Poster Selection Process
Southern Region Agricultural Education Conference
February 4-7, 2012
Birmingham, Alabama

Eighty-six submissions were received with forty-seven in the innovative idea category and thirty-nine in the research category. The acceptance rate for innovative idea posters was 77% and research posters was 92%.

Poster Reviewers
The following people generously and professionally donated their time to review poster abstracts. Without their commitment, the poster session would not be possible.

Anderson, Ryan	Iowa State University
Baker, Marshall	Oklahoma State University
Barrick, Kirby	University of Florida
Bird, Will	University of Missouri
Brown, Nick	Oklahoma State University
Carter, Hannah	University of Florida
Chumbley, Boot	Eastern New Mexico University
Clary, Cynda	New Mexico State University
Edwards, Stephen	Virginia Tech
Epler, Cory	Virginia Tech
Falk, Jeremy	University of Idaho
Foley, Caitlin	Pennsylvania State University
Foster, Daniel	Pennsylvania State University
Gill, Bart	Western Illinois University
Haynes, Chris	University of Wyoming
Jones, David	North Carolina State University
Killingsworth, Justin	Arkansas Tech University
King, Diana	University of Georgia
Lawver, Rebecca	Utah State University
Martin, Michael	University of Missouri
Meyers, Courtney	Texas Tech University
Mizer Stachler, Wendi	North Dakota State University
Naile, Traci	Oklahoma State University
Parks, Clarissa	Tennessee State University
Paulsen, Thomas	Iowa State University
Priest, Kerry	Virginia Tech
Sankey, Laura	Pennsylvania State University
Saucier, Ryan	Texas State University – San Marcos

Spiess, Michael	California State University, Chico
Thoron, Andrew	University of Florida
Touchstone, Allison	University of Idaho
Tummons, John	University of Missouri
Warner, Wendy	North Carolina State University
Warnick, Brian	Utah State University
Weeks, William	Oklahoma State University

Innovative Idea Poster Category

Addressing College Readiness in Secondary Agricultural Education: "Collaborating with Secondary Teachers to offer College Credit to High School Students"

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Addressing College Readiness in Secondary Agricultural Education:
"Collaborating with Secondary Teachers to offer College Credit to High School Students"

Introduction

With the demand for increased rigor and emphasis on college- and career-readiness (American Diploma Project Network, 2011), logic would dictate that pressure increases on secondary level education programs to address the issue of preparing high school students for success in post-secondary endeavors. As a result, many secondary schools provide dual credit, advanced placement, and college bridge course programs, whereby graduating high school seniors enter college with a majority of freshman credit hours already earned (Killingsworth, Smith, Maxwell, Ball, & Garton, 2009). In an already competitive student environment, secondary agricultural education programs may experience further scrutiny if they fail to provide course offerings with the rigor, prestige, and recognition of their core, collegiate-credit earning competitors (Dyer & Breja, 2003).

[State] State University sought to address the need of preparing secondary agricultural students for not only careers, as is the traditionally viewed route (Talbert, Vaughn, Croom, 2005), but also for college. This is specifically addressed in the [State] State University's School of Agriculture bridge program. Through this bridge program, students may earn as many as 11 hours of agriculturally specific courses before receiving a high school diploma. This initiative seeks to enable students to develop competencies, engage in rigorous agricultural content, and also begin a collegiate career with instruction facilitated through the secondary agricultural science teacher collaborating with a corresponding collegiate agricultural instructor.

The bridge course program allowed students to enroll in an approved high school agricultural science class. While the course was aligned with the current [State] agricultural education curriculum, additional content enhanced and advanced the secondary level instruction to earn appropriate college credit. This accelerated content was developed and formatted by the collegiate agricultural instructor, who uploaded lessons into a Blackboard module. Participating secondary agricultural science teachers, who earned a minimum of 18-hours of Master's level credit in an agriculturally related field, facilitated lectures, group discussions, and writing assignments for the secondary students. Students were evaluated under the approved supervision of school officials via the Blackboard testing module. Upon completion of each course, students received three hours of college credit for an agricultural class.

Program Phases

The program's initial phase was announced to the [State] agricultural education staff and also [State] secondary agricultural educators regarding the University's plan to include this course offering in the [State] program of studies during the summer of 2010. Additionally, a cohort of 13 teachers were invited to a meeting to discuss, address, and revise syllabus and also the curriculum map for the course "Contemporary Issues in Agriculture."

After initial announcements and meetings with qualified secondary agricultural science teachers, a commitment was secured from 14 programs for participation. Students from the secondary setting were recruited to apply. Student admission was predicated on being a junior or senior in high school, having a score of 18 or greater on their ACT or PLAN test, and paying a course fee of $100.00. Once application was processed through admissions, students received instruction. Secondary agricultural instructors were left to determine the timing of content delivery as appropriate to the respective secondary school's academic schedule. There were 116 students enrolled in three different agriculture courses: Contemporary Issues in Agriculture, Introduction to Agricultural Education, Leadership, and LifeKnowledge, and Animal Science.

Results to Date

Three existing collegiate level courses were taught beginning with the Fall 2010 semester. These courses were Contemporary Issues in Agriculture; Introduction to Agricultural Education, Leadership, and LifeKnowledge; and Animal Science. As of the fall 2011 semester, 216 students have enrolled in one or more of those courses earning a combined total 11 hours of college credit. Additionally, [State] State University's overall enrollment in the program was increased by 86.21% from fall 2010.

Future Plans

Future plans for the program revolve around not only the bridge program's continuation, but also its expansion to add additional secondary programs and also innovative instructional procedures available on Blackboard 9. The program shows promise to increase in popularity as more teachers of agriculture, school administrators, and parents gain awareness of this program. Collaboration plans include working with local high school teachers with a Masters of Science degree in an agriculturally related field, school principals, superintendents, [State] State's writing across the curriculum committee, and professors of agriculture to develop a more rigorous curriculum that facilitates more agricultural literacy and college readiness over the next five years.

Resources Needed

For universities seeking to implement this idea, costs will vary by institution, but resource categories include:

▪ Coordinator Stipend	$6000
▪ Instructor Workshop Stipends	$12000
▪ Coordinator Travel	$2000
▪ Workshop	$2000
▪ Curriculum	$2000
▪ Meal Expense	$2000
	$26000

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Agricultural IQ Scholarship Quiz for University Preview Day Interest Session

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Agricultural IQ Scholarship Quiz for University Preview Day Interest Session

Introduction:

According to Westbrook and Alston (2007), the best way to reach students is to market the university to the parents. University preview days are commonly used to introduce prospective students and their families to campus programs. Creating a unique presentation that captures the interests of prospective students and parents while also effectively showcasing an academic program or department is challenging. The *Agricultural IQ Scholarship Quiz* is used by the Department of Agricultural Sciences at [University] to introduce the major fields of study and faculty to the audience. This technique allows the prospective students and family members to *test* their knowledge that was previously attained through formal and/or non-formal education in agriculture as well as work and life experiences.

How it works:

Each semester prospective students and their parents visit [University] to attend Preview Day. The preview day gives potential students the opportunity to receive information about programs, take campus tours, and meet faculty members. Approximately 2400 prospective students, family members, and friends annually attend this recruiting event. Academic programs are encouraged to host information sessions for the preview day each fall and spring.

The Department of Agricultural Sciences takes advantage of this opportunity by hosting information sessions for potential students, family members and friends. Information sessions allow students a glance at what the department has to offer including majors and minors, extracurricular activities, and a chance to meet and greet faculty members. At the conclusion of the information session prospective students, family members, and friends are presented with a quiz over agricultural concepts that are common to introductory level courses in the department. These courses include animal science, plant science, horticulture, wildlife, agribusiness, and agricultural mechanization. The multiple-choice exam questions are presented using a multimedia slide presentation with answers marked on common optical scan type paper documents.

One scholarship goes to the highest scoring prospective student while the other scholarship goes to the prospective student with the highest scoring family member or friend. In the case of a tie, multiple scholarships are awarded. The *Agricultural IQ Scholarship Quiz* is promoted through FFA and 4-H events, high school campus visits by faculty and student ambassadors, and promotional materials associated with the Preview Day. The potential opportunity to earn a scholarship from [University] adds additional incentive for prospective students to bring family and friends to the interest session, thus allowing departmental faculty to interact and ask questions from both prospective students and their parents.

Results to date

Since the *Agricultural IQ Scholarship Quiz* was introduced five years ago, attendance at departmental interest sessions has continually increased. Most of those awarded scholarship actually to attend the university the following fall semester. Occasionally, younger siblings also have become interested in one or more of the degree programs because of their ability to participate in the quiz.

Scholarship winners are announced at the conclusion of Preview Day events where prizes from other university-wide promotions are awarded. Since the Department of Agricultural Sciences is

the only academic department awarding scholarships at the event, increased recognition among prospective students, families, and friends, including those who did not attend the interest session, was achieved.

Future plans

The current *Agricultural IQ Scholarship Quiz* is conducted by using optical scan/mark recognition technology which allows for fast scoring and processing. Future plans include replacing this system with a computer/clicker-based audience response system that will allow instant access of scores and a reduction in the paper used.

Cost/resources needed

The administrative costs associated with the *Agricultural IQ Scholarship Quiz* are minimal and include promotional pencils given to participants and scan sheets for marking answers. Typically, one $250 scholarship is awarded to the high scoring prospective student and $100 is awarded to the prospective student with the highest scoring family member or friend. However, the departmental scholarship committee decided to raise the 2011-2012 scholarship to the highest scoring prospective student to $500. A three-way tie resulted in a cost this past fall of $1500. However, the departmental faculty and scholarship committee all indicate that this is a very worthwhile investment and effective strategy for promoting programs to a wider audience.

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Innovative Poster

An Opportunity for County Extension Faculty to Enhance Teaching

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An Opportunity for County Extension Faculty to Enhance Teaching

Introduction

The Cooperative Extension Service is the outreach arm of the land-grant university. This unique local-state-federal partnership has and will continue to be vital to the well being of our citizens. Extension delivers its programs through local offices in every county across the state. Within each office is a staff of technical experts who assist community members in a variety of specialty areas. Although these county faculty members are well versed in the technical content of their positions, many have limited formal preparation on how to most effectively deliver their education program.

