Six registrants who were not teachers were excluded from the program.

Of registered teachers, 131 (92.9%) participated in the VTT. The average attendance of synchronous sessions was 34. During synchronous sessions, teachers shared how they use the tools and techniques from the training. One participant stated, “[Organization] empowered me with multiple trainings on agriculture and bettering my application in class and field, as well.” Another stated, “I am confident that it's going to help us teachers on how best we can deliver and make agriculture a 21st century hope for the future.”

Since the end of synchronous sessions of the VTT of the training, 51.1% (66 teachers) of the teachers in the google classroom have completed all modules. Whereas 11 teachers (8.4%) have completed four of five modules.

Most teachers (114 or 87.0%) have attempted at least one module while 21 teachers (16.0%) have not attempted any modules completely. Non-completers cited loss of their phones due to theft or damage or poor network as reasons for non-completion.

The remaining teachers are actively continuing to complete modules. Projections show the completion rate is likely to be above 80% by November 2020.

Recommendations and Educational Importance

Based on the difference in synchronous and asynchronous participation, we recommend virtual training with educators in developing nations be designed to accommodate limitations of network and data usage. Create short units, incorporate multimedia elements, but design them to require low bandwidth. Engage organizations to provide resources to supplement data usage for
teachers. We also maintain that the synchronous portions increased engagement and provided needed community among participating teachers. Practitioners should view digital collaboration as essential in international settings.

Future researchers should investigate the potential for behavior change resulting from this innovative educational practice. Quasi-experimental studies could compare potential impacts of the VTT to impacts observed from traditional in-person training to determine efficacy and effectiveness.

By continuing to engage with teachers despite shutdowns, Field of Hope showed lasting commitment to further enhancing agricultural education practices and youth development in Uganda. The educational importance of engaging underserved populations despite significant challenge is evidenced by the large demand and participation. Uganda teachers showed strong desire for partnerships and professional development, especially amid COVID-19 shutdowns. Institutions of higher education, NGOs, and other practitioners in international agricultural and extension education should replicate these efforts and launch digital training in developing nations to create thriving global agricultural education communities.

References


The Use of WhatsApp in Facilitating Social Learning Among Agricultural Communities of Practice in Trinidad & Tobago

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The Use of WhatsApp in Facilitating Social Learning Among Agricultural Communities of Practice in Trinidad & Tobago

Introduction and Theoretical framework

Digital tools and platforms, such as the internet, mobile phones and social media, are enabling the digitalization and digital transformations of agri-food systems globally (FAO, 2020). Digital engagement platforms improve access to information, services, boosts connectivity and efficiency. Interactions enable information exchange among farmers and extension agents, contributing to global food security (Trendov et al., 2019). Social media tools encourage relationship building, information sharing and networking. It facilitates group formation and connectivity among communities with shared learning interests (Joshi et al., 2019).

Social media tools, such as WhatsApp encompass immense possibilities for enhancing social learning and networking among farmers and extension professionals. Thakur et al. (2018) found that increased farmer participation enabled social empowerment, networking, the formation of social capital and social learning. WhatsApp online interactions and discussions provided opportunities for building farmer extension interface. In Trinidad and Tobago WhatsApp has been identified as a widely used tool among agricultural stakeholders (Author, 2020). A recent study indicated that although farmers’ household used social media for other purposes, the use for agriculture was low (Moonsammy & Moonsammy, 2020). This raises questions of whether social media use can enhance social interactions and learning on agricultural topics. There is only anecdotal evidence on whether and how social media tools, such as WhatsApp enable interaction and social learning among agricultural Communities of Practice (CoPs) in Trinidad and Tobago.
Bandura’s Social Learning theory serves as the framework for this study to investigate how WhatsApp facilitates social learning. This theoretical perspective suggests that learning is a cognitive process that occurs within a social context (Bandura, 1977). Social learning occurs in an interactive environment of knowledge exchange among stakeholders and transforms social interactions, enhances cognitive processes and improves learning in the social context (Deaton, 2015).

Social learning is also an integral part of the concept of Communities of Practice, as proposed by Wenger et al. (2011). They defined CoPs as “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.” (Wenger & Wenger-Trayner, 2015, p.1). According to Shaheen (2017), CoPs theory presents a structure that describes interactions, sharing and development of social learning.

**Purpose and objectives**

This study investigated use of WhatsApp in facilitating social learning among agricultural CoPs. Specifically, the study aimed at:

(i) Identifying the main reasons CoPs are using WhatsApp.

(ii) Identifying thematic areas of interaction for sharing and learning according to CoP constructs.

(iii) Understanding CoPs members self-efficacy in using WhatsApp.

**Methodology**

The study was conducted in Trinidad and Tobago during May to September 2020 among seven purposively selected agricultural WhatsApp groups to which the researcher belonged. The survey questionnaire, administered online, was designed following the constructs of social learning (self-efficacy and social interactions) and CoP theories (community, domain and
practice) to capture information on respondents’ perceptions of WhatsApp regarding social
learning within the context of a social environment i.e. the (CoPs). Data were analysed using
WhatsApp chat analyser, an analytics software tool for content and descriptive statistical analysis
(Ravishankara et al., 2020).

Results and conclusions

The seven chat groups analysed comprised 404 members: 47% females with 71%
having tertiary level education. Chat administrators comprised farmers’ association members,
extension agencies and research and educational institutions. The majority of the members (63%
belonged to farmers associations. Size of chat groups ranged from 24 to 198 members with
most groups created within the last three years. For sharing, text messages were most popular,
followed by photos, videos, links and documents, respectively.

The results found that 91% of respondents indicated their main reason for using
WhatsApp was to ask questions and find answers to problems. A large percentage of the
members (92%) reported using the information and advice they received for problem solving.
Participants were also using the platform for sharing information and advising.

The CoPs with shared key learning needs within the Domain construct of the CoP
framework were research and educational institutions, public and private extension services,
non-profit agencies, farmers advocacy associations, rural development, forestry and fisheries.
The Community construct of the CoPs, identified as the areas of shared interest among groups,
were conservation, animal welfare, sustainable production, beekeeping, aquaculture, hydroponics
and climate-smart technologies. The Practice construct of CoP, which captures the most
engaging interactions, was in the areas of crop protection, livestock management, disaster
mitigation, food safety and security and technology and innovation in agriculture.
In relation to self-efficacy, CoP members reported that WhatsApp platform was useful and easy to connect with farmers and experts. The majority (85%) perceived that information was shared on a timely basis by farmers and experts, and 15% found that it was never on time. Interestingly, a small percentage (11%) of the members was not utilizing the platform for sharing news, alerts or community events. The majority of respondents (87%) agreed that the information presented was reliable, easy to understand and relevant in changing the way individuals conducted practices.

**Recommendations and Implications**

This study highlighted the importance of developing strategies that contribute to social learning. It is evident that WhatsApp engaged CoP members in social learning partnerships as members indicated they learned from and with each other about particular domains, using each other’s experiences. The timeliness of response by experts could be improved by employing goal setting techniques to change behaviour. Outlining goals and objectives develops capacities to bridge the gap between interactions and activeness for the incorporation of social media (Raj & Bhattacharjee, 2017). Increased professional interactions and responsiveness could improve information delivery and enhance user’s confidence to perform tasks, thereby improving self-efficacy. This has implications for enhancing social learning as expert persuasions are effective in motivating behavioural changes (Bandura, 1994). Extension professional’s readiness to accept and use social media may contribute significantly to issues like these (Author, 2015). As such, administrators and curators must identify collaborative pedagogical approaches to present information in an energized state to generate arousal of users’ skills, talents and motivation to facilitate social learning.
References


http://www.uky.edu/~eushe2/Bandura/Bandura1994EHB.pdf


https://pdfs.semanticscholar.org/59d3/621f31e7e30fb4e51ac9fbd73f0644c5a3d2.pdf?_ga=2.247328903.2034539328.1601142423-707762137.1601142423


https://www.researchgate.net/publication/316663193_Social_Media_in_Agriculture_A_n ew_paradigm_for_Extension_and_Advisory_Services


https://aiaee.org/attachments/article/1792/5%20Moonsammy.pdf


https://www.academia.edu/40388972/Social_Media_for_Agricultural_Extension.
Author (2020). *Use of social media by the agricultural extension community of practices in Trinidad & Tobago* [pdf] (pp. 152-153). Association for International Agricultural and Extension Educators.


https://doi.org/10.17577/ijertv9is050676

Author (2015). *Social media for rural advisory services. Note 15. GFRAS Good practice notes for extension and advisory services.* GFRAS: Lindau, Switzerland.


https://doi.org/10.9734/ajaees/2018/43582


Leadership Behaviors and Experiences of Agricultural and Environmental Science Undergraduates at Tennessee State University

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Leadership Behaviors and Experiences of Agricultural and Environmental Science Undergraduates at Tennessee State University

Introduction

In an effort to identify experiences that contribute to academic success and leadership development of black students in postsecondary agricultural education, we examined students’ pre-collegiate agricultural education experiences and leadership styles and behaviors as collegiate agriculture students at an 1890 Land Grant University (LGU). 1890 LGUs are historically black universities that were established to strengthen research, extension, and teaching in food and agricultural sciences for persons of color. These institutions have a reputation of “serving the underserved” and “reaching the unreached” (Association of Public & Land-grant Universities, 2020). Developing leaders of color is critical to policy changes (March, Daniel, & Putnam, 2003), especially changes that will bring about inclusivity and equality in agriculture.

Leadership is in demand, and institutions of higher education, especially those that serve minorities and underserved populations. Colleges teach courses on leadership and invest in various extracurricular activities designed to develop well-rounded students for employment and society. This study utilized the Bass (1985) full range of leadership model to understand leadership styles and experiences of black agriculture students. According to Bass’ theory, laissez-faire leaders avoid making decisions and only provide feedback when problems arise. Transactional leaders make decisions based on established rules and agreements between the leader and the follower. Transformational leaders use their magnetism to motivate and inspire followers with a vision and desire to go beyond their own interests and to think about moral and ethical impacts of their work towards a common goal (Avolio, Bass, & Jung, 1999).

Purpose and objectives

The purpose of the study was to establish a baseline of leadership styles and behaviors of collegiate agriculture students at the 1890 HBCU, [University Name] in [City, State]. A secondary purpose was to describe students’ leadership experiences in college and high school that may have an impact on academic and career success. To accomplish these purposes, the following objectives were established.

- Describe the Laissez-faire, Transactional and Transformational leadership behaviors of students.
- Describe the pre-collegiate and collegiate leadership experiences in agriculture-specific extracurricular programs and/or organizations of 1890 LGU agriculture students.

Methods and/or data sources

This study used survey research design to describe the variables of leadership style, behavior, and experiences. Departmental faculty members in the largest courses were contacted, and students were offered a chance to win a $50 gift card for participating, yielding a response rate of 61% (n = 82). The Multifactor Leadership Questionnaire (MLQ) was used to measure leadership style/behavior (Avolio & Bass, 2004). The 45-item MLQ measured subjects’ range of laissez-faire, transactional, and transformational leadership styles. Scale reliabilities for the extensively-validated MLQ have ranged from .74 to .94. The 30-item researcher-developed Leadership Experiences Questionnaire (LEQ) measured collegiate and pre-collegiate leadership experiences.
Results, products, and/or conclusions

Overall, students’ self-reported frequency of Transformational Leadership (TL) behaviors were between Sometimes and Fairly often. Students scored $M = 2.9$ (SD = .7) in Builds Trust, $M = 2.8$ (SD = .8) in Acts with Integrity, $M = 3.0$ (SD = .8) in Encourages Others, $M = 2.8$ (SD = .8) in Encourages Innovative Thinking, and $M = 2.6$ (SD = .8) in Coaches and Develops People. The ideal frequency or benchmark of all five Transformational behaviors combined should be a Fairly Often rating of 3.0 or greater (Bass & Avolio, 2015).

Students scored closer to benchmarks in the two subscales of Transactional Leadership. Their frequency of behavior in Rewards Achievement was Fairly Often ($M = 2.9; SD = .7$), and the validated benchmark was Sometimes (2.0-3.0). Their frequency of behavior in Monitors Deviations and Mistakes was Sometimes ($M = 2.8; SD = .8$), and the benchmark was from 1.0 (Once in a While) to 2.0 Sometimes.

Students’ frequency of Laissez-faire (Passive-Avoidant) behaviors was above the validated benchmark (0 to 1). Their frequency of behavior in the subscale of Fights Fires was $M = 1.6$ (SD = .8), and they rated frequency of Avoids Involvement as $M = 1.1$ (SD = .8).

Pre-collegiately, students were most active in School Involvement Organizations/Activities like Student Government ($f = 17; P = 28$) or Pep Club ($f = 17; P = 28$). Academic Clubs/Activities were also important to some students with the most participation in Debate ($f = 14; P = 24$) and FFA ($f = 11; P = 19$). However, 83% ($f = 59$) had no pre-collegiate FFA ($f = 59$) or 4-H ($f = 60$) experience.

At the 1890 LGU college, only 60% ($f = 42$) of students indicated that they had ever participated in collegiate student organizations. 33% ($f = 18$) of students had participated in MANRRS, 13% ($f = 7$) participated in Collegiate FFA and 4-H, and only 3.7% ($f = 2$) indicated they ever participated in a fraternity or sorority.

Recommendations, educational importance, implications, and/or application

Agriculture students at the 1890 university have a greater Passive/Avoidant leadership style than the thousands of others who have taken the MLQ. In addition, they are more likely to be Transactional leaders than Transformational. This is important because Passive/Avoidant leadership, sometimes called “non-leadership” often has a “negative impact on the performance of individuals, groups, and organizations” (Avolio & Bass, 2004, p. 8). “Transactional leadership is often a prescription for lower levels of performance or non-significant change” (p. 7). Transformational leadership, though, is strongly correlated with individual and organizational performance, lower turnover, innovation, and workplace safety, just to name a few examples (p. 3).

