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Poster Proceedings

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Table of Contents

Innovative Ideas Posters

Table of Contents (Continued)

Research Posters

An Urban Fair for Underrepresented Youth in 4-H: The Baltimore City 4-H Expo

Andrea M. Kneer

Douglas D. LaVergne

Joshua E. Rice

Stacy A. Gartin

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An Urban Fair for Underrepresented Youth in 4-H: The Baltimore City 4-H Expo

Need for Idea

The state of Maryland has a diverse demographic makeup whereby 30% of the state's population is represented by people of color. In Baltimore City alone, 64% of the population is represented by people of color (United States Census Bureau, 2010). The 4-H youth program in Baltimore city has continuously sought effective strategies to incorporate diverse audiences by emphasizing special youth development/leadership opportunities, educational activities, and member driven projects. However, after much observation, the effectiveness of the strategies employed to increase the accessibility of 4-H programs to all populations still remains an issue of concern. Although Extension has historically had great success in effectively reaching rural communities, it has simultaneously lacked effective methods to reach urban communities (Fritz, Karmazin, Barbuto, & Burrow, 2003). Because of the need of a broader scope of programs and activities, the Baltimore City 4-H Youth Expo was developed to provide underrepresented youth these opportunities.

How it Works

The Baltimore City Extension, volunteers, community leaders, and advisory board members implemented the Expo to enrich the 4-H experience for Baltimore City youth. Area schools and after school programs encourage students to develop projects to be exhibited at the Expo. 4-H Clubs within Baltimore City also develop displays and exhibits for the Expo. The projects are 4-H based, judged according to the Maryland State Standards for Agricultural Fairs and Shows, and can entered in the following divisions: Family and Consumer Sciences, Food Preparation, Expressive Arts, 4-H Relations and Promo Posters, General Sciences, Agricultural Sciences, and Flowers and Arrangements. Winning 4-H exhibits are eligible, and entered in the Maryland State Fair. During the Expo, students view entries, listen to motivational speakers, and visit *Skillathon* stations. Skillathon stations are individual booths that are based on topics which are relevant to metropolitan areas such as: recycling, pollution reduction, public transportation, and urban agriculture methods. Youth visit each Skillathon station (which is managed by a University of Maryland Extension volunteers) and begin booth activities that focus on skill and knowledge evaluation of that particular theme. There are three challenges at each station for three levels (elementary, middle, and high school). The Extension volunteer evaluates each participant and ranks them by proficiency level. Individual scores are tallied and prizes are awarded at the end of the day for proficiency at each Skillathon station and an overall composite proficiency score at each level. Skillathon challenges and themes change on a yearly basis. The motivational speakers and Skillathon stations set the Expo apart from traditional county fairs.

Results

Over 400 youth attended the Expo with approximately 135 competitive 4-H youth exhibits entered and judged. Over 300 youth participated in the Skillathon stations. The amount of participation received from youth entering exhibits is dependent on the after school programs and schools that partner with the University of Maryland Extension – Baltimore City 4-H educators. A stronger connection between the educators and the area wide schools and after-

school programs should foster greater participation from youth in the exhibit submission segment as well as higher attendance rates from youth at the Expo. Early observation indicates that participants are more interested in partaking in the Skillathon stations than submitting exhibits. However, participants that went through the Skillathon stations have shown a greater interest in becoming 4-H members and have actively joined 4-H clubs after the Expo. The themes of the Skillathons also serve as a springboard for 4-H project interests.

Future Plans

The Expo will continue to expand toward the various communities in Baltimore City and provide 4-H youth development for all students. Rotating the Expo from its original location in downtown Baltimore City to a host school or recreational center each year is being considered. Integrating more agricultural science and STEM programs in the communities served in order to increase the amount of science exhibits at the Expo is in progress with the appointment of a new STEM coordinator. The STEM coordinator has started 4-H clubs with an emphasis in aquaponics and urban agriculture. Partnering with other local urban Extension offices such as Washington D.C. to help them initiate an Expo in their city is in progress. Plans to incorporate club booths to increase club membership rates and publications about 4-H are being developed. Small animal projects are being considered for allowance into the exhibit phase of the Expo. Small animals would include rabbits, guinea pigs, poultry, and dogs.

Resources Needed

The Expo requires approximately $5000.00 to plan and operate. Fundraising money from the Extension Advisory Board, in-kind donations, and money from the New York Life grant from the National 4-H Council provided the operating cost. Approximately 30 volunteers are needed to lead groups, run stations, set-up and tear-down, answer questions, and promote 4-H.

The following expenses are in-kind donations:

- Building Rental for three days
- Lunch, snacks, and beverages for volunteers and judges
- Services for use of sound equipment, announcements, and introductions

Monetary donations were used for:

- Decorations and exhibit display materials
- Skillathon prizes
- Parking passes

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Connecting Agribusiness/Industry and Agricultural Education Teachers through the Minnesota Teacher Induction Program

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Connecting Agribusiness/Industry and Agricultural Education Teachers through the Minnesota Teacher Induction Program

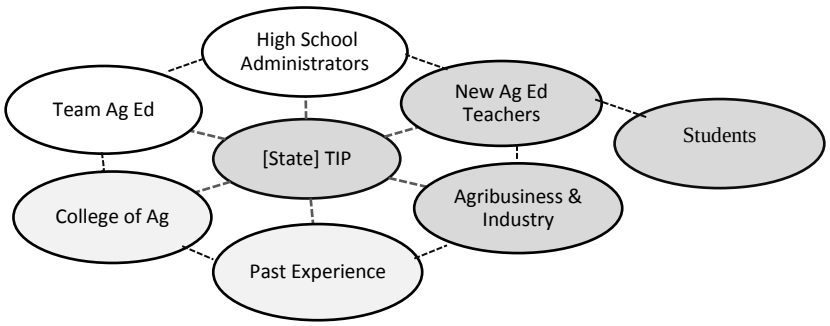
Introduction

Agribusiness/industry helps to support the world's demand of food, fiber, fuel, and natural resources. As agricultural research and technology accelerates, career opportunities are unveiled that consist of new knowledge and skills. However, new teachers of agricultural education find little time to connect with agribusiness/industry due to time management challenges. As one teacher stated; "I never imagined how much personal time would be taken by my obligations to teaching and FFA" (Boone & Boone, 2007; Boone & Boone, 2009; Greiman, Walker, & Birkenholz, 2005; Lambert, Torres, & Tummons, 2012).

The Minnesota Teacher Induction Program (TIP) is well positioned to facilitate the connection of agribusiness/industry with beginning teachers. TIP can obtain educational resources from agribusiness/industry that present their valued knowledge/skills. With a focus on the base of the Cone of Experience model (Dale, 1946); TIP aims to identify "real-life experiences, interactive models, and role plays" (Roberts, 2006, p. 24) used in agribusiness/industry. TIP can then provide these reflective experiential learning (Kolb, 1984) tools to new agricultural education teachers in [State].

How it Works

The Minnesota TIP is positioned for interface with agribusiness/industry, Minnesota College of Agriculture, Team Ag Ed, new teachers, and high school administrators. The shaded portion of the model below reflects the entities of emphasis for this poster.



The TIP Coordinator made connections with agribusiness/industry across all seven AFNR career pathways; and thus provided a one-stop location for agribusiness/industry to present their valued knowledge/skills, technology, product, profession, and practice in a format that the coordinator can relay to new agricultural education teachers. The following questions were asked of agribusiness/industry connections: How can we bring high school students into the context of the profession via 'real-life experiences'? What are ways to 'interactively model' the product, process, service, or system of your agribusiness/industry organization? What are ways for high school students to 'role play' actions within the company?

New teachers participating in TIP have the opportunity to meet for monthly professional development through a combination of face-to-face and web conference meetings. Agribusiness/industry educational resources are presented during monthly meetings by the TIP

Coordinator. In each successive meeting, teachers are given the opportunity to exchange feedback, ideas, and reflect on the value of agribusiness/industry's educational resource and how students reacted to the resource.

Results to Date

The TIP Coordinator identified a list of 50+ agribusinesses to meet with in the following states: Minnesota, Iowa, Colorado, Wisconsin, Illinois, Indiana, and Ohio. To date, the coordinator has met with Riverview Farms, Knoll Farms, Superior Industries, Bonanza Beans, Backman Robotics, Advanced Crop Management, Precision Planting (Monsanto), Greenleaf Acres, Progressive Ag Center, Appion, and Wenda Ingredients. Representatives from the companies presented their desired employee skills, products, services, and training programs and appreciated the plan of action to take their product and educational resources to the classroom. The TIP Coordinator then presented the educational resources to the new teachers during each monthly meeting. Each meeting represented a different AFNR career pathway. As the new agricultural education teachers incorporated the educational resources into their teaching; student attention, motivation, and learning was accelerated due to the opportunity to learn in a contextual manner through experiential learning.

Future Plans

During the 2012-2013 school year, the TIP Coordinator will connect with school administrators of new teachers to facilitate an observation/reflection on the use of specific agribusiness/industry educational resources in their agricultural education program. Pre and Post data will be collected reflecting the impact of the educational resources on the teacher, students, and high school agricultural education program.

Costs & Resources Needed

Currently, a faculty member at the University of [State] serves as the TIP Director and a graduate student is the TIP Coordinator. Each participant in the monthly meeting needs a high speed internet connection, a webcam, and a microphone for their computer. A webcam can be purchased for approximately $40. The TIP Coordinator is reimbursed for travel expenses to agribusiness/industry locations to make connections. The travel expense to be reimbursed is approximately $4,500. The reimbursement occurs from funding from grants, foundations, and sponsors.

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Developing an Interdisciplinary Project-Based Curriculum: A Collaboration Among Industry, Higher Education, and State Government

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Developing an Interdisciplinary Project-Based Curriculum: A Collaboration Among Industry, Higher Education, and State Government

Introduction/Need for Innovation

In the *Pathways to Prosperity* report, Symonds, Schwartz, & Ferguson (2011) articulated that a fundamental obligation of a society is to prepare youth for productive and prosperous lives as adults. This means "preparing all young people with a foundation of literacy, numeracy, and thinking skills for responsible citizenship, career development, and lifelong learning" (Symonds et al., 2011, p. 1). Despite this charge, there are signs that the United States is struggling to meet that obligation. In fact, over one million teenagers drop out of high school each year, and an estimated 1 in 8 children never graduate from high school (Christenson & Thurlow, 2004). With this in mind, the need to meet this fundamental obligation is of utmost importance.

Although efforts to identify potential dropouts have been implemented, there is not one common factor attributed with student disengage in school. While some students drop out because of academic difficulties, others leave because they felt that their classes were not interesting, their courses were not authentic, and high school did not provide a pathway for their career aspirations (Knesting, 2008; Symonds et al., 2011; Plank, DeLuca, & Estacion, 2008). Additionally, many students drop out because they are unable to see a clear connection between their high school course work and the opportunities in the labor market (Symonds et al., 2011).

One approach to engaging students and preparing them for productive lives is Project-Based Learning (PBL). PBL "engages students in learning knowledge and skills through an extended inquiry process structured around complex, authentic questions" (Markham, 2003, p. 4). Complex problems - questions with multiple entry points that build upon previous knowledge or assumptions - support constructivist learning environments by promoting the learners' construction of knowledge (Brooks & Brooks, 1993). Thus, by posing questions that are accessible with current knowledge but that require learning and development to solve, a PBL curriculum can support the development and implementation of a constructivist learning environment (Salomon & Perkins, 1998).

In 2010, the Departments of Economic Development and Labor commissioned an assessment of Nebraska's economic drivers. As a result, five primary industry clusters were targeted to drive future economic development. Specifically mentioned was Agriculture and Food Processing. In response, the Nebraska Department of Education (DOE), in cooperation with the Southern Region Education Board, partnered with ConAgra Foods to develop a project-based curriculum in the career areas of Food and Nutrition Science. The goal of the project is to provide students with a clear link between their high school courses and growing career fields. Furthermore, the use of PBL will engage students in learning knowledge and skills structured around complex, authentic questions.

Program Phases

The Food and Nutrition Science curriculum project is a synergistic collaboration among industry, higher education, and state government. In the first phase of developing the PBL curriculum, Nebraska DOE facilitated meetings where industry representatives and Food Science and Nutrition and Health Sciences faculty from the University of Nebraska identified the technical content associated with the four-course sequence. In the second phase, industry and

higher education representatives identify the complex and authentic projects that will be used to teach the technical content. This input provides the framework for an industry-validated Food and Nutrition Sciences curriculum. Finally, professional curriculum writers utilize the input provided by industry and higher education representatives to write the project-based courses.

Results to Date

Nebraska DOE staff met with Food Scientists and Nutrition Scientists and university faculty to identify the courses and technical content beginning in January 2012. The following courses were identified for development: (1) Food Production, Nutrition, and Health, (2) Food Science, (3) Nutrition Science, and (4) Food and Nutrition Science Research and Development. In March 2012, industry, higher education, and state government officials met and identified the projects associated with the first course in the sequence. A curriculum writer is developing the first course, utilizing the technical content experts as resources. The anticipated completion date for the first course is May 2013, and the course will be offered beginning with the 2013 school year. Currently, five schools will offer the course for the 2013-2014 school year.

