Introduction/Conceptual Framework/Need for Innovation

Weak ties are individuals who serve as “bridge links” to connect “two or more groups” or “cliques”; “[h]eterophilous links of low proximity . . ., while rare, play a crucial role in the flow of information about an innovation” (Rogers, 2003, p. 340) into a social system. Such links connect individuals who would not usually communicate due to social or geographical distance, or language. The volunteer, i.e., an Anglophonic American, and a Francophonic school owner/manager in Mali were heterophilous with low proximity. The school’s students were training mainly in a four-year, brevet de technicien program in the agricultural sciences. The school enrolled 378 students and employed 26 teachers (WI, 2012a). The volunteer was requested to conduct a needs assessment, including interviews of students, teachers, internship providers, and employers, comment on the curriculum, and prepare a final report on ways to improve the school (WI, 2012a).
How the Innovative Program Works

The volunteer technical assistance [VTA] program called ‘Farmer-to-Farmer’ [FtF] is an agricultural extension program funded by USAID . . . aiming to facilitate the exchange of experiences of US experts . . . with producers and entrepreneurs in developing countries in order to boost the economic growth. (Kassambara & Sissoko, in press, para. 1)

Mali’s FtF program “is managed by [a] consortium of four entities,” including WI (Kassambara & Sissoko, in press, para. 4). US officials mobilize volunteers and in-country staff support their efforts while abroad (WI, 2012b). WI’s mission extends to providing VTA to schools involved in developing human capital for Mali’s agricultural system.

Results

Recommendations ranged from ways to improve the school’s “learning climate” to enhancing teacher performance. Recommending an advisory group (AG) for the school actualized Rogers’ (2003) posit regarding the influence of strength-of-weak-ties. An AG was considered innovative because it was perceived as new or different by the potential adopter (Rogers, 2003). Moreover, the Sikasso region’s USAID-supported office, the Integrated Initiative for Rural Economic Growth in Mali, was only 825 steps from the school (< 1 km). But it was during an interview with the office’s coordinator that the school’s owner first met him (therefore low proximity) and they discussed their similarity of mission and colloopportunities to collaborate, including AG membership. Other potential AG members (agribusiness owners and government officials) were identified during interviews. The volunteer was a bridge link in this regard.

Recommendations/Implications

The influence strength-of-weak-ties plays in contexts considering the adoption of an innovation should not be underestimated. To facilitate linkages between actors who are heterophilous with low proximity, change agencies may need to initiate “intermediate” bridge links. These dynamics will be discussed during the poster’s presentation as will the volunteer’s recommendations. WI will conduct an impact study within one year.

Costs

The volunteer’s travel expenses were paid in advance; lodging was direct billed to WI; health insurance and in-country transport were provided; and $100 was advanced for supplies. The assignment’s cost was ~$4500 excluding in-country transport and insurance. The beneficiary contributed to the cost, as negotiated with WI.

References


Christopher A. Thomas  
Visiting Professor  
Katanga Methodist University  
Mulungwishi, The Democratic Republic of the Congo  
Oklahoma State University  
451 Agricultural Hall  
Stillwater, Oklahoma 74078-6032  
Voice: +243 99 751 7564  
Tel. #: 405.744.8141  
christopher.a.thomas@okstate.edu

Nadia Thomas  
Visiting Professor  
Katanga Methodist University  
Mulungwishi, The Democratic Republic of the Congo  
nadiacp@.okstate.edu

M. Craig Edwards, Ph.D.  
Oklahoma State University  
craig.edwards@okstate.edu

**Keywords:** Development, *Logical Lines of Operation*, post-conflict

**Introduction/Need for Innovation**  
Counterinsurgency (COIN) doctrine, as described in U.S. Army Field Manual FM 3-24 (Petraeus & Amos 2006), allowed U.S. forces and coalition partners to achieve progress in Iraq and Afghanistan. COIN involves fighting a “war” existing primarily in the minds of the population. Progress in such conflicts requires different methodologies than conventional warfare. Work is conducted via *Logical Lines of Operation (LLO)* increasing the likelihood of achieving a desired “end state” favoring U.S. and coalition actors. Because agricultural extension for development involves changing the perceptions of farmers to adopt new technologies and ideas (Rogers, 2003), applying the *LLO* methodology was ideal for achieving progress in Afghanistan.

**How the Innovative Program Works**  
*Logical Lines of Operation* is an organizational approach that first identifies the connections between the interrelated problems and objectives, enabling goals, action plans, and resource allocations to be developed and executed more efficiently thereafter. The 1-45th Agri-Business Development Team, 3rd BCT, 101st Airborne DIV, sought to improve post-harvest
storage in the Paktia province. Therefore, they considered current conditions, such as lack of electrical power and grain elevators, and adopted *LLO* intended to increase the likelihood of improving wheat production. This included a train-the-trainer program for agricultural extension directors on the use of grain storage bags developed for smallholder farmers and building cool storage facilities for temporary storage.

**Results**

Using *LLO*-facilitated communication with military officials, who were not familiar with agriculture but were well versed in using *LLO* tactically, allowing them to assist in project implementation. *LLO* for wheat production extension in Paktia included improvements in wheat varieties, soil fertility, irrigation, and grain storage as well as the introduction of appropriate mechanization and conservation tillage using small, two-wheeled tractors. Adoption of *LLO* improved extension educators’ abilities to deliver services to local farmers.

**Conclusions/Implications**

The advantages of *LLO* planning includes unity of effort between organizations working towards similar objective(s), consideration of all factors needed to achieve success, rapid refocusing of limited resources towards more important *LLO* or *LLO* needing more work to succeed, and a built in mechanism for evaluation. By including local partners in planning (Christiansen, 2000), emphasis was placed on building local capacity so the 1-45th could “work itself out of a job.”

**Recommendations for Practice**

It is important all partners meet before planning; be open to new partners identified after work has begun; and recognize organizations may establish ancillary objectives that differ. The synergy of combining efforts, therefore, is maintained without impairing the ability of partners to pursue complementary interests. Finally, it is important to retain records, including local partner(s’) and resource supplier(s’) contact information, and progress evaluations, increasing ease of transfer to other actors for project continuation.

**Resources**

*Logical Lines of Operation* do not require increased funding. Rather, they are a way of organizing resources on hand already more efficiently within and between organizations. The only “cost” is increased planning time at the outset and during project execution because all partners should meet frequently to evaluate progress, implement changes, and refocus resources, as needed (Hafer, Shinn, Briers, & Lawver, 2011).

**References**


Assessing the Views of Multiple Stakeholders to Understand the Learning Experiences of Agro-pastoralist Students in Mali: Implications for Improving a School’s Performance

M. Craig Edwards, Ph.D.  
Oklahoma State University  
451 Agricultural Hall  
Stillwater, Oklahoma 74078-6032  
Tel. #: 405.744.8141  
craig.edwards@okstate.edu

Théra Aïssata Traoré  
Staple Foods/Horticulture Program Officer  
Winrock International  
Bamako, Mali

Mamadou Massar Dicko  
School Owner & Manager  
Agropastoral Training School of Wayerma  
Sikasso, Mali

Assa Kanté, Ph.D.  
Sasakawa Africa Fund for Extension Education  
Training Coordinator for Burkina Faso & Mali  
Bamako, Mali

Keywords: action research; advisory group; assessment

Introduction/Need for Research

This study emerged from the researcher’s service as a Winrock International (WI) volunteer.

The volunteer technical assistance [VTA] program called ‘Farmer-to-Farmer’ [FtF] is an agricultural extension program funded by USAID . . . aiming to facilitate the exchange of experiences of US experts . . . with producers and entrepreneurs in developing countries in order to boost the economic growth. (Kassambara & Sissoko, in press, para. 1)

Mali’s FtF program “is managed by [a] consortium of four entities,” including WI (Kassambara & Sissoko, in press, para. 4). WI’s mission extends to providing VTA to schools preparing human capital for Mali’s agricultural system. Most students attending the École de Formation Agropastorale Wayerma were training in a four-year, brevet de technicien program (upper-/post-secondary) in the agricultural sciences. This private school enrolled 378 students and employed 26 teachers (WI, 2012). Students were required to complete internships.
appropriate to their career aspirations. The volunteer, by request of the school’s proprietor, conducted a needs assessment with special attention to agribusiness training (WI, 2012) and students’ internships.

**Conceptual Framework/Research Methodology**

As a form of *action research* (McKernan, 1991), a “needs assessment/situational analysis” (p. 317) was conducted. “John Elliott has defined action research as ‘the study of a social situation with a view to improving the quality of action within it’” (as cited in McKernan, 1991, p. 312). A qualitative, *researcher-as-instrument* method was followed whereby the researcher observed the school’s environment, interviewed a key informant (Popham, 1993) to identify relevant interviewees, developed semi-structured interview guides, and served as the interviewer. Teachers (10), students and recent graduates (9), and internship providers (6) were interviewed. Curriculum documents were another data source (Stake, 1995).