Faculty members in the Department have expertise in the development and delivery of both formal and nonformal education programs. Through professional development opportunities and for-credit courses, faculty in the department have instructed both beginning and veteran Extension personnel on these topics. Since 2005, the department has offered county faculty the opportunity to earn a Master of Science degree with a focus in Extension Education. Feedback from Extension faculty members who have completed this program has been very positive. Furthermore, county faculty members who already hold an M.S. degree have asked the department to provide another avenue for them to access content related to Extension education.

How it Works

The Department developed an online *Certificate in Teaching and Learning in Extension* to meet the needs of Extension personnel in the state and nationally. The certificate program allows county and state Extension faculty to develop and advance their expertise in teaching and learning, leading to more effective Extension programs overall. It is designed for improving teaching, not as a punitive or evaluative mechanism. All faculty can gain from participation in the program.

The certificate program consists of 12 topic-specific modules on Extension teaching and learning. The modules are delivered completely online, utilizing a variety of asynchronous delivery techniques including videos, narrated PowerPoint presentations, readings, and interactive websites. To demonstrate mastery of the content, individuals must obtain a satisfactory score on an end-of-module examination. Once an individual has satisfactorily completed the 12 modules, the participant earns the certificate. Completion of the certificate program may be noted in Permanent Status and Promotion documents, on business cards, in recognition programs, and in other ways.

The topics for the modules were determined by faculty in the department after consultation with District Extension Directors and the Extension Program Development Focus Team (county agents and state specialists). Modules were prepared by faculty and graduate assistants with expertise in teaching and learning and Extension program delivery. Modules were reviewed by a faculty committee before final adoption.

The modules address the following topics:

- How people learn and learning styles
- Principles of teaching and learning
- Writing educational objectives
- Designing educational presentations – lesson plans
- Designing educational presentations – creating interest/interest approach
- Designing educational presentations – visual aids and Power Point
- Experiential learning
- Teaching strategies – problem-based learning
- Teaching strategies – active learning
- Teaching strategies – case methodology
- Teaching strategies – laboratory/field work

The certificate program records (registration and completion reports) are managed using the Automated Continuing Education System (ACES) through the Division of Continuing Education. With this system, asynchronous courses can easily be delivered to individuals without the need for University authentication.

Results to date

The 12 modules have been written and transformed to the Automated Continuing Education System format for asynchronous access and delivery. The program launched in the fall of 2011, with initial enrollments of county faculty in the state beginning in January 2012. Participants complete the 12 modules at their own pace and in any order. For the first year of enrollment, the registration fee is paid by the State Extension Service.

Future Plans

An evaluation of the program will be conducted at the conclusion of the first year of operation. Feedback from participants who have completed the certificate program will be sought, and changes will be made to modules as needed. The certificate program has also been introduced to state Extension directors in the U.S. to determine interest in making the program available in other states. It is anticipated that the certificate program will be utilized in at least 10 other states, starting in March 2012.

Costs/resources needed

Funding for the initial technical support was provided by the State Extension Director. Modules were written by faculty and graduate assistants at no additional cost to the program. The registration fee for in-state Extension agents is being paid by the state Extension system. In future years, a registration fee of $200 will be charged for in-state county agents and $400 for all others (non-Extension employees, out-of-state participants). Income from registration fees will be used to support the technician and cover updating and marketing expenses.

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Big Brother is watching…utilizing split-screen technology to enhance teacher efficacy.

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Big Brother is watching…utilizing split-screen technology to enhance teacher efficacy.

Introduction

The preparation of agricultural teachers is the central mission of post-secondary agricultural education departments (Barrick, 1993). Stripling, Ricketts, Roberts, and Harlin (2008) suggested that the success or failure of agricultural teachers could be dependent upon the teaching efficacy skills developed as part of the pre-service teaching program. One method that has been shown to enhance teaching efficacy skills is the utilization of video, more specifically the integration of split-screen technology. Split-screen technology provides pre-service teachers the opportunity to simultaneously observe teacher actions as well as student reactions.

Martin-Reynolds (1980) determined that videotaping has become recognized as a valuable multidimensional tool for purposes of self-evaluation for teachers. More recently, Zhang, Lundeburg, and Eberhardt (2010) concluded that video recording's ability to capture elusive classroom behaviors that go unseen by the teacher was viewed as a powerful tool to support teacher learning. Playback ability provides the opportunity to see the verbal and non-verbal communications that are present between the students, and allows the teacher to enhance their lessons.

Video recording has been used in a variety of ways to help pre-service teachers enhance their teaching ability. According to Sherin (2004), video has been used in teacher preparation programs for microteaching, modeling experts, lesson analysis, and video-cases. Video recording allows pre-service teachers and mentors to "…replay classroom events and notice aspects of classroom situations that they are too busy to notice while teaching" (Zhang, Lundeberg, & Eberhardt, 2010, p. 61). In a study of pre-service mathematics teachers, Star and Strickland (2007) concluded the use of video in pre-service teaching methods courses increases teacher observation skills, specifically the ability to notice features of the classroom environment.

Procedures

[STATE] University utilizes split-screen technology that allows the user to record the agricultural education classroom from two vantage points simultaneously on one screen. Split-screen technology allows for simultaneous dual analysis of the lesson from teacher and student perspectives. The pre-service teacher has the ability to reach a deeper understanding of agricultural education classroom dynamics by viewing multiple vantage points within the classroom. This technology includes a video recorder that saves directly to a USB flash drive. Cameras are controlled via laptop over a Wi-Fi connection. The cameras have tilt and 360 degree rotation capabilities which allows for the recording of all areas of the classroom. To record the teacher's voice, student's voices, and other classroom noises a sound bar is mounted above the white board along with several microphones placed throughout the classroom. This allows the pre-service teacher to get the whole classroom experience when viewing their recorded lesson.

Pre-service teacher lessons are recorded alongside student reactions. The recorded lessons are then utilized in the agricultural education pre-service teaching methods course. Split-screen technology gives the pre-service teacher the opportunity to see student reactions and immediately relate them to specific teacher actions. This action-reaction association allows pre-service teachers to develop a sense of effectiveness as an educator.

Pre-service teachers complete a series of self-reflections based upon the recorded lessons.

Step 1. Initial reflections are based upon observations of the lesson prior to viewing the recorded lesson.
Step 2. Pre-service teachers then view the recorded lesson and complete a reflection based upon observations from viewpoints of both the teacher and student.
Step 3. Pre-service teachers conclude the series of reflections by coming up with improvements to enhance the lesson.

Results

[STATE] University offered an agricultural education course aimed at enhancing methods of teaching and learning as they relate to agricultural constructs. Students enrolled in the Fall 2011 course utilized split-screen technology to complete evaluative reflections of recorded lessons. After completing reflections, students appeared more cerebral about their teaching and their surroundings. Pre-service teachers' situational awareness of the classroom has improved, thus enhancing lesson content and overall instructional effectiveness. This technology is now being implemented into the pre-service teachers Methods of Teaching Agriculture Mechanics Class to enhance laboratory-based lessons.

Future Plans

A quantitative study has been designed to assess the integration of split-screen technology into the agricultural education pre-service teacher course: Methods of Teaching Agricultural Education. Researchers will objectively measure the perceived efficacy of split-screen technology by utilizing a survey instrument with Likert type responses. Reflections of pre-service teachers will be evaluated prior to viewing recorded lessons and compared to the reflections after viewing recorded lessons.

Resources Needed

The only resources required for this project were media equipment and installation. Media equipment included multimedia video projector ($895.00), two network cameras ($1,336.04), multiple microphones ($485.30), and video and audio accessory equipment ($1,028.42). When combined with equipment installation ($1.662.38), the total project cost was $5,407.14. All of the expense were paid for using student computer technology fees.

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Innovative Idea Poster

Connecting Service Learning to Social Change

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Connecting Service Learning to Social Change

Introduction

As leadership studies programs gain popularity in higher education, leadership educators are challenged to not only teach about leadership, but to facilitate learning experiences that allow student to practice leadership (Posner, 2009). Middlebrooks and Allen (2008) emphasize the need to help students make connections between models and theories of leadership and the activity and practice of leadership. Eich (2008) found that high quality leadership programs utilized student-centered experiential learning. More specifically, engagement in service was identified as a key strategy for leadership development (Eich, 2008).

Service learning may be described as an instructional approach used to foster citizenship among students. Most commonly, four steps are followed in a service-learning project: preparation–developing a plan of action to collaborate with community partners, action–performing the service, reflection–reviewing and analyzing thoughts and feelings during performance, and recognition–exchanging appreciation for the performance (Payne, 2000). Woods (2004) maintains that service learning challenges students to address community problems while developing problem solving skills. Further, research has indicated that service learning may have a positive influence on students' self-efficacy, identity formation, moral development, leadership, and communication skills (Woods, 2004).

At [University] the minor in leadership studies has utilized the Social Change Model of Leadership Development (HERI, 1996) as a guiding framework for course instruction. The Social Change Model is a research-based model for teaching leadership to undergraduate students and includes eight aspects of leadership, commonly referred to as the eight Cs: change, citizenship, collaboration, common purpose, controversy with civility, consciousness of self, congruence, and commitment (Komives & Wagner, 2009). A primary assumption of this model was that community service may be a powerful vehicle for leadership (HERI, 1996). This assumption led the authors to utilize the service-learning approach to facilitate students' learning of social change.

How it Works

Students living in a residential leadership community (RLC; N = 207) associated with a residence hall were enrolled in the foundational leadership course for the leadership studies minor. An additional 42 students enrolled in the same course asynchronously online. A signature component of the course was a need-driven, student-led service experience. Working in small groups, students identified a campus or community organization with whom they could partner for at least four hours of direct service in support of a local need. Note that students enrolled in the asynchronous online course also scheduled weekly meetings, either face-to-face or using Internet-based technology. Students were encouraged to find organizations or individuals who were working towards social change, which was defined as trying to address the root cause of the problem. Using homelessness as an example, service would be helping serve soup at a homeless shelter; whereas a root cause of homelessness may be lack of skills to gain employment, which could be resolved. Peer leaders who had taken the course the prior year helped facilitate student meetings and advised the management of the service-learning projects.