Future Plans/Advice to Others

In September 2012, development will begin for the second and third courses in the four-course sequence, following the same development procedure as the first course. The second and third courses are anticipated to be completed by May 2014 and will be offered in schools beginning with the 2014 school year. The same process will also be used to develop the fourth course, which is scheduled for completion in 2015.

Future plans include creating opportunities for teacher professional development and research associated with the effectiveness of the PBL curriculum. Teachers teaching the courses will be expected to attend a Food and Nutrition Science Summer Institute. The Summer Institute will provide support related to the curriculum's technical content and to assist teachers as they implement PBL in their classrooms. The first Summer Institute will be held July 18-20, 2012. Furthermore, research associated with the project will be designed around implementation of PBL, student engagement in PBL, knowledge obtained within PBL courses, and student matriculation into postsecondary training or careers within Food and Nutrition Science.

Costs/Resources Needed (Per Course)

Phase 1 Meetings: Includes supplies, meals, lodging, & travel expenses	$1,200
Phase 2 Meetings: Includes supplies, meals, lodging, & travel expenses	$3,600
Curriculum Writer: Includes fees and expenses	$48,000
Summer Institute: Includes stipends, supplies, meals, lodging, & travel expenses	$26,000

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Engaging Globally Through the Fulbright Specialist Program: Opportunities for Agricultural Educators

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Engaging Globally Through the Fulbright Specialist Program: Opportunities for Agricultural Educators

Introduction

The purpose of this innovative idea poster is to acquaint agricultural educators with the Fulbright Specialist Program, share my Fulbright Specialist experience, and encourage others to consider using this program to support global engagement opportunities in agricultural education. Facts about Fulbright programs presented in this abstract are based on information contained in the following website: http://www.cies.org/.

Most academics are aware of the core Fulbright Scholar Program which supports international teaching and research assignments ranging from two to twelve months in duration. For scholars who cannot commit to an international assignment lasting several months, there is an alternative. The lesser known Fulbright Specialist Program supports a broad range of international activities for periods ranging from 14 to 42 days. Activities may include lecturing, conducting seminars, training teachers, special conferences or workshops, curriculum planning, and institutional development. Agricultural education faculty are uniquely qualified to provide the expertise needed in this program. The Fulbright Specialist Program is available in more than 100 countries.

How It Works

Operation of the Fulbright Specialist program can be subsumed into three things. First, scholars from the United States must apply and be approved for the Fulbright Specialist Roster. Second, a foreign degree granting institution must formally request a Specialist for a specific project. Third, the Council for International Exchange of Scholars (CIES) matches Specialists with program requests.

Major components of my application for the Specialist Roster included basic demographic data, academic credentials, professional background, discipline and specialization, a statement about my motivation for and interest in being a Fulbright Specialist, and two letters of reference. Three months after submitting the application I was notified by CIES that I had been added to the roster. Eighteen months later I was invited to apply for the Thailand project.

The Thailand project was proposed by Naresuan University in Phitsanulok, Thailand. This university is located approximately 400 kilometers north of Bangkok. Naresuan University requested a specialist to provide advice and guidance on the internationalization of graduate programs in Plant Biotechnology and Natural Resources and the Environment. The project duration was 42 days. My two-page application included a proposed approach for conducting the project and my relevant qualifications. From three applicants, I was selected as the official grantee.

Several activities took place after my selection but before traveling to Thailand. Naresuan University and I agreed on the project period, approval for my participation was granted by [state] University, a grant authorization and budget were approved, airline tickets were purchased, invitation letters from the Thailand – United States Education Foundation and the President of Naresuan University were received and submitted with my visa application, and a scope of work was prepared. Upon completion of the project a final report was submitted to CIES, the honorarium was received, and a certificate of completion was presented to me by the J.

William Fulbright Foreign Scholarship Board and the Bureau of Educational and Cultural Affairs of the United States Department of State.

Results to Date

During the project, I spent most of my time in the Faculty of Agriculture, Natural Resources and Environment. Departments in the Faculty of Agriculture, Natural Resources and Environment include Agricultural Science, Agro-Industry, and Natural Resources and Environment. A primary focus of the project was on internationalization of graduate programs in Plant Biotechnology and Natural Resources and Environment. I prepared a list of best practices for internationalization and I presented written observations, conclusions and recommendations to the dean of the faculty and to the president of the university. I engaged in a variety of other academic activities that included editing research papers, editing grant proposals, giving presentations about [state] University and [state] agriculture, team teaching a program on academic writing, and demonstrating distance learning techniques to faculty and students.

I was also able to participate in several cultural activities. I attended a performance called Power Cheer involving the entire freshman class of the university. I visited Sukhothai which is a UNESCO World Heritage historical park. Sukhothai, the first kingdom of Siam, was founded about 800 years ago. I attended a wedding dinner for a former employee of the Faculty of Agriculture Natural Resources and Environment. I also attended a Thai funeral. Sadly, Dr. Keith Syers, who was responsible for developing this Specialist project, died shortly after I arrived. During a national holiday, I traveled to Chiang Mai. I visited an elephant camp, Hill tribe villages, Doi Suthep Temple, and Doi Inthanon National Park.

The Fulbright Specialist project was an unforgettable experience and a major highlight of my career thus far. My 42-day experience was long enough to gain a deeper understanding and appreciation for Thailand, Thai culture, and Naresuan University. I also believe that six weeks provided enough time to make a positive contribution to Naresuan University.

Future Plans/Advice to Others

My goal is to participate in one additional Specialist project and one core Fulbright Scholar program during my academic career. I encourage faculty in agricultural education to read more about the Fulbright Specialist Program here: http://www.cies.org/Specialists/. This program could be a valuable tool in meeting your global engagement goals.

Costs

My Fulbright Specialist grant included $1902 for airfare, $292 for in-transit expenses, and $8400 for an honorarium. Naresuan University provided in-country transportation, lodging, meals in kind, and $1000 to cover meals not provided by the university. As a general rule, costs associated with travel to and from the host country, visa costs, and an honorarium are paid for by the Fulbright Specialist Program. Transportation in country and subsistence expenses are paid for by the host institution.

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Integrating Virtual Reality to Reduce Anxiety in Beginning Welders

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Integrating Virtual Reality to Reduce Anxiety in Beginning Welders

Introduction

"Welding has been gaining importance since the Industrial Revolution began changing the world. The modern world demands the ability to meld metals when constructing most structures, creating a highly sought after trade skill" (White, Reiners, Prachyabrued, Borst, & Chambers, 2010). So training qualified welders is an important task. "Thanks to a global boom in industrial manufacturing, skilled welders are in greater demand than ever" (Brat, 2006, p.1). With such a great need for these skilled labors finding quicker and easier ways of training has become a must.

Today integrating virtual reality simulations into training programs have become more popular. Virtual reality simulations have been used in training surgeons, pilots, and welders. Most studies have looked at the virtual reality training methods and integrating them into established programs (Stone, Watts, Zhong, & Wei, 2011). These studies have shown a positive effect on the trainees' ability to learn the skills needed for their profession (Stone, Watts, Zhong, & Wei, 2011; Seymour, Gallagher, Roman, O'Brien, Bansal, Andersen, & Satava, 2002).

One aspect that has not been evaluated is the cognitive obstacles the trainees may face. From teaching students at the secondary and post-secondary levels I have seen that anxiety can be a large hurdle to overcome when first learning how to weld. Finding a training method or technique to combat this barrier of anxiety is needed. Wallach, Safir, and Bar-Zvi (2009) states that social phobia usually effects school performance, ability to create social networks as well as work performance. According to Powers and Emmelkamp (2007), virtual reality can have a large effect on overcoming anxiety disorders. Does the conclusion that the use of virtual reality to overcome anxiety transfer to beginning welders?

How it works

The VRTEX 360^{TM} welding simulator is a computer based training apparatus used to train beginning welders before they would operate an actual welder. By putting the operator into a simulated environment to practice their welding technique before using an actual welder will prevent them from the potential hazards of welding. The potential hazards that welders face are electrocution, ultraviolet radiation, chemical fumes, and infrared radiation. These hazards are a potential cause of anxiety for beginning welders.

The utilization of a virtual reality welding simulator also creates a safer environment for the welder to practice and hone their skills. Some safety concerns for welders include the exposure to welding fumes created by the welding process. There are different pollutants in welding fumes, but one that can cause death after prolong exposure is carbon monoxide. The carbon monoxide pollutant can be "found in fumes of SMAW, GMAW, and FCAW" (Balchin, 1993, pp.160-161) welding processes. This is the reason welding facilities utilize ventilation systems, to reduce exposure of welding fumes to the welder. With the virtual reality welding simulator there is no risk of exposure to these harmful fumes that are created. By taking the risk out of the equation allows the student to focus on learning how to weld and not on their anxiety.

Results to Date

These results to date are purely anecdotal. [University] purchases a VRTEX 360™ in 2011 and has been used in the following agricultural mechanics classes: Methods of Teaching Agricultural Mechanics and Agricultural Mechanics Applications. Within these classes students have been instructed on how to weld with Shielded Metal Arc Welding (SMAW) and Gas Metal Arc Welding (GMAW). The VRTEX 360™ is able to simulate these two welding processes.

Within these classes students have used the VRTEX 360™ during various times throughout welding. Students used the welding simulator before and after using an actual welder to increase their welding technique without using welding consumables. The students were then asked how the VRTEX 360™ impacted their anxiety while welding. The majority of the students that used the VRTEX 360™ said "without it I wouldn't have been comfortable trying it on the actual thing." There were also students who still exhibited anxiety when transferring to an actual welder.

Future Plans

A research project has been developed at [University] to measure the anxiety experience by beginning welders. Students in the aforementioned classes will be used as the research participants for this project. Students will be hooked up to a portable bioharness to measure blood pressure, respiration, perspiration, and pulse we will be able to examine if the integration of virtual reality in our welding program has an effect on a welder's anxiety level.

Resources Needed

The faculty in Agricultural Education department applied for and received funding from the University's student technology fee grant. The university was able to purchase the unit for $45,489.00 in 2011. Bioharness(es) will be needed to monitor the different physiological measures.

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Micro-Professional Development Institutes: In-service for the Pre-service Agriculture, Food and Natural Resource Teacher

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Micro-Professional Development Institutes: In-service for the Pre-service Agriculture, Food and Natural Resource Teacher

Introduction

A common requirement of agriculture, food and natural resource (AFNR) teachers is the need for professional development. One of the drivers for professional development is the universal requirement for teachers to satisfy continuing education credits or CEUs. Furthermore, AFNR teachers are required to be knowledgeable about an immense amount of content that focuses on agriculture, food and natural resources. Consequently, AFNR teachers are constantly seeking out professional development opportunities. Many state AFNR teacher associations sponsor annual professional development institutes (PDIs) in order to aggregate a number of agriculture, food and natural resource topics into an easy to access program for teachers. This allows teachers to earn a number of CEUs in a breadth of topics that they can then integrate immediately back into their classrooms.

Pre-service AFNR teachers typically are not exposed to these in-service CEU opportunities until they are student teaching if at all. Additionally, pre-service AFNR teachers have a multitude of information sources for lesson plans, laboratories, classroom activities, curriculum plans, instructional technologies, and teaching techniques that were unheard of just 15 years ago. Pre-service teachers at [state university] take their methods and program-planning course their senior year prior to their student teaching. Prior to these courses pre-service student teachers have only taken general college of education courses. As a result, they were not aware of many of the resources available to them. Furthermore, they were not acculturated to the concept of professional development. Therefore, the instructors in the methods and program-planning course came up with the idea to incorporate a new feature into the courses called Micro-Professional Development Institutes or Micro-PDI.

Methodology

The methods course is a 5-credit semester long course taught during the fall semester. The programming-planning course is a 6-credit semester long course taught during the spring semester. Each course meets for lecture on Monday and Wednesday morning for 2.5 hours providing plenty of time to incorporate a new class feature. Micro-PDI was designed for pre-service AFNR teachers to learn how to navigate the multitude of resources on the Web, as well as traditional sources, to find new ideas and activities that they could share with their colleagues in their cohort. The first 15 minutes of class each day was devoted to the Micro-PDI. A rotation for the semester was developed for both the methods (2010 fall semester) and programming-planning (2011 spring semester) course where each student was assigned a number of days that they were responsible for conducting the Micro-PDI. The goal was for each Micro-PDI to be something that other students could integrate into a classroom on "Monday morning" and that was also "cool". The student in charge of the Micro-PDI had to locate a suitable topic, relevant materials, demonstrate the activity/lesson plan/laboratory, produce sufficient materials for their colleagues, where the activity is located (e.g. URL) and explain how the activity would meet content requirements of an AFNR program. The methods course instructor demonstrated several Micro-PDI at the beginning of the fall semester in order to model what the expectations were for

the Micro-PDI. Students were required to have a section in their notebook, which was dedicated to the materials distributed during each Micro-PDI. There were no costs involved in the implementation of this study.