The interviewees were Francophone and the researcher Anglophone, so a WI facilitator, who was Francophone, translated the interview’s questions and answers. The researcher’s efforts at triangulation (Creswell, 2008), to confirm his interpretations, included debriefings with the translator (Krueger, 1994), “member checking” (Stake, 1995) by presenting preliminary recommendations to a forum of interviewees, including their feedback, and interviewing individuals of different groups invested in the phenomenon (Stake, 1995; Yin, 2009). Nine “focused interviews” (Yin, 2009) were conducted using researcher-developed questions and probes.

**Results/Conclusions/Emergent themes**

- Internship providers were unanimously critical of the students’ knowledge and abilities.
- Students, as a group, were neutral regarding internships meeting their expectations.
- Neither teachers nor students expressed much knowledge of agribusiness, e.g., value addition and value chains.
- Although students were provided opportunities to practice agricultural skills, their teachers were seldom involved directly.
- A paucity of learning resources existed (no library or computer lab).
- Students’ French language skills – written and oral – were lacking.

**Recommendations**

Suggestions along 10 themes including 33 recommendations were reported to WI and will be detailed during the presentation. Standing to have the most impact was the recommendation to increase the involvement of agribusiness and government officials in the school by their serving as invited presenters, evaluators of students’ internship presentations, internship providers, advisory group members, and advocates for the school overall.
References


Best Practices: Using Mobile Technologies for Data Collection in a Developing Country

Joshua C. Hardcastle
Texas A&M University
2116 TAMU
College Station, TX 77843-2116
Voice 806.203.0414
Facsimile 979.458.2698
jchardcastle@tamu.edu

Leighton E. James
Samantha Alvis
M’Randa Sandlin
Tracy Rutherford
Gary Wingenbach
Texas A&M University

Keywords: Mobile technology, data collection, Namibia, web-based surveys

Introduction
The worldwide use of web-capable mobile devices, such as tablet computers (i.e., iPads) and smartphones has increased (Peytchev & Hill, 2009); likewise, so have the uses of web-based surveys. Web-based surveys have been found to be a “valid and reliable method of conducting social science research” (Ladner, Wingenbach, & Raven, 2002, p. 49), and they can be easily administered using mobile technologies (Peytchev & Hill, 2009).

Purpose
The purpose of this poster is to visually depict the effectiveness of mobile technology as a data collection method in a developing country. The research objectives were to observe participants completing a media-based survey and to determine best practices for survey administration based on the observations.

Methodology
The purposive sample was chosen based on their enrollment at the University of Namibia Ogongo campus and participation in an on-campus survey (Merriam, 2009). The participants were asked to complete a questionnaire administered on an iPad; each was observed by graduate student researchers participating in the Texas A&M University Agricultural Communications and Technological Change study abroad program. Each researcher recorded field notes. The observers were coded O1-O5, and the participants were coded P1-P13 to ensure confidentiality. The emerging concepts were unitized, organized, and recorded, in accordance with Glaser and Strauss’ (1967) constant comparative method, as major themes in administering an instrument using mobile technology in a developing country. Trustworthiness was established through credibility, dependability, and confirmability. Credibility was established through triangulation...
of documents and peer debriefing. Dependability and confirmability were established with an audit trail (Lincoln & Guba, 1985).

Findings

Data analysis revealed three themes: perceived ease of use, terminology, and survey length. Ten of the 13 participants were observed to not have an initial perceived ease of use. “P5 did not feel comfortable typing [on the iPad]” (O3) and “P10 often looked confused” (O4) when using the technology.

Terminology used on the instrument was observed as unfamiliar to participants. O5 made the observation that “students asked a lot of questions about [survey terminology].” Specific terminology identified as difficult for participants to understand included course management systems and Second Life™ (O3).

Survey length was also a found theme in the data. “Over 50 students showed up at the beginning; most students left after seeing how long it took their peers to complete a survey” (O5). Surveys took longer than 30 minutes for many to complete and participants “had a lot of questions that extended the time” (O3).

Conclusions and Recommendations

It can be concluded that when developing a mobile-based survey for developing countries, the instrument should be administered on a medium that the respondent has experience with or has been trained. When a device is a cultural novelty, it is a distraction rather than an effective tool.

Survey terminology should also be considered before administration. Face and content validity should be assessed by asking a language and content expert to review the instrument. Survey length should be a primary concern when engaging in a situation where people are unfamiliar with the provided technology.

References

Building Student Capacity for an International Career: Experience of Teaching an On-line International Development Graduate Course at Oklahoma State University

Joshua J. Ringer
Department of Agricultural Education, Communications, and Leadership
Oklahoma State University
201 W. 3rd Ave.
Stillwater, Oklahoma 74074
Phone: (405) 564-4418
Email: joshua.ringer@okstate.edu

Dr. Michael Dicks
Department of Agricultural Economics
Oklahoma State University

Keywords: development practice, learning spiral, capacity, development, curriculum

Poster Abstract
A small but growing number of undergraduate and graduate students graduating from U.S. Land Grant Universities intend to embark upon an international career in agricultural and rural development. Because of this there is a growing demand for degree programs and courses that provide theoretical grounding and practical skills in international development. Oklahoma State University responded to this demand by offering a Masters of International Agriculture degree in the College of Agriculture and a Masters of International Studies degree in the School of International Studies. A need was expressed by stakeholders in these programs for the development of a graduate online course that would focus on best practices of international development.

In response to this expressed need a course was developed and taught during the spring semester of 2012. The course was titled “International Development: Principles & Practice.” The intention of the course was to guide students into an understanding of how development issues are being approached, what methodologies are effective, and how to apply the tools of development in diverse settings. The challenge for the instructor was designing curriculum in such a way that students would be taught principles and application of these practices.

To meet the challenge the sixteen week curriculum was designed around a development principle known as “learning spirals” which consist of four phases in the following sequence: action > reflection > learning > planning (Fowler, 2000). As the graduate student goes through the process each week they practiced a learning process that applies to individuals, projects, and organizations as a whole. This was the conceptual framework that grounded the course in development best practice as much as possible within the limitations of an on-line format.

Seven graduate students who intended to work internationally enrolled and completed the course. Learning was gauged by synthesis papers of development stances, weekly quizzes of essential principles, on-line discussions to mimic development working group meetings, and a development project proposal that matched actual project requests from international development organizations. These varied graded activities engaged students in predominantly higher level thinking skills of analyzing and synthesizing. According to feedback from the
students the strengths of the course was exposure to a “basket” of possible tools for different situations and the opportunity to problem-solve varied development problems. A drawback to the class was the lack of face-to-face interaction in order to practice participatory methodology. Familiarity with effective patterns and development practices is an essential part of success in initial job postings in international development. This course built student capacity by allowing them the opportunity to practice effective patterns and practice so they have a greater chance of success in their first development position. It is recommended that the next semester this course is taught that adjustments be made so that the student is involved with a development organization from the first week using VOP technology like Skype. The resources needed for this course included 30 hours of preparation and about 5 hours of preparation and teaching per week for 16 weeks.

References
Challenges and Opportunities for Agricultural Extension in Timor Leste

Austen Moore
Graduate Research Assistant
Dept. of Agricultural Education and Communications, University of Florida
P.O. Box 110540, Gainesville, FL 32611-0540
Phone: 425-420-8131
Fax: 352-392-9585
Email: austen.moore@ufl.edu

Keywords: Agricultural extension, Timor Leste, challenges, opportunities

Timor Leste’s agricultural sector contributes 30% of its GDP and employs 80% of the workforce, although low production, poor food security, and annual famine periods remain common (Lopes & Nesbitt, 2012; World Bank, 2011). The Ministry of Agriculture (MAP) has turned to extension to address these issues, improve technical capacities of farmers, increase agricultural production, and create national food security (MAP, n.d.). However, identifying the challenges and opportunities facing the extension system is needed. This study identified: (a) the current constraints and challenges of agricultural extension in Timor Leste, and (b) the opportunities that exist for strengthening agricultural extension in Timor Leste.

This study utilized a generic qualitative design (Merriam, 1998). A purposive sample ($n=8$) was drawn to include the national director and vice director, one district director, one sub-district coordinator, and four field-level officers using maximum variation sampling (Patton, 1987). Viqueque district and Lacluta sub-district were selected due to the researcher’s prior experience and developed trust in the region (Flick, 2006).

Researcher-developed questionnaires and semi-structured interviews were used (Flick, 2006), and data collection occurred in-person in the respondents’ native language. Interviews were audio recorded, member-checked to establish trustworthiness, and data was triangulated with MAP and USAID-Timor Leste (Leite & Marks, 2005). The constant comparative method was used in data analysis to identify emergent themes (Merriam, 1998).

Six challenges and constraints emerged from the data. Field-level officers possessed capacity deficiencies and received insufficient in-service training. “There is no training for extension officers in the field, and we are never called to new trainings,” stated one respondent. Officers instead relied on prior education and experience to teach farmers.