Each team prepared a project proposal that included objectives, a timeline, and a list of resources. Throughout completion of the project, students individually reflected through written papers and shared these thoughts and feelings with team members. Finally, each team prepared a poster to be presented to fellow classmates, university faculty and administrators, collaborators, and stakeholders in the form of a service-learning showcase at the end of the semester. The final reflection paper and poster was graded utilizing a rubric to assess the quality of the service performed, leadership concepts learned, contribution to social change, effect on the community, and personal change of beliefs and attitudes as a result of the experience. Data from the reflections were coded and utilized for program evaluation of the online course, and RLC offerings of the course.

Implications/Results to Date

At the time of this writing, data were still being collected on 35 service-learning projects. Anecdotal evidence suggests that as a result of this experience, students not only learn about local needs and capacity for social change, but also put to practice team-based skills of decision-making, planning, and communication. Brundgard (2011) suggested these soft skills must be learned by all who want to be effective in today's workforce. As students make connections between their service-learning experience, and the leadership values and behaviors studied in class, they gain increased awareness and understanding which may be applied in future leadership roles.

Future Plans/Advice

Plans were to continue using the service-learning approach to facilitate the instruction of leadership and social change to students enrolled in this foundational leadership course each year. Data collected will be used in the future to make improvements to the course. This includes examining ways to improve students' conceptual learning of leadership and social change, as well as logistically organizing groups which facilitate leadership development.

Instructors wishing to duplicate this process of teaching social change through service learning via an asynchronous online course should maintain structures and assignments which require student groups to work together, and reflect on the service-learning project throughout the course. It was also critical for peer leaders to attend all group meetings and provide feedback on group dynamics and progress towards completing the service-learning project. Universities with an RLC may want to consider utilizing reflection as data for evaluating program outcomes instead of using a standardized multiple choice test. The qualitative data gathered from reflection may provide more insight into the *process* of students learning to lead, as opposed to only assessing the declarative knowledge learned in class.

Resources Needed

The overall budget for service-learning projects associated with the RLC was $4,400 which included funds for materials, student transportation, and hosting the community-service showcase for poster presentations. Seven instructors were utilized, each with their own section of the course. There were 13 peer leaders to assist, who were also enrolled in a peer-leader class. One intern was utilized to coordinate peer leaders. Finally, all activities were coordinated by the RLC director and staff.

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Coordinating the Chatter: Using Twitter as a Medium for a Student Teacher Community of Practice

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Coordinating the Chatter: Using Twitter as a Medium for a Student Teacher Community of Practice

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). In a study reviewing student teacher concerns, Fritz and Miller (2003) posited, "one way for student teachers to reflect on their daily concerns and receive feedback is to communicate with other student teachers and supervisors" (p. 51). Electronic dialogue can assist student teachers in developing critical reflections as well as provide ongoing support throughout the student teaching experience (Whipp, 2003). Developing an electronic community of practice enables student teachers to build relationships and learn from each other (Wegner, 2007).

The purpose of this innovative idea poster is to explain how the Agricultural Teacher Education program at */University/* utilized the microblogging tool Twitter (Java, Song, Finin, and Tseng, 2007) for student teachers to ask questions, share resources, and receive feedback. Twitter is a microblogging tool that allows users to send 140 character messages called tweets to their followers. During the spring 2011 semester, 22 student teachers from */University/* participated in an electronic community of practice. Cooperating teaching centers were located in three states from the North Central and Southern Regions of the American Association for Agricultural Education. Four */University/* faculty supervisors facilitated the social media discussions.

Procedures

The agricultural education student teaching coordinator developed a list on a Twitter account developed specifically for the student teachers to use during the 14-week student teaching experience. As part of the pre-student teaching orientation session, the pre-service teachers were trained on how to set up and use Twitter as a networking resource. Student teachers were encouraged to ask questions, share teaching resources, and provide feedback to each other each week. Additionally they were asked to reflect on their student teaching experiences through a weekly blog that was shared with the community of practice. Potential concerns were addressed with the student teachers prior to engaging in the electronic community of practice. Ethical communication issues regarding appropriateness and professionalism of tweet posts were discussed. University faculty tweeted prompts to engage the student teachers and posted other announcements important to the students.

Results

Student teachers who participated in the Twitter-facilitated community of practice utilized the virtual, microblogging environment to ask questions, share resources, and participate in reflective practice regarding their student teaching experiences. Several of the student teachers' tweets are categorized below.

Students asked each other for advice:

> "Question for everyone…What do you do if students don't turn in work on time? Give them a zero until they get things done?"
>
> "Our grade system doesn't penalize students if you do not enter a score so we enter 50% until it is done so the report is more accurate."

Students shared what worked:

> "Tried a different motivation technique today [and it] worked like a charm. I gave each student a note card and asked them two review questions."
>
> "I drew the cards out of a bucket and the correct ones received a candy bar."

Students shared their frustrations:

> "I am starting to become very stressed out but am learning that I am now a teacher and don't have time for some other activities."
>
> "Teacher or glorified babysitter…today made me wonder."

Faculty facilitated discussion:

> "Cell phones don't have to be a distraction in class. In fact, they can be valuable learning tools. Share with the group your school's cell phone policy and if you use them in class."
>
> "We use them in our classroom. Check out polleverywhere.com."

Students shared their appreciation:

> "I would like to commend your efforts with the wonderful Twitter Blog idea…it has been a nice way to communicate with others."

Student teachers have continued to use Twitter as they began in their first teaching positions. Several now utilize Twitter for communication within their FFA Chapters.

Recommendations and Future Plans

Student teachers will participate in Twitter microblogging each semester. Upon implementing the Twitter-based, electronic community of practice with the next group of student teachers, three changes will be implemented to improve the activity. Student teachers will be required to develop a separate account to be used only for interaction within the student teaching community of practice. This will keep students from blending personal and professional posts, especially those not pertinent to student teaching. Specific posting requirements will be given and participation will be graded utilizing rubrics developed for threaded discussions. Additionally, faculty will continue to engage beginning teachers in their first year of teaching through the existing Twitter list.

Resources Needed

Although Twitter is a free service, access is required through a computer with internet access, smart phone or iPad/iPod technology. Some school districts block social media in their buildings so alternative locations with Twitter availability may need to be identified.

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Do I use a Phillips or Flat? Utilizing an Outreach Course to Teach Basic Agricultural Mechanics

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Do I use a Phillips or Flat? Utilizing an Outreach Course to Teach Basic Agricultural Mechanics

Introduction

Adequate preparation in technical agriculture is a challenge teacher education programs face in ensuring that newly certified agriculture teachers are prepared to enter the teaching profession (Burris, Robinson, & Terry, 2005). The area of agricultural mechanics is no exception. Agricultural mechanics continues to be a popular course for students in school-based agriculture programs in [State]. At [State University], only five credit hours of agricultural mechanics are required for the agricultural education degree. These courses prepare the pre-service teachers in topics such as: metals and welding, electricity, agricultural structures, small gas engines, and plumbing. Several of these students, however, have described frustration during the beginning of these courses. This frustration stems from a lack of basic agricultural mechanics knowledge and skill. One student expressed frustration stemmed from simply not knowing the proper tools to disassemble a small engine. This frustration could be implied to be a low sense of self-efficacy related to agricultural mechanics. Burris, McLaughlin, McCulloch, Brashears, and Fraze (2010) reported that first year teachers in Texas had the lowest content self-efficacy score in the area of agricultural mechanics. Additional experiences in the agricultural mechanics laboratory could increase these students' sense of efficacy related to agricultural mechanics (Burris, et al., 2010). Given the constraints put on students to graduate in a timely manner, agricultural education faculty at [State University] have explored alternative solutions to this problem as recommended by Burris, et al. (2005). The avenue selected to increase pre-service teachers' agricultural mechanics content knowledge was a one credit hour outreach course.

How It Works

Outreach courses at [State University] are normally designed for working professionals who desire to improve their knowledge and skills. The agricultural education faculty recognized an opportunity to offer a weekend outreach course to improve basic agricultural mechanics knowledge of pre-service teachers. To accomplish this goal, [State University] Agricultural Education sought approval for the course through the College of Agricultural Sciences and Natural Resources (CASNR) then a site for the course was located. The agricultural education faculty determined that the best location to hold this course would be in a school-based agricultural education program within close proximity of the [State University] campus. This allows two in-service agriculture teachers to be present during the course, in addition to the [State University] faculty charged with teaching the course.

The content of this outreach course was determined through conversations with agricultural education students currently enrolled in the agricultural mechanics courses and the Biosystems & Agricultural Engineering (BAE) faculty that teach the courses. The general consensus of the two groups was that there is a wide variety of knowledge and experiences of the students. Some students were quite knowledgeable in agricultural mechanics, while others were experiencing the concepts for the first time. Using this anecdotal evidence, this outreach course was designed to be a leveling experience for students who were not comfortable in agricultural mechanics.

Results to Date

The content to be taught during the outreach course was determined through conversations with BAE faculty and agricultural education students. The priority concepts to be taught were safety in the agricultural mechanics laboratory, basic laboratory management, and small project construction. In addition, the identification, selection, and use of common hand and power tools were taught. The assessment utilized in this outreach course was authentic in nature and required the students to construct a small project that required them to utilize various hand and power tools. The students utilized a mock rubric and peer assessment to evaluate projects. This mock grading allowed the students to experience a small part of being an agriculture teacher, with the goal of increasing their content efficacy (Burris, et al., 2010).

Future Plans/Advice to Others

The use of outreach courses to address student needs in areas of technical agriculture will continue to be explored. Additional courses in mechanized agriculture will focus on the safe use of equipment and reinforce the appropriate use of personal protective equipment associated with the area of hot metal work. Archival data collected by the mechanized agriculture faculty in the department of BAE will be used to develop the course content and activities for future course offerings. The potential for outreach courses in the area of animal science will also be explored. Animal agriculture is the focus of supervised agricultural experience programs for many agricultural education students. A focus on basic animal husbandry and livestock exhibition is needed for pre-service teachers with limited or no experience in animal agriculture. Regarding advice to others, care should be taken to insure the curriculum and activities are complementary to the current course offerings and that the appropriate students are targeted in terms of recruitment for the course.