Results to Date

There were 30 lectures during the 2010 fall semester and 30 lectures during the 2012 spring semester that students conducted a Micro-PDI. There were 6 pre-service AFNR teachers in the 2010/2011 cohort. Consequently, each student conducted 10 Micro-PDIs during the academic year and was a student for an additional 50 Micro-PDIs. Each student ended up with complete materials for 60 classroom activities/laboratories/lesson plans that were appropriate for an AFNR program. Furthermore, each student had an additional 10 opportunities above and beyond microteaching lab requirements to conduct actual lessons. In addition, students learned first hand about a multitude of resources. As the academic year progressed students learned from each other about new and useful resources. Many of the on-line resources that they found were not even agriculture, food and natural resource education based Web sites. Students found numerous resources that were science education Web sites that had natural carry over to the AFNR classroom. One unexpected outcome was that both instructors learned a great deal from some of the activities that were found by the students. The topics of the Micro-PDI were very diverse. Some examples of the topics included: soda-pop calorimeter, disease transmission activity, potato chip production, U.S. drought monitor, USDA food dessert locator, best practices for PowerPoint, and the Prezi presenter.

Implications

Students were very enthusiastic about the implementation of Micro-PDI into the courses. They appreciated learning new content above and beyond their coursework. By having a rotation where students were only responsible every 3rd week for a Micro-PDI they did not feel there was an undue burden. Also, students felt less pressure teaching a Micro-PDI as compared to instructional opportunities during their microteaching labs. Consequently, there was a carryover effect as the year progressed. As students did more Micro-PDIs they became more relaxed during their microteaching laboratories. In summary, both instructors of the methods and program-planning course found Micro-PDI experiences to be a positive contribution to both classes and are now a permanent part of the course requirements.

Pathways for Best Practices in Extension Online Learning Environments

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Pathways for Best Practices in Extension Online Learning Environments

Introduction

In most cases, Extension professionals today are expected to be more cost and time efficient. Also, many Extension audiences are interested in learning opportunities that provide flexibility for when, where, and how they access educational programming. One approach for delivering Extension education that may address both trends is online Extension program delivery. Interest and use of distance learning strategies in Extension programming has increased in recent years. Extension professionals are using course management systems (e.g., Moodle and Desire2Learn), web conferencing (e.g., WebEx or Adobe Connect), and numerous other platforms for professional development (Sobrero & Craycraft, 2008; Vandenberg & Reese, 2011) and in program delivery strategies (Fishel & Langeland, 2011; Stevenson et al., 2011). However an important question to ask is, "Are we being effective and using the best practices and strategies for our online program delivery?"

A number of online quality-enhancement models exist in higher education. Although some institutions have developed their own quality metrics, most depend upon metrics embraced at the national level. For example, the Quality Matters ™ program has gained a great deal of acceptance by academic program faculty from across the U.S. The program in total encompasses course design, evaluation, peer review, and training for online delivery (Ko & Rossen, 2008). A project of MarylandOnline, Quality Matters ™ consists of eight design domains covering 40 different elements of online courses. Institutions that use Quality Matters ™, implement it on a continuum ranging from a broad guideline for quality design to peer-reviewed courses carrying a national seal of approval.

Although the preponderance of scholarship and related conventional knowledge guiding best practices has historically- focused on formal academic instruction, are these same design principles transferrable to online Extension programming? The objectives of this innovative poster session are to: (1) to distribute commonly-used guidelines for best practices for online academic credit-bearing courses, (2) engage participants in a dialogue as to the importance for establishing guidelines of best practices for online Extension program delivery, and (3) share the results of a brainstorming activity conducted recently at a statewide Extension Conference related to design domains for online Extension program delivery.

How it Works/Methodology

On December 15, 2011, a group of self-selected individuals (predominately county-level professionals with an interest in online learning) participated a workshop. The workshop facilitators reviewed resources for quality in online education at the academic program level. Participants were then randomly assigned into one of three groups and asked to develop essential design domains for online Extension program delivery.

Participants were provided copies of both the Cal State – Chico (California State University – Chico, 2009) and Quality Matters ™ (MarylandOnline, 2011) rubrics as advanced

organizers. In a very non-threatening and informal manner, the presenters solicited participant opinions of the importance for developing national guidelines for Extension online program delivery. The results of the state Extension Conference will be presented.

Results to Date

The participants of each group discussed and listed design domains that they felt should be used as best practices for Extension online program delivery, including the following common domains: (1) presentation of clear and measurable learner outcomes (2) assessment of learner outcomes, (3) implementation (including instructional materials and learner engagement); and (4) program evaluation (including learner satisfaction). Two of the three groups emphasized the importance of learner feedback and the need to provide technical support for online course delivery. In addition, at least one of the groups identified program prerequisites and program organization and navigability including program overview and Netiquette.

Future plans

Extension and university personnel who participated in the small group session provided very useful feedback. In addition, the outcomes were very useful for presenters to learn what aspects of online learning Extension personnel find most important. Results from the statewide Extension Conference could be used as exploratory in the development of best practices for Extension program delivery. Development of a set of best practices would build on and extend a growing literature base on platform-specific practices in online Extension program delivery, such as adoption of Moodle™ (e.g., Hightower, Murphrey, Coppernoll, Jahedkar, & Dooley, 2011), and provide general design principles for Extension professionals.

Costs/Resources Needed

Should the poster conference participants express sufficient interest in moving forward with the development of national guidelines for online Extension programs, then the next logical step would be to take the concept to state Extension leaders, Extension specialists, county-based Extension practitioners, and those involved in the National eXtension initiative. A number of processes could then be proposed for the development and vetting of a national model for online Extension programming.

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Pin It! Using Pinterest in the Agricultural Mechanics Laboratory

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Pin It! Using Pinterest in the Agricultural Mechanics Laboratory

Introduction

Pinterest, an online bulletin board, is surpassing Twitter and even Facebook in social media website popularity (Falls, 2012). A hit among hobbyists and do-it-yourselfers, Pinterest is an online storage space for crafts, recipes, and ideas. Individuals, after creating a profile and becoming an official "pinner", can re-pin previously posted ideas to their personal page under customized boards for future reference. According to the Pinterest website, "Browsing pinboards is a fun way to discover new things and get inspiration from people who share your interests. In addition, pinners can also upload their own ideas/projects to share with other Pinterest users.

Pinterest has been a popular education tool among elementary teachers, and often used to locate creative lesson ideas, and also share original ideas with others in the profession. However, Pinterest need not be limited to elementary teachers and can be used by agricultural educators in the secondary classroom, specifically the agricultural mechanics laboratory. This innovative idea aligns well with the American Association *for* Agricultural Education 2011- 2015 Research Priority Areas Technologies, Practices & Products as well as Efficient & Effective Programs.

How it Works

Agricultural educators can use Pinterest in the agricultural mechanics laboratory to search for new, unique, affordable agricultural mechanics projects that they can integrate into their curricula. The teachers are also able to share a large collection of projects with their students. Store agricultural mechanics projects. The teachers are also able to upload current agricultural mechanics projects to share other teachers/professionals The instructors also have the ability to connect with individuals within the same discipline and with similar interests. Table 1 outlines the process needed to create a Pinterest account and begin collecting projects.

Steps to Pinning in the Agricultural Mechanics Laboratory

Step	Activity	Description
Step 1	Create log-in name and edit personal profile.	A pinner's personal profile will be displayed when fellow pinners search for them specifically or others within their discipline.
Step 2	Follow pinners with similar interests and career objectives	Following agricultural instructors and mechanics professionals allows one to browse pins and boards most like their own and in line with their own interests.
Step 3	Create boards based on interests, subjects taught	Creating boards, or general topic areas such as "Metal Ideas", "Woodworking Projects" or "Electricity", allows the Pinterest user the opportunity to organize pins for easier access later.
Step 4	Search for project ideas	Using the search bar, Pinners can look for projects specific to their needs, such as metals, woods, welding, autos, etc.

Step 5	Re-pin project ideas for future use	Re-pinning projects to the customized boards created in step 3 allows pinners to organize and store ideas for future reference and easy access.
Step 6	Upload personal projects for other Pinners' reference	Projects completed in your own shop can be uploaded onto Pinterest and shared with other agricultural mechanics instructors.

Results to Date

The researchers have utilized the website to pin projects that fall into several content areas within agricultural mechanics as well as projects that fall in other content areas.

Future Plans/ Advice to Others

Safety and privacy of users should always be considered when using the internet. The teachers will have to work with administrators if firewalls prevent them from gaining access to the Pinterest website. The researchers highly suggest making several folders within agricultural mechanics in order to maintain an organized wall that is easy to navigate through. A study should be conducted to assess student learning objectives that could emerge from that projects being utilized.

Costs/Resources Needed

Costs associated with this educational technique are minimal. Pinterest is available at no cost to users but requires an active email address. Teachers will need internet access to access Pinterest as well as to collect projects.

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Innovative Idea Poster

Providing Peer Feedback for Student Teachers Using the Tuning Protocol

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Providing Peer Feedback for Student Teachers Using the Tuning Protocol

Introduction

Student teaching is the capstone component of a pre-service teacher education program and has been described as one of the most crucial components of the teacher preparation process (Alger & Kopcha, 2009; Edgar, Roberts, & Murphy, 2011; Kasperbauer & Roberts, 2007). Several studies have indicated that the self efficacy of student teachers drops during the middle of the capstone experience, especially in the areas of student engagement and instructional strategies (Roberts, Harlin, & Ricketts, 2006; Harlin, Roberts, Briers, Mowen & Edgar 2007). Faculty members can provide learning opportunities for student teachers that best meet their learning needs. Adults learn better when they participate in activities that are directly related to their work (Knowles, 1990). Student teaching provides a framework for reflective practice that can enhance learning for the pre-service teacher. Fritz and Miller (2003) recommended that student teachers should participate in daily reflection regarding their concerns. One effective way to implement reflection is through discussion with other student teachers.

The purpose of this innovative idea poster is to explain how the Agricultural Teacher Education program at Iowa State University utilized the tuning protocol (Easton, 1999); a formalized process for providing feedback on lesson implementation. During the spring 2012 semester, 18 student teachers from Iowa State University participated in a midterm student teacher meeting held on campus during the seventh week of the capstone experience. Student teachers came from seventeen cooperating teaching centers throughout Iowa while one was located out of state and participated electronically. Iowa State University faculty supervisors and doctoral students assisted in facilitating the protocol groups.

Procedures

Two weeks prior to the scheduled midterm meeting, student teachers were asked to bring three copies of a lesson that had been previously implemented. They were also asked to bring copies of student work from that lesson. Student teachers were trained in using the tuning protocol as developed by Allen and McDonald (1993) and conceptualized by Easton (1999). The tuning protocol provided a formalized structure for peer lesson sharing and the reviewing of student work.

Students were divided into six groups of three. The student teacher from out of state participated through Skype™ and an iPad. One faculty member or graduate student was assigned to each group to help facilitate the process. The protocol session was one hour in length, providing a twenty minute session for each student teacher to present and receive feedback. The tuning protocol began with a five minute presentation by the student teacher. During the presentation, the student teacher explained the context in which the lesson was implemented, how the lesson was implemented, and provided the group members with samples of student work from the lesson. Most importantly, during the presentation, the student teacher posed one or two key questions for the group to consider in framing their feedback. Group members were instructed to remain silent and take notes during this section of the protocol.

Step two of the protocol allowed group members two minutes to ask the presenting student teacher clarifying questions. These questions were asked to clarify anything that was not clear from the presentation, not for providing feedback. After the clarifying questions step, three minutes were given for members of the group to write feedback relative to the presentation and presenter's key questions.

Eight minutes were then given for discussion of the lesson by the members of the group regarding the key questions. Members provided cool and warm feedback that was not overly judgmental or sycophantic. During the discussion, the presenter remained silent and took reflective notes. After the discussion stage, the presenter gave verbal reflection on the discussion. Special attention was given to the critical feedback received pertaining to the key questions. This process was then completed for each of the remaining two student teachers in each group. Following the one hour session, a large group debriefing was completed. This debriefing session concentrated on the process as well as what was learned by the participants regarding reflective practice.

Results

Student teachers who participated in the tuning protocol session at the mid semester student teacher meeting were able to receive critical feedback from their peers. Up to this point of time in their capstone experience, student teachers had only been receiving feedback from their cooperating teacher and university supervisors. Several students shared during the debriefing session that it was refreshing to receive feedback from their peers.

Recommendations and Future Plans

Each semester the class of student teachers will participate in a tuning protocol activity. To further enhance the quality of the activity, it is recommended that the tuning protocol be implemented at the pre-student teaching meeting with the first lesson the student teacher has planned to teach at the cooperating center. This will provide student teachers with initial training in the tuning protocol process as well as give them peer feedback prior to implementing the lesson in their cooperating teaching centers. Then during the mid semester meeting when student teacher self efficacy has been identified as being the lowest in student engagement and instructional strategies (Roberts, et al., 2006; Harlin et al., 2007) the tuning protocol will have the potential to be even more effective. Faculty will be encouraged to assist student teachers in determining lessons to bring to the meeting for peer feedback through the tuning protocol process.