Recommendations for increasing transformational leadership behaviors in the 1890 LGU include formal instructor assignments that require social learning activities such as community service projects (i.e. the community garden) (Spahr, 2015; Ferlazzo, 2012); assignments that simulate leader-subordinate scenarios (i.e. the school farm) where leaders trust subordinates to make decisions and execute them on their own (Jahan, 2000); faculty who inspire students rather than bore them (Middleton et al., 2015), transformational leadership models as mentors and guest speakers (Ferlazzo), and increasing student participation in leadership activities both before and during their college experiences.
References


Evaluating Agricultural Education Teachers' Intention to Implement Student-Centered Instruction Strategies After a Teacher Training in Liberia

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Evaluating Agricultural Education Teachers’ Intention to Implement Student-Centered Instruction Strategies After a Teacher Training in Liberia

Introduction

Developing countries defying post-conflict consequences face the deterioration of their economy (Fearon et al., 2009). Liberia, in its recovery from the second civil war, encountered significant struggles that include job shortages, a fragile economy, and a rise in a poor and at-risk youth population (Blattman & Annan, 2011; Ministry of Agriculture, 2007). Aggravating the post-conflict setbacks, historically, Liberia has depended on foreign aid and imports by up to 80%, which had a significant increase after the war (UNDP, 2020). According to Rutherford et al. (2016) all these socioeconomic conflicts and the codependency of Liberia have negative implications for the future of this Western African country.

Experts suggest that a solution to reduce Liberia's economic vulnerability is to transform it into an agriculture-based one (Rutherford et al., 2016) to boost Liberians' income and employment (Blattman & Annan, 2011). To make this transition effective, there is a need to instill agricultural knowledge in the population. Addressing these needs, AgriCorps—a nongovernmental organization—in its mission to establish school-based agricultural education programs (SBAE) in developing countries (AgriCorps, 2020) designed and offered a teacher training to develop these programs in Liberia. SBAE, through teaching, entrepreneurship development, and leadership development, seeks to develop knowledge and skills in students, necessary to be citizens who pose awareness about natural and agricultural resources (AgriCorps, 2020; FFA, 2020; NAAE, 2020). Thus, one of the objectives of this training was to prepare teachers to offer student-centered instruction to focus on students' learning and their individual knowledge (Collins & O'Brien, 2003).

The establishment of SBAE focused on student-centered instruction is a potential tool to begin educating children and youth on agricultural issues and provide insight into potential growth. In turn, this would provide Liberia with the tools to reduce at-risk populations, reduce dependence on foreign inputs, and catalyze the development of its economy.

Purpose and Objectives

This evaluative research aimed to investigate the intentions of Liberian agriculture teachers who attended a teacher training to implement student-centered teaching strategies into their SBAE program. The following objectives guided the study:

1. Measure teachers' intention to use information about student-centered instruction.
2. Measure teachers' intention to use information about student-centered instruction by county.
3. Identify the factors that influence teachers' intention to use student-centered instruction.
4. Identify the specific strategies that teachers plan to implement.

Methods

During 2020, AgriCorps staff offered the first of three teacher trainings in Liberia. This first part of the training lasted six days and was repeated in Bong, Lofa, Montserrado, and Nimba
counties. The purpose was to introduce the SBAE model, leadership development (4-H Clubs), and student-centered teaching strategies to the participants. Using the randomized controlled trial method, 200 schools were identified and grouped by demographic and agricultural similarities. Communities within these clusters were identified, and 100 treatment schools and 158 teachers were selected.

Focused on student-centered instruction, these teachers were instructed on strategies to engage with the students in the classroom and non-classroom settings. This included e-moment strategies (e.g., singing, story-telling), the importance of giving good directions, and managing the classroom to name a few. Teachers were also taught about modern psychological techniques that benefit students' learning, such as developing their critical thinking and engaging them in reflections.

A pre and post-questionnaire was used for data collection. To measure teachers' intention to use student-centered instructions, participants answered a question related to intent to change measured on a 5-point scale. To identify the specific strategies that teachers plan to implement, the responses to one open question were analyzed.

**Results**

**Objective 1.** According to the results, teachers would use the student-centered instruction information provided in the training ($M = 4.8$, $SD = 0.5$) with $82.5\%$ ($n = 127$) responding that they definitely will use it. This variable was coded from 1- "I definitely will not use this information" to 5- "I will definitely use this information."

**Objective 2.** An analysis of variance was conducted to determine if there was a difference in teachers' intention to use student-centered instruction depending on the county. The difference in means for each county was not statistically significant ($F = .015$, $p = .998$).

**Objective 3.** A correlation and multiple linear regression analysis were conducted with three variables (years teaching, attendance at a previous workshop, and level of schooling). In total, 16% of the variance of the teacher's intention was predicted by these three factors. All correlations in the model were positive, however, the only strong positive factor was their attendance at previous training ($\beta = .41$, $p < .001$). Years teaching ($p = .706$) and level of schooling ($p = .652$) were not significant predictors.

**Objective 4.** Teachers that responded to the question: *What specific strategies do you plan to implement immediately following this training?* ($n = 133$), indicated that they plan to use strategies that help students stay engaged and connected with the class and with each other. These strategies include incorporating interactive activities with music and body movements (e.g., singing, dancing, games) as well as inquiry strategies. Also, they mentioned they would use activities to develop leadership skills and also demonstrations and practices to encourage students to engage in agricultural activities.

**Recommendations and Implications**

The results of this empirical study revealed remarkable evidence that teachers have the intention to offer student-centered instruction. Therefore, it is necessary to continue teaching
them more techniques that help them focus their instruction on the learner. Another reason is that the only significant factor influencing teacher's intention was the attendance to previous training/workshops. Consequently, they must obtain continuing education and be encouraged to further professional development as research suggests that this has positive implications in the outcome of students (Yoon et al., 2007). Aligned with these recommendations, two upcoming trainings will be offered, focused on agricultural innovations and how to implement school demonstration farms and home entrepreneurship projects in schools. Through these trainings, teachers will continue to be instructed on student-centered teaching and how these strategies will help them increase the effectiveness of their programs for the benefit of their students and the community.
References


Effectiveness of a Teacher Training Introducing School-Based Agricultural Education in Liberia

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Effectiveness of a Teacher Training Introducing School-Based Agricultural Education in Liberia

Introduction

Sub-Saharan Africa is home to almost 1 billion people (OECD/FAO, 2016). By 2050, the population of the region is expected to double, with half under the age of 18 (Yeboah, 2018). Smallholder farmers constitute more than 60% of the region's population, piecemealing livelihoods from agriculture and other low-income jobs. With these trends, agriculture offers a significant opportunity to impact poverty reduction, gender equity, youth development and rural transformation. Agricultural innovations that save time make farm life more comfortable, improve productivity, enhance nutrition and preserve natural resources are critical to this process (Sanginga et al., 2009).

Developed more than 100 years ago, school-based agricultural education (SBAE) offers a recognized, cost-effective and sustainable solution to this (Division of Agricultural & Environmental Education, 2010; Oklahoma State University, 1969; Park, 2014; Schlutt, 1957; Wessel & Wessel, 1982). SBAE, as revised by AgriCorps—a nongovernmental organization that seeks to alleviate food insecurity in developing countries through SBAE—encompasses the theoretical foundations of four different bodies of knowledge – diffusion of innovations (Rogers, 2013), experiential learning (Kolb, 1984), positive youth development (Benson et al., 2007) and behavioral economics (Kahneman & Tversky, 1979). It is a holistic system of delivering agricultural innovations within a local context of secondary education. By utilizing youth as early adopters of agricultural innovations and change agents for the diffusion of agricultural innovations, SBAE can become an economic incubator for the entire rural community – supplementing existing agriculture and education initiatives.

Purpose and Objectives

The purpose of this evaluative research (Powell, 2006) study was to evaluate the effectiveness of an agriculture teacher training that introduced Liberian agriculture teachers to SBAE. Our objectives were:

1. Measure the participants’ satisfaction with the training.
2. Measure participants’ knowledge gained about the SBAE model.
3. Measure the intentions of participants to implement the knowledge they acquired during the training.
4. Identify the changes they expect to see in their students if they implement the SBAE model in their school and community.

Methods

In 2020, 158 teachers participated in the first agriculture teacher training program in Liberia. Participants were chosen based on criteria from a more extensive, randomly controlled trial study whereby 100 out of 200 communities were selected to receive treatment (i.e. SBAE) while the other 100 communities served as control groups. The six-day training was designed and facilitated by AgriCorps and was repeated in four counties: Bong, Nimba, Montserrat, and Lofa. The training was the first of three designed to introduce agriculture teachers to the model.
of SBAE, 4-H, student-centered teaching, and plant and animal agricultural innovations. The first training focused on introducing participants to the overall SBAE and 4-H model and student-centered teaching strategies.

Data included pre and post-training questionnaires and written field notes from the two training facilitators. To measure acquired knowledge, participants answered 12 exam-type questions on the pre and post-training questionnaire. To measure reactions to the training, participants answered ten 5-point scaled questions adapted from Kirkpatrick and Kirkpatrick (2016), where 1-"Strongly Disagree" to 5-"Strongly Agree." To measure participants' intention to implement the knowledge gained from the training, they answered one 5-point scaled question that measured intentions of adoption where 1-"I will definitely not use this information", to 5-"I will definitely use this information" (Lamm et al., 2020). Responses from the open-ended question, if you were to use all the knowledge you have gained at this training, what kinds of changes would you expect to see in your students? was used to identify the intentions of participants to implement the knowledge they acquired during the training. We used descriptive and inferential statistics to answer objectives one through three and qualitative content analysis to answer objective four (Creswell & Creswell, 2017).

Results

Objective 1. Overall, participants gave positive reactions to the training with mean scores ranging from 4.5 to 4.8 on all ten items (e.g., satisfaction with food, location, facilitator effectiveness).

Objective 2. The mean score on the knowledge pretest was 14.93% (n = 153) and the mean score on the posttest was 52.99% (n = 154). A paired sample t-test revealed significant difference in knowledge of 4-H Liberia and SBAE before the training (M = 14.9, SD = 10.0) and after (M = 52.9, SD = 15.7) the training (t = 29.9, p < .001) with a large effect size (Cohen, 1988).

Objective 3. Overall, participants intend to use at least some of the information presented in the training (M = 4.8) with 79.4% (n = 123) of participants reporting that they will definitely use this information.

Objective 4. The 144 participants who responded to the open-ended question all expect to see positive changes in their students, communities, and schools if they were to implement what they learned at the training. This surfaced through three themes, 1) model implementation in their local school, 2) student development as a result of model implementation, and 3) economic outcomes as a result of model implementation.

Conclusions and Recommendations

Our findings suggest that the training about SBAE was effective; participants learned about the content, were satisfied with the training, are likely to implement what they learned, and expect to see positive changes in their students and country if they implement SBAE in their schools and communities. These are promising results. If agriculture teachers are learning from trainings like these, are enthusiastic about implementing what they've learned, and can articulate the positive benefits resulting from the implementation, these teachers will likely take purposeful steps to implement SBAE in their schools and communities.
Participants from this study will attend two additional trainings in 2020 on 1) plant and animal agricultural innovations and 2) how to implement school demonstration farms and home entrepreneurship projects in their SBAE programs. Future research will explore the efficacy of these trainings, the adoption rate of SBAE of these same participants, and the effects of adoption on student outcomes and local agricultural development.

The results from this and future studies will give insight into the effectiveness of using SBAE programs as mechanisms for poverty reduction and rural transformation in Sub-Saharan countries.
References


Agents of change: Liberian agricultural teachers as change agents through school-based agricultural education model implementation

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Agents of change: Liberian agricultural teachers as change agents through school-based agricultural education model implementation

Introduction

In the early 20th-century, many rural schools across the United States (U.S.) developed agriculture education programs focused on training secondary students in modern agricultural practices to increase agricultural efficiency (Swanson, 1954). School-based agricultural education (SBAE) continues to be implemented throughout the U.S. as a way for students to develop the skills required for agricultural employment through classroom and laboratory instruction, home projects, and leadership experiences (Croom, 2008; Talbert et al., 2014).

It is generally recognized that education in rural areas is considered a fundamental component of increased agricultural productivity, particularly regarding the adoption of new methods, inputs, and technology (Lockheed et al., 1980; O’Donoghue & Heanue, 2016; Phillips, 1994). Moreover, it serves as a growth agent for rural communities (Martin & Henry, 2012), and is directly connected to agricultural industry advancement around the globe (Ibezim & McCracken, 1994).

It is anticipated that Africa’s youth population will double by 2050 with one billion people under 18 years of age (Yeboah, 2018). Likewise, 48 percent of the population of Liberia live in rural settlements (World Bank, 2018) and approximately 80 percent of the population earn their livelihood from agriculture (Liberia Institute of Statistics and Geo-Information Services, 2017). The outcome of implementing SBAE in low-income countries like Liberia could lead to the adoption of a variety of agricultural innovations and impact the livelihood of youth through agricultural transformation (Yeboah, 2018).

Purpose and Objectives

The goal of this evaluative study was to determine the likelihood that participants in an agricultural teacher training would implement the SBAE model at their school. For this study, we consider the implementation of the SBAE model using Rogers’ diffusion of innovation theory (2003). When the SBAE model is viewed as an innovative idea or practice, the teachers subsequently become change agents in their community as they adopt and implement the model in their schools. The following objectives guided our study:

1. Measure the likelihood of participants to implement SBAE in their school.
2. Identify factors that predict the likelihood participants are to implement SBAE in their school.

Methodology

In 2020, staff and consultants from AgriCorps, a non-governmental organization, conducted their first agricultural teacher training program in Liberia. A total of 158 teachers participated in a six-day training program which was repeated in four counties:
Bong, Lofa, Montserrado, and Nimba. The training was the first of three designed to introduce Liberian agriculture teachers to the SBAE model. The SBAE model used in secondary agriculture programs in the U.S. (Croom, 2008) was modified by AgriCorps and presented to the teachers at the training. The revised SBAE model consists of four components, 1) experiential, student-centered classroom instruction in agriculture, 2) home-centered entrepreneurial projects, 3) school demonstration gardens, and 4) leadership development through a local 4-H club (AgriCorps, 2020).

To measure the intent to implement the SBAE model presented in the trainings, participants answered a single post-training question on a 5-point scale. To measure the likelihood of implementation, three factors were considered as indicators of implementation prediction: number of years teaching, prior training attendance, and the highest level of schooling. Descriptive and inferential statistics were used to analyze the data. Field notes written by the training facilitators during and after each of the four trainings were also used to interpret and triangulate the data (Creswell & Poth, 2018).