Salaries were considered insufficient to cover living and job-related costs. The national office’s process for funding local projects was also considered too complicated and time-consuming, causing projects to be delayed or not attempted. Officers placed away from home reported cultural and linguistic differences that limited effectiveness, lack of housing or land to conduct activities, and spending more time commuting than working. Other themes were poor internal coordination/communication, negative opinions of agriculture, and farmers’ perceived lack of value of extension services.

Seven opportunities exist for strengthening the system. Requests for increased training and high officer motivation for capacity building were found. “In the future we need more trainings so we can learn and understand more about extension,” one respondent stated. Allotting government-owned land for officers to live and conduct demonstrations, providing printed
technical information, improving information dissemination to clients, and developing evaluation strategies were also reported.

Lack of training, inadequate salaries, and other “maintenance factors” can threaten job satisfaction and performance in extension, despite high officer motivation (Herzberg, 1968). Minor systemic changes could increase effectiveness: rethinking the placement of officers, providing basic job-related materials, and streamlining internal communication and financial processes. Involving NGOs in extension programming and capacity building could benefit both clients and officers (Amudavi, 2003), while circumventing the logistical/financial challenges faced by MAP (Land O’ Lakes, 2009). Future evaluations of the challenges and opportunities should also be conducted in greater depth.

References


College Students’ Perceptions of a Work-Related International Study Tour Experience

Amanda Northfell
Graduate Assistant
University of Arkansas/ AEED Department

Leslie D. Edgar
Casandra K. Cox
University of Arkansas

Keywords: Agricultural Communications, International Study Abroad

Introduction
As the general public becomes increasingly removed from the farm, reliance on media channels for information becomes stronger, thus adding to societal globalization. Because globalization and cultural diversity issues have gained attention in higher education (Zhai & Scheer, 2004), there is a need to offer international, agricultural experiences (Edgar & Edgar, 2009; Irani, Place, Lundy, & Friedel, 2004).

Purpose of the Study
Global perceptions of agricultural communication students will shape public understanding and the industry’s future. The purpose of this study was to add insight into the potential benefits for intensive work experiences for students studying abroad. The study described students’ feedback with regard to perceptions of barriers, cultures, factors inhibiting travel, and personal and professional gains from international study.

Methodology
International perceptions of agricultural communication students from four landgrant universities were studied. All students participated in a three-week intensive study tour in Ghent, Belgium. Their study goal was to assist the Institute for Agricultural and Fisheries Research, and the University of Ghent, to host an open-house event designed to reinforce public awareness of food production through critical science. Students toured food and animal production facilities and participated in weekend trips to Ghent, Brugge, Paris, and London.

Students participated in pre- and post-reflection assessments to identify travel barriers, beliefs, and opportunities. Instruments were transcribed and analyzed to identify emergent research themes through keywords (Creswell, 1998). Credibility, trustworthiness, and dependability were achieved as described by Lincoln and Guba (1985). The constant comparative method was used for data analysis (Lincoln & Guba, 1985).

Results
Money was a common concern for students pre- and post-travel. Other barriers included homesickness and language. Students overcame barriers to gain skills or to experience new
cultures. Post-reflection assessment revealed that students changed initial perceptions of Belgium and the culture. Changes to their attitudes/beliefs included acceptance of cultural differences in food, lifestyle, and awareness of research practices. Participants disliked European public transportation and lack of punctuality, however, liked the fact that Belgians spoke English and were welcoming. Data indicated a need to increase scholarship and funding opportunities for international experiences, decrease language and cultural barriers between students and Belgian natives, and increase student experiences and exposure to international practices, people, and culture. The majority of students were willing to participate in another international experience while the remaining students still found the overall experience meaningful.

Conclusions and Recommendations

This research indicated that work-related, international experiences provide opportunities for students to modify perceptions and become more accepting of other cultures and practices. Previous research recommended increasing students' experiences of international agriculture through real life experiences by students in international settings (Edgar & Edgar, 2009; Irani et al., 2004; Zhai & Scheer, 2004), which was supported by the findings in this study. Increasing student knowledge of international agricultural communications through travel abroad proved valuable and is recommended. This research is significant for international agricultural and extension education because it outlines important considerations when placing students in intensive, work-related international settings.

References


Cooperative Extension Service Digital Media Training: Lessons Learned and Future Direction

Hayley Hogan Jernigan
Undergraduate Research Assistant
University of Arkansas

Leslie D. Edgar
Casandra K. Cox
University of Arkansas

Keywords: Digital Media, Technology, Agricultural Communications

Introduction / Theoretical Framework

Cooperative Extension personnel must be technical experts, and professional development helps agents achieve the level of excellence needed to maintain statewide, national, and global impact (Stone & Coppernoll, 2004). Educational training activities for Extension personnel are critical to improve professional competence and increase learning and application of new knowledge. Rogers’ (2003) diffusion of innovation noted the importance of using key players in the adoption and diffusion of a new technology. Cooperative Extension personnel can serve as the catalyst for innovative diffusion of digital media.

Purpose and Objective

Three faculty from the University of Arkansas developed and administered the five day intensive Extension Digital Media Academy (EDMA) training conference that focused on the following instructional digital media areas: social, video, photography, professional networking, collection, publishing, and file sharing. The purpose of this study was to assess the skill and usability level of Extension personnel in specific electronic communication competencies used to create and promote educational programs. The study research objective was to determine participants’ perceived skill, usability, and value of specific technology.

Methodology

Key Extension personnel (N=23) were selected by [State] Cooperative Extension Service staff to participate in the conference. A pre- and post-assessment were used to determine skill, usability levels, and technology perception. The post-test, administered at the end of the workshop, also assessed the effectiveness of the conference and gathered participant demographic information. Data were analyzed using descriptive (means, standard deviations, and percentages).

Results and Findings

Upon completion of each unit of instruction, Extension personnel participated in hands-on learning exercises to contribute to their understanding of concepts and the development of digital media products that would enhance participants’ program areas. Participants were asked to rate their technology use on a 4-point Likert-type scale ranging from “Advanced” to “Not at
all” for fourteen categories. Participants felt their greatest ability to use ($M=1.30; SD=.47$), actual use ($M=1.05; SD=.22$), and expected future use ($M=2.39; SD=.72$) of technology was the Internet. When asked their technology literacy self-rating, 70% of participants rated themselves as “Intermediate”. Participants gained the greatest enjoyment from the Photography Media section ($M=1.70; SD=.88$), and the least enjoyment from the Professional Networking Media section ($M=2.13; SD=.63$). Workshop content areas were also assessed for relevancy to job duties. Only 17% of participants reported high interest in teaching technology to their clients, but rated their likelihood of using media as part of a digital media integration plan as “Very Likely” for six of the seven media presented.

**Conclusions, Discussion, and Recommendations**

Participants perceived their use of the Internet as their highest digital media technology ability for use, actual use, and expected future use. Participants noted the least amount of value overall in the Professional Networking Media section of the training. Extension personnel must be technical experts (Stone & Coppernoll, 2004) and be key leaders in the diffusion of innovation (Rogers, 2003). Findings from this study should be used to increase Extension agents’ awareness, use, and training opportunities in technological areas that can improve educational and programmatic efforts.

**References**


Enhancing Digital Extension Information Using WordPress and Social Media

Pete Vergot III
District Extension Director
University of Florida IFAS Extension
155 Research Road
Quincy, Florida, 32351
Telephone: (850) 875-7137
Fax: (850) 875-7189
Email: pvergot@ufl.edu

Judy Ludlow
UF/IFAS Extension
Calhoun County Extension Director

Doug Mayo
UF/IFAS Extension
Jackson County Extension Director

Keywords: Extension Information, Content Management System

Introduction
Extension information delivery, or channels of information, are constantly changing. Private industry information delivery has evolved from primarily advertising to one of news laced with advertising being delivered daily to clientele. To meet the challenge of private industry’s use of digital channels of information, University of Florida IFAS (UF/IFAS) Extension faculty changed their basically “static” web based delivery to a “Content Management System” (CMS) approach. This new digital delivery system allows for web based interactive discussion and integrates with Social Media to provide immediate information access and feedback (Vergot 2010). These digital “conversations” enhance service to Extension clientele globally.

How the Innovative Program Works
Step 1 - Extension faculty, working with the District Information Technology (IT) specialist converted all 16 Extension District’s county websites to WordPress, a CMS, creating “Panhandle Ag”, http://nwdistrict.ifas.ufl.edu/phag/.

Step 2 – Weekly, Extension faculty electronically upload or “post” educational articles and pictures related to current issues observed during field visits and discussed during clientele office calls, onto the Panhandle Ag WordPress site.
Step 3 - The “posts” are peer reviewed by editors who work with the Extension agent on content and format, including adding hyperlinks to additional UF/IFAS research-based publications.