Resources Needed

Tuning protocol forms can be modified by faculty to fit the time frame available for student teachers. These forms can be developed easily on word processing software. Numerous examples are available online and easily accessible. Adequate copies for each student teacher per group should be printed and provided at the time of the meeting. Faculty facilitators for each group are not mandatory to have a successful session, however are helpful when student teachers first learn the process.

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Putting It All In Perspective: Using the *Teaching Perspectives Inventory* as a Teaching Tool

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Putting It All In Perspective: Using the *Teaching Perspectives Inventory* as a Teaching Tool

Introduction/Need

Articulating a teaching philosophy is a difficult task for some veteran agricultural educators. Imagine facing that task as a freshman or sophomore in college… Where to begin? Perhaps, by first exploring basic "teaching perspectives" that incorporate actions, beliefs and intentions related to teaching, the task won't seem so daunting.

According to Pratt, Collins, and Sellinger (2001),

> People unfamiliar with the concept of 'perspectives' sometimes confuse them with 'teaching styles' or even 'teaching methods', but perspectives are more fundamental and penetrating. It is important to note that no perspective is either good or bad, and that excellent forms of teaching can occur within each of them – as can poor teaching (p. 2).

To introduce students to the concept of teaching perspectives and provide a user-friendly resource for self-reflection, the Teaching Perspectives Inventory (TPI) was utilized as a teaching tool with agricultural education students enrolled in a Philosophy of Career and Technical Education course.

How It Works

The *Teaching Perspectives Inventory* is a 45-item instrument designed to help current or future teachers identify the perspective, or "lens" through which they view teaching. Specifically, the TPI utilizes a 5-point Likert-type scale to assess an individual's actions, beliefs, and intentions related to teaching. Once completed, a personalized report is produced which identifies an individual's dominant teaching perspective(s). There are five potential perspectives: Transmission, Apprenticeship, Developmental, Nurturing, and Social Reform. Each is further defined below:

> Transmission: Effective teaching requires a substantial commitment to the content or subject matter.
>
> Apprenticeship: Effective teaching is a process of enculturating students into a set of social norms and ways of working.
>
> Developmental: Effective teaching must be planned and conducted "from the learner's point of view".
>
> Nurturing: Effective teaching assumes that long-term, hard, persistent effort to achieve comes from the heart, as well as the head.
>
> Social Reform: Effective teaching seeks to change society in substantive ways. (Pratt and Collins, n.d.)

Since 2009, the TPI has been incorporated into the Philosophy of Career & Technical Education course in some capacity. However, in Fall 2011, the inventory was utilized more extensively than previously. Students were asked to complete the inventory and bring a printout of their individualized results to the third class session. To encourage completion, the assignment was

included on the course syllabus, a handout was provided in class, and one email reminder was sent. In class, students were placed into small groups (three to five students) based upon their dominant perspective(s). Each small group was then provided a list of questions to discuss and respond to. The questions allowed students to agree or disagree with aspects of the perspective as defined in the summary printout, discuss why that particular perspective is/could be beneficial in agricultural education, and explore related topics.

Results to Date/Implications

Class discussions about the TPI help students open up and share prior educational experiences early in the semester. As a result, it seemed easier for some students to express the factors that have inspired and motivated them to teach. However, even after the assignment has concluded - informal feedback from students has suggested that the information gained by completing the TPI is valuable, timely and relevant to the development of initial teaching philosophy statements. Additionally, when students began early field experiences, the TPI provided a lens by which to discuss the teaching approaches and styles of mentor teachers.

Interestingly, the majority of agricultural education students seem to possess one of two dominant perspectives: either apprenticeship or nurturing. In the Fall 2011 group of students, eight students possessed apprenticeship as their dominant perspective, eight possessed nurturing and two possessed both. While a small number of students' results from 2009 and 2010 indicated an alternate dominant perspective, this seems to provide for engaging discussion as to why certain perspectives may be more common among agricultural educators.

Future Plans

The utilization of the TPI will continue in this course. However, additional efforts to incorporate and refer to the perspectives throughout the semester will be made. It may also be beneficial to have the students complete the TPI again, as their degree programs come to an end. Realizing that a great deal of change, growth, and development occurs throughout the college experience, it would be interesting to see if (or how) perspectives changed.

Cost/Resources Needed

No cost is associated with using the *Teaching Perspectives Inventory* as a teaching tool because the online instrument is easily accessible and available free on the Internet (http://teachingperspectives.com/html/tpi_frames.htm). Students must have technology available to complete the inventory online, either in or outside of class, and to print the individualized results and summaries. Class time should be allotted for discussion of the various perspectives and their implications on teaching agriculture. Students should be encouraged, through classroom discussion and self-reflection, to consider how their primary teaching perspective(s) may influence their teaching philosophy, affect teaching strategies, techniques and approaches, and ultimately, impact student learning.

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"The SAE Struggle"

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"The SAE Struggle"

Introduction

According to Official National FFA Manual, "An SAE is a "learning by doing" tool in agricultural education. All students are required to conduct an SAE which reflects their agricultural interests and career goals" (FFA Manual, 2011, p. 8). The FFA Manual outlines eight primary types of SAE programs with 38 different proficiency areas that students can select from (FFA Manual, 2011). The heart of Agricultural Education is the long, sustaining model that outlines classroom instruction, FFA, and SAE as the three integral components of a successful agricultural program. Dickerson (1984) indicated SAEs are basic to the advancement of successful secondary school agricultural education programs.

However, according to [state] 2011 data, the percentage of students with SAE's is 43% and the percentage of students that hold FFA membership is 58% among the total number of unduplicated students enrolled in 2010-2011 Agricultural Education courses, with both FFA membership and the number of SAE's declining from the previous year (Ag Ed Report, 2011). Retallick (2010) identified some limiting factors outlined from teacher focus groups that influenced the implementation of SAE's within their agricultural programs. These factors were: (a) changing demographics and societal attitudes, (b) mechanics and structure of schools, (c) resource availability, (d) the agricultural education system, and (e) image. Wilson & Moore (2007) identified barriers that limited the effectiveness of a SAE program, which were limited time, number of students in the program, lack of summer employment, lack of support from school administration and community, complicatedness of recordkeeping, limited availability of resources, and lack of familiarity with newer SAE categories. Several individuals have researched this area of study and have concluded that there is a need for SAE's to serve a more diverse population of students (Barrick et al., 1991; Graham & Birkenholz, 1999; Retallick & Martin, 2008; Roberts & Harlin, 2007; Steele, 1997; Wilson & Moore, 2007). So how does a career-minded agricultural educator, who lacks time and resources, promote, develop, and implement a sustaining SAE program for a more diverse population of students with different needs and career aspirations? Wow! What a mouthful, but that is what our research is revealing. To assist in answering this perplexing question, an agricultural educator has developed a handbook to assist stakeholders in comprehension of the vital components of an SAE.

When the educator began his first year of teaching, the SAE component was virtually nonexistent in his newfound program. He introduced the SAE component to his students through paper copies of the state integrated record book. A couple years later, he was selected as a "Teacher Turn the Key" recipient and was introduced to an FFA Handbook through a workshop at the NAAE Convention. When he returned home, he decided to integrate similar concepts into the development of a SAE handbook.

How it works!

The methodology behind the handbook was to give each student the tools, so they could have a successful SAE project. It was available to them through their classroom notebook as well as on-line through the classroom website on the school server. This allowed the students to have access to the handbook 24/7 and eliminate the excuses for not completing any aspect of the project. Each section of the handbook is covered in the first week of school with upperclassmen

and used in the first semester with the freshman. Recently, the handbook has been added to the comprehensive parent/student handbook distributed to students at the beginning of the year.

The original handbook consisted of eight specific sections. Currently, the handbook is a 53 page document with 10 sections that have been revised over a five-year period to ensure accuracy and proper documentation for student, parent, and administrative stakeholders. The document outlines the benefits of an SAE (project/program), types of SAE's, proficiency areas, innovative ideas for students, how to finance the SAE, the record keeping component, how to complete the on-line record book, requirements of the SAE, rewards and incentives, and how to get started!

The handbook is a complete guide to assist students and parents in understanding the intricacies and perplexities of today's SAE. The document is well organized, structured, and written, so a student and a parent/guardian can understand and embrace the handbook. The instructor provides a timeline as well as documented deadlines to ensure accuracy among students and to stimulate proficiency applications. The document clusters information by section, so students can utilize the information as a reference and guide.

Results to date/implications

Since the chapter was charted in 1932 and prior to the introduction of the SAE Handbook, the agriculture program had produced 30 State Degrees recipients, one American Degree recipient, 36 section proficiency award winners, and zero State/National proficiency awards. The first version of the handbook was integrated into the program in 2005. Since that date, the chapter has experienced significant growth in the number and quality of SAE projects. The chapter has produced 20 State Degrees recipients, four American Degrees recipients, 56 section proficiency award winners, two State proficiency award winners, and one National proficiency award winner. Not only has the handbook increased the number of proficiency/degree recipients and improved the quality of projects, but it has also improved the relationship with community partners. Several students with placement record books have continued to work with their placement sites, during college or inspired the student to select this field as their career choice. Versions of the handbook have been distributed to numerous pre-service teachers as well as practicing teachers through workshops and informal encounters, plus it has been posted on the "NAAE Communities of Practice" website.

Future plans/advise to others

The agricultural educator suggests to other teachers not to reinvent the wheel, but to make the handbook work them and their program. Current plans include revising the handbook this summer as there has been recent changes in proficiency areas and degree applications, which will be reflected in the revisions. It will be resubmitted to the NAAE website, once the revisions have been completed.

Cost/resources needed

To have 100 copies of the handbook professionally copied and printed annually, it would cost about $100 or $1 per copy, but the agricultural educator buys a package of card stock for the front cover for $10 a package and buys 3 reams of paper at $4.50 a ream to reduce the cost per copy to .25 cents. The school copier is used in the process to assist in reducing expenses.

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Research Poster

A Demographical Analysis of Alternatively Certified/Licensed Agricultural Teachers as Identified by State Supervisors

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A Demographical Analysis of Alternatively Certified/Licensed Agricultural Teachers as Identified by State Supervisors

Introduction/Need for Research

Due to the high demand and low supply of certified agricultural education teachers, emergency/alternative certification continues to be an accepted practice. Historically, teacher shortages throughout the United States began in the late 1980s with states issuing "emergency" credentials to satisfy the demand for new teachers (Walsh & Jacobs, 2007). Incidentally, changes in the labor market that allowed greater opportunities for women and people of color, along with rigid requirements to complete teacher education programs, caused much of the deficiencies in the teacher workforce (Walsh & Jacobs, 2007). To deal with these shortages, states tried to attract more and different people into teaching by reducing entry requirements and introducing alternative certification programs (Boyd, Goldhaber, Lankford, & Wyckoff, 2007).

In a study concerning alternatively and traditional certified teachers, Shoho and Martin (1999) reported that alternatively certified participants are likely to be older (than there traditional counterparts), a person of color, male, and possess experiences in other occupations. In comparing traditional and alternatively certified agricultural education teachers on teacher efficacy, Rocca and Washburn (2006) found that alternatively certified teachers averaged a 10 year age difference versus their traditionally certified colleagues and came to emergency/alternative certification programs with an average of six years of agriculturally related occupational experience.

Today, teacher shortages in agricultural education still exist. As teacher preparation programs scramble to produce qualified teachers to enter the profession, the annual average output of those qualified individuals continues to decline (Kantrovich, 2010). As alternate routes are established to provide the access to the teaching workforce for nontraditional entrants, their ability to attract teachers to underserved geographical areas, recruit teachers for subject areas of perennial shortages (e.g. science and math), and attract high potential individuals that might pursue a different career, is ever more paramount (Darling-Hammond & Cobb, 1996).

Purpose

The purpose of this study was to identify selected demographic characteristics of alternatively certified/licensed agriculture teachers as identified by state supervisors. The objectives of the study were reflected in the following research questions:

- What is the gender of the majority of alternatively certified/licensed teachers?
- What race/ethnicity are the alternatively certified/licensed teachers?
- What is the mean age of alternatively certified/licensed teachers?
- What is school setting for where alternatively certified/licensed teachers teach?

Methods

Descriptive survey research was used in this study. The questionnaire used in this study was based on previous work by [Author] [Date] concerning state supervisors perceptions of teacher efficacy regarding alternatively certified/licensed secondary agriculture teachers. Following

Dillman's (2007) *Tailored Design Method* for survey implementation, the researchers implemented a questionnaire using a traditional mailed notification followed by a series of electronic mail (e-mail) reminders. The target population was all state supervisors who were located in states that offered some form of alternative certification/licensure in agricultural education. To determine the availability of alternative programs, the researchers contacted all state supervisors in the U.S. (N = 50). Once identified, participants were sent a questionnaire that solicited the demographical makeup of alternative/emergency certified agricultural education teachers within their state. To address nonresponse error, the researchers compared respondents to nonrespondents by comparing participants who completed the questionnaire before the deadline to those that completed the questionnaire after the closing date (Lindner, Murphy, and Briers, 2001). The final response rate was 51% (*n* = 23).