Cost/Resources Needed

A strong relationship with stakeholders allows the department to minimize the resource allocation necessary to offer and implement outreach courses. In the case of agricultural mechanics, working with secondary agricultural teachers and utilizing their programs reduces the overhead necessary to offer such a resource intensive course. Students enroll for one-hour of credit, tuition can be used to purchase consumable materials as well as compensate the instructor. The cost for one-hour of outreach credit is $315.00. Two hundred and twenty six dollars are returned to CASNR, the college retains $42.00 and the department receives $183.00 to be used for consumable supplies and instructor compensation. An enrollment of 15 students would provide $2,745.00 to facilitate the course offering.

Cost/Resources needed for final project(s) (15 Blue Bird Houses)

Consumable Material	Quantity	Cost
1” x 6” boards	10	$60.00
1” x 8” boards	1	$40.00
5d nails	1 box	$30.00
Paint Brushes	15	$60.00
Single Strand Wire 16 gauge	10’	$42.00

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Innovative Idea

Enhancing Online Resources for Agricultural Teachers Through Path-Goal Leadership

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Enhancing Online Resources for Agricultural Teachers Through Path-Goal Leadership

Introduction & Need for Study

Teachers in [State] have access to a Course Management System (CMS) that provides access to resources for use within the classroom. The CMS is used to provide targeted online information to a selective audience (Meerts, 2003; Morgan, 2003). Originally developed for academic courses, CMSs have been used effectively outside of the formal classroom (Ullmann, 2009). Although the CMS has operated in the state for two years, the teachers in the state received little to no instruction in operating the system. A regional study of agricultural education teachers tells us a lack of teacher training in instructional technology is a barrier for the potential program use of a technology program (Alston, Miller and Williams, 2003).

Seeing a need to provide training for the state's agricultural teachers, Path-Goal Leadership Theory was applied to create a plan for training teachers within the state. Path Goal Leadership Theory is defined by "how leaders motivate subordinates to accomplish designated goals" (Northouse, 2010, p. 125). The theory is known as "a dyadic theory of supervision," where the focus is on the relationship between the leader and the follower (House, 1996, p. 325). The theory works by having the leader to select a leadership style that best fits the specific situation (Northouse, 2010). The four main parts of path goal leadership are to: (1) Identify the goal, (2) clarify the path, (3) remove obstacles, and (4) provide support (Northouse, 2010). The theory relies heavily upon directing the motivation of followers, thus the theory is an excellent way to explain how leaders motivate their followers to achieve pre-determined goals.

How the program works

The CMS site for teachers within [State] serves as a clearinghouse for teacher resources including lesson plans, CDE training materials, SAE record books, and numerous other documents of use to the high school teacher. The researchers, as former high school teachers, understood the value of having documentation in one location, but they were alarmed by how few teachers were actually accessed the site. After seeing a need for increased use of the CMS, the researchers developed a plan for improvement based on path-goal leadership theory. For the first step of the path-goal leadership model, the researchers identified two main goals: (1) increase the number of teachers and support personnel with access to the site, and (2) increase the amount of traffic generated by the CMS. To clarify the path, the researchers officially began the project in the spring of 2011 by working with teachers through one-on-one school visits to encourage them to access the CMS site. The researcher removed obstacles by assisting the teachers with problems that they had when they signed up for the CMS Site. Through these initial visits, the researcher agreed that they needed to provide support by providing a workshop that was to be held at the State FFA Convention. The workshop was advertised three times prior to convention through the state agricultural teacher e-mail listserv. At the state convention, the workshop was also advertised in the convention program and at the convention registration. A room with computer access was secured for the workshop, and four sessions were offered to teachers to introduce them to the CMS and make them aware of the available resources. Twenty-five teachers attended the workshop sessions during convention. Many more wanted to attend, but they could not due to prior commitments at the convention. To provide support for these teachers, the lead researcher created two tutorials using screen shots and PowerPoint format to guide teachers on how to access and use the CMS site. The tutorials were sent through the state agricultural teacher e-mail listserv on two different occasions and have been made

permanently available on the CMS site. The volunteer program officially ended in August 2011, but the lead researcher still assists the state staff in helping teachers get access to the CMS Site. The lead researcher has also had direct e-mail communication with all teachers that joined the site through October 2011. Assistance is provided through answering individual questions and addressing individual CMS site access issues.

Results to Date

The CMS Site originally went online in September 2009. Prior to the beginning of the project in the spring of 2011, 51 teachers had signed up for access to the CMS website. As of October 2011, 136 teachers have signed up for the CMS website, a 167% increase in membership. Site traffic information taken at the beginning of the project showed that prior use included 33,657 logins to the site and 7,550 files uploaded, with 970 of the files having been opened by users other than the individual who uploaded the document. As of October 2011, there were 38,569 logins and 7,658 uploaded files, with 1,684 of the files having been opened by users other than the individual who uploaded the document. Accordingly, there has been an increase of 4,912 logins (14.6% increase), 108 file uploads (1.4% increase), and 714 new file openings (73.6% increase). Looking at another report of the days with the most traffic, 28 of the top 100 days in traffic on the CMS site since its start in 2009 have happened after the workshop series held at the 2011 State FFA Convention.

Implications

From the data provided by the CMS site statistics, we can deduce there has been a large increase in site membership and new file openings, along with a modest increase in file uploads and total logins. We can also deduce that there has been a large increase in steady usage since the workshop series. Based upon these two deductions, we can say that the program has been successful in meeting both goals of the program by increasing membership and usage of the CMS site.

Future Plans/Advice for Others

Because Path-Goal Theory is pragmatic, it works well in application as a model of leadership between state staff and agricultural education teachers within the state (Northouse, 2010). By selecting a goal that positively impacts teachers, state staff can operate within path-Goal Leadership Theory to affect the motivations of the high school teachers.

This project was completed as a volunteer leadership project to complete the requirements for a graduate level certificate program. Because the work was completed on a volunteer basis, the lead researcher was unable to devote time to overhauling the website to make it more user-friendly. It would be advisable for a site with this many users to have more dedicated monitoring of the site, perhaps once or twice weekly, to assist the operation of the CMS site.

Costs/resources needed

All costs for this project where indirect; no direct costs were used in this program. The computers and Internet access had already been secured by the state FFA association for use with another event at the convention. Access to the CMS site was also free to participants, so the program worked directly with pre-existing resources.

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Innovative Idea Poster

Highlighting the Importance of Community Activities in Early Field Experience for Preservice Teachers

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Highlighting the Importance of Community Activities in Early Field Experience for Preservice Teachers

Introduction/Need for Innovation

Early field experience (EFE) is an essential component of successful preservice teacher programs in agricultural education departments (McLean & Camp, 2000; Myers & Dyer, 2004; Retallick & Miller, 2007). EFE opportunities have proven valuable for preservice teachers during the teacher education program (Myers & Dyer, 2004). McLean & Camp (2000) found that building relationships within the community is addressed in agricultural teacher education programs to build a successful school based agricultural education (SBAE) program. Dobbins and Camp (2003) found that several students reported programs addressing community relation topics during their EFE assignments. This poster displays opportunities to incorporate community relations during EFE in all areas included in the Total Agricultural Education program: FFA, SAE, and classroom instruction (Phipps et al., 2008). By incorporating these opportunities into EFE, preservice teachers should report being better prepared to participate in community events and partnerships during their internship and first year of teaching.

How It Works

EFE requires preservice teachers to investigate various aspects of agricultural education with a cooperating teacher in a selected school. Following the observation, preservice teachers are asked to reflect through assigned activities. In order to emphasize the need for agricultural educators to be involved within the community, preservice teachers are required to participate in an activity planned by the cooperating program that builds relationships between the agricultural educator and individuals outside of the classroom who support the SBAE program. This task can be accomplished in several ways during the EFE.

During a preservice teacher's EFE, activities with the cooperating schools FFA chapter can assist in community development projects and prepare preservice teachers for their impending teaching experiences. Fundraising events provide an important opportunity for the chapter to raise funds and gain support from the community. A preservice teacher reflects on the value of the event to the community, the benefit of the fundraiser to the FFA chapter, the reactions of supporters, and the roles that the advisor and students play in coordinating the event. The PALS program provides an opportunity for preservice educators to observe the relationships built with elementary schools in the area; as well as the opportunity to recruit younger students into agricultural programs while simultaneously providing leadership experiences for FFA members. Reflection includes observations of the interactions between the older students and the younger students as well as the perceived benefits for the children defined by the teachers at each school. FFA alumni chapters also play an important role. The preservice teacher can interview these individuals or assist them in planning an event to help the chapter demonstrate the support this group in the community can provide.

Students with SAE programs often rely on members of the community when conducting entrepreneurship, placement, research, or exploratory projects. In an EFE, preservice teachers meet with the cooperating teacher and discuss ways to contact potential employers, as well as individuals in an industry who may have more expertise and are able to assist students with an

SAE in a particular field. During the EFE, a preservice teacher can identify community resources needed by students and cooperating teacher to provide recommendations for projects the students can conduct during their SAE program.

Finally, members of the community also support SBAE classroom instruction. Preservice teachers can discuss with cooperating teachers how to arrange for guest speakers, or observe guest speakers in the classroom. Additionally, considering field trip opportunities or attending a field trip with the cooperating class may be beneficial. Preservice teachers can use these opportunities to discover ways in which they may provide students with information in areas outside of the educator's expertise. Often, resources for laboratory activities may be provided by members of the community, such as cuts of meat from a butcher, or plants from a nursery; and preservice teachers can acquire these resources based on the needs of the cooperating classroom. Reflection activities would include information learned about the cooperating teacher's management style and the agricultural educator's responsibilities within the SBAE program.