Step 4 – The peer level editorial team publishes the posts to the “Panhandle Ag” WordPress site, which automatically is shared on each of the 16 county extension web sites. These posts are also automatically posted to social media sites on Twitter “@PanhandleAg” and Facebook https://www.facebook.com/FlaPanhandleAgriculture.

Step 5 - The lead editor sends an email to subscribers who have stated an interest in “Panhandle Ag” using a subscription management system reaching clients statewide, nationally, and internationally.

Step 6 – Finally, feedback and interaction with Extension clientele is accomplished using the WordPress, Facebook, and Twitter comment features. Clientele ask questions via these social media platforms and quickly receive feedback from our agents.

Results to Date

From January 2012 to present, a total of 108 email messages were delivered reaching 135,684 clientele from the Panhandle Ag WordPress website. County Extension faculty have posted 216 articles since January of 2012, initiating 180 online conversations, and 4,604 reads from clientele since May of 2012. Panhandle Ag social media sites were developed and are gaining interest with 61 “Likes” in Facebook, 37 followers in Twitter and eight subscribers in YouTube.

Conclusions and Implications

Feedback and interaction with Extension clientele is accomplished using the WordPress, Facebook, and Twitter comment features. Extension clients can ask questions and quickly receive feedback on articles, pictures, and blogs that our agents post. Finally, WordPress’ primary function as a blogging software provides the ideal avenue for Extension faculty to continuously provide fresh and targeted information for agriculture clients.

Implications of this CMS for International Agricultural Extension include the capability to use globally available digital platforms upon which to share information between Extension faculty and between Extension faculty and clientele internationally.

Costs/Resources

All software used in the project including WordPress and Social Media are free for use.

References

Exploring Chilean Elementary Teachers’ Beliefs Regarding Agriculture as an Educational Context to Enhance Student Learning in Natural Sciences

Cecilia Espinoza-Morales
Purdue University
Agricultural Administration Bldg., Rm. 221
615 W. State St.
West Lafayette, IN 47906.
Phone: 765-586-7968
Email: cespino@purdue.edu

Kathryn Orvis
Neil A. Knobloch,
Purdue University

Keywords: Chilean, teachers’ beliefs, sciences, agriculture

One of the goals of the Chilean government is to be considered one of the most important producers of food in the world by 2030 (Foundation for Agricultural Innovation, 2011). Even though agriculture is one of the industries with a higher percentage of the Chilean task force, its contribution to the Gross Domestic Product (GDP) has been declining since 2003 (Central Bank of Chile, 2010). For Chile’s agriculture to remain competitive in the global context, Chile needs to consider investing in science and technology for agriculture (Foundation for Agricultural Innovation, 2011).

Moreover, in the Chilean educational system, the national curriculum regarding natural sciences promotes the development of inquiry learning approaches over traditional teaching methods for elementary schools (Ministry of Education of Chile, 2012). The literature shows that a low percentage of the teacher training programs regarding elementary education integrate didactics of science (Vergara & Cofré, 2008 cited by Cofré, 2010, p. 8), and suggests that elementary science teachers struggle with the inquiry approach that the national curriculum states. Therefore, integrating agricultural literacy into the K-12 curriculum may contribute by benefiting not only science education but also the agricultural industry. To accomplish integration, it is priority to explore teachers’ views regarding agricultural science literacy in curriculum.

The purpose of this study was to explore a selected group of Chilean elementary teachers’ views of teaching natural science in the classroom, using agriculture as an educational context to enhance student learning in natural science within the Santiago area. The participants consisted of three elementary Chilean teachers who taught 5th to 8th grade students.

This qualitative study consisted of a semi-structured interview (30-90 minutes) using open-ended questions as the research method (Creswell, 2009). Phenomenography (Marton, 1981) was the theoretical framework and the Chilean national curriculum for natural sciences (Ministry of Education of Chile, 2012) was the conceptual framework that guided the research. There were two salient results of this study. First, teaching methodology, context and personal experiences described the views that Chilean elementary teachers had about teaching natural science/mathematics in the classroom. And second, Chilean elementary teachers believed that
agricultural concepts could be integrated into some areas of the curriculum such as nutrition and healthy food.

One of the implications of this study is that elementary science teachers might benefit from developing curriculum materials that integrated inquiry and agricultural contexts. It is recommended to identify key variables that would help teachers make learning more authentic using agricultural examples. Additionally expanding the mentoring relationship of science elementary teachers with experts in the field, as recommended by Appleton (2008) and Gustafson et al. (2002) would benefit not only teachers but also students, who would be able to learn from the daily experiences that scientists face every day.

References
http://curriculumenlinea.mineduc.cl/sphider/search.php?query=&t_busca=1&results=&search=1&dis=0&category=1#a3
Extension’s Response to Consumers’ demand for Improved Quality and Choice: the Case of Tomato in Trinidad, W.I.

Lendel Kade Narine  
Department of Agricultural Economics and Extension  
Faculty of Food and Agriculture  
University of the West Indies  
Circular rd St Augustine Trinidad, West Indies  
(868) 662 2002 Ext.83204  
lendelkn@yahoo.com

Wayne G. Ganpat  
Department of Agricultural Economics and Extension  
Faculty of Food and Agriculture  
University of the West Indies

Keywords: Consumers, Alternative commodities, Willingness to pay, Extension education

Introduction

The Trinidad market is reflective of a highly diverse and rapidly evolving consumer base. Local farmers are yet to take advantage of such an emerging market by offering differentiated agricultural commodities. Tomato is a popular vegetable among Trinidadians however, tomato farmers continue to serve consumers a homogenous product; the differentiation that takes place in the tomato is based only on size. In many developed countries, consumers are demanding choices and higher quality produce and Trinidad consumers are following this pattern. An opportunity exists for local tomato farmers to produce and sell organic tomatoes. If consumers are willing to pay a premium price for organic tomatoes in Trinidad, farmers will respond and Extension services will have to re-strategize and adjust their programmes and strategies to meet the changed educational needs of these farmers.

Purpose

This paper seeks to determine consumers’ willingness to pay for organic tomatoes, and the implications for extension programme development and delivery.

Objectives

1. To determine the premium amount consumers’ are willing to pay for organic tomatoes and the factors affecting such a choice.
2. Discuss the implications of consumers demand for improved quality and choice for the Extension services.

Methods

A survey research method was used in this study. Data were collected via a structured questionnaire administered in a face to face interview process. A convenience sampling method
was used to collect data from 210 consumers at major supermarkets and municipal markets in all the major towns of Trinidad. Logistic Regression results and other descriptives are reported.

**Results**

Results showed that 63% of consumers were willing to pay more for organic tomatoes. In general, consumers were willing to pay approximately a 20% premium for organic tomatoes over regular open field (non-organic) tomatoes. Results of the logistic regression revealed that gender, age, location, income, and perceived health benefits were significant variables (P<0.05 level) that influenced consumers’ willingness to pay for organic tomatoes. Results also indicated that females, younger persons, individuals residing in Central Trinidad, high income earners, and persons who perceived organic tomatoes as healthy were likely to pay more for organic tomatoes.

**Implications and Recommendations**

Consumers are ready and willing to pay more for organic tomatoes over the regular tomatoes. Since its formation, the Public Extension service has focused on traditional production systems and the time has come for them to acknowledge alternative products and production systems in the marketplace. The tomato market in Trinidad is a case in point.

1. Extension managers will have to conduct situational analysis/needs assessment with consumers to understand their needs and preferences and factor these into future programme development.
2. Extension must recognize consumers’ changing preferences and develop training for staff to equip them with the knowledge to successfully produce alternative commodities based on consumers’ demand. Specialized training in organic production of fruits and vegetables for all staff at the general level and an extension subject matter specialist in the area may be needed.
3. Develop awareness programmes for farmers to educate them on the market potential for alternative commodities.
Faculty Abroad Programs: Addressing Local Problems and Curricula Development

M’Randa R. Sandlin  
Texas A&M University  
AIAEE  
2116 TAMU  
College Station, TX 77843-2116  
Voice 979.458.2304  
Facsimile 979.458.2698  
mranda.sandlin@agnet.tamu.edu

Tegan J. Walker  
James R. Lindner  
Robert Strong  
Texas A&M University

Keywords: faculty abroad, reusable learning objects, childhood obesity, curricula development, Texas A&M University, University of the West Indies

Introduction

The use of faculty abroad programs has become a popular means of professional and curricular development over the past years (Dooley & Rouse, 2009). Universities are calling for the internationalization of the curricula and new teaching methods that include the use of high-impact educational practices to develop the “knowledge of human cultures and the physical and natural world” (p. 4) through service learning and community-based learning (Kuh, 2008); faculty programs may also include such practices. Recent faculty abroad programs have involved the creation of reusable learning objects (RLOs). Reusable learning objects (RLOs) are context-rich, self-contained, digital learning units that can be delivered in a variety of ways, such as online or in a classroom (Koohang & Harman, 2007). RLOs allow for sharing of curricular materials that could reach a multi-institutional level.