Results

Forty five states offered some form of alternative certification/licensure (N = 45). Twenty (87%) respondents indicated that males represented the majority of alternative certified agricultural education teachers in their state while three supervisors (13%) indicated that females made up the majority. Regarding race/ethnicity, 22 respondents (95.7%) indicated that the majority of their alternatively certified/licensed teachers were Caucasian while one state supervisor (4.3%) indicated that the majority of the alternatively certified/licensed teachers were Middle Eastern American. When asked to identify the mean age of the alternatively certified/licensed teachers in their state. Three respondents (13%) identified the ages as less than 25 years old, 10 respondents (43.5%) identified the ages between 26 to 30 years old, three (13%) respondents identified the ages between 31 to 35 years old, six supervisors (26.1%) identified the ages between 36 to 40 years old, and one state supervisors (4.3%) indicated that the mean age of alternative certified/licensed teachers were 41 years and older. Respondents were also asked to describe the school setting for where alternatively certified/licensed teachers (majority) taught. Nine respondents (39.1%) indicated that the alternatively certified/licensed teachers were teaching in rural communities. Thirteen respondents (56.5%) indicated that the alternatively certified/licensed teachers were teaching in urban communities, and one respondent (4.3%) indicated that the alternatively certified/licensed teachers were teaching in a metropolitan area.

Conclusions/Impact on Profession

Generally, a diverse demographical difference exists between alternatively certified/licensed agricultural education teachers throughout the country. The gender and race/ethnicity representation of participants reflected a similar representation of the total (alternative and traditional) agricultural education teacher population in the country (Kantrovich, 2010). Based on the findings of this study, the researchers suggest that agricultural educators develop meaningful partnerships with alternatively certified teacher programs to increase to effectiveness of agricultural education, regardless of licensure route. The findings of this study will be utilized to determine teacher preparation methods used to alternatively certify/license individuals for agricultural education. These results will reflect the opinions of state supervisors on their effectiveness. The findings will be provided to state supervisors and teacher educators as well as other career and technical teacher associations. Finally, the results will contribute to the body of knowledge on the continuing challenges facing the preparation of effective agriculture teachers.

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A Descriptive Analysis of Nature of Science (NOS) Measurement Tools for Use in Agricultural Education

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A Descriptive Analysis of Nature of Science (NOS) Measurement Tools for Use in Agricultural Education

Introduction

As science literacy remains a highly important goal for science advocates (American Association for the Advancement of Science, 1990; 1993; National Research Council, 1996), the push for science educators to translate these goals into educational practices becomes even more pressing. With the additional call from the National Research Council (1988) for agriculture to integrate science into the curriculum and classroom, science literacy is an important topic for agricultural educators. One of the key components of science literacy is the nature of science (NOS). The NOS is commonly referred to as the "epistemology and sociology of science, science as a way of knowing or the values and beliefs inherent to scientific knowledge and its development" (Lederman, 1992, p. 331). As agriculture is an applied science, teaching the principles of science, in the contexualized setting of agriculture (Buriak, 1992), the incorporation of NOS into agricultural education becomes a fundamentle element.

In the discipline of science education, NOS assessment is a major topic (Lederman, Wade, & Bell, 1998). As teachers are expected to educate their students on the NOS, teachers themselves should be confident and comfortable in their own understanding of the NOS. Thus, as future teachers undergo preparation for teaching, assessment of their knowledge has been an important focus in research (Abd-El-Khalick, Bell, & Lederman, 1998; Abell, Martini, & George, 2001; Pomeroy, 1993). However, the NOS views and beliefs of pre-service agricultural educators remain unexplored, contrary to their science education peers, even while they are expected to practice much of the same discipline. To lay the foundation for future research, a review of NOS assessment instruments for pre-service teachers has been collected and analyzed through the perspective of agricultural education for validity, reliability and alignment with NOS. The purpose of this analysis is to evaluate the status of current NOS assessment tools as it relates to agricultural education and provide direction for instrument development in the future.

Methodology

A wide variety of instruments and tools have been created to meet the needs of the investigators in the field of NOS research. Since comparing and contrasting all of the tools is not feasible for the scope of this project, criteria were applied in instrument selection. First, the tool must have been designed to measure the nature of science perceptions, beliefs, views or conceptions. Second, the instrument must have been validated for the age group of college undergraduates and/or pre-service teachers. Lastly, in order to provide both a historical perspective to demonstrate the history of NOS instrument development, while also providing a working analysis of modern tools, only a selection of historical tools (created prior to 1980) are discussed. After the tools were selected, they were analyzed for reliability, validity and alignment of the instrument with the tenets of the nature of science. While there is no single definition of the NOS, there are common themes throughout the working body of NOS research (Lederman, 2007), which were used to evaluate the NOS content of the in the context of agriculture.

Findings

Tools created prior to 1980 that were analyzed showed evidence of minimal to moderate misalignment with the NOS tenets, and showed moderate levels of reliability. However, a serious flaw of most of the tools reviewed was that their external product, a single number, had little authentic value due to their lack of subscales. Finally, many of the tools contained language or examples that could potentially reduce the validity of the tool in agricultural education settings.

After 1980, tools developed were primarily qualitative, creating test items that more deeply explored participant perceptions. The tools of this time generated data that was more useable and authentic. Bias, specifically in the interpretation of research remained an issue. The language of these tools is purposely broad, which allows for the application in agricultural education while retaining validity. In the last three years, the most cutting edge instruments are ones that contain both qualitative and quantitative items. While testing and refinement remain, they seek to build upon tools of the past years while solving issues of extensive time investment by researchers that use a purely qualitative tool.

Conclusions

After the review of instruments currently utilized or in the process of development for NOS assessment in pre-service science teachers, it was observed that many of the quality tools available for the science education field would be equally as appropriate for assessing the NOS views of pre-service agricultural educators. While debate remains on the most appropriate framework, the core of the argument for either method or a combined approach lies in the hands of the investigators with their the purpose of research and the desired impact and outcome of data being the fundamental selection element. Researchers have a variety of measurement tools that provide reliable and valid data, however the alignment of NOS tenets with test items, and the application of data in an authentic context should be the deciding factor on instrument selection in agricultural education.

Recommendations

Just as science educators and their pre-service counterparts are assessed for their views of NOS, it is imperative that the agricultural education discipline does the same. Grady, Dolan, & Glasson (2010) made similar recommendations for the addition of NOS in agricultural education research. At this stage of minimal research, it could be reasoned that pre-service NOS assessment in agriculture should focus on methods that elicit view(s) and misconceptions in order to create a foundation of knowledge for improving practices. The integration of NOS is essential for agricultural education, and in order to promote effective practices, the assessment of NOS views is equally important. Assessment of NOS views and practices are needed throughout the practitioner preparation model in order to create a program that prepares educators capable of teaching the NOS in classrooms today.

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Research Poster

A Synthesis of Agricultural Mechanics Laboratory Literature

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A Synthesis of Agricultural Mechanics Laboratory Literature

Introduction

Agricultural mechanics classes offer students ample opportunities to apply knowledge. These classes are some of the highest enrollment classes an agriculture program can offer (Hubert & Leising, 2000) and one of the skills taught in almost every teacher preparation program in the country. However, as recent as 2012, entire states have been closing "shop" classes as older teachers retire and new teachers move to a different positions. Moreover, agricultural laboratories are potentially powerful contexts for student learning outcomes to occur(Roberts & Ball, 2009), and provide a place for students to actively engage in scientific inquiry and application (Osborne & Dyer, 2000). Over 25 years ago, it was asserted agriculture teachers spend up to two-thirds of their time in the agriculture mechanics laboratory (Shinn, 1987), and substantiated by Saucier and McKim (2011). However, a declining agricultural mechanization requirement for undergraduate teacher education has created shortages of teachers with agriculture mechanization skills. Moreover, enrollment in agricultural mechanics courses in high schools increased 42% since 1989, yet there is a decrease in resources for this facet of agriculture programs (Saucier & McKim, 2011). Priority three of the National Research Agenda is aimed at supplying a sufficient supply of well-prepared agricultural scientists and professionals to drive sustainable growth, scientific discovery, and innovation in public, private, and academic settings. This initiative specifically suggests the next generation of the work force will need to be skilled professionals beyond today's standards in the areas of science, technology, engineering, and mathematics (STEM). Given this initiative's goals, it is imperative to determine what future research should be conducted to advance the work of the profession in this area.

Purpose/Objectives

There is a need to summarize and synthesize agricultural mechanics literature. The specific purpose of this study was to identify and synthesize research related to agricultural mechanics since 1990. Based on this purpose the following research question was developed.

1. Synthesize research related to Agricultural Mechanization as documented in agricultural education literature.

Methods and Procedures

The design for this study was a research synthesis that used trustworthy sources for gathering past research to contribute to the body of knowledge around agricultural education. For search and inclusion criteria, the researcher consulted Cooper (2010) for guidelines using scholarly search engines. The terms *agricultural*, *agriculture*, *education*, *mechanics*, and *mechanization* were used. The researcher determined after initial investigation the terms *power* and *machinery* were valuable when using scholarly search engines.

The parameters for this study were set following the articles published by Johnson and Schumacher in 1989 dealing with competencies agriculture teachers felt were essential to be able to teach agricultural mechanics. Articles published in the *Journal of Agricultural Education*, *Southern Region Journal of Southern Agricultural Education Research*, Conference proceedings, the *Journal of Agricultural Systems Management*, and the *Journal of American Society of Biological and Agriculture Engineers* were included in this search. A total of 68 articles meeting the search criteria were found, with 13 of those being duplicated, yielding a usable total of 55 articles.

Findings

Objective one sought to synthesize research related to Agricultural Mechanization as documented in agricultural education literature. It was found that literature could be divided into four distinct categories of research: Teacher needs, curriculum design, safety, and student and teacher competencies. The remainder of the finds only represents a small portion of the related literature due to the space requirements of this manuscript.

Teacher needs are researched in two areas: professional development and teacher preparation. Well-prepared knowledgeable teachers can safely and effectively guide students in the development of practical and hands skills (Saucier, 2010). However, some institutions across the country require no coursework in agricultural mechanics. In addition, curriculum design often comes from necessity, and is left to the instructor. When designing instructional materials one should contact people in the community, local industries, and teachers in the area (Lawver, Akers, Smith, Barton, & Fraze, 2004) A strength of agricultural education is the ability to adapt to changing needs of the community, and people impacted immediately by curriculum changes should be consulted (Burris, Robinson, & Terry, 2005).

Safety research has primarily focused on resources available to students and teachers. Dyer and Andreasen (1999) conducted a safety synthesis and noted that the areas of ventilation and noise were of the greatest concern with minimal research being conducted. Finally, competencies students need to learn, and those that teachers should possess were piloted by Johnson and Schumacher in 1989. Those competencies continue to be reviewed and revised by researchers.

Conclusion/Recommendations/Implications

A fair amount of research has been conducted in the areas of teacher needs in regard to professional development, but it continues to be ranked highly as a need perceived by teachers (Layfield & Dobbins, 2002; McKim & Saucier, 2011). This could be due to new technology being used, or lack of pedagogical content knowledge due to low hour requirements at pre-service institutions.

Curriculum design has specific causes researched that are not generalizable to larger populations. This localized research should be expanded to help overcome the struggles of restricted space, equipment, and fiscal resources (Baker, Thoron, Meyers, & Cody, 2008). This research could aid in overcoming barriers at schools across the country.

Safety research is minimal in regard to actual practice in a laboratory setting. The current research is perception-based, as well as dated. Dyer et al., (1999) asserted that ventilation and noise were two areas of concern, yet minimal research has been conducted since then to describe how these areas effect inhabitants of the laboratory. Research should be conducted to describe the health effects of laboratory practices on teachers and students.

Student and teacher competencies are important for the profession for describing what teachers feel they are lacking. Schumacher and Johnson (1990) asserted that some teachers may not be covering important topics due to lack of perceived importance. Teachers should be consulting with local businesses and individuals to determine what needs should be met. This ultimately should drive the instruction at teacher preparation institutions.

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Research Poster

Assessing Creativity in School Based Agricultural Education

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Assessing Creativity in School Based Agricultural Education

Introduction & Conceptual Framework

Over the past 60 years, the United States has shifted from a localized economy to one of global focus (Anastasi, 1976). In a technology dense, market-shifting employment structure, the demand for innovation in the workforce has been growing exponentially and has reached an all-time high (Torrance, 1995). Employers within these markets are faced with the dilemma of filling positions with individuals skilled in four skill areas; collaboration, communication, critical thinking, and creativity (Partnership for the 21st century job skills and the Association of Career and Technical Education Association, 2011; Runco, 2004). Within agricultural education classrooms at the high school level, collaboration and communication are evaluated in group-based projects while critical thinking has been evaluated through the use of standardized testing; Creativity, however, has been overlooked as an important component when designing specific course outcomes and assessments (Craft, 2005). Cognitive, educational and psychometric studies have indicated creativity has been suppressed through school based classroom and assessment conformity, and can be measured for current expression through the use of divergent thinking instruments such as the Torrance Test of Creative Thinking (Runco & Pritzker, 1999, 2004; Torrance, 1995). School-based agricultural education programs are continually integrating science, mathematics and English components into the curriculum through various methods, but little research has been conducted to determine if agriculture courses are developing creativity components in students. Additionally, considering the importance of preparing students for 21st century jobs yet to be defined (Gillespie, Jeannet & Hennessey, 2010; Mumford, Marks, Connelly, Zaccaro & Johnson, 1998; Runco, 1986), are agriculture courses designed to allow students to explore course content in methods that further develop or showcase the five creative components: fluency, elaboration, originality, resistance to closure and abstractness of titles?