Implications/Results to Date

Preservice teachers involved in a community-based activity during an EFE have reported less concerns regarding the incorporation of all aspects of school based agriculture education during their internship and first year teaching. The time spent during an EFE allows a preservice teacher to be better prepared for their internship and first year teaching. While not every preservice teacher was part of a community-based activity that relates to each component of the total Agricultural Education Model, each experience allows a preservice teacher to become familiar with the process of involving community members in their program. Within a preservice teacher's reflection assignments, they are asked to reflect on how the experience will assist them in furthering their understanding of SBAE, and how they will use the gained experience in the future. Most students apply each experience to more than one component of the total Agricultural Education Model; showing their thought process of how each experience can benefit their overall understanding.

Advice to Others/Future Plans

It is recommended that each semester students be asked to submit reflective journals and assignments, which correspond with the goals for the teacher education program and the individual student's needs. Each assignment should then be evaluated to determine if the cooperating school meets the previously established goals. Additionally, it is recommended that teacher education programs continue to enhance the EFE to meet the needs of new preservice and inservice agriculture teachers. Each preservice teacher should be given opportunities throughout the teacher education program to make application of their experiences during the EFE. This will allow them to practice their skills and begin to feel more comfortable making decisions and interacting with others when working in an agriculture education program.

Resources Needed

In order to provide a quality experience for all preservice teachers, the cooperating schools that are chosen to host a preservice teacher should have strong community involvement in each of the three components of the total Agricultural Education Model. This should include community members, business and industry representatives, local government officials, and in

some cases the local extension office. These relationships can serve as a vital lifeline for any school based agriculture education program.

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How Do Agricultural Education Departments Serve the Public Interest?

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How Do Agricultural Education Departments Serve the Public Interest?

Introduction/Need for Innovation or Idea

This innovation addressed priority one of the *National Research Agenda* of AAAE "public policy maker understanding of agriculture and natural resources" (Doerfert, 2011). Public value is the merit of a program to individuals that don't directly benefit from the program (Moore, 1995). Public leaders have a central role in producing public value, and establishing a citizenry that values public programs (Moore, 1995). Kalambokidis and Bipes (2007) suggested public leaders pinpoint and obtain support for programs with robust public value. Quantifiable impacts of public value take more time than developing organizational public value statements (Kalambokidis, 2011). Given budgetary constraints, agricultural education departments may need to rethink how they serve the public interest.

How it Works/Methodology/Program Phases/Steps

Faculty, staff, and students met for four separate planning occasions, over a seven month period, to brainstorm, discuss, and develop public value statements that best reflect the public interest the department at [University] serves. Using the frameworks provided by Kalambokidis and Bipes (2007) and the University of Nebraska at Lincoln Extension (n.d.), members of the department where able to develop eleven separate public value statements. Public value statements were edited and refined after each planning session in order to accurately articulate the level of public interest departmental personnel serve.

Results to Date/Implications

The innovation was public value statements produced for [Department] at [University]. Eleven public statements were developed and disseminated on the department's website. Each public value statement represents areas department personnel are currently involved in and serve the public interest (see Table 1).

Table 1. *Public Value Statements for the [Department] at [University]*

[Department] prepares critical thinkers and lifelong learners, as it nurtures its graduates and faculty to derive answers and solve local, national, and global problems.
[Department] creates an understanding of global cultures and conditions, developing global ready graduates with increased marketability in the workforce.
[Department] develops cultural skills, establishes networking, and increases agricultural knowledge and understanding of others with an increased capacity to work effectively with clients and colleagues in local to international settings.
[Department] listens to experts and involves community partners to identify knowledge, issues, problems, and needs. The information is synthesized and utilized in meaningful discussions that lead to sustainable solutions for communities.
[Department] supports agricultural science and technology research and its dissemination. This support is illustrated within secondary school programs of agricultural education where middle and high school students in agricultural science receive instruction in the science and technology of agricultural production, food provision, conservation, and preservation of natural resources. These educational efforts benefit society by reducing hunger, improving human health and well-being, and conserving natural environments.
[Department] graduates and faculty involved in international agricultural development serve as

positive ambassadors from the United States; more importantly, they assist developing countries in increasing their standards of living and improving economic well-being.
[Department] utilizes technology-enhanced instruction so that place-bound professionals can access and participate in educational programs. This instruction results in lower costs for students seeking degrees in their fields of study and allows in-service professionals to continue their education and obtain degrees while maintaining their employment and contributions to local communities and economies.
[Department] plans, delivers, and assesses community programs and educational efforts. Community programs improve, thus encouraging and facilitating more effective decision-making and problem solving within these communities. These programs results in increased economic development and an enhanced quality of life for the communities served.
[Department] leadership education graduates and faculty increase team performance in workplaces. Stronger teams mean reaching goals and objectives more efficiently and effectively.
[Department] agricultural communications and journalism graduates and faculty inform citizens with timely and accurate messages about issues in agriculture, food, and natural resources. An informed society results in better decision-making and improved problem solving.
[Department] prepares teachers of agricultural science equipped with the knowledge and understandings, skills and abilities, and motivation and attitudes to plan, develop, deliver, and evaluate educational programs in agricultural science for youth. Youth, then, are equipped more fully to enter the workforce or to engage in higher education in agriculture and other related sciences and technologies.

Moore (1995) said public leaders play a key part role in generating clientele that values their programs. The [Department] at [University] has included each of the public value statements on its website. As an individual opens the department's website and explores each page, a different public value statement is visible to inform the individual a specific public interest the department serves. Each public value statement is randomly discernable on the respective pages as individuals "click-on" and around the department's website.

Future Plans/Advice to Others

Future plans include evaluating the public statements over the next academic year and revising each statement and including developing new ones if needed. In addition to disseminating the statements via the department's website, the public statements will be included on promotional information that is distributed both internally across the university and externally to citizens across the state. Assessing quantifiable impacts of the [Department] at [University's] public value will be the next phase. According to Kalambokidis (2011), this aspect requires the most time. Advice to other agricultural education departments would include faculty, staff, and students collaborating in the process of developing departmental public statements. This information may more readily and effectively inform individuals or groups unfamiliar with how the department serves the public's interest.

Costs/Resources Needed

There were no costs associated with developing the public value statements. The primary resource needed is time from faculty, staff, and students to assist in developing and evaluating each public value statement. A departmental website is the best resource available to disseminate the statements to the public.

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Innovative Poster

iLearn: Using Social Media to Restructure a Teaching Methods Course

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iLearn: Using Social Media to Restructure a Teaching Methods Course

Introduction/need for innovation or idea

The National Research Council (2009) called for a transformation of agricultural education so that tomorrow's college graduates in the agricultural sciences will be ready to enter a complex, global workforce as life-long learners. The NRC called for improving "how learning and teaching occur" in college classrooms (p. 35). They specifically suggested that lecture should be used less and other active strategies should be considered. In discussing active learning strategies that help students think more strategically, Svinicki and McKeachie (2011) proposed two activities that will contribute to student learning: (a) the opportunity to have the instructor model thinking and practices, and (b) the opportunity to receive peer and instructor feedback on performance.

After teaching a teaching methods course for three years, the lead instructor recognized that some preservice teachers were struggling with taking the abstract concepts delivered in class lectures and then applying those concepts in developing and delivering their own lessons (microteaching). After analyzing the situation and consulting Bloom, Engelhart, Furst, Hill, and Krathwohl's (1956) Taxonomy of Educational Objectives , the instructor concluded that he had been using class time to deliver new information (knowledge and comprehension level activities) and then sending the preservice teachers home to use that information in developing their own lessons (application level activity). As previously structured, students had ready-access to the instructor during the lower-level activities (class time), but were forced to work independently for the higher-level activities.

How it works/methodology/program phases/steps

Previously, this teaching methods course was taught like most college courses with the instructor delivering a lecture about half the class session and then demonstrating a respective teaching method. The course was restructured by: (a) moving lecture material outside of scheduled class time, and (b) then using the extra class time to apply concepts taught in the lectures. The following steps were taken:

1. Nine lecture topics were identified from the course syllabus. Each topic represented a different teaching method (planning the daily session, an overview of teaching methods, establishing interest, lecture, questioning, discussion, cooperative learning, inquiry, and individualized application).
2. The PowerPoint presentations that had been previously used in each class session were imported in to Apple's Keynote software and then narrated by the instructor. The narrated Keynote file was then converted to a video format (.mov) and uploaded to YouTube.
3. Each YouTube video then became the centerpiece of a short online module that included an introduction (essential questions), the video lecture, and then a 5 to 6 question multiple-choice quiz. Each module was designed to take 10 to 15 minutes to complete.
4. Each module was assigned to students with a deadline to complete the module before the class session that focused on the respective teaching method.

5. During the class session that would have previously included the lecture, the instructor developed a series of activities that included: (a) the instructor and/or TA(s) modeling the respective teaching method using a lesson appropriate for a high school agricultural education class, (b) student opportunities to model the teaching method in a low-risk manner, and/or (c) time for students to plan for an upcoming microteaching lab.

Results to date/implications

The new approach was implemented in the Fall 2011 semester. Formal evaluation of the change will occur at the end of the semester. Feedback from students thus far has been positive. The student reported that the amount of time required to complete each module was appropriate. The average scores on the module quizzes ranged from 23/25 to 25/25. When comparing this group of students to previous groups, the instructor observed that the current group is better prepared for class and comes with higher level questions that seem to indicate that information at the knowledge and comprehension levels was met with the video lectures. Thus, early analysis indicates that this new approach seems to be working as hypothesized.

Future plans/advice to others

Future plans.

At the conclusion of the semester a focus group will be conducted with the class to explore their perceptions about the experience. Student performance in the form of scores on individual microteaching assignments will also be compared with previous students from previous semesters.

If the changes prove efficacious, the instructor may consider converting more of the *live* lectures into video lectures, thus allowing form more application level activities during scheduled class time. Additionally, the instructor is considering the possibility of having students create some of the videos.

Advice to others.

Based on what has been learned thus far, the following advice is offered:

- Start small with a few video lectures and add more over time.
- Be sure to watch the videos all the way through to ensure the audio and video are high quality.