The faculty from Texas A&M University and University of the West Indies, St. Augustine and Cave Hill campuses, collaborated to create solutions to address childhood obesity in Trinidad and Tobago and Barbados. Through a combination of a high-impact experience and RLO creation, faculty were engaged in a unique situation occurs where learning, serving, and teaching came together at the local level.

Purpose

The purpose of this poster is to visually depict the use of faculty abroad programs to address the problems of the local people in a host country, collaborate with like-faculty in a host country to create solutions to identified problems, while still creating educational materials to improve curricula content at the home institution.
Major Points

Participating faculty from Texas A&M University represented expertise in the area of childhood obesity; faculty were chosen based on their expertise in childhood obesity, human development, and education. Faculty were engaged with the local culture to create potential solutions for childhood obesity. They also were required to gather information and create a RLO around the topic. The completed RLOs will be used in the faculty’s classrooms as an educational tool and will be available for free at an online repository. This experience served as a means of professional development, curricula development, and international relationship building for the participating faculty. This innovative program is funded by a USDA Higher Education Grant.

Conclusion and Educational Importance

A team of faculty from Texas A&M University participated in an abroad experience to collaborate with faculty at University of the West Indies, St. Augustine and Cave Hill campuses, to create solutions surrounding childhood obesity and RLOs to internationalize their curricula. Long-term, collaborative research and educational relationships were an outcome of this program in addition to childhood obesity solution approaches in Trinidad and Tobago and Barbados. This study provides a model for AIAEE members to use their skillsets to collaborate with interdisciplinary peers in order to address the pervasive global issue of childhood obesity regardless of location. AIAEE is an organization of diverse members that provide expertise from an array of content areas for the greater good of decreasing childhood obesity in our global society.

References

Free Fuel for Remote Locations: Construction of a Biodigester

Susan R. Haddock
University of Florida/Institute of Food and Agricultural Sciences (UF/IFAS)
Hillsborough County Extension
5339 County Road 579
Seffner, Florida 33584
Phone: (813)744-5519
Fax: (813)744-5776
szcrmehz@ufl.edu

Daniel F. Culbert
UF/IFAS Okeechobee County Extension Service

Terry B. DelValle
UF/IFAS Duval County Extension Service

Sheila O. Dunning
UF/IFAS Okaloosa County Extension Service

Eleanor C. Foerste
UF/IFAS Osceola County Extension Service

Rebecca L. Jordi
UF/IFAS UF/IFAS Nassau County Extension Service

Teresa Olczyk
UF/IFAS Miami-Dade County Extension Service

Kathleen C. Ruppert
UF/IFAS Program for Resource Efficient Communities

Keywords: Biodigester, Biogas, Fuel, Methane, Rural

Introduction
Earth University, located in Guacimo, Costa Rica, was created in 1985 as a partnership between Costa Rican leaders, the W.K. Kellogg Foundation and the United States Agency for International Development. Earth University’s mission is to “Prepare leaders with ethical values to contribute to the sustainable development of the humid tropics and construct a prosperous and just society.” The authors participated in an Extension study tour of Costa Rica, in March of 2012, hosted by Earth University. While on the tour the authors completed a community service project constructing an anaerobic biodigester for a rural farm. The poster visually demonstrates how to construct a low cost biodigester that produces methane gas for family cooking, water heating, lighting or other farm needs.
Methodology

Animal manure and vegetable wastes are channeled to a large poly bag where decomposition takes place. The decomposition process produces methane and hydrogen sulfide gas, and ammonia and carbon dioxide. The gases rise and move into a poly pipe. An iron scouring pad functions as a sulfur scrubber to remove the harmful sulfur gas. The methane gas then moves through the poly pipe to where it is used for cooking or other functions. The sludge collected from a drainage outlet is rich in nutrients and can be used as a fertilizer for crops. Bicycle tire inner tubes, plastic buckets and other materials that would otherwise become refuse are recycled and used in the production of the biodigester.

Results

Hundreds of biodigesters have been installed in rural areas of Costa Rica through Earth University programs. Rural farms are effectively able to use organic waste in a sustainable way. Biodigesters prevent the release of hydrogen sulfide and ammonia responsible for acid rain. Biodigesters reduce polluted runoff, generate compost for enriching soil and provide a no-cost fuel source not readily available in rural areas. (Viquez et al, 2008) Cooking with biogas eliminates smoke and ash in kitchens, reduces respiratory infections due to smoke inhalation and frees up wood collection time for home and community activities. Rural women can look forward to longer, healthier lives. (Wilke, 2012)

Recommendations

Longevity of biodigesters could be improved by protecting them from roaming animals and environmental elements that result in deterioration. Mixing of sulfide gas with methane could be reduced by providing written or pictorial instructions on how to and how often to replace the iron scouring pad. Local laws and regulations would need to be examined for use in non-rural areas.

Cost/Resources

A biodigester for a small farm costs about 200 dollars to install and may last many years. A typical family saves about 40 dollars a month in fuel cost alone. A payback period of five months is well worth the investment for improved lives and contributing to Costa Rican sustainability.

References

Globalizing the Secondary Agricultural Education Curriculum through Undergraduate Study Abroad Experiences

T. Grady Roberts
Associate Professor
Agricultural Education and Communication
University of Florida
PO Box 112060
Gainesville, FL 32611-2060
Phone: 352-273-2568
Email: groberts@ufl.edu

Introduction/Need for the Innovation

Producing food and fiber is a global industry with inputs and products being imported and exported around the world. To be successful in tomorrow’s agricultural industry, students must be prepared to work in a globalized industry (National Research Council, 2009). Students need to understand agriculture on a global scale (Ibezim & McCracken, 1994). However, research shows that high school students and college undergraduates lack knowledge in international agricultural issues (Wingenbach, Boyd, Lindner, Dick, Arispe, & Haba, 2003). A common approach to help college-aged students develop a globalized perspective has been study abroad experiences. But, how can the impact be transferred to younger students, namely those students studying agriculture at the secondary level? This abstract describes an innovative approach to globalize the secondary agricultural education curriculum through undergraduate study abroad experiences.

How it Works

**Step 1** is to encourage preservice agriculture teachers to participate in study abroad programs. Most universities offer a plethora of different programs that could meet a wide variety of individual needs. Teacher-educators can provide academic advising that will show the student how such an experience can fit into a degree program.

**Step 2** is to work with the preservice teacher prior to the study abroad experience to identify specific aspects of the experience that will likely have educational significance to secondary students. It is also advisable at this time to develop some broad learning objectives and decide on the types of information to gather (photos, video, artifacts, etc.) while on the experience.

**Step 3** is the actual study abroad experience. During this phase, the teacher educator should attempt to maintain some level of communication with the preservice teacher to provide guidance and advice.

**Step 4** occurs after the experience and involves developing a curriculum based on the experiences and things learned by the preservice teacher. The examples presented here have been for a 1-week unit of instruction that balances the agriculture and culture of the destination country.
Step 5 is implementing the curriculum in a secondary school setting. This could be done as an independent early field experience, or as a part of the student teaching internship. As a part of this step, secondary students should be asked to provide reactions and their knowledge gains should also be assessed.

Step 6 is to refine the curriculum based on results of the implementation and then post the materials in a location that is widely accessible to a larger audience of agricultural education teachers.

Results to Date
To date, this methodology has been used twice. In the first example an undergraduate preservice teacher participated in a 3-week study abroad experience to Costa Rica. Following that experience she developed a curriculum that focused on sustainable agricultural practices in the tropics. The second example is a graduate preservice teacher who participated in a 2-week study abroad experience to Korea in the summer of 2012. This student is currently in the development phase of her curriculum and plans to implement the curriculum during her student teaching internship in the Spring of 2013.

Conclusions & Implications
Preliminary results show that this methodology is a feasible approach to reach a larger group of younger students. In the first example, the preservice teacher implemented the curriculum to a 9th grade introductory agriscience course with positive feedback from students and positive knowledge gains from the students as well. Although not widely generalizable, these results are positive and justify continuation of this effort.

Recommendations for Practice
The key thing is to proactively encourage students to participate in study abroad experiences. In the experiences of the author, most preservice agricultural education teachers have not considered a study abroad experience and may not recognize the value of such an experience.

Costs/Resources
Depending on the nature of the experience and the duration, this can range from $2,000 to $10,000. The two student examples mentioned in this abstract spent approximately $2,500 in program fees. Other resources needed include the time invested in creating the curriculum and a willing secondary teacher to allow implementation of the curriculum.