**Results and Conclusions**

**Objective 1:** Participants responded to a single question regarding their intent to implement the SBAE model in their school on a 5-point scale ranging from 1 “I definitely will not use this information”, to 5 “I will definitely use this information”. Based on the results, participants intended to use the information ($M = 4.8, SD = .5$) with 80.4% ($n = 127$) responding that they definitely will use the information presented in the training regarding the SBAE model.

**Objective 2:** A correlation and multiple linear regression with three variables were conducted to identify factors that influenced participants' likelihood to implement the SBAE model in their school. The variables were: number of years teaching, prior workshop attendance, and level of schooling. These variables explained 7% of the variance for the dependent variable ($R^2 = .07$). All of the correlations were positive, however, none was a statistically significant factor (prior workshop attendance ($p = .059$), years of teaching ($p = .555$), and level of schooling ($p = .086$)).

In addition, AgriCorps training facilitators recorded field notes on two separate occasions that training participants identified with the idea that they could be change agents as they teach students who in turn would teach their families and others in their communities. It was also noted that participants experienced a paradigm shift as they recognized the SBAE model could assist in diffusing agricultural innovation through youth to adults.

**Recommendations**

Based on our findings, teachers intend to use the information presented in the trainings by implementing the SBAE model. However, the data did not provide overwhelming evidence for any factors that predict the likelihood of SBAE implementation by the participants. The $p$-value for the variable previous training attendance ($p = .059$) is slightly greater than the generally accepted a priori alpha
coefficient of .05 (Masicampo & Lalande, 2012). Considering this, there may be value in using alternative research methods to explore how previous training may influence the likelihood that participants will implement the SBAE model. Additionally, participant interviews or focus groups may lead to a greater understanding of the factors that influence the likelihood of SBAE model implementation by current training participants and future candidates.

As innovations depend on the ability of agents to learn, gather information, interact and exchange knowledge, and use it in a creative manner that responds to the social needs of the group (Spielman, et al., 2008), it becomes necessary to continue to engage the participants in SBAE-specific training to assist the teachers in becoming change agents in their schools and communities through effective implementation the SBAE model in secondary schools in Liberia.

References


Establishing The Royal Standard for Critical Thinking: The QUEEN Model

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Key Words: critical thinking, behaviorally anchored measures
Establishing The Royal Standard for Critical Thinking: The QUEEN Model

Introduction
In international agricultural extension education, there is a need to understand constituents’ critical thinking knowledge, skills, and abilities. As innovations continue to become more complex, it is often extension educators who must engage their audiences who often vary in critical thinking style (Wu et al., 2019).

For those international educators who work with students, critical thinking is one of the essential skills employers identify as wanted but not fully developed (American Association of Colleges and Universities, 2018). This emphasis on critical thinking by employers is seen as a way to increase the competitiveness of those in a global market, but the lack of critical thinking is problematic. For example, in a global education seminar, undergraduate and graduate students’ critical thinking dispositions were found to be typical but weak overall (Duncan et al., 2016). International experiences have been found to improve perceived critical thinking skills (Conner et al., 2019).

There are several measures of critical thinking models and assessments that focus on self-reported data, but as Brutus and Duniewicz (2012) note, there are many limitations with self-reported data. When working with constituents, extension educators often look at behavioral change to measure effectiveness of programs. Because of this, a new measure of critical thinking was developed that focused on behaviorally-anchored actions to measure critical thinking skills.

Methods
Developing a behaviorally-anchored instrument begins with understanding the intricate concept. Competency-based behavioral anchors are defined as performance capabilities needed to demonstrate knowledge, skill, and ability acquisition (Buford and Lindner, 2002). Behaviorally-anchored competency-based models are more accurate in assessing skills gained because they look at specific behaviors tied to each competency (Dooley & Lindner, 2002).

A grounded-theory approach was determined to be the best way to develop this behaviorally-anchored model. First, a content analysis was preformed using methodology defined by Schrier (2012). Then, a modified Delphi was conducted with a panel of experts chosen for their expertise in teaching, researching, and writing about critical thinking (Linstone & Turoff, 1975). The completion of the Delphi and content analysis process produced a multitude of data chunks. Operational model diagraming (Saldana, 2013) was utilized to pictorially represent the key themes and give a visual representation of how the themes intertwined. There were five behaviorally-anchored themes which emerged: questioning, understanding, evaluation, explanation, and synthesis. Upon further refining of the thematic names, the researchers gave each critical thinking thematic competency the titles of Questioning, Understanding, Evaluating, Explaining, and Neoteric (spelling QUEEN).

Product
To fully exhibit the behaviors of an effective critical thinker, one must engage in behaviors fit for a QUEEN.
**Questioning**
In order for constituents (students) to exhibit critical thinking skills, they must not be afraid to ask the Five Ws many of us were trained in as a child. For the QUEEN model, questioning is not just about asking the Five Ws but asking them in a profound manner. Educators look to see if they can identify behaviors which students (1) ask clarifying questions, (2) state questions clearly, (3) understand the main questions/problems of the issue, and (4) question their own initial perceptions of the issue.

**Understanding**
Understanding the holistic context of the situation is paramount to exhibit critical thinking. Does the student exhibit the ability to (1) state a clear purpose, (2) understand the purpose of others (either other students or authors and instructors), (3) understand alternative views, (4) understand their own personal assumptions, (5) understand the complexity of the issue, (6) seek accurate and trustworthy information, and (7) seek relevant information.

**Evaluating**
For the evaluating, the behaviors students should be able to present to show their critical thinking abilities include (1) judge the credibility of sources, (2) judge if information is relevant or “white noise”, (3) draw appropriate conclusions using the data/information chosen, (4) identify potential consequences of decisions, (5) identify AND examine own assumptions as well as others, and (5) has the ability to recognize the differences between fact and value claims.

**Explaining**
As opinion leaders and change agents, it is not enough for us to merely understand and critically think about topics, it is imperative we are able to communicate our thoughts and thought processes to our constituents. Explaining allows students to show their ability to effectively communicate their thinking to their peers (as well as to us, the instructors). Can students (1) state results or their conclusions clearly (2) justify or defend their positions based on fact, (3) create alternative answers/solutions, (4) use examples to connect points, (5) explain their reasoning process, and (5) use models or theoretical frameworks to back their conclusions.

**Neoteric**
Critical thinkers who engage in neoteric critical thinking can not only connect information to current events and stable application examples as those high in explanation can, they have the added layer of advocacy. These new and critical thinking ideas go nowhere if they do not have a champion to advocate for these new ways of thinking and doing. Students who exhibit behaviors high in neoteric ability are able to (1) synthesize new solutions/products/ideas, (2) promote these new concepts, (3) stay open-minded to new ideas or crucial viewpoints, and (4) engage in self-examination and reflection to become a deeper critical thinker and more effective learner.

**Educational Importance**
The QUEEN model has three different versions of behaviorally-anchored assessment measures. These include Likert-scale measures and check-box measures for instructors and peers to use as well as a post-then student (participant) version. International agricultural extension educators can use the assessment tool which matches best with the objectives of their program. The
QUEEN model is a useful model to use for a needs assessment pre-treatment to understand the constituents’ critical thinking behaviors. It also can serve as an additional model to include when developing materials to teach. By integrating activities which engage participants in QUEEN, there can be an increase in critical thinking behaviors. While this model is in its infancy, we believe the impact it can and will have with international agricultural extension educators is boundless.

References


More than Less: Trends in Agricultural Sciences as a First-Choice Career in Honduras

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More than Less: Trends in Agricultural Sciences as a First-Choice Career in Honduras

Introduction

Latin America and the Caribbean region have a unique opportunity to feed the world. Despite the challenges of climate change, a sustainable approach to agricultural production can help farmers increase their productivity and significantly contribute to the world’s food, fiber, and fuel demands. Moreover, the water and arable land resources in the region, along with the existing biodiversity, are believed to be part of the solutions to meet the challenges of food security in the world (Zeigler & Truitt Nakata, 2014).

Higher education is key to the development, growth, and competitiveness of any country’s agricultural industry. There is a need to educate, create knowledge, enhance local abilities to solve problems, respond to the labor market demands, and promote entrepreneurship (FAO et al., 2014). However, the pursuit of agricultural sciences in higher education has seen a decline in the world. In Honduras, the leading academic programs for undergraduate students are social sciences, business, and law. The less prominent programs are within the agricultural sciences (DES, 2018). In fact, in a recent study to evaluate the higher education student profile in Honduras, students in the agricultural sciences were not included in the sample due to its low representativeness (Noé Bustamante, 2019).

The Human Capital Theory guided this study by focusing on the ideal that education can increase youth attitudes, skills, and competencies to meet a growing industry’s demands and boost nations’ economic growth (Gillies, 2017). In agriculture, education can make a difference by helping farmers and the industry adapt more rapidly to innovations as well as innovate in a way that enhances productivity (Becker, 1964).

Purpose and Objectives
This study aimed to analyze the trend of enrollment intention in agricultural sciences as a first-choice career option in Honduras. The objectives of this study were: 1) to describe the characteristics of applicants to higher education in Honduras between 2010 and 2018, 2) to determine the likelihood of an applicant choosing an agricultural science program as a first-choice, and 3) to determine the likelihood of being admitted in an undergraduate program.

Methods and Data Sources

A descriptive, trend study was used as research design (Gall, Gall, & Borg, 2007). The study used the [Honduran institution] database, which registered the applicant’s intentions to enrolled in a higher education program in the country’s public system. The database contains eight years of historical data (2010-2018). A total of 353,959 observations were used to conduct the analyses. Descriptive statistics and logistic regression models were used to assess the objectives. The variables used in the analyses included: gender, location (urban or rural), school (public or private), admission exam results (verbal and quantitative), first-choice option (agricultural sciences or non-agriculture). Data was processed and analyzed using Excel and R®. A significance level of .05 was set a priori.

Results and Conclusions

Most of the applicants to higher education in Honduras between 2010 and 2018 were female (61%), are originally from an urban location (92%), completed their high school education within the public education system of the country (56%), and indicated a first-choice interest outside of agriculture (93%). In agricultural sciences, most applicants are male (52%), are originally from urban areas (88%), and completed their high school within the public system (69%). The trend in enrollment intention to agricultural sciences as a first-choice career was
observed to be on the rise between 2010 and 2018. An estimated 274 additional applicants per year selected an agricultural science program as first-choice, 53% selected disciplines related to agribusiness.

A first logistic regression model was conducted to determine the likelihood of applicants choosing an agricultural science undergraduate program. The model suggests applicants with higher admission exam scores are not more likely to choose an agricultural science program over a non-agricultural program. However, male applicants are 2.6 times more likely to choose an agricultural science program than female ($OR = 2.63)$. Applicants from the public education system are 1.25 times more likely to choose an agricultural science program than those coming from private institutions ($OR = 1.25$). Applicants from urban settings are close to twice less likely to choose an agricultural science program ($OR = .59$). A second logistic regression model was conducted to determine the likelihood of applicants being admitted to a program. Male applicants are two times more likely to being admitted ($OR = 2.09$). However, applicants from the public education system are 25% less likely to be admitted than applicants from the private system ($OR = .76$), and applicants from urban settings are 13% more likely to be admitted than applicants from rural settings ($OR = 1.13$).

The contrast found in the analyses provides a unique perspective. Applicants who choose an agricultural sciences undergraduate program as a first option are also the less likely to be admitted to the university system. The findings suggest that performance on the admission exam is overall deficient. Applicants in rural settings from the public school system have, on average, lower scores, leading to a lower admittance rate among the applicants interested in pursuing an agricultural science program.

**Implications**
This is the first study that explores agricultural sciences’ pursuit as a discipline at higher education in Honduras. Contrary to the downward trend observed at the higher education level globally, Honduran youth shows an upward trend in choosing agriculture as a professional discipline. This is most likely linked to the country’s agricultural nature, where the industry is expected to continue to be highly relevant. The findings suggest that while a portion of the Honduran youth may be interested in the field, the nature of their high school preparation (public system from rural settings) puts them at a disadvantage to be admitted and achieve their academic endeavors. These findings have important implications for policy making and administrators of the educational system in the country. There is a need to strengthen the public education system, especially in rural areas, as rural youth can become instrumental in leading the agricultural industry’s transformation in developing countries like Honduras.

References


Small-Holder Farmer’s Perception toward Solar Renewable Energy Technology on the Island of Trinidad

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Small-Holder Farmer’s Perception toward Solar Renewable Energy Technology on the Island of Trinidad

Introduction and Theoretical Framework

Small island states in the Caribbean are considered vulnerable to environmental change due to small size, proneness to natural disasters, limited natural resources, and ecological uniqueness (Blancard & Hoarau, 2013). These challenges underscore the importance of fostering the capacity to adapt and innovate (Ganpat & Isaac, 2014). Adaptation, in the context of climate change, is the process through which a society addresses the consequences and challenges associated with it (Amaru & Chherti, 2013). Innovation is one mechanism of the adaptation process and is mediated by social and institutional factors (Amaru and Chherti, 2013). As a principal adaptive mechanism, agricultural system innovation can occur at various levels and along many dimensions, such as technology development, social change, and institutional change (Klerkx et al., 2010).

Innovation in the agricultural system through technology such as solar energy can facilitate adaptation to the impact of environmental change among smallholder farmers. This study focused on the twin-island nation of Trinidad and Tobago wherein agriculture is an essential source of employment. However, the farming sector has been neglected due to the high significance placed on industrial development (Baksh et al, 2015), resulting in lower farmer capacity to adapt. A revitalized agricultural sector can play in sustainable rural development (Lowitt et al., 2015) but technologies such as solar have not yet been widely adopted. Due to low levels of solar energy technology in Trinidad, the theoretical framework of this study was developed to focus on smallholder farmers’ pre-adoption perceptions of the intention to use solar renewable energy technology in both farms and homes.
Components of Diffusion of Innovation Theory (DOI), Theory of Planned Behavior (TPB), and the Technology Acceptance Model (TAM) were combined to provide the theoretical foundation of this study. Rogers’ (2003) DOI theory provided a framework to understand the general mechanisms of technology adoption. This study focused on the perceived, pre-adoption attributes of solar energy relative advantage, complexity, and compatibility. To explore the intention to adopt, TPB was applied to identify attributes of an individual's beliefs and cognitive processes that can be leveraged to influence behavioral intention (Ajzen, 1991). The TAM has also been used to predict a potential user’s behavioral intention to use a technological innovation in particular (Davis et al., 1989). The TAM, as a deconstructed TPB model, provided a more complete understanding of the determinants of intention (Taylor & Todd, 1995). Thus, this study’s theoretical model was comprised of six independent variables from the aforementioned theories and model: relative advantage, perceived ease of use, attitude, perceived behavioral control, perceived cost and awareness and to analyze to explore the adoption of solar energy technology.