Costs/resources needed

To implement this project, only a few resources were needed and the costs were minimal. The following resources were used:

- Apple Keynote software ($19.99). Another PC-based software lime Camtasia could be used to convert PowerPoint presentations to video ($299). Be sure to check and see what institutional licenses your university might have.
- Microphone to record narrations ($25 to $100).
- Course management system to manage online quizzes (free).
- YouTube account (free)

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Innovative Idea

Increasing Agricultural Literacy through North Carolina's 10% Local Food Campaign

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Increasing Agricultural Literacy through [State]'s 10% Local Food Campaign

Introduction

In the past few years, societal concerns have shifted from a focus on high yields to a concern for sustainability (Beus & Dunlap, 1990; Gamon, Harrold & Creswell, 1994). While there has been some controversy over what the term sustainability means, in the 1990 Farm Bill, the U.S. Congress defined sustainability as:

> "an integrated system of plant and animal production practices having a site-specific application that will over the long-term, satisfy human food and fiber needs; enhance the environmental quality and…sustain the economic viability of farm operations; and enhance the quality of life for farmers and society as a whole" (p. 3).

Sustainable Agriculture is important to the growing population of the world, however, according to Gamon, Harrold and Creswell (1994), the reason that sustainable agriculture has a limited adoption rate is due to the "lack of dissemination of clear and reliable information".

Like, sustainability, agricultural literacy has many definitions. Frick, Kahler & Miller (1991) define it as "possessing knowledge and understanding of our food and fiber system" Frick et al. (1991) go on to explain that a person possessing this knowledge should be able to communicate and analyze basic agricultural information. Creating an agricultural literate society would mean creating a population that can critically and analytically think, evaluate and decide about agricultural issues (Powell, Agnew & Trexler, 2008). Agricultural literacy has declined in past years as rural areas become more urbanized (Hubert & Frank, 2000).

According to Terry et al. (1996), agricultural literacy is important based on two factors. First, people are consumers of agricultural goods; therefore need to have a basic understanding of food and fiber sources, as well as the nutrition and distribution of it. Second, they believe that because consumers play a large role in policymaking, people should have an understanding of how agriculture influences the economy, society and the environment (Terry et al., 1996). Improved agricultural literacy would "increase agriculture's importance in America" (Hubert et al., 2000)

In 2009, the Center for Environmental Farming Systems (CEFS) launch a statewide yearlong initiative that included a wide variety of organizations, agencies, and individuals across the state that resulted in a statewide action plan, From Farm to Fork, Building a Local Food Economy in [State] (Curtis et al, 2010). One of the ideas presented in the Farm to Fork guide was development of a "10% campaign" (Curtis et al, 2010, p. 7).

The goals of the 10% Campaign include "building the [State] local food economy, improving the health of the general population, impacting [State] jobs in farming, food services and related industry [and] creating a sustainable food system in [State]" ([State] 10% Campaign, n.d.). The 10% Campaign is achieving this goal by educating both consumers and businesses about the significance of local food economy and motivating them to spend at least 10% of their food dollars on locally produced food each week ([State] 10% Campaign, n.d.). The 10% Campaign used various educational methods to build agricultural literacy among the people of [State]. Effective communication to the general public is the key to achieving success in this Campaign. The 10% Campaign effectively utilizes various communication strategies in order to educate people about the local food economy and improve agricultural literacy in [State].

How it Works

According to the 10% Campaign's website, the 10% Campaign has partnered with many different organizations to disseminate information to the general public ([State] 10% Campaign,

n.d.). Through CEFS, the Campaign has also partnered with [State] Cooperative Extension Service (CES), who has designated a Local Food Coordinator in every county in the state. The CES agents encourage businesses and individuals to sign up for the campaign, and then help to connect them with local farmers as appropriate. They are becoming engaged in helping solve some of the inherent problems in getting local foods to market through the campaign.

Currently, the 10% Campaign uses a variety of methods to communicate with its target publics including an interactive webportal that tracks campaign member input and features a real-time display of the amount of money campaign participants have spent on local foods purchased. Tracking where consumer food dollars go, allows for the Campaign to increase information methods that are working and improve those that aren't. Additionally, the website provides the public with direct links to find local foods, farms, restaurants and other businesses; and events and education statewide, tying directly into the County Extension websites and events calendars. The campaign staff hosts many outreach and education events, targeted webinars and workshops, and has a variety of marketing materials and fact sheets; and keeps members and partners abreast on activities and events via newsletter emails. Social media is also playing an important role in Campaign information access by having frequently changing content such as partner spotlights, or Campaign events, contests or announcements.

Implications

Through this Campaign, people will be better educated about the local food economy as well as their contribution to it. The Campaign will lead to increased linkages between consumers, businesses, and local farmers. By increasing interactions with local farmers, consumers and businesses, not only are real differences being, but people in the state are able to see the importance of sustainable agriculture.

While general agriculture literacy education programs tend to target young children to teach them the importance of agriculture, the 10% Campaign targets the consumers of all ages in order to increase agricultural literacy as a whole and motivate them to support local agriculture.

Future Plans

Future plans include expanding Campaign activities to involve focused communications on certain target audiences. This could mean targeting consumers, learning institutions, college students, and community organizations. Events like an "All [State]" meal in dining halls of universities will increase agricultural literacy on new levels. Having a wide community base can only increase the understanding of sustainable agriculture and improve agricultural literacy. Agricultural literacy must be improved in order to keep "American agriculture one of the most productive and dynamic systems" (Alonge & Martin, 1995, p. 34).

Costs/Resources Needed

The 10% Campaign is funded through a grants from Golden Leaf. The grants were for a total of $475,000 to be used over a two-year span. Items that need to be considered when budgeting for a program like the 10% Campaign include marketing materials, staffing, transportation costs, data collection and website development.

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Industry at a Crossroads: Embracing Opportunities in Adult Agricultural Leadership Programming

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Industry at a Crossroads: Embracing Opportunities in Adult Agricultural Leadership Programming

Introduction

The idea of adult agricultural leadership education is certainly not new, with state level programs reporting a history in the United States of more than 70 years (Kelsey & Wall, 2003). Today, the quarter century-old International Association of Programs for Agricultural Leadership (IAPAL) includes 41 active programs (Waldrum, 2009). The challenge is for new state level programs entering this arena to approach theoretical and conceptual frameworks of programming in a way that rejuvenates collaborative approaches to agricultural industry issues. Obviously, traditional and contemporary leadership theory can be a solid foundation of curriculum, but its integration into non-formal, community-based settings in an innovative way is the challenge.

Utilization of concepts from both business and leadership arenas facilitated a reconfiguration of traditional programmatic formats into a conceptual framework for this new adult agricultural leadership program. This model facilitates strategic, collaborative leadership (Rawlings, 2000) that incorporates social sector concept of shifted ideas surrounding resource allocation (Collins, 2005) while instigating a virtuous-spiral that utilizes experience to create a self-reinforcing cycle of escalating performance (Lawler, 2004). Additionally, collective application of social context-based experiential learning (Fenwick, 2000) and critical reflection (Schön, 1983) within such a framework facilitates heightened skill development in adult non-formal education and communication. Curriculum developed for participants whom are representative of diverse backgrounds, ages, disciplines, and industries supports the work of researchers like Schrage focused on understanding how innovative, highly productive collaborations occur (1990).

Program Phases

Foundational work done to establish the need for a new statewide, adult, community-based agricultural leadership program spanned several years. Initial work focused on gathering university and stakeholder support strengthened by community participation through focus groups and survey responses. Upon hiring a program director, a conceptual framework to be implemented in program development was introduced. Personnel integrated structural components similar to those used by other states with regard to number of participants and timeframe of class seminars, but a desire to implement innovative theoretical ideas from social, business and leadership arenas outside of agriculture having implications within the industry became a stronghold of the director.

The timeline from program conception to establishment entailed:

- 2007 - meeting with university personnel
- 2008 - focus groups conducted statewide by initial research team
- 2009 - formal survey of identified state agriculture leaders
- 2010 - stakeholder meeting in centralized geographic location
- 2011 - director hired
- 2011 - graduate student assigned
- 2011 - theoretical framework implemented
- 2011 - Advisory Council established
- 2011 - Program Logic Model and action plan implemented

Implications
Support is established with the program Advisory Council, their respective agencies and organizations, and stakeholders. An inaugural program has been built as a virtuous spiral of experiential leadership development reflective of social and service-centered resources. Evaluation of this program is based on participant outcomes and stakeholder return on investment. Industry involvement and service, leadership positions attained, and skill sets attributable to program participation are captured through qualitative and quantitative methods. Return on investment is measured in number of people/organizations impacted by the program. Additionally, the program format and content addresses five of six national research agenda priority areas recently published by the American Association for Agricultural Education (AAAE) (Doerfert, 2011). Plans to quantify the alignment of program outcomes with this research agenda will implemented over the next five years as a model for other states and countries affiliated with IAPAL.

Future Plans
This conceptual framework holds appeal for program planners and directors in other states. It allows agricultural leadership programs to develop leaders capable of facing current industry needs (Kaufman, et. al., 2010) and addresses the need for international level development (Moore, Boyd, Rosser & Elbert, 2009). Integrative frameworks can be utilized in both future and existing programs seeking to address global issues through equipped leaders working within a reconfigured perception of performance, passion, and resources related to industry. This suggests the vital need for industry members to collaborate and become informed about one another to establish a trajectory of success. The importance of leaders in agriculture continuing to be developed and educated in their field is prevalent in the AAAE national research agenda.

Others planning to mirror this process need to readily address common issues related to roles and experience of individuals wishing to participate, the identification of seminar locations related to issues, and stakeholder development/fundraising. Beyond that, addressing the *how* and *what* of the content becomes an exciting and flexible arena in which to be innovative; embracing new concepts of greatness and maximizing the unique ability of a program to meet needs in a way no other organization can. In today's current social media climate, with consumers driving decisions impacting agricultural production and services, a virtuous spiral built on utilization of technology and proactive, integrated awareness of social, political, and economic issues is vital.