References


Introduction/Need for Research/Conceptual Framework

More than 80% of Mali’s population is engaged in farming and fishing (Central Intelligence Agency, 2012). Ouedraogo (2008) indicated Mali’s farmers need information and communication to organize, manage, and market their enterprises. Universities in Mali, however, do not offer agricultural communications (AGCM) as a degree program even though a large demand exists for communicating about agriculture. Therefore, the need existed to identify competencies required of university graduates in AGCM to be successful and effective media professionals in Mali. A primal source of valid information in this regard could be the views of media specialists in Mali knowledgeable about agriculture. Cornachione and Daugherty (2008) indicated the most valuable investment is that made in people, including resources to provide formal education. To that end, this study was underpinned by the human capital theory (Cornachione & Daugherty, 2008).

Purpose/Objective

A study conducted by Maiga in 2011 determined the competencies needed by university graduates of AGCM in Mali, as perceived important by media professionals. From that work, a conceptual foundation emerged for a university curriculum in AGCM. This poster will expand on Maiga’s work (2011) by presenting a curriculum framework of proposed courses and topics for an AGCM program of study and provide examples of the knowledge, skills, and attitudes (KSA) (Popham, 1993) university students would learn and demonstrate.

Research Methodology

Maiga’s (2011) study used a snowball sampling technique to describe the views of media professionals on the competencies needed by university graduates in AGCM. His study identified eight constructs: layout and editing, broadcasting, ethics, knowledge of agriculture in general, technology, writing, general communication, and Mali’s agriculture.
The Borich (1980) needs assessment approach was used to rank the constructs regarding their importance. The constructs with the highest mean weighted discrepancy scores (MWDS) were identified as the most important areas for curriculum development.

### Results/Conclusions

See Table 1 for a sample frame, as concluded from Maiga’s (2011) highest ranked construct. The curriculum framework for six other constructs will be detailed during the poster’s presentation.

Table 1

<table>
<thead>
<tr>
<th>Competence /Construct</th>
<th>Course Title</th>
<th>Course Topics</th>
<th>KSA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Layout and Editing</strong></td>
<td>Layout and Design for Agricultural Publications</td>
<td>o News reporting in the agricultural context</td>
<td>o Report and write accurately for publications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Writing for agricultural publications</td>
<td>o Knowledge of appropriate grammar and words (French)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Grammar and word usage in journalism</td>
<td>o Use appropriate grammar and words (French)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o The editor’s eye</td>
<td>o Select and edit images for publication</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Photography for agricultural publications</td>
<td>o Create and edit a variety of communications materials appropriate for the agricultural sector in Mali</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>o Demonstrate ethical attitudes regarding the layout and editing of agricultural publications</td>
</tr>
</tbody>
</table>

*Note. Construct with the highest MWDS.

### Recommendations/Implications for Practice

Developers of curriculum for AGCM are urged to consult the framework proposed, as derived from Maiga’s (2011) findings, e.g., faculty at Mali’s newly established University of Ségou. This framework may also be useful at other universities in West Africa, especially in the 12 Francophone nations.
References
Revisiting Rogers’ Theory for Understanding the Diffusion of Innovations: Students’ Voices on Using Case Method to Critically Examine the Model and Their Learning Experiences

M. Craig Edwards
Oklahoma State University
451 Agricultural Hall
Stillwater, OK 74078-6032
Phone: 405.744.8141
craig.edwards@okstate.edu

J. Shane Robinson
Oklahoma State University
shane.robinson@okstate.edu

Keywords: action research; case method; change theory

Introduction/Need for Research
Everett Rogers’ (2003) *Diffusion of Innovations* is considered an essential reference by many agricultural and extension educators (AEE). A graduate course taught by one researcher relies heavily on Rogers’ (2003) posits. Reference to his work as a theoretical basis also appears in related scholarship, e.g., in *JIAEE*. Rogers (2003) maintained “Nine Major Diffusion Research Traditions” (p. 44) existed; rural sociology, education, and communication resonate with AEE.

Rogers (2003) was not conceited regarding his model. He posited, “when a scientist follows a theoretical paradigm, a set of intellectual blinders prevents him or her from seeing certain aspects of reality” (p. 106). He devoted a chapter to critiquing the theory: “Contributions and Criticisms of Diffusion Research” (pp. 102 – 135). His admonition, as extended to teachers of change theory who rely on the model, motivated an action research study on students’ learning experiences in such a course.

Conceptual Framework
“John Elliott defined action research as ‘the study of a social situation with a view to improving the quality of action within it’” (as cited in McKernan, 1991, p. 312). The it could be a course and analysis of students’ experiences therein for course improvement. Further, McKeachie (2002) indicated the case method was a “problem-based method” that “contextualized learning” (p. 198). The course relied on cases from Rogers (2003), instructor-provided cases intended to expand students’ understanding, and required students to synthesize diffusion literature by developing two interpretive case study papers.
Methodology

The researchers were interested in students’ views on the usefulness of cases (McKeachie, 2002) for learning and critiquing Rogers’ model. A focus group interview with seven students was conducted as part of the course evaluation. Focus groups are important when “consumer feedback about services and programs is desired” (Patton, 2002, p. 388). Students’ [*University] course evaluations provided a measure of triangulation (Creswell, 2008).

Results

Students expressed course highlights and suggestions for improvement. They agreed cases helped them engage in the content and stimulated “an emotional connection.” Their most frequent emotion was discouragement, however, “especially on something [an innovation] that should have been adopted but wasn’t.” Students especially liked the way cases helped them learn: “[t]hey [cases] told a story, which is powerful”; “they [cases] served as mini history lessons,” and allowed people to learn from others’ mistakes. Students stressed the need to update some of the cases. A student also opined, “[c]hange [per Rogers’ cases] was applied to developing countries where change is very basic. How does change occur here where things are much more advanced?” The students’ summated, evaluation ratings overall were $M = 3.86$ (instructor) and 3.71 (course). (4.00 = Very high.)

Implications/Conclusions/Recommendations

Students perceived cases were an effective method for learning Rogers’ theory. Findings supported McKeachie (2002) on the value of contextualized learning and that presenting a problem through a case stimulates meaningfulness. Students appreciated Rogers’ theory for developing world contexts but desired more examples of developed world cases. The course ratings supported what students voiced. It is recommended cases be used to teach diffusion theory.

References

Self-Perceived Educational Needs of Small Farmers in Trinidad and Tobago

Angela M. Valadez
University of Florida

Austen Moore
Norma Samuel
Amy Harder
University of Florida

Keywords: Trinidad and Tobago, agricultural Extension, farmer program planning, small farmers

Introduction and Need for Innovation or Research
Trinidad and Tobago’s (T&T) small farms struggle to be profitable due to price increase, decline in labor, competitive imports, unpredictable weather, and marketing (Economic Commission for Latin America and the Caribbean, 2011). Small farmers get limited extension information from the Ministry of Agriculture (Renwick, 2010). Farmers rely on traditional knowledge, informal meetings among themselves, meetings from agricultural societies, and garden shops for farming (Renwick, 2010). Understanding the perspective of small farmers will help government-led extension sustain agriculture within the Caribbean region (Závodská & Dolly, 2009).

Research Methodology and Theoretical/Conceptual framework
The purpose of this study was to identify small farmers’ educational needs beyond traditional farming practices. A qualitative approach was conducted in March 2012 to gather information from farmers about their educational needs. Data were collected through semi-structured personal interviews with 18 farmers of different social classes and communities from T&T. Data analysis used the constant comparative method (Lincoln & Guba, 1985). Findings were then organized by emergent themes drawn from the responses. Trustworthiness was increased through data triangulation and member checking (Lincoln & Guba, 1985; Merriam, 1998).

Results
The interviewed small farmers’ most commonly identified educational needs were in postharvest handling, business training, and assistance in land tenure. They stressed the need to learn more about quality control of crops and new ways of packaging produce for market. Some farmers expressed interest in: gaining insight on how to “market their produce” that is sustainable, evaluating market trends for the crops they grow or can grow, and learning the marketing and infrastructure for processing and distribution of local food.

In addition, many farmers wanted to learn “new farming technology,” such as sustainable farming, to reduce imports, and increase food production. Other needs included learning how to resolve tenure issues and landlessness. Finally, a couple of farmers wanted to learn how to recruit labor for their farms as they compete with unemployment social programs, which provide
equivalent pay for half the day’s work on a typical farm. The shortage of labor also has led to occasional, substantial loss of crops.

**Conclusion/Implications**

The small farmers who were interviewed showed interest in increasing their knowledge outside of traditional farming practices in order to pursue new opportunities that would allow them to increase their revenues and decrease costs.

**Recommendations for practice and/or research**

Government-led extension should consider planning programs that focus on adding financial value to small farm production, such as postharvest handling, marketing opportunities, and strategies for sustainable farm/ranch businesses. The lack of land tenure for the agricultural sector in T&T must be resolved through legislative policy, but extension officers can help small farmers by ensuring legislators are accurately informed about the issues. Additional research is needed to understand the pervasiveness of the needs identified by this study across the larger population of farmers. By being responsive to small farmers’ needs, extension can help small farmers gain the knowledge they need that may ultimately improve rural livelihoods.