Purpose and Objectives

The purpose of this study was to examine small-holder farmers’ pre-adoption perceptions and attitudes towards solar energy technology in the context of agriculture and the home on the island of Trinidad. The following objectives directed this study:

1. Describe demographics and contextual factors associated with solar renewable energy technology among smallholder farmers in Trinidad.

2. Describe the attitude, perceived behavioral control of farmers, perceived relative advantage, perceived ease of use, perceived cost, and awareness toward solar renewable energy technology for the use in agricultural and home.
3. Investigate the future intention of farmers to adopt solar renewable energy technology for use in agriculture and home in Trinidad.

**Methods**

This study employed a descriptive, quantitative design using a cross-sectional survey. The population for this study was smallholder farmers on the island of Trinidad. A convenience sample was due to the study’s scope and consisted of 79 small-holder farmers. The researcher administered survey used Likert-type questions (1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, 5 = *strongly agree*) to measure constructs adapted from previous studies to fit the context of Trinidad. The post hoc Cronbach's alpha values for the scales of attitude ($\alpha = .749$), intention ($\alpha = .817$), perceived behavioral control ($\alpha = .649$) and relative advantage ($\alpha = .667$) were found reliable for an exploratory study. While, perceived ease of use ($\alpha = .376$), awareness ($\alpha = .572$), and perceived cost ($\alpha = .237$) were found to not be reliable.

**Results and Conclusions**

Results from this study indicate that generally, respondents tended to agree with statements related to the relative advantage, perceived ease of use, perceived behavioral control, and attitude towards use of renewable energy with grand means 3.95, 3.84, 3.95 and 4.06 respectively. Notably, respondents indicated positive attitudes in regard to finding benefits of solar energy in their home as well as on their farm. Similarly, the majority of respondents agreed they possessed the confidence, knowledge, and ability to use solar energy in the context of the home and farm.

For both perceived cost and awareness, there were no clear trends in the results with grand means of 3.50 and 3.32 respectively. These findings indicate that the basis of perceptions
on cost were reliant on factors beyond the scope of the study and may have also reflected issues with the constructs

The final construct is intention to adopt solar energy among the sample of smallholder farmers in the study. Overall the respondents indicated high levels of agreement with all the items in the construct with a grand mean of 4.27. Therefore, leading to the conclusion that among the farmers in the sample, a majority agreed with the intent to use solar energy on their farm and in their home.

**Implications**

For smallholder farmers whose main barrier to electricity is a lack of public resources, solar energy could present a reliable and sustainable alternative (Shahsavari & Akbari, 2018). Therefore, one immediate application of solar energy for Trinidad should target rural smallholder farmers who do not have access to the electrical grid. The study’s data suggest general agreement among smallholder farmers that solar energy would meet the needs of their farms. Thus, it seems that smallholder farmers may adopt solar energy if the contextual and demographic barriers, such as lack of land tenure and perception of high operating costs, were mitigated.

**References**


Baksh, K., Ganpat, W., & Narine, L. (2015). Farmers knowledge, attitudes and perceptions of occupational health and safety hazards in Trinidad, West Indies and implications for the
Agricultural sector. *Journal of Agricultural Extension and Rural Development, 7*(7), 221-228.


Farmers’ Risk Perceptions: An Analysis Inside and Outside the Farm in El Salvador

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Farmers’ Risk Perceptions: An Analysis Inside and Outside the Farm in El Salvador

Introduction

Understanding the farmers' risk perceptions is essential to provide adequate information on risk prevention, mitigation, and management (Remmele-Foster, 2019). Informed farmers can take action inside and outside of their agricultural production to avoid an unfortunate event or reduce impacts when it occurs (Rosenstock, et al., 2019). The study of risk among farmers has not received adequate attention, and erroneous assumptions have been generated, making it difficult to use the already scarce literature available (Coleman, 2016). One of the risk literature's main errors is defining risk as an independent and static entity. When, especially in agriculture, most risks are interactive and dynamic (van Winsen et al., 2013). The Intergovernmental Panel on Climate Change (IPCC) defines risk as "the probability of damage or loss of an economic, social or environmental nature in a given element (people, material or environmental elements) in a given place and period" (IPCC, 2012).

According to Špička, Boudný, and Janotová (2009), addressing risk in agricultural production is a complicated task because many components could be a potential risk; for this reason, most stakeholders choose to ignore them. The prevention of farming risks, especially climatic and economic, is almost impossible for rural farmers due to the lack of information or technical advice (IICA, 2015). For the same reason, public policymakers promote ineffective, non-inclusive initiatives with unsustainable goals (Rosenstock, et al., 2019).

Understanding the risk, knowing how to measure it, and addressing it is critical to strengthening rural agricultural systems. Although in agriculture, many have described the threat as unmanageable. Successful experiences in agricultural risk management show that with an
appropriate approach and information on potential risks, the chances of losses in agricultural production are reduced, and the aggravation of other social problems such as poverty and food insecurity is prevented (Rosenstock, et al., 2019).

In Latin America, the available risk information is mainly on agroclimatic risks. However, other types of risks, including human and economic, are most relevant due to this region's socio-economic characteristics (Barrios et al., 2015). This qualitative study is a pioneer in exploring risk perceptions among rural farmers in El Salvador.

**Purpose and Research questions**

This descriptive study was aimed to understand the perceptions of risk management of subsistence farmers in El Salvador. The following research questions guided this research project:

1. What are the risk areas perceived by rural Salvadorian farmers in their agricultural production?
2. How prepared do rural farmers in El Salvador perceive themselves in risk management?
3. What are the preferred sources of risk information for Salvadoran farmers?

**Methodology**

This study was conducted in Chalatenango, El Salvador, in July 2019. Data was collected using a convenience sample, including 81 farmers who responded to the 26-item survey. The research instrument was a modified, and contextualized version of the *Agricultural Risk Management Survey* developed by Remmele-Foster (2019). The research instrument questioned farmers about the following areas of risk: production, human resources, finance, market and
economy, and laws and political environments. For the data analysis, descriptive statistics were used; and the *Layering Model of Agricultural Risk Management* (LMARM) proposed by the Research Centre for the Management of Agricultural and Environmental Risks (European Parliament, 2016) was used to classify the risks perceived by the participants.

**Results and Conclusions**

Participants were mainly farmers with an incomplete secondary education \(N = 69\) and less than two hectares for agricultural production \(N = 64\). Corn, beans, and sorghum are the primary agricultural products harvested by the participants. Among the farmers, production (67%) and financial risks (59%) are the most relevant for the community; meanwhile, humans-related risks (10%) as the least important. All farmers do not feel prepared for at least three of the risks on and off the farm. Laws and political risks (80%) are the types of risks that most farmers do not feel prepared to handle.

When asking about available sources of risk information, farmers only selected interpersonal sources, such as fellow producers, family members, friends, or church members, as a currently available source. Also, participants listed technical visits from the agricultural extension offices as sources of information that would like to have available; face-to-face meetings or training sessions (94%) and flyers and brochures (80%) as preferred formats receive risk information. For Salvadorian farmers, maintaining a supportive network (54%) is an essential strategy to prevent risk and ensure agricultural production.

Finally, according to the LMARM, risks perceived by rural farmers in El Salvador are "farmer-based" and are positioned in the first level of the layering system and are considered a normal risk.
Recommendations/Implications

There is a great need for risk management information for rural farmers, especially in developing countries. Many economic, social, and environmental variables make rural farmers vulnerable to multiple risks. Access to information should be promoted to empower agricultural producers in risk prevention and mitigation.

The results of this research may inform future projects and interventions that seek to educate agricultural producers about risk management in agricultural production. This study is an initial step in promoting a holistic culture of risk management in agricultural production, reducing losses, and potentially improving subsistence farmers' livelihoods. For practitioners, the results offer alternatives with better acceptance levels among farmers for the dissemination of information. Finally, although farmers' risks are based mainly on aspects of agricultural production, farmers do not feel prepared to tackle and prevent them.

It is recommended to carry out more studies that evaluate risk management impacts at the domestic, community, and regional levels in emotional, social, and economic aspects. Also, stakeholders should explore different options for the effective dissemination of risk management information among farmers. Finally, the different types and levels of risk must be addressed by different actors using educational and financial tools adapted to the farmers' living conditions.
A Case for Capacity Building in Agroecology Content in Higher Agricultural Education

Programmes in Trinidad and Tobago

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A Case for Capacity Building in Agroecology Content in Higher Agricultural Education

Programmes in Trinidad and Tobago

Introduction

Agroecology is becoming a more relevant approach to revising the conventional food system in order to achieve greater sustainability (Hatt et al., 2016). According to Gliessman (2007, p. 369), agroecology is “the science of applying ecological concepts and principles to the design and management of sustainable food systems.” There are many sustainable farming practices which existed long before the concept of agroecology was developed (Mockshell & Kamanda, 2018). These approaches include but are not limited to good agricultural practices (GAPs), precisions-based farming, low external inputs sustainable agriculture (LEISA) and organic agriculture. Agroecological practices aim to mimic natural processes to reach beneficial biological interactions and synergies among the components of the agroecosystems (De Schutter, 2010).

Throughout the developing world, agricultural knowledge agents have an impact on improving food security, reducing poverty, and developing a sustainable agriculture sector (McCole et al., 2014). Institutions of higher learning in agriculture in Trinidad and Tobago prepare students to become trained farmers, extension workers, agricultural teachers and researchers. For the transformation of the agricultural sector based on sound agroecological principles, training institutions must embrace such new content and deliver effectively.

Training in agroecology in post-secondary agriculture curriculum can better position graduates to foster a community of practice based on agroecological principles. Since poor training in agricultural extension is linked to challenges of sustainable rural development in developing countries (Chittoor & Mistra, 2012), training in agroecology should be streamlined with extension education to enable successful transformation of food production systems.
According to Davis (2016), extension remains a critical institution to meet the new Sustainable Development Goals, hence, we posit that training in agroecology is essential.

**Purpose and Objectives**

The purpose of this study was to determine the extent of knowledge acquisition of agroecological concepts by university graduates of general agriculture.

**Method**

WhatsApp digital platform was used to conduct focus groups discussion (FGD) with two groups of agricultural graduates from two institutions in Trinidad and Tobago. It has been shown that WhatsApp FGD elicited similar findings compared to traditional FGD (Singer et al., 2020). A total of 21 agriculture university graduates was interviewed, the University of Trinidad and Tobago (n= 12) and University of the West Indies (n= 9). The procedure outlined by Singer et al. (2020) was used to elicit, record and categorise responses to 12 open-ended questions. These related to the definition and concepts of agroecology and the extent to which these concepts were emphasized in the training received. After initially providing responses on their understanding of the discipline, participants were then requested to view a YouTube video titled “What is agroecology?”, and further questioning was engaged to determine the extent to which their training converged with agroecological concepts.
Results

Less than one-third of the participants before viewing the video indicated that they were fairly knowledgeable about agroecology. After viewing the video, there was consensus among 100% of the participants that elements of agroecology were indirectly embedded into some courses in the curriculum. However, all participants were of the view that not much emphasis was given to it as a discipline and that content needed to be filtered. There was a 100% agreement among all participants that they would have difficulty in developing an agroecological model for implementation and that the curriculum did not equip them with the necessary skills to do so.

It was the general opinion of all participants that the delivery of the content in agroecology may be repetitive throughout the curriculum, if it was to be taught in various courses. All participants felt that agroecology, as a separate course, should be built into the agricultural curriculum and delivered early before food production related courses.

All participants suggested that consideration must be made in the design and approach to the delivery of agroecological concepts in the curriculum to streamline content, making it more relevant and practical to agriculture in Trinidad and Tobago. It was further suggested by one-third of the participants that a general course in ecology would also widen the comprehension of agroecology in the context of sustainable agriculture and environmental protection.
Conclusions and Implications

The study concluded that there was need for greater emphasis in agroecology as a practice in the agricultural curriculum as a specialized content area. It is important to note that the agricultural workforce at the various public and private institutions in Trinidad and Tobago come from the two tertiary level institutions on the island: The University of Trinidad and Tobago ECIAF Campus and the University of the West Indies, St Augustine Campus. As such, there must be deliberate refocusing of the agricultural curriculum to support training in agroecology to avoid students having to filter it from other related courses. Indicatively, if there are such deficiencies in the training of the national agricultural graduates, then the agricultural workforce attached to organizations responsible for agricultural extension will be deficient in their ability to build capacity in agroecology. The current dominant style of conventional agricultural and its adverse impacts on the environment will undoubtedly impact food security in the future. As such, capacity building in agroecology is imperative to ensuring the protection of the environment to support the long term productivity of food systems.
References


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Agricultural Education and Migration: A Comparison of Youth in El Salvador and Honduras

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Agricultural Education and Migration: A Comparison of Youth in El Salvador and Honduras

Introduction

According to the United Nations (UN, 2019), youth is defined as a period of transition from the dependence of childhood to adulthood's independence that ranges from 15 and 24 years old. It is expected that by 2030 the number of youths globally will grow from 1.2 billion to nearly 1.3 billion. Moreover, this age group is the most mobile social group in the world (Global Migration Group, 2014). This growth and mobility add pressure to governments because of the need to provide youth with the necessary services (UN, 2018). For instance, approximately 47% of Salvadorans and 52% of Hondurans are under the age of 25, and many are unable to find jobs, forcing them to seek other options, such as migration (Congressional Research Service, 2019).

In 2015, the number of international migrants reached 244 million; this number is small compared to the noticeably higher number of migrants (740 million) who migrate within their countries, mainly from rural to urban areas (FAO, 2016). The decision to stay in their home communities or to migrate to other areas holds great economic, social, and emotional consequences, especially for rural students (Theodori & Theodori, 2014). The impact of youth's decision to migrate is important for rural communities because of the potential loss of the human resource (Demi, et al., 2009).