Purpose & Objectives

The purpose of this study was to explore the five constructs of creativity; elaboration, originality, fluency, abstractness of titles and resistance to closure, present in three grade levels of high school students enrolled in agricultural education courses. The following research questions guided this study: 1. describe the level of creativity exhibited by students enrolled in agricultural courses at the age of 15, 16 and 17; 2. describe the creativity scores within the sample population and grade-related norms? and 3. describe if males and females demonstrate different levels of creativity?

Methods

The research design was descriptive-correlational in nature using a time and place sample in a Midwestern high school with 54 total students enrolled in the 9, 10, and 11 grades. The established measurement inventory, Torrance Test of Creative Thinking-Figural, was developed within educational settings to test for the levels of creativity present at various ages (Anastacia, 1976). While the Torrance tests have been scrutinized for reliability, Torrance (1995) addressed the issue given specific parameters for using the instrument were followed. Baker,

Rudd and Pomeroy (2001) further investigated the TTCT and determined it is reliable with a inter-rater reliability of .97. Face and construct validity were established through a panel of experts. One-way ANOVA tests were used to determine if statistically significant differences existed among age groups for each construct. The final response rate was 91% (n=49). Means and standard deviations were calculated as well as norm-referenced statistics according to age groups (Torrance, 2008). The study aligns with the National Research Agenda Priority 5: Effective and Efficient Educational Programs.

Findings

When comparing students within their respective age groups for creativity tested by the TTCT, one way ANOVAs indicated there were statistically significant differences between groups for originality, elaboration and abstractness of titles. Researchers conducted Bonneferoni post hoc analysis, indicating a statistically significant difference between 15 and 17 year olds for originality, between 16 and 17 year olds for elaboration and between 15 and 17 year olds for abstractness of titles. 17 year olds demonstrated the highest levels for fluency, originality, elaboration, abstractness of titles and resistance to closure. Within the population, 15 year olds scored higher than 16 year olds for fluency, elaboration and resistance to closure. For the second objective, the means and standard deviations of the sample population and the norm-referenced populations were different for all five constructs. When comparing the means for 15, 16, and 17 year olds, the sample population exhibited higher means in the areas of fluency and originality. Without the raw data for the norm-referenced population, findings for this objective will be discussed in the conclusions section and data reported in table format. For the third objective, male (n=25) and female (n=24) scores for each of the five constructs were not statistically significant.

Conclusions/Implications/Recommendations

It was concluded that there are differences in the five constructs of creativity as students progress through their high school agricultural education program. This implies a possibility exists to further foster creativity within high school students through placement in agricultural education programs. The finding could suggest that agricultural educators need to further examine creativity constructs in sample populations of students through longitudinal studies as they progress through the courses from 9-12 grades. It was further concluded students within the sample population produced different means and standard deviations than the norm-referenced populations. It may be implied that students within the Midwestern state demonstrate a different level of creativity based upon factors specific to each of the states individually. Additionally, it is recommended further research be conducted on a nationwide level to better assess the level of creativity within the agricultural education programs that focus on curriculum based around problem-solving. With regards to gender comparisons on figural tests, follow up analysis within future research would further solidify if differences do exist within the five constructs measured as part of the TTCT. Finally, researchers recommend a non-probabilistic sample from random schools within the state the study was conducted within, be examined for comparative raw scores of students enrolled in agricultural education as well as non-agricultural education students. As Craft (2005) indicated, results could help guide agricultural education course curriculum towards meeting the needs of the 21st century workforce (Gillespie et. al., 2010; Mumford, 2001).

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Becoming an Ag Teacher: Student Teachers Speak

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Becoming an Ag Teacher: Student Teachers Speak

Introduction and Conceptual/Theoretical Framework

The purpose of this phenomenological study was to describe teacher resilience of preservice high school educators. Thieman, Henry, and Kitchel (2012) reported agricultural educators who possess resilience will have the ability to meet challenges and adversity, respond in an appropriate manner, and continue to be effective professionals. One of the key components of adult resilience, in light of early adversity, seems to be access to necessary resources along with lacking developmental delays (Masten et al., 2004). Furthermore, adult response to adverse situations are directed by their experiences from youth related to; familial environment, early socioeconomic status, and genetic predisposition among others.

This study was part of a larger study investigating preservice teacher resilience. The study of resilience has a theoretical base in positive psychology which focuses on positive attributes and potential rather than negative aspects of an individual (Snyder & Lopez, 2009). Three different knowledge bases have been established regarding teacher resilience; a multidimensional approach of merged personal and environmental factors (Gu & Day, 2007), a strategic approach of adaptation (Patterson, Collins, & Abbott, 2004), and a combined approach, used for this study, that utilizes aspects of both previous resilience strategies(Castro, Kelly, & Shih, 2010). Castro, et al. (2010) identified teachers as "active agents, adopting various strategies to find balance and achievement in the face of adversity, often caused by minimal resources and challenging working conditions" (p.623).

Methodology

Creswell (2007) and Yin (2009) guided the phenomenological qualitative design in addition to the data analysis and procedures of this study. The population for the study was preservice teachers who completed their student teaching internship in April, 2011 at [University]. A sample of eight (n=8) preservice teachers enrolled in a teaching methods course (N=16) agreed to participate in an interview. One primary and one secondary researcher coded the data set from the interviews and delineated themes jointly to provide consensual validation of analysis. Data were collected at the completion of the student teaching experience through an interview and field notes.

Results/Findings

Three themes were identified and developed from the interviews held upon completion of the preservice teacher's student teaching experience. The themes indicate the preservice teachers have entered into a phase of their lives where uncertainty is an undercurrent and they are actively building an identity as an educator.

Positive, essential relationships are key to success as an agricultural educator

Preservice teachers identified multiple sources of support throughout their student teaching experiences. One teacher described; "my sister and my mom [are sources of support], I always get good advice from my sister [because] she's a teacher, too." Another teacher relied upon his peers; "I'd say my main source of support [throughout student teaching] was visiting with other student teachers regularly because we were all in the same position." Teachers struggled to solidify a definition for how their relationships look with program stakeholders, i.e. future

administration, students, and parents. Generally, elements of trust and respect were highlighted,; one teacher described; "You have to have the respect from the students. I mean, I don't feel like you get respect till you give respect. I think it's very important."

Teaching agriculture is a calling that requires a high level of commitment

The teachers identified myriad of influences throughout youth and early adulthood leading them to choose agricultural education, including: experiences with youth organizations (FFA and 4-H) and high school agriculture, identifying an internal calling to teach, and family member in the profession. One teacher described; "I had a really good experience in high school and I decided that I wanted to become an ag teacher. My teachers and parents encouraged me to become an ag teacher because of that." Teachers expressed having a lack of perspective on the magnitude of the profession and commitment level required prior to the student teaching experience, "[I was not prepared for] the activity level through the day and the how there is something different every day. It's not just a seven hour day; you're there late a lot."

Seeking to align vision of an ideal agricultural educator with perceived personal attributes.

The uncertainty previously described may be a result of the impossibly high standards held of what it means to be a good agriculture teacher. Reoccurring items of focus for the preservice teachers were; establishing credibility (students, community), competence as a teacher, and gaining respect from program stakeholders. "One thing that I've struggled with throughout student teaching and I just want to continue getting better was uh…clarity…and just givin' directions and instructions." Student teachers were able to assess and relate tangible skills needed to succeed by their measure as a future teacher of agriculture. One preservice teacher noted that; "I used a lot of examples from what I grew up with [on the farm] during student teaching."

Discussion

The pressure to perform and develop as a professional during the induction phase of teaching agriculture can be difficult for preservice teachers to define. Student teachers recognized importance in the development of good relationships for their support as a teacher. It is imperative for novice educators to develop positive relationships within the school environment to foster support for the struggles they face. Teacher education programs should facilitate identification of those people and expose students to context-specific relationship building skills. Teaching agriculture requires significant commitment which can lead to doubt and uncertainty. Teacher development programs should elicit a realistic picture of job requirements, encourage development of time management skills, and capitalize on teachers' passion for the profession they were called to. Student teachers should be guided to assume realistic expectations for their accomplishments during the first few years of teaching over a need to succeed in all aspects of the job. Furthermore, they should be exposed to a variety of high school programs and teachers through early field experiences to aid in the development of their individual educational philosophy. The reality of the first year of teaching created uncertainty and anticipation in our preservice teachers. Resilience to effectively manage this dynamic can be developed through diverse and quality experiences in the teacher preparation process, hopefully resulting in the retention of more high quality agriculture teachers.(Schroeder, 2006)

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Research Poster

Does Mentoring Matter?
An Evaluation of Mentoring Provided by Cooperating Teachers in Agricultural Education

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Does Mentoring Matter?
An Evaluation of Mentoring Provided by Cooperating Teachers in Agricultural Education

Introduction/Need for Research

Agricultural education is experiencing a shortage of highly qualified teachers. In fact, it is estimated that hundreds of positions will go unfilled this year (Teach Ag Campaign, n.d.). This shortage can be attributed to a combination of factors: too few students pursuing a degree in agricultural education, an inadequate number of students choosing to become agricultural educators, early career teachers leaving agricultural education for other careers, and an increase in retirements among veteran teachers. Unfortunately, this issue is not new to the profession. Over thirty years ago, Parmley, Bowen, and Warmbrod (1979) researched this issue. At that time, they concluded that there was not necessarily a shortage of agricultural education program graduates, but rather a shortage of program graduates choosing to enter the teaching profession.

Such conclusions encourage one to explore why that may be the case. One factor known to impact a student's decision to teach agriculture is the student teaching experience. If a pre-service teacher has a positive experience, they are more likely to initially choose to teach and are more likely to be retained in the teaching field (Waterman & He, 2011). However, in some situations, students' intention to teach decreases from beginning to end of the student teaching experience (Roberts, Greiman, Murphy, Ricketts, & Harlin, 2009). Without question, the single greatest influence on the student teaching experience is the cooperating teacher. Often, the cooperating teacher sets the tone for the mentor/mentee relationship and influences the pre-service teacher's growth and development during the experience (Weasmer & Woods, 2003). Ideally, the cooperating teacher should be committed to their position as a mentor, be accepting of the mentee, skilled at providing instructional support, effective in different interpersonal contexts, model being a continuous learner and be able to communicate hope and optimism (Rowley, 1999).

Conceptual Framework

Peter Hudson's (2004) five-factor model of mentoring provided the framework for this study. Hudson's research, addressing mentoring practices utilized in the preparation of science teachers, led to development of the model which includes five categories of mentoring practices: Personal Attributes, System Requirements, Pedagogical Knowledge, Modeling and Feedback.

Methodology

This study utilized descriptive survey research methods. The population consisted of undergraduate Agricultural Education students in the North Central region of AAAE, who completed student teaching during Fall 2011 or Spring 2012. Student information was received from teacher educators at each of the respective universities. Near the conclusion of student teaching, student teachers were contacted via email and asked to complete an online questionnaire. The instrument was adapted, with permission, from Hudson's Mentoring for Effective Primary Science Teaching (MEPST) instrument. Because of the documented validity and reliability of the MEPST, no additional efforts were made to address these factors. A five-point Likert scale was used, and offered the following options: strongly agree, agree, uncertain, disagree, and strongly disagree. The questionnaire also included seven demographic items and two open-ended questions regarding the student teaching experience.

Findings

Of the 168 student teachers contacted, a total of 73 representing 14 institutions within the North Central Region of AAAE, completed the questionnaire (43% response rate). The majority of respondents were female (*n* = 55, 74%), and nearly 95 percent were between 21 and 25 years of age. Conversely, approximately two-thirds of cooperating teachers were male (*n* = 49, 67%), with over 50 percent estimated to be over 36 years of age.