Resources Needed
As an endowed program, full disclosure of budget is not possible. No state or public money is currently being used to fund this program, and operational costs are covered by endowment funds, sponsorships, indirect and in-kind contributions, and participant tuition. Currently, tuition is set at $3,500 for the two-year program, which represents approximately 25% of the cost of participation for each class of 30 individuals. This program operates on approximately $380,000 per two-year class; representative of a typical $350,000-$400,000 investment nationwide (Carter & Strickland, 2008). Additional endowment money is being sought for administrative support personnel and a graduate research assistant. Office space is provided in a land-grant university college of agriculture academic department. Volunteer support includes Advisory Council service, workshop presenters, and community-based sponsors for meals and program tours. Our

state dollar value of a volunteer hour is $22.03 (Independent Sector, 2010). Value of goods and services varies by the location and time of year of each local, national, and international seminar.

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iPad Usage in Higher Education

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iPad Usage in Higher Education

Introduction

As you walk around any college campus, you will quickly notice that the majority of students have some form of technology in their hands. From iPods, smartphones, iPads, laptops; this generation has been given the nickname "generation-i." Students today are a different type of learner because of their ability to gather information in just seconds, regardless of where they may be. To meet the needs of this diverse group of learners, college professors are learning to implement technology when possible to engage students. Apple's iPad is the latest gadget that is taking over campuses. The iPad has several key pieces of hardware that makes learning more easily accessible and interactive for students. Bill Gates referred to one of the keys of technology in his article on "Enter Generation I" quoting: "The answer is great teachers who are able not only to use technology but to rethink and adapt traditional curricula to its possibilities" (Gates, 2000).

How It Works

When using the iPad there have been many different benefits and opportunities for educators. Due to the nature of the device, some of these are based on the hardware itself, but many more opportunities continue to arise as new programs, or apps, are constantly being released. Throughout this poster, the term iPad will refer to the most recent model, the iPad 2.

The main hardware based benefits include: the size and mobility of the iPad, long battery life, as well as two cameras. At a size of nine inches tall, seven inches wide, and 0.34 inches deep, the iPad weighs only 1.33 pounds (Apple Inc., 2011a). Its mobility makes it easy to carry in most briefcases, backpacks, and other bags commonly used by college faculty. Within that small frame, the iPad is capable of many useful features. The iPad can stay charged for "up to 10 hours of surfing the web on Wi-Fi, watching video, or listening to music" (Apple Inc., 2011a). This 10-hour battery life will vary based on level of usage, but will last for the majority of a regular workday. The iPad also comes with both front and back facing cameras that can be used to take still pictures and record video. For faculty, the front facing camera is especially useful for video conferencing apps such as Skype and Apple's own app, FaceTime.

A common problem for many in the digital age is the issue of storing files and locating these files later. When using apps such as Dropbox and Box.net, a user can save files from their desktop computer and access them remotely on their iPad. When using an app such as Documents To Go Premium, the user can also create and edit files in that same, shared account. Whether it is creating a presentation in the Keynote app, or typing up a new document in Pages, Apple has several of its own apps that can be used for content creation. Collegiate faculty often have to grade submitted assignments and return comments and suggestions to their students. Instructors are able to save those files to their iPad, and using an app such as Noteshelf or Notability, annotate those files. If the user owns a handwriting stylus, notes can be handwritten on the files, exported as a new Portable Document Format (PDF) file, and email to their student.

When presenting material either in class or at conferences, the iPad was much more portable and convenient compared to a laptop. The iPad has the ability to mirror exactly what is shown on the screen through display adapters that can output the iPad's display to either VGA signal for most projectors or HDMI connection for many newer televisions. This mirroring can be useful for workshops or everyday presentations if they are loaded on the iPad. When using apps such as ShowMe Interactive Whiteboard, presenters can even write on the iPad to make a

mobile whiteboard that can projected on a larger screen. If a user has access to an Apple TV (a new video streaming setup box), it is possible to utilize the same video mirroring without a wired connection. This wireless video mirroring is only available with the newest operating system for the iPad, iOS 5.

The iPad can be a successful addition to any college classroom and an instructor's best friend. The above-mentioned components are a great start to creating an organized, engaging environment prepared for any situation. Within time, the college classroom can be up to date with the latest technology.

Results to Date/Implications

Due to the mobility, battery life, and cameras, the iPad has been useful in many different areas of instruction. The iPad has proved extremely mobile, and users have been able to use the iPad throughout the day without charging. Instructors have been able to give presentations from the iPad, access files away from the office, and provide students with handwritten feedback of their assignments. Video conferencing has been useful when collaborating with off-site colleagues. The iPad has proven to be as versatile as the apps that are installed on it.

Additionally, with many local educational systems beginning to use iPads in middle and high schools, collegiate faculty that use iPads are able stay up to date with new apps and curriculum as it comes out. There are several apps that are designed specifically for secondary agricultural education programs. Faculty members have been able to learn of these apps as they are released and are currently planning to provide training with these apps for preservice teachers.

Advice to Others

The iPad has benefits for anyone involved in education, but the important concept to understand is that it is that the apps make the difference. Being able to mirror the iPad's screen is good, but only when a user can combine that functionality with an app that displays presentations or a mobile whiteboard does it actually become great and useful to faculty. New apps are released in the iTunes App Store every day, and every Thursday Apple updates their recommended lists for each category. In order to maximize the usefulness of the iPad, instructors should stay up to date with new apps, operating system changes, and, when possible, hardware updates.

Costs and Resources Needed

Prices for iPads range from $499 to $829 depending on hard drive capacity and internet connection type needed. Other hardware costs that vary based on usage include handwriting stylus ($5-$25), iPad display adapters ($29-$39), and the Apple TV box ($99) (Apple Inc., 2011b). If every app described in this proposal were purchased, the cost would total $45. All prices are current as of date of proposal submission. Additionally, users need Apple's downloadable program iTunes, and the newest operating system for the iPad, iOS 5.0.

New users to Apple's mobile devices should also plan and expect a period of adjustment time when first using an iPad. While the device is very useful and powerful, it is also very different from a common desktop or laptop computer. Early technology adopters may be able to adapt to the touch interface quickly, however it may take up to several weeks for some users.

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More than Meets the Eye:
Embedded and Substitute Science Credit in [State] Agriscience

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More than Meets the Eye: Embedded and Substitute Science Credit in [State] Agriscience

Introduction & Need for Innovation

Along with the advancement of agricultural technology, the field of agricultural education has also evolved from a vocational teaching tool into a scientific teaching tool (Peake, Duncan, & Ricketts, 2007). Additionally, due to factors such as changes in federal regulations concerning secondary education, "secondary agricultural education programs face many challenges in the new millennium" (Martin, Ball, & Connors, 2006, p. 14). However, these new developments and reforms in both agriculture and education have spurred growth toward the development of a modern science-based agriculture curriculum (Warnick, Thompson, & Gummer, 2004). With the development of the science-based agriculture curriculum becoming apparent, current and future agricultural educators need and will continue to need an expanded understanding of science concepts (Dormody, 1992).

The understanding of the need of the integration of science concepts into agricultural education curricula is not a recent development. In 1988, "the National Research Council recommended that science credit should be granted for certain agriculture courses" (Johnson, 1996, p. 22). Moreover, increased recognizable science education within an agricultural context has led to strong agricultural educator support for curriculum integration as well, as Newman and Johnson (1993) demonstrated through the development and teaching of pilot secondary agriscience courses in Mississippi during the 1991-92 school year. Additionally, Newman and Johnson (1993) reported that agriculture teachers perceived that "building administrators, guidance counselors, and science teachers all support the program" (p. 56).

Science teachers have also supported the integration of science concepts into the agriculture curriculum (Warnick, Thompson, & Gummer, 2004). In Arkansas, the "majority of respondents supported granting science credit for agriculture" (Johnson, 1996, p. 22). Moreover, Johnson (1996) reported that 64.5% of science teachers supported the granting of science classroom credit for agricultural classroom enrollment (p. 22). However, despite the utilization of science concepts within the agricultural classroom, some teachers have felt that their classroom is perceived as a "'back-up plan' for students not planning to go to college… many students had behavior problems, learning disabilities, or attention-deficit/hyperactivity disorder" (Grady, Dolan, & Glasson, 2010, p. 15). Perhaps increased cooperation between science teachers and agriculture teachers can redefine the ways that the agricultural classroom is conducted and viewed (Grady, Dolan, & Glasson, 2010; Warnick, Thompson, & Gummer, 2004; Johnson, 1996; Newman & Johnson, 1993; Dormody, 1992).

How it Works

In 2009, the [State] Agriscience Education course of study was cross-walked with the [State] science course of study (Personal communication, P. Paramore, January 27, 2011). The result of this effort was a discovery that there were three (3) courses that contained at least 140 contact hours of science education. The courses that contain at least 140 contact hours of science education are listed as follows: Aquaculture Science, Environmental Management, and Plant

Biotechnology. Furthermore, it was determined that these courses could be substituted for the following science courses: Aquascience, Environmental Science, and Botany, respectively. It was also determined that certain courses also contained at least 1 hour of science credit but less than 140 hours. Examples of this credit allocation system include, but are not limited to, the Horticulture Science, Fish and Wildlife Management, and Agriscience courses, with each course potentially awarding 55, 110, and 94 embedded science hours, respectively.

In order to award embedded and substitute science credit, agricultural educators must be highly qualified in both agriculture and science (United States Department of Education, 2005, Qualifications for Teachers and Paraprofessionals Section, ¶ 2).Moreover, agriculture teachers who desire to earn additional certification in science must document two full years of successful teaching experience at the desired grade level and present an acceptable score on a Praxis II test in a science field ([State] State Department of Education, 2008).

Results to Date / Implications

A small number of teachers are currently offering embedded and substitute credit through the [State] Agriscience Education curriculum (Personal communication, P. Paramore, January 27, 2011). Moreover, through this additional subject matter certification, it is possible that student enrollment in agriscience courses will increase due to the possible awarding of science credit upon completion of the corresponding agriscience course(s).

Future Plans / Advice to Other States

Agriscience teachers are encouraged to pursue additional subject matter certification in science in order to be granted "highly qualified" status in compliance with the No Child Left Behind (NCLB) Act (Personal communication, P. Paramore, January 27, 2011). It is advisable that states consider the adoption of utilizing agriscience classes as a system of awarding embedded and/or substitute credit in lieu of traditional science classes. Furthermore, school administrators are advised to conduct workshops in which science teachers and agriculture teachers are taught and encouraged to collaborate in order to develop science-enhanced agricultural education curriculums.