Youth migration in El Salvador and Honduras is a recognized problem, and several reasons such as poverty, violence, and insecurity have been identified as potential drivers of this phenomenon (Warren & Kerwin, 2017). Education is another example of push and pull migration driver; rural people that pursue a higher level of education are more willing to leave their communities to pursue a degree (Corbett, 2007; Kodzycki, 2001). However, this is not the
case with all educational programs. Agricultural education programs teach students better agricultural practices and motivate them to replicate new techniques on their land, which reduces migration (Rhoda, 1983). Youth migration is an important issue in developing countries; unfortunately, limited studies have been developed in Central America to determine the impact of agricultural programs in the decision to migrate (Roth & Hartnett, 2018).

**Purpose and Objectives:**

This study aims to identify and compare the migration intentions of high school students in agricultural and non-agricultural programs from a rural community in El Salvador and a rural community in Honduras. The study was framed by the Theory of Planned Behavior (Ajzen, 1991).

1) Do agricultural education programs have an impact on high-school students’ intentions to migrate?

2) What are the push/pull factors that influence youth to migrate from their rural communities to urban centers?

**Methodology**

For this quantitative study, a two-group model was used. The target population ($N = 209$) was composed of high school students with similar economic and social characteristics from two communities, one in El Salvador ($n = 104$), and one in Honduras ($n = 105$). Two groups from each community were recruited, one participated in a formal agricultural education program (AEP), and the other group was part of a non-agricultural education program (Non-AEP). Data were collected using a paper-pencil instrument that explored youth Salvadorian and Honduran students’ intention to migrate. The survey had five sections, with 50 questions: demographic information, participants' academic and agricultural background, migration drivers, residential
satisfaction, and intention to migrate. Reliabilities for the constructs ranged from .74 - .89. Descriptive statistics were performed to detail the demographic characteristics of the groups, a Chi-Square test of independence and 2x3x2 Factorial Analysis of Variance (ANOVA) was conducted to highlight the differences between groups in the different constructs.

**Results and Conclusions:**

In total, 106 men and 102 women participated in this study. In El Salvador, the majority of participants were men ($n = 65$, 62.6%), while in Honduras, most of the participants were women ($n = 64$, 61.0%). Concerning students' access to land, Honduras had a greater number of students from families that own land ($n = 78$, 74.2%) than the participants from El Salvador ($n = 39$, 37.5%).

Results from the Chi-square evaluated youths’ intention of migration based on their educational background. Overall, 39.8% of the youth in the agricultural program do not have the intention to migrate, while 30.1% said yes, and 30.1% were undecided. 55.3% of students in non-AEP considered migration as a good option, followed by 23.3% undecided, and 23.3 % do not have the intention to migrate.

Results from the MANOVA showed that “Social Participation” and “Environmental impacts” constructs were significantly different ($p < 0.05$) for youth intention to migrate. Youth who are willing to migrate have a higher social participation and had being influenced by environmental impacts comparing with those who are undecided and those who have no intention. The other constructs “Access to Extension Activities”, “Disputes”, “Interpersonal Ties” “Social Support”, “Residential Satisfaction”, and “Interpersonal Ties” and. Therefore, the scores between both educational programs were similar.
Finally, the migration drivers considered for this study showed that people who are willing to migrate have less social participation in their communities than those who are not willing to migrate \((p < 0.05)\). Disputes, access to extension activities, and interpersonal ties are different for people from AEP and Non-AEP; however, these drivers did not influence youths’ intention to migrate.

**Recommendations**

The results of the research are supported by previous data and researches that established the higher willingness to migrate among youth from El Salvador than Honduras (Rodriguez, et al., 2019). In addition, the results of this study showed that students with more knowledge of agriculture have higher intentions to migrate.

In light of these results, it is recommended to conduct qualitative research exploring rural youth’s intention to migrate to gain deeper insight into this issue. It is also recommended to replicate the study in other Central American countries, looking for more robust data.

A great percentage of the participants were indecisive about migrating. While this is troubling, it also presents an opportunity to influence young people to stay in their communities. New programs need to increase youth involvement in community activities, thus enhancing their sense of belonging.
An Ethnographic Study of Agricultural Identity in a Salasaca Community in Ecuador

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An Ethnographic Study of Agricultural Identity in a Salasaca Community in Ecuador

Introduction

In Ecuador, the Salasaca Indigenous people are well-known for being strict in their cultural preservation, fiercely protecting their language, manner of dress, and traditional agricultural practices (Beck & Mijeski, 2000). Their traditional production system consists of shifting and mixed cultivation, which includes more than seventy species of crops (Wogan, 2018).

Though the elders in the Salasaca community are farmers, new generations have abandoned agriculture and focus instead on other economic activities (Corr & Powers, 2012). Elders have expressed concern over the future of their agricultural traditions as younger generations have drifted away from this part of their cultural heritage. Agricultural educators working in Indigenous communities must know how to increase youth agricultural participation using techniques that both honor traditional agricultural practices while introducing new knowledge to enhance young people’s interest (Shukla, et al., 2017). Understanding how elders and young people from the Salasaca community describe their perceptions of agricultural is an important first step in bridging the generational gap in agricultural interest and identity.

Purpose and Objectives

The purpose of the study was to understand how the Salasacas describe their agricultural identity across different generations. To accomplish this goal, two research questions were examined:

1. What are the values that characterize Salasacas?
2. How do Salasacas describe their agricultural identity?

**Methodology**

In this ethnographic study, the lead researcher worked in a Salasaca community, located in central Ecuador for three weeks. He worked with the Salasacas in agricultural activities by providing training in leadership, teamwork, and sustainable production practices. After building trust with members of the local cooperative, the lead researcher began to recruit informants for the research.

In total, 12 people participated, 7 men and 5 women. The researcher decided to divide into four groups: men under 40 years of age (n = 3), men over 40 years of age (n = 3), women under 40 years of age (n = 3), and women over 40 years of age (n = 2). Participants were asked about their cultural and agricultural practices, as well as their perceptions of what it means to be Salasaca and how this relates to agriculture.

To enhance the credibility of this study multiple sources of data were used: interviews, focus groups, researcher memos, photos, and field notes (Creswell & Creswell, 2018).

**Results**

Three themes emerged from the sources of information: Pride and Unity, Food Traditions, and Agricultural Loss.

**Pride and Unity:** The Salasacas of all ages consider it a source of pride to be different from other cultures, and to be recognized for their traditional dress, particular accent, and cultural practices. An elder mentioned:

“Be a Salasaca? I feel proud! They identify me anywhere I go, they identify me by my language, by my dress, everything that I am.”

A young person mentioned:
“The benefit of being Salasaca is that we have a unique language and it amazes outsiders that we have not lost our language. That is a benefit.”

The Salasacas highlight that solidarity is the most important value they possess. The Salasacas are well-known for being a unified group that does not allow the intervention of external people in their community (Corr & Powers, 2012). They mentioned:

“For example, if a Salasaca migrates… and he is born, maybe in the United States, he is (still) a Salasaca! Even though he was born there, he continues being a Salasaca.”

**Food Traditions:** All Salasacas asserted that food is a key component of their cultural traditions. During the focus groups with the Salasaca elders, they established the particular importance of corn and blue agave in their current and ancestral agricultural practices. Young people and elders alike described the almost sacred role of “chaguarmishqui” an important beverage in Salasaca culture derived from the blue agave plant. Young people held a positive view of maintaining cultural practices surrounding food.

**Agricultural Loss:** The Salasacas have been experiencing a sense of loss – both physically and psychologically – in their agricultural production. They mentioned:

“Well, here in our community, Salasacas used to know how to work in agriculture and crafts. But lately it has been lost, right? The Salasaca does not have very much land, they are some plots. They are practically for family subsistence and consumption.”

Salasaca youth are focused on formal educational preparation. They believe that with more education, fewer and fewer people will continue working in agriculture. They stated:

“Well, most of the adult people are working as farmers, but for youth, they are already studying and working in offices; they are no longer living agriculture.”
The Salasacas shared that in addition to limited agricultural productivity, the absence of agricultural programs that strengthen the agricultural abilities of young people is one of the principal issues. Youth considered that agriculture is old-fashioned work that does not give you the return on your investment.

Conclusions and Recommendations

This study examined the agricultural identity of the Salasacas. Though the Salasacas are fiercely protective of their traditions and cultural practices, they still see outside influences drawing the younger generation away from the traditional sense of being Salasaca, including agricultural production.

As the Salasacas watch their young people adopt customs that are not traditional to their particular community, they have begun to question if perhaps programs dedicated to enhancing agricultural productivity would have helped their young people remain linked to some of their traditional practices. This type of reflection may provide an opportunity for agriculture and extension educators to rethink how they approach traditional Indigenous communities. Perhaps conversations with tribal elders about important cultural practices in agriculture could be interwoven with newer technologies to expand interest in agriculture among tribal youth. Honoring the ancient agricultural traditions while introducing new agricultural technologies may be a way to reach Indigenous young people with the blessing of their elders.

It is recommended to replicate the research in other Salasaca community to have a broader perspective and infer if the problem is just of this indigenous community or if it extended to others.
Appraisal of Backyard Gardening Intentions among Bahamian Residents on the Islands of New Providence and Grand Bahama

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Appraisal of Backyard Gardening Intentions among Bahamian Residents on the Islands of New Providence and Grand Bahama

Introduction

Small Island Developing States (SIDS) face unique developmental challenges and vulnerabilities with food security. Caribbean Island SIDS, in particular, continues to remain vulnerable to drastic shifts in global markets as well as natural disasters. One such event that has already imposed harmful repercussions is the current global pandemic of COVID-19. As expressed by the International Panel of Experts on Sustainable Food Systems (2020), this novel virus has brought about an economic crisis that is rapidly exacerbating the ongoing food security and nutrition crises. Moreover, it exposes the inequities, fragilities, and underlying risks in the global food system. In the Caribbean, this crisis has already proved to be detrimental. Unlike a natural disaster such as a hurricane that has the temporary capacity to shut down cargo ports, COVID-19 has reduced and interrupted supplies from the region's primary food source—the United States.

The existing instability and vulnerability within the food system continue to undermine governments' efforts to advance overall nutrition and food security in the region. In the case of The Bahamas, explicitly, this reality holds as the country suffers from the lack of structured and sustainable agricultural programs that can supply agricultural products for the entire country. A 2019 study conducted by a local non-profit revealed that 1 in 3 individuals face varying food insecurity levels within the state. Additionally, 1 in 10 individuals live below the poverty line and experience severe food insecurity (PDRS, 2019). One solution to this ongoing food dilemma may be to shift developmental focus towards enhancing sustainable urban agricultural practices, such as backyard gardening.

However, in order to understand if backyard gardening presents a viable solution to the ongoing food issues within The Bahamas, a more in-depth examination into local perceptions and intentions, as well as motivators, is needed. The theoretical foundation of the Theory of Planned Behavior offers the opportunity to focus on an individual's intention to perform a given action, which is presumed to be driven by influencing motivational factors (Ajzen, 1991).

Purpose

The purpose of this research was to explore the current intentions and motivations among Bahamian residents on the islands of New Providence and Grand Bahama to adopt and engage in the practice of backyard gardening. This study, therefore, examined the current attitudes toward social and economic sustainability in light of COVID-19. The study also explored the current levels of intention and motivation among the population to engage in this practice.

Methods

The researchers chose to approach the study through a quantitative survey research design. This study intended to address the entire population of The Bahamas. However, due to the country's size and proximity of this population and other limitations, reaching every island would have been a monumental undertaking. Therefore, the study's sample, setting, and the population was limited to adults 18 and over residing on New Providence and Grand Bahama.
islands. Due to COVID-19 restrictions, the co-investigator, a native, utilized her contacts at the Ministry of Agriculture and Marine Resources to obtain an initial list of participants within the boundaries. Participants used three social media platforms, WhatsApp (an encrypted messaging platform), Twitter, and Facebook to complete the online survey. Participants were asked to forward the survey upon completion to ten individuals they knew within the boundaries, resulting in snowball sampling.

**Results**

Researchers went into the study under the assumption that because The Bahamas is a Tourism dependent economy, the lack of activity during this time would have adverse effects on food purchasing power and economic/social sustainability, fueling the desire to engage in sustainable agricultural practices. Demographic results revealed that 76.7% of respondents who took the survey had no direct relation to the country's primary industry, while 14.0% did. Further, using a seven-point Likert scale, where 1 = *not true at all*, and 7 = *very true*, respondents were asked to indicate their agreement level with various prompts based on the first objective. For the statement "COVID-19 did not affect my household economically," 32.6% indicated that this was not true at all. In comparison, 39.5% responded not true at all when questioned if "COVID-19 has directly affected my ability to buy food." This suggests that while the pandemic did affect households economically, there was no immediate effect on social sustainability and food. Equally important, it was found that 68.81% of respondents felt motivated to engage in this practice, while 38.40% indicated actual intention.

**Implications and Importance**

This study's results can significantly impact the growing body of urban agriculture literature and impact the way local extension practitioners interact with Bahamian residents. Furthermore, this research will have an immediate and direct impact on the Bahamian government's ongoing efforts. Currently, the Ministry of Agriculture and Marine Resources has proposed a 1.7-million-dollar food production plan that will undertake several initiatives to help local producers and the broader community. This includes revitalizing the backyard gardening initiative, increased land-clearing and farm inputs for producers, and increasing the availability of shade/greenhouses and hydroponic systems for young farmers and backyard gardeners (McKenzie, 2020).

**References**


Culture as a Predictor of Effective Adoption of Climate-Smart Agriculture in Mbeere North, Kenya

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Culture as a Predictor of Effective Adoption of Climate-Smart Agriculture in Mbeere North, Kenya

Introduction/Conceptual Framework

The susceptibility of the agricultural sector to climate change continues to threaten food and livestock feed production (EEA, 2019). Research indicates that greenhouse gas (GHG) emission is the main driver of climate change (Arora, 2019). Climate smart agriculture (CSA) has been found to offset GHG such as CO₂ by up to 20% in a year (USAID, 2016). According to MoALF (2017) CSA helps in building the resilience of agricultural systems to climate change by minimizes GHGs emissions. Wambugu et al. (2014) reported that successful adoption of CSA can only be achieved through awareness creation and capacity building. Diffusion and adoption of practices occurs within social and cultural systems (Rogers, 2003). Culture encompasses the way of life of a given group of people and includes such elements as language, traditions, farming systems, inheritance, customs, values, religious beliefs, politics, social structures, attitudes, taboos among others (Giddens, 2005). Additionally, farmer’s attitudes, desires, and expectations are driven by the society’s culture and groups the farmers belong to in the social structure. Notably, farmers’ attitudes correlates positively with adoption of technologies (USAID, 2016). Although there is a growing body of literature on CSA (Anuga et al., 2019), little is known about the correlation between cultural elements and effective adoption of CSA. Very few studies exist to illustrate how social structures affects diffusion and adoption of innovations (Rogers, 2003).