Items were analyzed based on Hudson's constructs of Pedagogical Knowledge (*M* = 4.21, *SD* = .80), Feedback (*M* = 4.18, *SD* = .65), Modeling (*M* = 4.35, *SD* = .70), Personal Attributes (*M* = 4.39, *SD* = .74), and Systems Requirements (*M* = 4.15, *SD* = .94). When analyzed item-by-item, the five highest mean ratings included: *seemed comfortable talking with me about agricultural education* (*M* = 4.67, *SD* = .71), *was effective in teaching agriculture* (*M* = 4.49, *SD* = .60), *provided oral feedback on my agricultural teaching* (*M* = 4.51, *SD* = .75), *observed me teaching agriculture* (*M* = 4.51, *SD* = .69), *and used hands-on teaching approaches* (*M* = 4.45, *SD* = .77). The five items with the lowest mean ratings included: *assisted me with assessment of students' learning* (*M* = 4.12, *SD* = .90), *had well-designed learning activities for the agriculture students* (*M* = 4.08, *SD* = 1.00), *provided written feedback on my agriculture teaching* (*M* = 4.08, *SD* = 1.00), *gave me clear guidance for planning my agricultural lessons* (*M* = 3.93, *SD* = 1.03), and *reviewed my agricultural lessons* (*M* = 3.67, *SD* = 1.07).

Overall, student teachers agreed with the following statement, "I am satisfied with the mentoring I received from my cooperating teacher" (*M* = 4.34, *SD* = .95). Over half of the respondents (*n* = 38, 52%) strongly agreed with the statement, "I plan to go into the teaching profession as an agricultural educator upon graduation." Nine student teachers (12%) agreed with that statement, four (6%) disagreed, and two (3%) strongly disagreed. Twenty students (27%) were uncertain as to their plans.

Conclusions/Implications/Recommendations

Overall, student teachers perceived cooperating teachers provided higher levels of mentoring in the areas of Personal Attributes and Modeling factors. This suggests that cooperating teachers generally possess the personal skills needed to support the assigned student teacher and demonstrate appropriate teaching competencies, classroom management, etc. (Duah, 2011). However, findings suggest lower levels of mentoring are provided in the areas of Pedagogical Knowledge, Feedback, and Systems Requirements. Specifically, three of the lowest rated items related to giving guidance for planning, reviewing lessons, and providing written feedback.

While areas for improved mentoring exist, many students are satisfied with the mentoring received. However, nearly 30 percent of students were still uncertain as to whether or not they would pursue teaching. This finding, consistent with research by Roberts et al (2009), suggests that more must be done to encourage student teachers to pursue teaching. Perhaps, increased training for cooperating teachers in the five-factors of mentoring would help strengthen the student teaching experience, and in turn, reduce student uncertainty with the profession.

Additional research into the perceptions and needs of agricultural education students would also be beneficial in providing greater insight into why some students chose (or chose not) to teach. Such information may prove especially beneficial when addressing recruitment and retention issues in the profession.

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Research Poster

Mechanics-related In-service needs of Agriculture Teachers: Does Teaching Experience Matter?

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Mechanics-related In-service needs of Agriculture Teachers: Does Teaching Experience Matter?

Introduction and Conceptual Framework

Literature has established the importance of sustaining agricultural mechanics instruction at the secondary level (Anderson, Velez, Anderson, 2011; Kotrlik & Drueckhammer, 1987; Reis & Kahler, 1997; Rosencrans & Martin, 1997; and Saucier, Terry, & Schumacher, 2009). The question remains however; what changes must be made in professional development and in-service programs to ensure that our teaching workforce remains highly qualified and capable of preparing the next generation of career and technical education students?

This question is further complicated by teacher preparation changes in the state of Iowa. Iowa State University, which is home to Iowa's only agricultural teacher preparation program, suspended all agricultural mechanics instruction from 1992 to 2010. This nearly two-decade absence of an agricultural mechanics program has created a void of knowledge regarding the in-service needs of agriculture teachers in the state. Citing the fact that nearly half of all agricultural teachers in Iowa have fewer than 10 years of teaching experience (Iowa Department of Education, 2010); some professionals have suggested that agricultural mechanics in-service programs should target beginning teachers. Is this assumption correct, or does the need transcend experience level?

The purpose of this study was to identify the in-service needs of Iowa agricultural educators in the area of agricultural mechanics, and to examine the effect of teaching experience on in-service needs. The following objectives were identified to fulfill the purpose of this study:

1. Describe the demographic characteristics of Iowa secondary agricultural educators.

2. Determine the discrepancy between the importance of agricultural mechanics content areas and the capability to teach agricultural mechanics content areas as perceived by secondary agricultural educators.

3. Assess the effect of teaching experience on In-service needs of Iowa agricultural educators.

Methodology

The target population of this descriptive study was in-service agricultural education instructors who are currently teaching secondary agriculture in Iowa (N = 242). A researcher-modified, paper based questionnaire containing three sections, consisting of 54 skills, teacher demographics, and program demographics was distributed to each instructor (n = 130) who attended the Iowa agricultural education teachers conference. Usable instruments were collected from (n = 101) respondents for a 77.7% response rate. Face validity was established by individuals with expertise in instrument development and agricultural mechanics. Post-hoc reliability calculations resulted in reliability coefficients for importance ($\alpha = .97$) and competency ($\alpha = .98$). Researchers used the Borich (1980) needs assessment model to quantify teacher's perceived ability to teach, and the teachers' perception of the necessity to teach, concepts within agricultural mechanics. Constructs with a higher MWDS were in higher need for in-service training relative to those constructs with a lower MWDS (Garton & Chung, 1997).

Findings

The first research objective sought to describe the demographic characteristics of Iowa agriculture teachers. Gender differences were in line with expectations for teachers of agriculture, food, and natural resources with 67.0% male (n=69) and 33.0% female (n=34). The

vast majority of teachers were employed by rural school districts (n=80, 79.2%) in single-teacher departments (n=91, 90.0%). Also worthy of note, the majority of respondents reported 10 or fewer years of teaching experience (n=54, 52.4%).

Research objective two was to determine the discrepancy between agricultural mechanics topic importance and the competence to teach agricultural mechanics topics as perceived by Iowa secondary agriculture teachers. Professional development need is determined by the mean weighted discrepancy score (MWDS). The five items with the highest MWDS are displayed in Table 1.

Table 1
Teaching Competencies with Highest MWDS as Perceived by Iowa High School Agriculture Instructors

Rank	Construct	MWDS	Importance Rank	Competence Rank	*n*
1	Global Positioning Systems	5.71	8	33	89
2	Electrical Safety	4.67	10	26	87
3	Computer Aided Design	4.51	39	54	80
4	GTAW (TIG) Welding	4.39	28	45	84
5	Small Engine Safety	4.02	4	12	89

As illustrated in Table 2, a significant ($p > .05$) difference was determined for Electrical Safety and Small Engine Safety. Both of these constructs had a medium effect size. All other effect sizes were small.

Table 2
In-service Needs Identified by MWDS Differentiated by Years of Teaching Experience.

	≤10 Years		>10 Years		p-	Effect	Cohen's
Construct	M	SD	M	SD	value	Size	Index
Global Positioning Sys.	5.89	4.68	5.51	4.39	.697	.08	Small
Electrical Safety	6.38	5.61	2.92	5.37	.004	.63	Medium
Computer Aided Des.	5.18	4.40	3.80	5.02	.196	.29	Small
GTAW (TIG) Welding	4.98	4.48	3.78	5.19	.260	.25	Small
Small Engine Safety	5.90	5.63	2.01	4.92	.001	.74	Medium

Conclusions and Implications

This study identified *Global Positioning Systems* as having the most need for professional development. This is in line with the results of Saucier, Tummons, Terry, and Schumacher (2010) who studied agricultural educators in Missouri (n = 383), and reported Global Positioning Systems to be the technical competency with the highest perceived need for in-service. Similarly, in a more general study of Georgia teachers (n = 209), Peake, Duncan, and Ricketts (2007) identified curriculum integration of agriculture technology advances as the highest need for in-service. This study also contributes to the national trend indicating a need for increased emphasis on emerging agriculture technology in both professional development and teacher preparation programs. Differences may exist in the needs of inexperienced teachers for some, but not all, agricultural mechanics skills. Based on the findings of this study, researchers recommend that in-service training opportunities in Iowa be designed for, and marketed to, teachers of all experience levels.

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Research Poster

Perceptions of a Learner-Centered Teaching Experience by Graduate Students in Plant Sciences Teaching a K-12 Audience

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Perceptions of a Learner-Centered Teaching Experience by Graduate Students in Plant Sciences Teaching a K-12 Audience

Introduction

Educational reform of graduate programs continues to highlight national research agendas (National Research Council, 2012). Graduate students are encouraged through their programs to find meaning and understanding in regard to other published studies. It is this unrecognized emphasis on active learning by the student that is sometimes in conflict with the common teaching practice by university professors. It is critical that graduate students entering the workforce are prepared for the diverse challenges that lie ahead. A key outcome of the National Research Agenda is to develop "a sufficient supply of well-prepared agricultural scientists and professionals to drive sustainable growth, scientific discovery, and innovation in public, private and academic settings" (Doerfert, 2011).

In order for graduate students to be prepared to disseminate their research for the next generation, these graduate students require an assortment of professional experiences that enable them to transfer their experiences in research facilities and classes to educate a diverse audience while employing a variety of approaches. Learner- Centered Teaching (LCT) has become a more widely used approach in university classrooms (Blumberg, 2008). The science of learning needs to be explored and utilized by future agricultural research and academic professionals to assist active learners who desire the understanding of complex subject matter (Bransford, Brown & Cocking, 2000).

Graduate students at a land grant university participated in a class taught by a graduate teaching assistant and associate professor using LCT methods. The graduate students on research assistantships for the Agriculture and Food Research Initiative Plant Breeding and Education project were required by their grant to disseminate a concept from their research to a K-12 audience. The purpose of this study was to examine the student's self-perceived abilities with Learner Centered Teaching after a K-12 classroom teaching experience.

Theoretical Framework

Learner-centered teaching encompasses fourteen psychological principles as determined by a task force for the American Psychological Association. The summary domains divide the principles into five areas of prominent educational theory analysis. The social process of learning for a student is impacted by how the instructor engages with their audience or through what is termed the situation or context (Blumberg, 2008). A learner-centered teaching model organizes practical areas of focus for instructors to adapt to the role as a facilitator of learning (Weimer, 2002). Rubrics help instructors discriminate the progress of their abilities within the learner-centered teaching criteria (Blumberg, 2008).

Methodology

At the conclusion of a K-12 teaching experience, graduate students post facto completed the Learner-Centered Teaching Observation Rubric. Graduate students evaluated their teaching abilities according to the actions exhibited by their class of students within the LCT domains of "Active learning", "Inquiry learning" and "Contextual learning". There were five separate criteria listed for active learning, four criteria for inquiry learning and one for contextual learning. Graduate students also rated their actions according to criteria established under the

domains of "Planning", "Learning and Instruction", and "Environment". Graduate students rated themselves according to criteria established under the following levels of Low Evidence = (0-1) Medium Evidence = (2-3) and High Evidence = (3-4) specific to the designated content criteria. Means and standard deviation of each single criteria and collective domain areas were determined using SPSS.

Findings

Graduate students who taught using Learner-centered teaching approaches in their university courses identified an increase in their ability to engage learners in their K-12 audience as evidenced by the increase in an LCT specific criteria mean from 2.31 to 4.12. Graduate students also identified their application of enabling K-12 students to use inquiry learning to solve complex problems as evidenced by the increase in a mean from 1.81 to 3.31. The variable containing a collective active learning mean increased from 2.23 to 3.85. Although the number of subjects within the group was small (N=16), standard deviation exhibits the low variability with each domain and criteria.

Conclusions

Overall, there was an increase in all areas of the Learner-Centered Teaching Observation Rubric. The greatest areas of notable gain were within criteria associated with active learning approaches. It is important to recognize the active learning LCT criteria which also reflected positively in the planning and learning domains. The low variability among all criteria supports the collaborative class activities and teaching approaches by the instructors.

Implications

The instruction using LCT approaches with graduate students supports the research findings by Blumberg (2008). Since students identified a greater increase in overall active learning than inquiry learning, it would be valuable to examine the emphasis of inquiry learning in the seminar class prior to the teaching experience. A joint evaluation of the graduate student with their instructor(s) post teaching could also enable positive identification of LCT evidences. Lastly, a comparison of international and domestic students to determine if previous educational exposure impacts newly acquired teaching approaches.

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The Relationship between the Amount of Agricultural Mechanics Training and Skills Received at the Secondary and Post-secondary Levels

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The Relationship between the Amount of Agricultural Mechanics Training and Skills Received at the Secondary and Post-secondary Levels

Introduction/Conceptual Framework

Agricultural mechanics courses have long been considered an integral component to the agricultural education curriculum. This relationship is evident when the amount of instructional time devoted to agricultural mechanics and the amount of time spent in the agricultural mechanics laboratory are explored. Approximately half to two-thirds of instructional and laboratory time is spent on agricultural mechanics concepts (Johnson & Schumacher, 1989; McKim, Saucier, & Reynolds, 2010; Shin, 1987).

While agricultural mechanics courses have maintained a high level of popularity, not all agricultural education candidates are adequately prepared to teach agricultural mechanics courses. Hubert and Leising (2000) indicated, on average, potential agriculture teachers are only required to enroll in two (2) three-credit hour courses to meet certification requirements. Consequently, teacher education programs should focus on ensuring preservice teachers receive adequate training in the area of agricultural mechanics (McKim & Saucier, 2011, 2012). Seemingly, potential teachers who did not receive an adequate amount of agricultural mechanics at the secondary level would seek out additional training at the post-secondary level, representing a negative correlation. Is this an accurate assumption?