**References**


Sharing an Idea to Help Internationalize Curriculum Using Spatial Educational Software (ISEE) for Crop Science Disciplines

Lori Unruh Snyder  
Assistant Professor  
North Carolina State University

Annie L. E. Davis  
Purdue University

Keywords: Crop Science, ISEE, Spatial Education, Maps, Soil, GIS

Introduction
The National Research Council’s report (2006a), *Beyond Mapping: Meeting National Needs through Enhanced Geographic Information Science*, was conducted at the request of several government agencies concerned about professionals developing the skill set for geospatial skills. Combined with the other National Research Council report (2006b) *Learning to Think Spatially: GIS as a Support System in the K-12 Curriculum*, compelling arguments for the need to incorporate critical thinking to help develop spatial thinking and spatial technologies throughout our curricula have been made (Downs & DeSouza, 2006). Mitzman, Snyder, Schulze, Owens, & Stowe (2011) reported a pilot study on how they incorporated an educational software package called “Integrating Spatial Educational Experiences- ISEE” for an introductory Crop Production course. The findings demonstrated the potential to increase the ability of our students to use geospatial information to understand how and why soils and landscapes vary spatially at scales ranging from individual fields to a region as large as the state of Indiana. Often professors have the opportunity to exchange and share curriculum with international colleagues. Having had the opportunity to utilize ISEE from 2008 to 2012 (XX, personal communication 2012) within a crop science classroom, several homework and group assignments were created, which in turn could be adapted for international use to help internationalize curriculum of other universities based on the case study of Midwest agricultural practices.

Purpose and objectives
The purpose of this poster abstract is to share ideas on how to incorporate already existing curriculum within the discipline of Crop science to help internationalize curriculum of other international universities. The goal is to help increase our students’ understanding as to how the spatial distribution of soils and landscapes impacts the spatial distributions of crops, cropping systems, land use, and environmental and natural resource.

Methods
Descriptive teaching methods where developed in order to share to an international community of scholars. This study describes what was written and utilized in an USA classroom and how it can be utilized internationally.
Results

Students who have utilized the ISEE website in the past were asked to report if they learned something new and 84.3% of students found the ISEE website a valuable tool to use. The results of this study indicate that the use of ISEE in the curriculum can be usually to help increase participants’ knowledge of maps and computer technology, as well as, limitations and success of cropping systems in the Midwest.

Conclusions/Implications/Recommendations

This project could help internationalize curriculum by using developed resources as a case study. It introduces a set of thinking skills and approaches to conceptualizing and solving real-world problems that will serve them well throughout their careers. The website, ISEE, provides a rich set of material that can facilitate learner-centered instruction (Schulze, 2010). The website, ISEE, can serve as a model of how geospatial information can be used in teaching and learning. The ISEE web application provides a wide variety of digital maps that allow individuals to understand the landscapes, soils, crops, agriculture, and natural environment of countries.

References


Student Constructions of Organic and Sustainable Agriculture

Lori Unruh Snyder
North Carolina State University

Tim Durham
University Florida Gulf

Janelle Donahue
Missouri University

Tracy Irani
University of Florida

Annie L. E. Davis
Purdue University

Keywords: Agroecology, Crop Production, Definitions, Organic Agriculture, Sustainable Agriculture

Introduction/Need for Research

The rise of the organic farming methods in recent years fosters the questions of 1) whether demand will continue to increase or start to decline, and 2) whether a concomitant proliferation of university programs in organics can be expected. Initially popularized in the 1970s, organic and sustainable agriculture have realized significant gains in brand recognition and market share. In 1995, the National Organic Standards Board established criteria that must be observed to label and market goods as organic. Consumers rationalize their organic purchasing behavior in myriad ways. This includes perceived improvements in safety, nutrition, and environmental quality. Despite this, formalized university instruction in organic and sustainable agriculture has lagged considerably behind consumer ideology. Recent data indicates that thirteen US institutions offered baccalaureate degrees in agroecology, sustainable/organic agriculture, or some derivative thereof. Ten institutions offered concentrations, specializations, or emphases in these fields, while eight offered minors (AASHE, 2010).

Purpose

The purpose of this poster abstract is to report the findings on student perceptions of organic and sustainable agriculture. Three objectives were used to help look at student perceptions: 1) gauge student familiarity of sustainable and organic agriculture practices; 2) assess future supply and demand asking about student receptiveness to produce and purchase organic and sustainable agricultural produce; and 3) understand the constraints in agriscience education in the preparation of future curricula.
Methodology

Eighty-four students at XX, XX, and XX were recruited for a survey that assessed their knowledge, attitudes, and opinions on the incorporation of curricula on organic and sustainable agriculture. Subjects were asked to self-report basic demographic information and address a series of open-ended short answer questions developed by the investigators. These questions asked about concepts of organic and sustainable agriculture and general crop production systems. In order to measure student opinions and attitudes, meaning units conveying a concept or belief were categorized from resulting answers and tabulated (Lachapelle, McCool, and Patterson, 2003).

Results/Findings

Students provided a range of words and phrases that defined their perceptions of organic and sustainable agriculture. Thematically, student responses demonstrated some different variations of organics, but were largely congruent. However, definitions of sustainable agriculture were more ambiguous. A prevailing view did not emerge from the data, with 13% reporting “do not know.” Within the cohort, the qualitative responses speculated that organic agriculture will increase in the future (40%). The remaining students’ perspectives speculated that organic agriculture will not change (4%) or will remain a minority in agriculture (11%).

Conclusion, Recommendations, & Implications

The results of this survey denoted a role for organic and sustainable agriculture in the curriculum. Since the USDA just started a campaign called “Know Your Farmer, Know Your Food”, future surveys should try to incorporate questions that gauge student interest surrounding organic and local food system markets. Present data indicates shortages in meeting the demands of educational curriculum in the areas of organic and sustainable agriculture (ERS, 2009). These survey results demonstrate that such trends may continue to manifest as the students surveyed accept roles of consumers and producers.

References


The Relationship Between Organizational Climate and Salmonella Prevalence in a Federally Inspected Beef Packing Plant in Veracruz, Mexico

Shawna Newsome  
Texas Tech University  
Department of Agricultural Education and Communications  
Box 42131  
Lubbock, TX 79404-2131  
Phone: 806.742-2816  
Fax: 806.742-2880  
shawna.newsome@ttu.edu

Todd Brashears  
Mindy Brashears  
Haley Porter  
Eli Shahab  
Texas Tech University  
Department of Agricultural Education and Communications

Introduction
Food borne illnesses have increasingly become a growing human health and economic problem and have become more prevalent since 2001 (Recourt, 2003). In 2004, the World Health Organization reported 2.9 million deaths of children age 0-14 caused by diarrheal disease, which results primarily from contaminated food and water sources (World Health Organization, 2012). Workforce training in the food industry is imperative for increasing food safety awareness and reducing food borne illness.

Organizational climate has been shown to influence individual and organizational outcomes (James et al. 1990; James & Jones 1974; Kopelman et al. 1990) and is as a key factor in determining worker behavior (Ball et. al, 2010). Organizational climate must be assessed so that agricultural educators may develop training that will effectively increase desired food-safety related behaviors. This project intends to evaluate the food safety culture in Mexico for this purpose.

Purpose and Objectives
The purpose of this study was to determine the relationship between organizational climate and food safety as measured by Salmonella prevalence in a federally inspected packing plant in Veracruz, Mexico. The objectives were as follows:
1. Describe food safety climate at a predetermined packing plant in Veracruz, Mexico in fall of 2008.
2. Describe research initiated workforce education interventions over a four year period between the fall of 2008 and fall of 2012.
3. Quantify Salmonella prevalence at packing plant in Veracruz, Mexico over a four year period between the fall of 2008 and fall of 2012.
4. Quantify the relationship between organizational climate and food safety at packing plant in Veracruz, Mexico.
Methods
A survey instrument consisting of 50 scale items was adapted from a similar instrument developed by Ball (2010). Response options were based on a 7-point Likert-type scale. The instrument was divided into five constructs including food safety training, work unit commitment, infrastructure, personal understanding, and behavior. The research team traveled to Veracruz, Mexico, over a period of four years to collect carcass samples for *Salmonella* data and administer the climate instrument.

Results
The instrument was administered and completed by all available employees at the plant in 2008 and 2012. Constructs were summarized, and means and standard deviations were calculated. Anova analysis was used to determine where significant differences existed between the constructs. It was determined that over the four-year period significant increases occurred in multiple climate constructs, indicating improved climate regarding food safety. *Salmonella* testing at various points along the production line indicated a reduction in pathogen prevalence at each data collection point.