Purpose and Objectives

The study sheds light on the amount of variation accounted for by culture in effective dissemination and adoption of CSA practices. The research objectives were to; 1) determine if farmers with and without access to information differed significantly based upon the adoption levels of CSA, and 2) find out which cultural elements were significant predictors of effective adoption of CSA practices.

Methods/Procedures

The research involved a sample of 127 participants selected through systematic random sampling from a population of 2,047 farmers in Mbeere North Sub-county (MOA, 2010). Of the
127 farmers, sixty-six were female (52%) while sixty-one were male (48%). The participants
farm sizes ranged from 0.25 to 15 acres ($M = 3.89$, $SD = 2.79$). The descriptive correlational
survey involved a peer and expert reviewed semi-structured questionnaire. Prior to data
collection, a pilot study involving 30 farmers (male, $n = 12$, female, $n = 18$) was conducted in
Embu North Sub-county (Sudman, 1983). An independent samples t-test was conducted to
determine if farmers with and without access to information differed significantly based upon the
adoption of CSA. The resulting insignificant Levene’s statistics $F (120) = 0.48$, $p = 0.49$ showed
that homogeneity of variance assumption had been met (Levene, 1960). Multiple regression was
performed to determine if language, traditions, attitude, social structures, kind of food, literacy
level, politics, taboos, gender roles, and values are significant predictors of effective adoption of
CSA. The VIFs ranged from 1.36 to 2.28, while tolerance statistics varied from 0.44 to 0.74
signifying a lack of perfect multicollinearity (Menard, 1995; Myers, 1990). The hypotheses of
the study were tested at 95% level of significance or 0.05 alpha level \textit{apriori}.

\textbf{Results/Findings}

The results indicated that farmers who received CSA information ($n = 84$, $M = 60.52$, $SD$
$= 9.71$) compared to farmers not receiving the information ($n = 38$, $M = 55.21$, $SD = 9.68$)
demonstrated statistically significantly higher adoption of CSA practices, $t (120) = -2.80$, $p = 0.01$.
Access to information was found to have a medium effect on adoption of CSA, $d = 0.55$ (Cohen,
1992). The poor adoption rates ($n = 26$, 20.47\%) witnessed among some farmers may have been
contributed by inefficiencies on the part of the extension agents, cultural barriers, farm, and
farmer related factors. Timely planting ($M = 4.44$, $SD = 0.85$), terracing ($M = 4.28$, $SD = 1.06$),
cover-cropping ($M = 4.28$, $SD = 1.09$), use of organic manure ($M = 4.26$, $SD = 1.13$), and use of
legumes in crop rotation ($M = 4.22$, $SD = 1.08$) were among the most frequently applied
practices. A combination of cultural elements significantly predicted adoption of CSA, $F (11,$
$108) = 2.66$, $p = 0.01$. Specifically, the cultural elements accounted for 21\% of the variance, $R^2$
$= 0.21$. Local language ($b = -1.48$, $t = -2.25$, $p = .03$), cultural values ($b = 1.72$, $t = 2.13$, $p = .04$),
and gender roles ($b = -2.43$, $t = -2.18$, $p = .03$), significantly predicted effective adoption.

\textbf{Conclusion/Implications}
The adoption of CSA in Mbeere North Sub-county was moderately effective as characterized by the moderate application rates. This may have resulted from inadequate access to information relating to the CSA practices (Muthoni, 2018) and cultural barriers. Most of the farmers, especially seniors who had no access to advisory services, utilized indigenous knowledge that had been accumulated over years (Rogers, 2003). This establishes an extension education gap that called for collaborative efforts between the private and public sector extensionists in the design and implementation of CSA programs. Public extension agents whose main role is to advise farmers need to increase the frequency of farm visits that serve as avenues for follow-ups and provision of additional information. The utilization of mass extension methods such as the use of text messages, radio, and television programs should be expanded to supplement the few individual farm visits, off-farm programs, and field demonstrations that are occasionally undertaken. This would also go a long way in addressing the problem of high extension to farmer ratio (Davis, 2008). The increasing inability of frontline extension workers to communicate in the local language repressed effective dissemination of CSA practices and subsequent adoption rates. To address the problem, county extension staff should be encouraged to learn the local dialects. Entrenchment and continued transfer of the cultural values to the upcoming farmers should be sustained to expand the adoption of the practices. Women should also be encouraged to participate in farm decision making process and the application of CSA activities.
References
USAID. (2016). *Climate smart agriculture in the feed the future programs*. Washington, DC: USAID. https://www.climatelinks.org/resources/climate-smart-agriculture-feed-future-programs#:~:text=Feed%20the%20Future%20was%20launched,as%20it%20affects%20child%20stunting.
Supporting Learning to Enhance Innovation in a Flash Flood affected Rice Farming Context in Bangladesh

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Keywords: Learning, innovation, flash flood and rice farming
Introduction and theoretical framework

Enhancing agricultural innovation is considered key for the agricultural and rural development sectors to ensure its competitiveness and productivity in the rapidly changing context of developing countries (Rajalahti et al., 2008). Acquisition of knowledge through interaction and learning is essential for enhancing agricultural innovation (World Bank, 2006). There is a call and increased demand on Extension and Advisory Services (EAS) to shift emphasis from technology transfer to perform a new role as a knowledge broker capable of facilitating interactions among diverse and multiple actors (Makini et al., 2013; Rajalahti et al., 2008). The agriculture sector is particularly vulnerable to the effects of climate change in comparison to other sectors in terms of the number of people affected and the amount of economic loss (Anita et al., 2010; World Bank 2012). Enhancing and scaling up innovation could help to transform the agriculture sector in order to respond to the increasing effect of climate change (Food and Agriculture Organization, 2018; World Bank 2012). However, knowledge and understanding of the new roles of EAS to support learning for strengthening innovation at the micro-level for adapting to climate change is more limited. Additionally, the current literature falls short of analysing the roles of EAS needed to perform to help agricultural communities to adapt to particular climatic stressors, such as floods, droughts, and cyclones.

This study utilised learning as a design framework to understand how EAS could support farmers to enhance innovation in a specific climate change context. Using De Bruin and Ensor’s (2018) learning approach as a design framework might provide a number of potential drivers and outcomes that could be significant in enhancing innovation. This research employed insights from De Bruin and Ensor (2018) and developed a theoretical framework that comprises probable drivers and expected outcomes of learning. Potential drivers included: issue framing and agreement among actors, skills and capacities to join and interact, trust and credibility of other actors and technology, compatibility between existing practices and new technology, membership of participating groups, and frequent occurrence and participation. Developing change in understanding, practices, and relationships among the partners were considered the intended outcomes of the learning intervention.

Purpose and objectives
The study intends to bridge the gaps in the existing literature by deepening understanding of the role of EAS in supporting learning among agricultural actors to enhance innovation, using a case study of an attempt to help rice farmers to adapt to flash floods in Bangladesh. The research particularly examines how the EAS providers facilitate rice farmers’ learning to enhance innovation for flash flood adaptation.

**Methods and data sources**

The research used a case study design and investigated learning interventions of the Department of Agricultural Extension (DAE), which is the largest public sector extension organization in Bangladesh. The study was conducted in the north-eastern part of the country, namely the Sunamgonj district. This district is prone to flash floods, resulting from heavy rainfall within a catchment, producing rapidly rising river flows (Kamal et al., 2018). Data were collected through key informant interviews, focus group discussion from 32 farmers, 12 DAE staff, three local representatives and two private company staff from December 2018 to May 2019. Data were recorded, transcribed, and coded following the deductive coding approach (Bernard, 2017) and analysed using NVIVO software.

**Results, products, and conclusions**

The DAE facilitated learning approaches that resulted in mismatched and incongruent framing of the concerns, problems and agreement on focal strategies for flash flood adaptation. Farmers lacked skills and motivation to transcend their concerns and interests with other actors in learning interventions. The learning approaches fell short in establishing trusting relationships among the participating players. Farmers reported that new technologies and new ways of cultivating rice discussed through learning approaches were mostly incompatible with their local context. There were variations in scope and approval to undertake learning approaches for the farmers. The learning interventions were not implemented as frequently as planned or recorded in official documents due to limitations in funding, skills and physical arrangements.

The DAE supported learning approaches changed initial understanding and framing of participating actors but did not lead to a new shared understanding of flash flood adaptation. Farmers had, to some extent, modified their way of practising rice cultivation, but in many cases, they were unable to access inputs, resources and credit facilities required to move from
this new understanding to new rice cultivation practices. The learning perspectives had changed relationships and developed a new configuration among the players. Farmers had increased their contact and established intensive relationships with the DAE and input dealers, but they had reduced their communication and dependency on relatives and other farmers for adapting to flash flood.

**Recommendations, educational importance, implications**

Following Davis (2009) and Sulaiman (2017), the EAS providers should consider sufficiently expanding and deepening their understanding and capabilities in “soft skills”, such as co-learning and system thinking, to help adapt the agricultural sector to flash flood. Policy makers need to include, to some extent, flexibility in terms of topics to be discussed and membership for participation in designing and implementing learning interventions. Donors, funders and policy makers should provide adequate funding, farm inputs and other resources so that EAS providers can deliver the demand-driven innovation support services (Kilelu et al., 2014) required to initiate practice change among the farmers.

These results are beneficial for enhancing innovation in the flash flood context by drawing attention to a few issues that could be improved, including facilitation i.e. capacity building of both participating players and EAS providers, and providing adequate innovation support services. The EAS providers need to facilitate learning approaches to respond to local concerns and optimally utilize common and natural resources coupled with the adoption of technological initiatives, such as new rice varieties to adapt to flash flood.
References


The Perceptions of U.S. University Agriculture Faculty Regarding the Formation of Global Partnerships: A Q-Sort Study

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The Perceptions of U.S. University Agriculture Faculty Regarding the Formation of Global Partnerships: A Q-Sort Study

Introduction

As internationalization has become a more predominant theme in literature, researchers have examined key elements, or performance indicators, of internationalization at institutes of higher education. Faculty involvement in international activities, research, and collaborations have been identified consistently across the literature as one of these key indicators (Deardorff et al., 2012; Nolan & Hunter, 2012; O’Hara, 2009; Paige, 2005). These relationships have been termed global partnerships and involve a range of arrangements to build the capacity for communities, institutions, and scientific discovery (Lanford, 2020). As calls for more global partnerships increase, more work is needed to understand the dimensions of faculty’s perceptions on this phenomenon (Payumo et al., 2019).

Conceptual Framework

The conceptual model proposed by Rampold et al. (2018) to assess perceptions of faculty involvement in study abroad provided the conceptual framework for this study. Although study abroad was the internationalization performance-indicator of interest in the original model, Rampold et al. (2018) suggested applying the framework in future research to examine faculty members’ participation in other key components of internationalization. As such, the model’s three dimensions – institutional, professional, and personal – served as the lens in this investigation to examine faculty member’s involvement in global partnerships. The institutional dimension pertains to institutional characteristics and how institutions set and communicate their priorities regarding internationalizing higher education. The professional dimension includes factors pertaining to more localized professional characteristics of faculty members, such as rank, academic discipline, and expectations and support for international activities among administrators and colleagues within the faculty member’s department or college. The personal dimension represents faculty members’ personal beliefs, attitudes, knowledge, and experience.

Statement of Purpose

The purpose of this study was to examine the perspectives of U.S. College of Agriculture faculty at Louisiana State University regarding their views on forming global partnerships.

Methods and Data Sources

In this study, we used a Q methodological approach (Brown, 1980). In Q, researchers examine participants’ beliefs on a topic of interest (Watts & Stenner, 2013). To accomplish this, researchers draw on quantitative and qualitative approaches to interpret participants’ views on a phenomenon (Brown, 1980). Central to Q is a technique called a Q-sort by which participants rank statements onto a quasi-normal distribution (Watts & Stenner, 2013). In the current investigation, we created the statements by analyzing faculty’s open-ended responses to a survey questionnaire in which they detailed their beliefs about the nature of global partnerships. This process produced a total of 163 initial statements. Then, we used Rampold et al. (2018)
framework to negotiate the dimensions – institutional, professional, and personal – of faculty’s perceptions into distinct categories, allowing us to sample 36 statements used to collect data.

We then asked 20 faculty members from the College of Agriculture at Louisiana State University to sort the 36 statements on a quasi-normal distribution ranging from (+4) Like Me to (-4) Unlike Me. There were 10 male and 10 female faculty who represented all eight academic departments. After data was collected, we analyzed each sort using PQ Method® version 2.35 (Schmolck, 2014). Then, we performed the following statistical analyses: (a) correlation, (b) principal component analysis, and (c) computation of factor scores. To achieve a simple structure, we also used a Varimax rotation. As a result, we chose to represent our findings using a three-factor solution with a base significance of .42. We selected this factor solution because it captured all 20 faculty, 51% of the total variance, and had negligible correlations among factors. Finally, we employed an approach advanced by Mauldin (2012) by which we used array positions, factor loadings, and individual and professional characteristics to interpret factors during analysis. This process helped us create a profile of each factor and interpret them as unique perspectives on global partnerships.

Findings

As a result of our analysis, three perspectives on global partnerships emerged: (1) Generative Partnerships, (2) Disadvantageous Partnerships, and (3) Empowering Partnerships. Each perspective is described, with supporting statement numbers and array positions, next.