Purpose and Objectives

The purpose of this study was to describe potential relationships between the quantity of agricultural mechanics training and skills received at the secondary level and at the post-secondary level. The following research objectives were identified to accomplish this purpose.

1. Describe the demographic characteristics of Iowa secondary agricultural educators.

2. Examine the relationship between amount of agricultural mechanics training at the secondary level and amount of training at the post-secondary level.

Methods and Procedures

The target population of this descriptive study was in-service agricultural education instructors who are currently teaching secondary agriculture in Iowa (N = 242). A researcher-modified, paper based questionnaire containing three sections, consisting of 54 skills, teacher demographics, and program demographics was distributed to each instructor (n = 130) who attended the Iowa agricultural education teachers conference. Respondents were asked to use a five-point Likert-type scale to rate their perceptions of the amount of training and skills received at the secondary and post-secondary levels. Usable instruments were collected from (n = 101) respondents for a 77.7% response rate. A Pearson's χ^2 analysis yielded no significant differences *($p > .05$)*for gender, age, highest degrees held, years of teaching experience, and size of school community between respondents and the general population of agriculture teachers in Iowa. Face validity was established by individuals with expertise in instrument development and agricultural

mechanics. Post-hoc reliability calculations resulted in reliability coefficients for importance (α = .97) and competency (α = .98).

Results

The first research objective sought to describe the demographic characteristics of Iowa agriculture teachers. The typical respondent was male (67.0%), employed by a rural school district (79.2%), in a single-teacher department (90.0%), and reported 10 or fewer years of teaching experience (52.4%). Examining and interpreting potential relationships between amount of agricultural mechanics training received at the secondary and post-secondary levels was the purpose of the second research objective. Spearman Rho correlations were used to identify significant ($p<.05$) relationships. Significant positive correlations were discovered within each skill area. It should be noted that each skill area is correlated within the respective area and not representative of a composite of all sub-constructs. Furthermore, only the top area with the highest correlations in each respective domain is displayed in Table 1.

Table 1
Spearman Rho Correlational Relationships between the Amount of Agricultural Mechanics Training and Skills Received at the Secondary and Post-secondary Levels

Skill Area	*n*	Spearman Rho Correlation
Mechanic Skills		
Oxy-propylene Cutting	83	.659*
Structures and Construction Skills		
Construction Skills (Carpentry)	90	.553*
Electrification		
Electrical Safety	86	.641*
Power and Machinery Skills		
Tractor Selection	78	.758*
Soil and Water		
Profile Leveling	75	.756*

Note. *p < .05

Conclusions

Based upon the identified objectives and reported findings the following conclusions were drawn. Demographic characteristics were in line with expectations for Iowa agricultural teachers. There was a significant positive correlation found within every skill area. This indicates that students who take more agricultural mechanics classes at the secondary level also take more at the post-secondary level. This also implies that if a potential teacher does not have agricultural mechanics at the secondary level, they will not seek it out at the post-secondary level. This phenomenon suggests that as a profession we are creating two "groups" of teachers, the haves and have nots. Based on these correlations, there is no "middle ground". Future research should be directed toward examining causal relationships exploring how students with or without secondary agricultural mechanics course experience choose post-secondary courses.

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Research Poster

Using Social Media to Weather the Storm of Crisis

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Using Social Media to Weather the Storm of Crisis

Need for research

The relationship between agriculturists and the weather is tightly wound and well known. Crop producers are often at the mercy of the forecast when it comes to their livelihood. Therefore commodity organizations must be prepared to constantly communicate the most up-to-date and useful information available to their members and stakeholders. This summer, Ohio has been full of examples of the issues that plague farmers, from droughts to windstorms. The weather issues presented a true challenge to Ohio's commodity organizations and agricultural media sources as they sought to inform their membership about upcoming and current issues. This research seeks to examine how these organizations used social media to communicate weather-related information following a large early July storm that impacted much of the state.

The windstorm, which left corn flattened, barns collapsed and widespread power outages in its wake, was a crisis event for farmers in the state, as were the dire drought conditions before and after. Agricultural organizations and media sources needed to react quickly to supply their followers with necessary information. This research seeks to examine the social media strategies that [state] agricultural organizations employed to communicate information regarding this major storm. The insights gained will be valuable to other agricultural groups who will face crisis situations in the future and could use social media to their advantage. This research addresses the "New Technologies, Practices, and Products" research priority area, as it examines the use of innovative technology in crisis communication.

Conceptual framework

The topic of crisis management and communication has gained increasing notoriety over the past 25 years. Studies of crisis management strategy gained increasing prominence following an incident in 1982 when Johnson & Johnson was faced with a crisis situation due to Tylenol capsules laced with cyanide (Whiting, Tucker, & Whaley, 2004; Simola, 2005). Although evidence supported that the contamination occurred outside of company production facilities and was contained to one geographical area, Johnson & Johnson reacted swiftly with a national product recall, costing the company $100 million (Fink, 1986). This management decision proved effective, as sales and market share rebounded quickly and the brand equity of the Tylenol name was preserved (Siomkos, 1992). This event ignited much discussion among scholars and communication experts, leading to the emergence of the field of modern organizational crisis management (Mitroff, 2001). While various definitions of organizational crisis have been proposed, the literature contains two basic threads: a crisis has the ability to disrupt operations and hinder the function of the organization, and a crisis can threaten the organization's reputation (Coombs, 2002). Both of these recurrent themes connect the threat of crisis with a potential to impact the organization's financial bottom line by harming profits, donations, sales, etc. The July storm fits this definition of crisis, as damaged crops and property can hinder farmers' ability to operate their business profitably and meet the needs of consumers.

Recent research has explored crisis management and communication specifically within the field of agriculture and food production. Whiting, Tucker and Whaley (2004) examined crisis preparedness among colleges of agriculture at land grant universities, finding that 60 percent of land grant universities have an established crisis communication plan. However, almost one-third of respondents reported that they were unaware of a crisis communication plan in place at their university, and less than 50 percent of both faculty and staff were thought to be well informed about the plan. Muegge (2005) applied crisis communication paradigms to the Cooperative

Extension Service as she evaluated the University of Florida Extension Services' crisis communication efforts during the 2004 hurricane season. Extension professionals viewed flyers, print materials, and newspapers as the most effective means of communicating crisis information. Following her research, Muegge recommended that UF Extension services draft a comprehensive, unified, and consistent crisis communication plan.

Methodology

This study compared and contrasted the social media use of five prominent Ohio agricultural organizations: The Ohio Soybean Association, Ohio Corn and Wheat Growers Association, Ohio's Country Journal and Ohio Ag Net, Farm and Dairy newspaper, and the Ohio Farm Bureau Federation. These organizations were chosen based on their prior use of social media and their position as sources of agricultural information in the state. The time period of data collection was June 29, 2012 – July 12, 2012. The organization's Facebook and Twitter accounts were examined for posts relating to weather issues, specifically the June storm and the drought conditions. Social media posts were examined for the inclusion of terms such as "damage", "drought", "dry", "hot", "storm", and "winds".

Findings

All five groups included in this study used social media to communicate weather-related information during the sample period. Twitter and Facebook were used with virtually the same frequency, with 19 percent of Facebook posts and 20 percent of Twitter posts relating to the weather during the sample period. The majority (55 percent) of the social media posts included links to news coverage or other resources, and 9 percent included photographs. All of the posts studied dealt with two weather issues: the drought (78 percent) and the June 29th storm (22 percent). Although all five groups studied used social media to communicate about weather issues during the study period, a clear difference exists between the use of media groups and commodity associations. Ohio Farm Bureau Federation, Ohio Country Journal and Ohio Ag Net, and Farm and Dairy made 80 percent of the 69 weather-related social media posts included in this study. These groups were more active in their general use of social media, making 283 total posts during the study period, compared to only 26 posts made by the two commodity organizations.

Conclusions & Implications

The researchers concluded that agricultural media sources were more effectively using social media tools to communicate weather information than the commodity groups. If commodity groups were to use these methods of communication to keep their followers up to date they would be able to become a more reliable source for news coverage and weather updates. According to the American Red Cross, 80 percent of Americans expect emergency responders to monitor social sites and 1 in 5 Americans who experience any sort of natural disaster or emergency post something about it on their social sites. Americans are closely tied to their social sites and mobile information when weather issues or news concerns them, placing commodity organizations in a prime spot to provide the information that Americans are looking for. Agricultural marketers recognize the farmers use of social media, noting that farmers typically rely on social media for information on "weather, markets, products, and services," and this reliance will only continue into the future (Erickson, 2011). This study revealed a gap in the social media activities of Ohio commodity organizations in response to recent weather crises. In order to be a reliable source of useful and easily accessible information, these groups should expand their social media response to future crises that impact Ohio farmers.

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Research Poster

Wisconsin 4-H/Youth Development Staff Perspectives on Hispanic 4-H Programs

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Wisconsin 4-H/Youth Development Staff Perspectives on Hispanic 4-H Programs

Introduction/Need for Research

The Hispanic population in Wisconsin is continuing to increase, with each of the 72 counties having Hispanic residents (Ennis, Rios-Vargas, & Albert, 2011). As this population continues to increase, Extension and 4-H need to find ways to meet the needs of Hispanic community members to achieve the goal of providing educational opportunities to all community members.

Several studies have been done examining the effects of Hispanic outreach programs and how to better implement these programs in Extension. One such study, conducted by Farner et al. (2006), described a week long day camp for Hispanic youth that was offered through the University of Illinois Extension. Another study described a successful strategy for how to establish Hispanic 4-H clubs (Lippert, 2009) using a summer literacy program in South Carolina to provide Hispanic students with the chance to improve their reading and writing skills. Conklin-Ginop, Braverman, Caruso, and Bone (2011) described a 4-H Bloco Drum and Dance program that was developed in Windsor, California. The Oregon 4-H Latino Outreach Project (Oregon State University Extension 4-H Youth Development Programs, n.d.) is offered in many forms, including after school activities, community clubs, day camps, and community garden projects.

The purpose of this study was to identify the perspectives of Wisconsin 4-H/Youth Development agents and staff on Hispanic 4-H programming. In particular, this study sought to find out what types of Hispanic 4-H programming are currently in existence in Wisconsin, whether or not Hispanic 4-H programming is seen as a necessity, and what Wisconsin 4-H/Youth Development agents and staff see as the major benefits and challenges of offering 4-H programming to the Hispanic population.

Conceptual / Theoretical Framework

Ritchie and Stitsworth (1987) identified program leadership and program planning as of the roles paid staff provide in conducting a county 4-H program. Adding 4-H programming for Hispanic youth would be included in these roles. The perceptions of 4-H/Youth Development Agents and other paid staff at the county level will determine if and how new 4-H programs are implemented in response to changing county demographics.

Methodology

A researcher developed survey was used. The survey consisted of both closed and open-ended questions and also included a 17 item five point Likert-type scale. An expert panel of university faculty and former 4-H Youth Development staff currently working as state specialists reviewed the questions for content and face validity. The campus IRB approved the survey. This survey was administered using the online survey tool Qualtrics. A census of all county level 4-H staff, both agents and others, working in September of 2011 was conducted. In total, 84 Wisconsin 4-H/Youth Development agents and staff were sent an email invitation to participate in this survey.

Responses were received from 45 individuals (53.6% response rate) following a reminder email message.

Results/Findings

Results of this research indicated that only a few of the counties in Wisconsin currently offer some type of 4-H programming for the Hispanic population, although every county has Hispanic residents. Only 7 participants (16%) indicated that their county did have some sort of 4-H program that is intended for Hispanic youth. In a follow up question asking what type of programming was offered, two people responded that the programs offered for Hispanic youth in their county were after school programs. One person indicated that their county offered a pre-college program for the youth. Three people responded that their county 4-H program has 4-H clubs that are directed toward Hispanic youth. When asked to indicate the number of Hispanic youth enrolled in their county's 4-H program, 30 (67%) indicated that 1 – 2% of their county's 4-H enrollment was made up of Hispanic youth and 12 (27%) indicating that their county 4-H program had no (0%) Hispanic youth enrolled. The top four barriers listed when asked for barriers to offering programming for Hispanic youth included language barriers, lack of Hispanic population, staff lacking knowledge/skills, and funding.

Participants did indicate an interest in serving diverse audiences. In total, 75% (32 people) of the respondents either agreed or strongly agreed with the statement "Wisconsin 4-H should concentrate on creating more programs that reach diverse audiences".

Conclusions Implications/Recommendations

Few Wisconsin counties offer programs for Hispanic youth. The Wisconsin 4-H/Youth Development agents and staff surveyed indicated that increased programming for underrepresented audiences and programming that increased cultural awareness were of importance. This research also shows that additional research in the area of Hispanic 4-H programming needs to be conducted to determine how to better meet the needs of the Wisconsin 4-H/Youth Development agents and staff who plan and develop these types of programs.

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