Recommendations
Organizational climate has implications for worker behavior and for educators’ ability to alter that behavior in a desired fashion. This research indicates that not only is climate related to behavior, but in turn, is related to the quality of the final product. Results will be used at the plant to improve food quality through continued training. In addition, because climate is a reflection of leadership, researchers will implement leadership workshops for plant managers and continue research on this topic.
References


The Influences of Transactional Distance Theory to Learners for Taking Online or Distance courses in National Chung-Hsing University (NCHU) in Taiwan

Ruei-Ping, Chang
Texas A&M University

James R. Lindner
Texas A&M University
Department of Agricultural Leadership, Education, and Communications
128D Agriculture and Life Sciences Building – AGLS
College Station, TX  77843-2116
Phone: (979) 458-2701
Fax: (979) 458-2698
j-lindner@tamu.edu

Keywords: transactional distance theory, interactions, technology, online learning, distance education.

Introduction
Do students receive equal satisfaction, quality, and learning from distance courses as traditional classes? This poster will visually depict the effects of vicarious learning on student satisfaction, quality of instruction and learning outcomes. Students’ barriers of taking distance courses are the problems of time, space, expression or material understandings, and lack of human interactions (Dooley, Lindner, & Dooley, 2005). Transactional distance theory attempts to explain the relationships that exist in distance learning environments (Moore, 1997). There are four kinds of interactions in the transactional distance theory model: learner’s interaction with other learners, with the instructor, with the course content and with the course technology (Moore, 1989; Gunawardena, Hillman, and Wills, 1994). Seidel (2012) found that there are significant relationships between four interactions and students’ distance learning. Dooley et al. (2005) provide examples of technologies which may enhance the four interactions of transactional distance theory. In this study, students’ attitudes and opinions toward those technologies can help us to understand how diverse technologies influences students’ learning via distance course.

Research Methodology and Theoretical Framework
The instrument was followed the Moore’s transactional distance theory model (Moore, 1989; Hillman, et al., 1994). Data of this descriptive and correlational study was collected with a questionnaire distributed online. The population for this study was undergraduate and graduate students who study in agriculture related majors in National Chung-Hsing University (NCHU) in Taiwan.
Results

• Collaborative documents, social sites, and instant messaging are effective technologies that enhance learner’s interaction with other learners.
• Lecture, online editing and feedback, and email are effective technologies that enhance learner’s interaction with the instructor.
• Case studies and interactive video are effective technologies that enhance learner’s interaction with the course content.
• Electronic libraries, search engines, and online instructions for downloading plugins are effective technologies that enhance learner’s interaction with the technology.
• Learners tend to use different technologies to enhance their each interaction.
• There are high agreements that the importance of the interactions with other factors in distance education.
• There are high agreements that diverse technologies have different level of influence on interactions.

Conclusion and Recommendations

Effective technologies can enhance the four interactions of transactional distance theory, and increase learners’ satisfaction, quality, and learning during taking distance courses (Seidel, 2012). Using diverse technologies not only reduces the problems of time and space but also enhances learner’s interactions with other learners, instructor, course content, and course technologies. Results of effective technologies in this study are different from former researches. Culture differences and education methods are important factors. It means that different group students tend to use diverse technologies for learning. Instructors have to use appropriate technologies for the specific learners to create distance or online classes materials.

References


Using Facebook Page to Educate and Market Directly to Consumers: A Case Study of Yanyang Farm in Taiwan.

Chia-Wei Chang  
Texas A&M University

James R. Lindner  
Texas A&M University  
Department of Agricultural Leadership, Education, and Communications  
128D Agriculture and Life Sciences Building – AGLS  
College Station, TX  77843-2116  
Phone: (979) 458-2701  
Fax:     (979) 458-2698  
j-lindner@tamu.edu

Keywords: small scale farmer, Facebook, communication, direct marketing.

Introduction
This poster will visually depict how small scale farmers in Taiwan can use Facebook to market directly to consumers. Small scale farmers face many challenges when selling their products. They often do not have advantages on price when competing with large scale farmers. The average farm size is only about 2.47 acres per family (Council of Agriculture, 2012). Prices of agricultural products are lower when small scale farmers sell directly to wholesalers compared with selling crops directly to consumers. Direct marketing is an alternative way for small scale farmers to sell their agricultural products for a higher price. Small scale farmers are seeking to sell their agricultural products on the Internet. Social media is popular. Facebook has become a new communication and marketing platform for farmers. Facebook has nearly thirteen million users in Taiwan. Approximately eighty percent of Taiwanese online users have a Facebook account (Checkfacebook, 2012). According to Nielsen Wire (2012), Facebook is the top social media in Taiwan. Small scale farmers can create a Facebook page for their farm to tell the farm’s story and share their farming experience. They can update the farm news and answer readers’ questions to interact with potential consumers.

How the Innovative Program Works
Yanyang Farm is located in the central Taiwan. The major crops are tangerines and coffee beans. The main harvest season is from mid-October to late January. The farm space is about four acres. The chief sales channels for Yanyang Farm are U-pick and repeated consumers. The farm owner created the Yanyang Farm Facebook page in 2011. The goal of the page was to raise domestic agriculture awareness. He also aims to communicate with consumers and increase U-pick customers and online orders via Facebook page. Post content contains the farm’s story, the farmer’s experience, farm news and photo, agricultural product photo, and videos. The most common posting language posting is Mandarin. Some short messages and photos contain Mandarin and English captions. The updating frequency is once every two weeks during non-harvest season and once per week during harvest season. This case study focuses on figuring out what types of farm messages can achieve a higher reach rate. The study will examine the amount
of online orders and U-pick customers created by the Yanyang Farm Facebook page messages during the 2012 harvest season to evaluate whether the Facebook page is an efficient education, communication, and marketing tool for small scale farmers.

**Results**

- Agricultural product photos with a short caption are the most popular type of message.
- Long articles are a less attractive of message.
- The amount of online orders and U-pick customer increased during 2012 harvest season because of the attraction of Yanyang Farm Facebook messages.

**Implications**

The results could lead to other small scale farmers to creating their own Facebook page to increase customers and income.

**Recommendations for Practice**

The study could be extended over several years to see if long-term education and communication via Facebook can build stable relationships with repeated consumers and attract new customers.

**Reference**


Water Resources Development and Management through Education: Experiences from Ethiopian Institute of Water Resources

Mekonnen Gebremichael  
Associate Professor  
Department of Civil & Environmental Engineering  
University of Connecticut  
Storrs, CT – 06269-2037  
E-mail: mekonnen@engr.uconn.edu  
Phone: 860.486.2771

Tena Alamirew  
Director  
Ethiopian Institute of Water Resources  
Addis Ababa University

Mary S. Holz-Clause  
Vice President for Economic Development  
University of Connecticut

Vikram Koundinya  
Postdoctoral Research Associate  
Iowa State University

Keywords: Water resources education, capacity building, international collaborations, developing country

Introduction
Most development problems in Ethiopia are water related. This is not due to scarce water resources but due largely to lack of institutional capacity and workforce expertise. This indicates a need for empowering Ethiopian professionals in water sector. To meet this need, a collaborative project of one U.S. and five Ethiopian universities focused on sustainable water resources development and management was funded by the United States Agency for International Development and the Higher Education for Development offices. This project established Ethiopian Institute of Water Resources (EIWR) for building capacity of Ethiopian professionals by offering graduate education, research and outreach activities.

Purpose
The purpose of this poster is to share the achievements of EIWR in education, research and outreach engagement in the last one year.

Methodology
EIWR was established in 2011 with a vision to develop this institute as a multidisciplinary knowledge hub for water resource development in Ethiopia. This will be achieved by capacity building, research and community engagement. EIWR will be built in
three phases over 10 years. U.S. institutions will offer services even after 10th year through externally-funded projects, but it is envisioned to graduate sufficient PhD students by that time to staff Ethiopian universities to attract funding to sustain EIWR.

Results

Different graduate programs were initiated. Curricula for Water Resources Engineering and Management (WREM) and Water and Health majors were developed through a participatory process involving various stakeholders. WREM currently has 40 students: 23 MSc (graduating in December 2012) and 17 PhD students. Fifty students are currently enrolled in Water and Health program, of which 50% are females. Course delivery and thesis advising are conducted jointly by Ethiopian and U.S. faculty. The U.S. faculty were drawn from 20 institutions. Graduate students in WREM participated in a three week workshop where U.S. scientists trained them in identification of research areas. Field campaigns were also organized for these students to learn research methods with field experience.

EIWR engaged in many community outreach activities. The defluoridation project in Afar Region in Ethiopia is one example, which addressed high fluoride content in groundwater to make it safe for domestic use. EIWR trained 40 development agents from water and agriculture sectors to improve living situations of water users. A high school water science summer camp was organized to engage students in outreach and encourage pursuing studies in water sector. Over 150 undergraduate students were involved in summer-long community outreach programs. In Ethiopia, female students do not have equal access to education as male students, and this was addressed by having good representation of female students in the above mentioned projects.

Implications

Initial results from this international collaborative project reiterate the importance of capacity building of existing and future professionals in developing countries to address their own problems. Achievements and learning experiences from EIWR may help in designing similar collaborative efforts in other development areas. Sharing these results may also open up opportunities from those having similar interests.