The Generative Partnerships perspective represented eight faculty members who maintained that international collaborations could benefit each partner equally (16, +3). For example, they perceived that partners could experience reciprocal benefits regarding the acceptance of one another’s culture (9, +4) and also reinforce university-based values (6, +4). The Generative Partnerships viewpoint also expressed how the formation of such collaborations could help all team members learn to communicate better their ideas using a different set of cultural norms (22, +3). The second perspective, Disadvantages Partnerships, represented a predominately male (6/7) view that, based on their previous experiences, developing global partnerships did not have enough value-added benefits to make them worthwhile (5, +4). They also did not perceive they had the resources and support at the institutional level to ensure the partnership could be sustained moving forward. Therefore, global partnerships were not considered beneficial (34, +4; 33, +3). The final perspective, Empowering Partnerships, reflected how international arrangements could help all parties increase the visibility of their work (15, +4) and lead to personal and professional advancement (11, +3). They also perceived that global partnerships could lead to greater funding opportunities (14, +3) and improve their standing professionally (15, +4).

Conclusions and Educational Importance

This study provided critical knowledge regarding faculty’s perceptions of global partnerships. Such knowledge could be used to provide insights on how to assist faculty in crossing contextual borders and understanding how their views about global partnerships may encourage or deter opportunities abroad. In particular, the emergence of the Disadvantages Partnerships holds
important implications. For example, if resistance to global partnership building is reconceived by faculty – as culturally saturated, politically consequential, and socially contested – more effective strategies may emerge that increase the diffusion of partnerships, which could crystalize into a critical mass of faculty (Rogers, 2003) who seek to engage with and transform communities, institutions, and scientific discoveries. Moving forward, we also recommend that faculty development opportunities be created that feature best practices in regard to the creation of global partnerships.
References


Permaculture Education in a Conflict Area: Developing and Implementing a Course in Afghanistan

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Permaculture Education in a Conflict Area: Developing and Implementing a Course in Afghanistan

Introduction / Theoretical Framework

In the 1970s Bill Mollison and David Holmgren developed the concept of permaculture by combining the words permanent and agriculture. (Kunze, 2018). Permaculture describes the development of a system based on relationships found in ecology as well as principles and ethics derived from various holistic studies of these natural systems; (i.e. systems ecology and agroecology) (Krebs & Bach, 2018). Permaculture has developed into a creation model, which attempts to reverse the consumption model currently affecting our agriculture and ecosystem processes (Kunze, 2018). Permaculture has been applied to support; building topsoil, growing enough healthy food to feed the world, repairing devastated lands such as the rainforest, producing the energy needed by society, creating resilient communities and cities, improving overall quality of life, and possibly retarding or reversing the effects of global warming (Krebs & Bach, 2018).

Non-formal education provides instructional methods to teach permaculture most applicable for the context of this work (Henfrey, 2017). This permaculture course took place in Afghanistan. There were several challenges presented due to the type of instruction required for the course, the resources available, and the conflict environment. Despite these challenges, the benefits associated with permaculture and the ability to teach and apply the topic to any landscape make it an essential tool, which can be utilized for international development.

Purpose and Objectives

The purpose of this applied educational experience was to design and effectively teach a permaculture course in a conflict area. The following objectives guided the work:
1. Apply non-formal education principles to course design
2. Create interactive learning opportunities navigating contextual challenges
3. Evaluate the participants’ outcomes after the training was completed

Methodology

All masters students studying International Agriculture at [university] are required to engage in an international experience for graduation. For the principle author, teaching a Permaculture Design Course (PDC) in Shindand, Afghanistan satisfied this requirement. Between July and August 2019, course content was created, and participant recruitment took place. A sign-up roster was placed on the exit door of the common dining area of a U.S. operated military camp and 18 participants enrolled in this course.

The participants were U.S. military personnel, North Atlantic Treaty Organization (NATO) personnel, and government contractors; and were from the United States, Ghana, Uganda, Czech Republic, Philippines, Jamaica, and India. Due to security risks, there were no participants from the country of Afghanistan.

Course instruction included lectures, classroom activities, visual aids, and hands on learning. At the conclusion of the course, students were required to choose an area of their choice and implement a permaculture design utilizing the topics discussed in class and present their topic / design. Upon completion of the course, students received a Permaculture Design Certificate of Completion.

At the beginning of the course, participants were asked to complete an introduction and information sheet. This document collected demographic information, whether they had an agricultural background, and what participants wanted to get out of the course. At the end of the course, students took an exam to test their knowledge on the topics discussed throughout the course, completed their final project / presentation, and completed a course evaluation.

Results / Product

Ten of the 18 participants had no agricultural background. “Increase knowledge of permaculture and agriculture” was selected as the primary reason all participants enrolled in the
course. Twenty-Five units of study were reviewed during the 72-hours required for the PDC certificate, including sustainable agricultural systems, permaculture ethics and principles, building soils and soil protection, crop management and pest control, and tools / resources for creating a permaculture design.

For this educational experience, some of the challenging aspects included participant availability, safety / security concerns, and lack of conventional resources / technology.

**Participant Availability**

The course was originally designed to meet 2 hours a day for 4 days per week. Due to accelerated military mission requirements, the course ended up meeting 4 hours a day for 4 days per week. On several occasions, participants were required to perform job duties, which required them to be absent for periods of instruction. These absences were rescheduled, and one on one instruction occurred.

**Safety / Security**

The course had to take place in a semi-controlled area due to security threats in the region. This limited the course activities available footprint and required personnel to conduct security awareness. Due to security risks, no individuals from the local region were able to participate in the course.

**Resources / Technology**

Obtaining tools and materials to successfully create learning opportunities related to units of study proved to be difficult. Creativity and innovation were necessary. Some examples include, obtaining materials from NATO partners, government contractors, and the local populace to build an A-frame to measure contour lines, utilizing water bottles to mark the contour lines, using a mortar tube to measure water infiltration rates, and using Gatorade bottles to conduct the soil jar test and analyze soil texture. On several occasions, the lack of reliable internet connection resulted in difficulty utilizing online resources.

**Participant Outcomes**

All participants completed the exam successfully. Final project presentations varied in type and delivery method. Twelve of the presentations were delivered via PowerPoint, 4 were delivered via hand-drawn illustration, and 2 were delivered via 3-D modeling. Examples of final presentations included creating a non-profit permaculture community, improving established hunting grounds, and creating an aquaculture business. All students successfully completed the requirements for the course. Course evaluations had a positive consensus that the course met or exceeded participants expectations.

**Recommendations / Educational Importance / Application**

By utilizing non-formal educational practices, extension educators have the ability to teach permaculture education in a multitude of contexts and in challenging locations or situations. Based on this specific study, the following recommendations are proposed:

1. Implement one-on-one educational sessions allowing for both the participant and the instructor to have targeted engagement.
2. Promote different types of educational interaction and encourage co-learning among participants.
3. Think ‘outside the box.’ Non-formal education does not require advanced technology to teach basic ideas.

**References**


Minority Leaders in Agriculture

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Keywords: minority, agricultural education, leadership, history, high school
Minority Leaders in Agriculture

Introduction and Literature Review

Increasing cultural diversity in agricultural education programs is a continuous need (Talbert & Edwin, 2008). Current demographic data from both the North Carolina FFA Association and the National FFA Organization shows a disparity in membership from underrepresented minority (URM) groups (National FFA Organization, 2018; NC FFA Association, 2018). When agricultural education enrollment demographics are compared to student population demographics in schools, there is a clear indication of the lack of diversity in school-based agricultural education programs (Lawrence et al., 2013; United States Census Bureau, 2019). To promote agricultural careers, develop leadership skills, and promote diversity and inclusion in school-based agricultural education programs, an educational and leadership-based experience for secondary agricultural education students called “Minority Leaders in Agriculture” (MLA) was planned and implemented at NC State University.

Purpose and Objectives

The goal of this educational program was to provide an interactive educational and leadership-based experience for minority secondary agricultural education students. To reach this goal, the following objectives were set:

- Recruit 35 minority students from secondary agricultural education programs across the state to attend the program.
- Provide a campus tour showcasing university agricultural opportunities led by current Agricultural Education undergraduate students.
- Develop two leadership workshops promoting the development of leadership and communication skills.
- Showcase various agriculture disciplines through interactions with university faculty about their respective program areas and career opportunities.
- Host a panel discussion of current and former NC State University minority students to share their experiences in the College of Agriculture and Life Sciences with MLA attendees.

Methods

Program leaders met to discuss how to implement the program and secure funding. Departmental grant funding was obtained to promote agriculture careers and leadership among minority students (African Americans, American Indians, Alaska Natives, Asians, Latinos, Hispanics, and Pacific Islanders) currently enrolled in agricultural education at the high school level. An announcement email was distributed through the North Carolina FFA listserv describing the program and seeking participation from agricultural education teachers to register their students who met the criteria. Additionally, teachers were informed that participants would receive the following: State FFA Convention registration paid (if attending), a NC State gift bag,
program t-shirt, and overnight hotel accommodations if traveling from out of town and requested by the teacher.

Registration was handled using a Google Sheet on a first come first serve basis. Due to an immediate and increased interest, the allotted 35 spots filled up within one day and led program leaders to come together to discuss adding additional spots. To increase the registration number, additional funding was obtained through the Dean’s office and an additional sponsorship from an academic program was secured to provide a catered lunch.

At the conclusion of the registration period, program leaders began developing a more detailed plan specific to the logistics and facilitation of the event. Undergraduate students who had served as campus ambassadors for organizations on campus were asked to conduct campus tours. Current undergraduate students and graduates were contacted to serve on a panel discussion about their experiences in the College of Agriculture and Life Sciences at NC State University. Hotel accommodations were arranged for those who requested them at a hotel across from campus. Throughout the registration and planning for the program, a consistent stream of email correspondence was maintained between the registered agricultural education teachers and program leaders. An evaluation form was also developed to obtain feedback from the student participants and teachers at the completion of the program.

Results and Conclusions

The Minority Leaders in Agriculture program was held on June 17, 2019 in Raleigh, North Carolina on the campus of [University] from 9am to 4pm with approximately 50 registered participants. Participants arrived at 9am for a welcome greeting from one of the program leaders and an overview of the schedule for the day. Participants were then assigned to two different groups. Each group had the opportunity to participate in both a campus tour and a presentation entitled “How Do I Get Here?” delivered by a graduate student from the department and a staff member from the [College]. All participants then completed the first of their leadership-based workshops where they were given the DiSC Personality Assessment by one of the program leaders followed by lunch.

During lunch, participants were seated at tables with faculty representatives from various departments across campus such as Horticulture, Animal Science, Poultry Science, and Extension. During check-in that morning, participants were asked to complete an interest form to indicate their areas of interest in agriculture. Following lunch, participants completed the second leadership component and engaged in the final presentation on the history of minority leaders in agriculture presented by a professor emeritus at NC State University. The program concluded with an ice cream social, and participants and their teachers/chaperones completed the evaluation form.

Based on the evaluations, students and teachers indicated the daylong event was beneficial. Students reported they were exposed to at least one new career in agriculture. All the teachers indicated they would bring students to a follow-up event or they would recruit more students to attend if a similar program was offered in the future. Lastly, three teachers reached out to the leadership workshop leaders seeking their leadership presentations to implement with their new officer teams.

Educational Importance, Implications, & Application

Program leaders concluded that a continuation and expansion of educational programs like MLA will be pivotal in contributing to the increased diversity and inclusion in agricultural
education programs at the secondary level and post-secondary level. It is recommended that this
initial host institution, as well as additional institutions, continue to create opportunities for
minority students to develop leadership skills, experience a college campus for a day, and
interact with current undergraduate students, graduate students, and faculty members to learn
more about academic and career opportunities in agriculture. Securing funding to provide these
opportunities at little to no cost is crucial to the success of the program and may be available
through the Dean’s office or from recruitment funds in individual departments.

References

demographics as compared to schools and communities. *Journal of Agricultural
Education, 54*(1), 207-219. 10.5032/jae.2013.01207

Report.pdf

https://[state]ffa/as/[state]ffa/i/chan/documents/2017-18_Quick_Facts_updated.docx

10.5032/jae.2008.01051

States.* https://www.census.gov/quickfacts/fact/table/[state],US/PST045218
Undergraduate Students’ Attitude Toward Undocumented Migration: A Perspective from a Hispanic Service Institution in the Southwest

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Undergraduate Students’ Attitude Toward Undocumented Migration: A Perspective from a Hispanic Service Institution in the Southwest

Introduction

An estimated 4.4 million immigrants live in Texas, represent approximately 20% of the workforce, and have purchasing power of up to $113 billion. Their contribution to the state economy is critical: 41% work in construction, 26% in food services, 26% in science and technology, 21% in agriculture, and 20% in health (Flood et al., 2020). Despite these contributions, there has been an increase in anti-immigrant rhetoric in the United States (Domínguez, 2019; Martin, 2017). While globalization has changed the perception of migration, sometimes cultural differences have led to anti-immigrant sentiment (Abramitzky & Boustan, 2017; Goldin & Libecap, 1994). Youth education efforts have served to foster tolerance and build cultural understanding among young people (Cavaille & Marshall, 2019).

Due to this distinction, the government developed the Hispanic-Serving Institutions that provide grants to assist and expand educational opportunities to improve the academic attainment of Hispanic students. Understanding the attitudes of undergraduate students from a Hispanic Serving Institution toward undocumented immigration is important for ensuring a positive learning environment for all students. Gaining insight into students’ views can assist in designing educational interventions that could reduce discrimination against immigrants in general, including undocumented students at universities (Cavaille & Marshall, 2019).

Purpose and objectives

The study aimed to evaluate the attitudes of undergraduate students at an HSI towards undocumented immigration. Two research questions were used to guide this study:
1. What is the attitude of undergraduate students toward issues of undocumented immigration?

2. Is there any difference in students’ attitudes toward issues of undocumented immigration depending on the gender, political belief, ethnicity and race, and year of college?

**Methodology**

For this quantitative study, a two-group model was used. We replicated research that compared undergraduate students’ attitudes toward undocumented immigration at the University of Florida (Qu, et al., 2018). The data were collected electronically from a quota sample. The target population (N = 409) was composed of students pursuing a degree in agricultural sciences and natural resources (n = 284) and students pursuing other degrees (n = 167) at [a southwestern] University. The instrument had two-sections including demographic information and perception of undocumented migration, composed of 20 statements addressing the following subjects: discrimination, entrance to the country, access to resources, welfare, rights, and taxes. Descriptive statistics, Independent Samples Mann-Whitney U tests, and Kruskal–Wallis H tests were conducted to examine differences between the groups.

**Results and Conclusions**

Survey results revealed that undergraduate students are slightly against undocumented migration (M = 2.71, SD = 0.79). The majority of the participants agreed or strongly agreed with the following statements: “Undocumented immigrants should not benefit from my tax dollars” “There is enough room for everyone,” “Undocumented immigrants are a nuisance to society,” “Undocumented immigrants provide the U.S. with a valuable human resource,” “Undocumented
immigrants have rights too,” and “Undocumented immigrants shouldn’t be discriminated against.”

More than half of participants disagreed or strongly disagreed with the following statements: “Our taxes should be used to help those residing without documentation in the U.S,” “Undocumented immigrants are not infringing on our country’s resources,” “There should be open international borders,” “Undocumented immigrants should be excluded from social welfare,” “Undocumented immigrants who give birth to children in the U.S should be made citizens,” “Undocumented immigrants cost the U.S millions of dollars each year,” “Undocumented immigrants should be eligible for welfare,” “The government should pay for care and education of undocumented immigrants’ children,” “All undocumented immigrants deserve the same right as U.S. citizens.”

Some participants were undecided about the following statements: “Access to the country is too easy,” “Taking care of people from other nations is not the responsibility of the U.S,” “Undocumented immigrants should be forced to go back to their own countries,” and “Employers be allowed to hire undocumented immigrants.”

The findings for research question two shows that there was a significant difference in college, gender, ethnicity, and political beliefs ($p < 0.05$). Students from non-College of Agricultural Sciences and Natural Resource (CASNR) majors have a more positive attitude toward undocumented immigration ($M = 3.07, SD = .84$) than students from CASNR ($M = 2.62, SD = .80$). Regarding gender, men have a more favorable attitude toward undocumented immigration ($M = 2.88, SD = .86$) than women ($M = 2.61, SD = .79$). For ethnicity, Hispanic students have a more positive attitude toward undocumented immigration ($M = 3.40, SD = .81$) than non-Hispanic ($M = 2.64, SD = .79$). For Political Beliefs, very liberal have the most
favorable attitude ($M = 4.06, SD = .59$), followed by liberals ($M = 3.94, SD = .47$), moderates ($M = 3.16, SD = .76$), conservatives ($M = 2.45, SD = .58$), and very conservative ($M = 2.07, SD = .59$). Year of college, state of origin, familiarity, and income did not significantly influence attitudes ($p > 0.05$).

**Recommendations**

The results of this study showed undergraduate students’ perceptions that undocumented immigrants should have rights, these attitudes varied considerably among undergraduate students. CASNR students in particular seemed to have the least favorable attitudes towards undocumented immigration. This is troubling in a state where much of the agricultural labor does come from undocumented immigrants.

It is interesting, though not surprising, to note that Hispanic students had the most favorable attitudes towards undocumented immigration. The questions that remain unanswered are whether or not the students of Hispanic origin feel welcomed in this particular HSI. Future research is recommended to explore strategies to engage Hispanic students, especially in CASNR, in spite of the unfavorable attitudes towards undocumented immigrants.
Whose Journey to Self-Reliance?
A Critical Discourse Analysis of USAID Policy and the Land-Grant Imaginary

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Whose Journey to Self-Reliance?
A Critical Discourse Analysis of USAID Policy and the Land-Grant Imaginary

Introduction & Literature Review

Funding agencies commonly stipulate expectations for development projects. These expectations are historically informed by development policies and their discourses. Even when policy discourse is not explicit it can still serve as a knowledge-politic boundary. For this reason, policy discourse holds the power to frame what is possible for implementing partners. For those working on food security, funding agencies disproportionately frame and fund solutions to food insecurity using Green Revolution technologies (Biovision & IPES-Food, 2020; McMichael, 2005; Wise, 2020). Yet for some development leaders, technical and productionist approaches driven by the Green Revolution are insufficient to address the complexity of food insecurity as a 21st century wicked problem (Altieri & Nicholls, 2017; Anderson et al., 2020). Instead, inclusive participation in the development process is imperative to imagine new possibilities and solutions (Fraser, 2017; Giller et al., 2017). Agroecology as a science, practice, and movement has emerged as a viable participatory agricultural development model that advances community self-reliance and food sovereignty (Anderson et al., 2020; Leippert et al., 2020; Montenegro de Wit & Iles, 2016).

In 2018, USAID released “The Journey to Self-Reliance” (JSR), a comprehensive framework asserting a new approach to development and aid (Green, 2018). What this framework means for the participation of smallholders, as core stakeholders for community self-reliance, is unclear; thus, this study investigated how the announcement of the JSR discursively frames participation. Furthermore, in the spirit of critical praxis, we explored the implications of this framing with land-grant actors to capture their perceptions of USAID food security work. In this session, we present the findings from a two-part pilot study that analyzed the speech and its implications on land-grants through focus groups. Preliminary findings demonstrate how USAID’s framework draws heavily upon neoliberal discourse in framing participation, variously privileging the private sector while marginalizing academia. In response to these findings, land-grant actors raised questions and concerns about the implications on agricultural development work. To this end, we elucidate the role of critical praxis for agroecological development possibilities.

Theoretical Framework

This project employed Fairclough's (2003) Critical Discourse Analysis (CDA), and Pretty's (1995) participation typology for agricultural development projects. CDA as both a theory and a methodology provide a framework to analyze the discursive meanings and impacts of policy, as a relationship of knowledge-power, on actors who read it. Of CDA, we employed the concepts of representation, evaluation, and modality (Fairclough, 2003). Pretty’s typology of participation demonstrates the degree to which participants hold power over decision-making (Pretty, 1995).

Purpose and Objectives
Given the power discourse holds to enable or disable the possibilities of certain solutions, this project sought to understand the framing of participation and its impacts on the views of land-grant actors. Thus, we asked the following research questions:

1. How are actors represented?
2. How is participation represented?
3. What ideologies inform these representations?
4. What are the implications on land-grant actors and international agricultural development work?

Methods
The first stage of the research analyzed the former administrator, Mark Green’s 2018 announcement of “The Journey to Self-Reliance” in Atlas.ti. Using Fairclough’s (2003) representation schema, we coded statements referring to development actors for terms indicating desirability, undesirability, activity, and passivity. Subsequently, using his modality and evaluation schema, we coded the strength of statements asserting requirements and truth-statements. Subsequently, we coded each statement referring to an actor according to Pretty’s (1995) participation typology.

In the second stage, we held two focus groups comprised of participants from two land-grant institutions. We began the focus group asking participants for their perceptions of the framework. Subsequently, we presented the CDA analysis followed by questions asking for their reactions and perceptions in relation to their work and land-grants. Using Atlas.ti, we inductively coded the focus group transcripts using in vivo coding, employing the words of participants as codes. Each statement was coded line-by-line. As new codes were identified, all previous statements were reanalyzed using the new codes until no new codes emerged (Saldana, 2013).

Results and Conclusions
The study’s findings indicate that local governments are framed using strong accountability language reflecting the expectation of their commitment to the framework. Of note, the private sector is framed as an accountability check for local governments, indicating an increased level of neoliberal control. Citizens and civil society are epistemologically framed using adjectives demonstrating predetermined notions of their value and worth as acceptable for development. Academia may be at risk of marginalization.

Four thematic findings emerged from the focus groups: reimagining the international development relationship, self-reliance as a rebranded neocolonial concept, whether land-grants should continue to do USAID-funded development, and self-reliance as a top-down and rationalistic development model. Participant reflections made by development actors on their work illustrate the potential for CDA as critical praxis.

Implications and Recommendations
Our study indicates several implications for agricultural and extension professionals. First, we argue that the centrality of the private sector and its role as an accountability measure over local governments’ compliance represent a concern to a country’s self-determinism indicating elements of neocolonial policy. This may impinge on the ability to imagine
agroecology as a viable solution. Secondly, the epistemological positioning of citizens and civil society as partners may support participation and thus the possibility of an agroecological agenda. However, given the framing of these actors, those who assert an agenda counter to the private sector’s principal role may risk epistemological dismissal. Third, the query posed by focus group participants as to the role of land-grant universities working with USAID has praxis implications for practitioner-scholars considering or currently engaging in USAID-sponsored work. Although this pilot study was limited in scale, we believe the reflections provided by land-grant administrators on reimagining the aid relationship are compelling and support other scholarship demonstrating the possibilities of CDA as critical pedagogy (Paugha & Robinson, 2011; Weiner, 2003). As a result, we encourage further investigation into CDA’s potential as critical praxis within the development context. Finally, we recommend that this project scale up to include more of USAID’s policy texts and additional universities.
References


Connecting International Agricultural and Extension Education with Policy Formation Using Utilization-Focused Evaluation

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Introduction, Background, and Purpose

New evaluation approaches have emerged as agricultural and extension educators seek methods for capturing and communicating impact (Lamm et al., in press). Program evaluation provides an opportunity to support effective agricultural communication and policy mobilization needed to address multifaceted challenges (Cabatoff, 2000). Unfortunately, many evaluation techniques forgo the intended user and lessen the practical use of evaluation findings. Bubela et al. (2009) found a participatory approach to evaluation yields more effective communication resulting in informed policy formation. Communicating and strategizing with the primary intended users is a key element of utilization-focused evaluation (UFE; Patton, 2008). The foundation of UFE is to strategize with primary intended users throughout the entire evaluative process to determine their information needs and intended uses (Patton, 2008). While UFE is not a new approach (Lamm & Lamm, 2018), research placing UFE at the nexus of communicating the impact of agricultural education initiatives to inform policy formation is limited. Thus, using the UFE framework to increase the use of evaluation findings garnered from international agricultural and extension education to inform policy development is largely unexplored. The purpose of this theoretical study was to reflect upon previous UFE practice and discuss its potential role in international agricultural and extension education efforts; specifically related to using it for communication efforts that inform policy formation.

Theoretical and Philosophical Themes

UFE is an applied sociological approach, concerning how people apply evaluation findings and experience the evaluation process (Patton, 2015). The evaluator works collaboratively with intended users to develop the evaluation and establish standards. Thus, intended users are more likely to use evaluation findings due to a sense of ownership over the process and the implications of the findings (Patton, 2015).

Contextualizing UFE within a historical perspective is critical for understanding its potential impact. Program evaluation emerged from social experimentation and government intervention in the U.S. during the late 1960s (House, 1993; Weiss, 2004). Two key realizations from this period influenced the development of evaluation as a field: there is not enough money to do everything that needs to be done, and it takes more than money to solve complex social problems (Patton, 2008). As a result, evaluation emerged as a mechanism for determining what was worth doing with available resources. By the end of the 1960s, however, it became clear that evaluation findings were either ignored or politicized. Scholars began to point out gaps between evaluation findings and findings use (Koretz, 1982). In the 1990s, U.S. public concern over budget deficits led to a call for greater accountability (Chelimsky, 2006), which forced service providers to become more compliance-oriented rather than results-focused. UFE emerged in response to this historical turn away from results-focused programming to arbitrary reporting standards and compliance-oriented accountability (Patton, 2008).

UFE is methodologically neutral; meaning data collection methods are implemented based on identified evaluation needs and questions (Patton, 2008, Ramirez et al., 2017). The main strength of UFE is its commitment to intended use by intended users. UFE is situational, and the design adaptation of UFE depends on the context of where the findings will be used (Patton, 2008). Training intended users throughout the UFE process fosters commitment to
evaluation use in the short and long-term, and creates a culture of evaluation within a program (Patton, 2008).

**Application to Policy Formation**

Scientific evidence may be clear and robust, but it often does not translate into effective policy (Sager et al. 2020) and may be manipulated to fit political agendas (Cairney & Oliver, 2017). Patton (2008) suggested evaluation findings have been suppressed for political reasons via manipulation, suppression, delays, and omission. Patton (2008) outlined six political factors that influence evaluations: 1) involvement of people in evaluation, 2) classifications that filter data, 3) perspective-dependent interpretation of evaluation data, 4) political actions surrounding utilization of evaluation results, 5) involvement of the organization being evaluated and their resource allocation decisions, and 6) power dynamics that accompany knowledge acquisition (Patton, 2008). Many evaluators ignore the political consequences of their evaluations despite evaluation's inherent connection to politics. UFE recognizes politics influence evaluations by incorporating diverse interests and its “emphasis on a negotiated approach to evaluation questions, design, and use offers a strategy [...] for making evaluation meaningful and useful in a shared-power world” (Patton, 2008, p. 533).

Effective communication is a key component of UFE as communication bridges evaluation and policy (Bickford et al., 2012). However, translating data-driven evaluation findings into policy recommendations requires focus on the context of information exchange and the relevance of the science to current issues (Bielak et al., 2008). Cultural values, belief systems, and social networks affect the perception of scientific information (Bickford et al. 2012; Kahan 2010). Effective translation of agricultural and extension education evaluation findings to something that can inform policy requires awareness of culture, background, and traditions within the targeted communities, as well as the individuals most involved in the decision-making process (Cabatoff, 2000). UFE provides a framework for understanding the context of intended users; therefore, combining UFE with agricultural communication strategies may have a beneficial effect for translating evaluation findings into the policy realm, critical for work in international agricultural and extension education.

**Conclusions**

While UFE is not widely used within agricultural research and development (Patton & Horton, 2009), its participatory and collaborative nature makes it an effective approach for international extension. A challenge facing international agricultural and extension educators is influencing policy through evidence-based science; however, UFE provides the opportunity to develop data-driven agricultural communication messages that inform policy because they are supported by robust science informed by intended users.

UFE is well-suited for international extension contexts, where resource constraints exist (Lamm & Lamm, 2018). Thus, a focus on use to ensure the efficient allocation of resources is critical. To encourage UFE practice, extension professionals should enhance capacity building efforts related to UFE (Davis et al., 2018; Patton & Horton, 2009). Future research should investigate needed evaluative capacities to determine where UFE can have the most impact within international agricultural and extension education initiatives, especially those informing policy development.
References


Cairney, P., & Oliver, K. (2017). Evidence-based policymaking is not like evidence-based medicine, so how far should you go to bridge the divide between evidence and policy?. Health Research Policy and Systems, 15(1), 35. https://doi.org/10.1186/s12961-017-0192-x


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