Cost

Overall, the cost is relatively low for the benefits. In order to become certified to award embedded and/or substitute science credit in [State], an agriculture teacher must successfully pass a Praxis II test in a science field, which costs $80 per test (Educational Testing Service, 2010). Ultimately, it is desired that all agriculture teachers will pursue certification in science as well as agriculture in order to potentially enhance the flexibility and relevance of the modern agricultural education curriculum.

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Innovative Idea Poster

Pictures that speak a thousand words: The use of photo journaling as a reflection tool in agricultural leadership programs

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Pictures that speak a thousand words: The use of photo journaling as a reflection tool in agricultural leadership programs

Introduction/Need for Innovation

Photos can stimulate reflection by allowing a person's past experiences and beliefs to emerge as a conscious expression (Bessell, Deese & Medina, 2007; Harper, 2002). White, Sasser, Borgren and Morgan (2009) state that photographs can facilitate the expression of feelings, values, memories, aspirations, and ideas. Individuals can easily engage into the conversation in explaining and commenting on their pictorial representations (Osmond & Darlington, 2005). Photographs can symbolize different meanings to different people, and a person's viewpoint can project a new story on the photograph to describe personal experiences (Bessell et al., 2007). Program facilitators can use photo journaling activities to stimulate reflection, discover program outcomes and impacts, and compile results of a program experience. Photo journaling encourages reflection which is based in experiential learning into a program (White et al., 2009).

In agricultural leadership programs, adult leaders are challenged with issues facing their industries and the opportunity to prepare themselves for industry and community leadership roles (Diem & Nikola, 2005). Programs have been established to increase understanding of the economic, political, and social issues confronting the agriculture and rural society (Miller, 1976). To fulfill this purpose, these programs which have been established in 39 states, provinces and countries around the world (Lindquist, 2010), use a variety of teaching methods (Strickland & Carter, 2007) for adults committed to improving themselves, the industries they serve, and their communities (Diem & Nikola, 2005). Roberts's (2006) experiential learning model provides agricultural leadership programs with model for the facilitation of leadership training that can be applied to various learning environments (Strickland, 2010).

Experiential learning suggests that learners construct meaning from their experiences (Roberts, 2006). Roberts' model of experiential learning begins with a focus on the learner and the initial experience. Following the initial experience, the learner engages in the reflective process, which is based on their observations of the experience. During this stage, information is transformed through intention, which allows the learner to internalize the experience. This reflection process allows the learner to make generalizations, which can then be tested through experimentation.

Integrating reflection in leadership development programs allows individuals the opportunity to evaluate the significant outcomes of their experiences and gain an understanding of how to perceive and interpret their observations (Densten & Gray, 2001). Reflection can also provide potential leaders "insights into how to frame problems differently, to look at situations from multiple perspectives or to better understand followers" (p. 120). During reflection, facilitators can assist participants "to articulate and appraise personal and professional images that are embedded with assumptions" (Osmond & Darlington, 2005, pp. 7-8).

How it Works

Photo journaling is designed to guide agricultural leadership program directors in the creation or adaption of reflective activities for their programs. To implement the activity, program directors should follow the three steps of preparing participants, providing a venue for participants to take

photos of an experience, and analyze the photo journals. In preparation for a seminar, participants of agricultural leadership programs are given instructions to photo journal during the upcoming seminar and submit a photo along with a written description of the photo, their experience and the reflection the photo evokes. The instructions also include a description of photo journaling and questions to stir reflection. Participants are then asked to submit their photo journal which includes the photograph and written description to the program director within a week after the experience. The written description and photo can be provided as a hard copy or in digital form. Journals on the photos were analyzed by using a process outlined by Glaser (1965).

Results to Date

Recently, an agricultural leadership program in a southern state piloted the photo journaling exercise during a 10-day national seminar. Prior to the seminar, participants were assigned to prepare a photo journal to submit to the program to be analyzed. During the seminar, individuals took photos of their experiences with the use of cameras. Once they selected a photo, they were asked to write up a reflection. Following the trip, the photo journals were submitted by email.

Future Plans/ Advice to Others

Future plans include implementing this activity during travel seminars within the agricultural leadership program in the southern state. As opposed to having participants turn in their reflections after the trip, they will be given time and asked to complete it while traveling. This provides opportunity for them to journal while the reflection of the experience is not too far removed from their minds. Participants will need access to cameras and computers while traveling, and time should be allotted during the seminar to complete the exercise.

As reflection is a part of experiential learning which provides the framework for agricultural leadership programs, program directors should not only implement this photo journaling as an activity, but also be able to relate it to the objectives within agricultural leadership programs. Objectives from the leadership program in the southern state related to reflection can include the analysis of complex issues facing the class member within agriculture and natural resources and the application of interpersonal skills to develop a better understanding of others ([Leadership Program], 2011).

To capture what adult leaders are learning within agricultural leadership programs, directors and staff will have to go beyond gathering the photo journals and analyzing them for themes of reflection that are drawn out. Photos can then be analyzed by using the constant comparative method of analysis proposed by Glaser (1965).

Cost/Resources

Program administration need to dedicate time within the program to obtaining an understanding of photo journaling and photo journaling activities. Class participants would need the opportunity to take photos and have the time for self-reflection on their chosen image. Participants would have to be receptive to the idea of reflection in order to receive the benefit of learning from the reflection exercise. If photo journals are submitted electronically participants will need access to a camera, computer, and internet connection.

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Innovative Idea

Preparing Future Agriculture Teachers for STEM Integration

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Preparing Future Agriculture Teachers for STEM Integration

Introduction

Rigorous preparation in the STEM (science, technology, engineering and math) disciplines is crucial for the next generation of farmers, ranchers and agricultural leaders to be prepared for the changing face of agriculture (National Research Council, 2009). In a recent speech, former United Nations Secretary General Kofi Annan, the UN Food & Agriculture Organization and the World Bank, highlighted the need to boost global food production. Delivering the dramatic increases in crop yields needed to feed 9 billion people by 2050 - without increasing greenhouse-gas emissions or encroaching on land that is needed to maintain biodiversity - is a daunting challenge with no simple solutions. It will probably require many different innovations in plant growth and food production, from exploiting plant genomics to create crop strains resistant to changes in climate, to reducing greenhouse-gas emissions from agricultural practices, to boosting the efficiency of photosynthesis (Gewin, 2011). The secondary agriculture classroom is the ideal place to provide students with the skills and knowledge to address these growing concerns, but teachers must be adequately prepared for this (often daunting) task.

Twenty-first century agriculture teacher preparation programs are responsible for equipping teachers with the ability to meet increasing expectations for STEM integration in their programs. In addition to science content knowledge, effective science instruction that conforms to national standards includes using a student-centered, inquiry based approach (National Research Council, 1996). In a recent study, (Washburn & Myers, 2010) found that agriculture education teachers in Florida overwhelmingly supported including instruction on science integration in agriculture as part of teacher preparation programs. (Thompson & Balschweid, 2000) had similar results in a study of Agricultural Science and Technology teachers in Oregon. While some agriculture teacher preparation programs do include instruction in inquiry, U.S. agricultural education teacher educators are not as comfortable with teaching science content nor are they as aware of current movements in science education when compared to agriculture (French & Balschweid, 2009). Furthermore, agriculture teacher misconceptions about the nature of science and the process of scientific inquiry can prevent students from engaging in authentic inquiry during science instruction (Grady, Dolan, & Glasson, 2010).

Program Design

In order to strengthen STEM integration efforts, the university agricultural education department hired a faculty member with a science research and teaching background. This person provides expertise on best practices for teaching science content and the nature of science.

Upon graduating from the one-year, master's level teacher preparation program, students are prepared to incorporate science and student-centered inquiry into their teaching of agriculture concepts. Students enter the program with foundational science and agriculture content knowledge. Prior to admission to the program, students are required to complete a bachelor's degree in agricultural sciences or other degree in agriculture. The agricultural sciences degree requires a minimum of 8 semester hours each of biology and chemistry, including laboratories. The curriculum design course in the teacher preparation program aims to help pre-service teachers incorporate inquiry, critical thinking, and problem solving into their courses.

Results to date

As a part of the inquiry component of the curriculum design course co-taught by faculty with agriculture and science education backgrounds, students conducted a number of laboratory

experiments designed to reflect the key components of inquiry based instruction (Fay & Bretz, 2008). As a result of these experiences, the agricultural education students engaged in weekly discussion of what inquiry based instruction might look like in an agricultural education classroom, how they as teachers will be able to initiate student lead inquiry based experiences within the context of agriculture, as well as how inquiry based laboratory experiences can be conducted without expensive resources and equipment.

The laboratory experiences allowed students to reflect on how they, as teachers, will be able to increase the opportunity for their future students to engage in science concepts in the context of agricultural education classes. The core piece of this discussion and student reflection centered on the issue of how much science emphasis might be too much of an emphasis (Center for Science Mathematics and Engineering Education Staff, 1998) resulting in a loss of the agricultural content focus that attracts the secondary students to an agriculture program in the first place. These discussions offered students the unique opportunity to examine curriculum issues with a team of two faculty members representing science research and education and agricultural education. Discussions continued throughout the course as both the students and faculty members recognized the issues as an ongoing struggle to balance the need to strengthen and recognize the science concepts imbedded in agriculture practices and the importance of providing enough classroom time to the specific content components of the agriculture curriculum.

Future plans

As the students move into their student teaching internship work, they will be challenged to integrate inquiry based instruction into their teaching responsibilities. Since many current teaching internship sites have limited science based laboratory resources, student will have the option to borrow teaching and laboratory resources from the agricultural and extension education department at the university. As the university faculty members continue to seek funding for STEM curriculum integration projects, they will continue to include requests to purchase additional resources for students to utilize in their local internship sites.

The next phase is to complete externally funded curriculum development projects that will emphasize STEM integration and in-service teacher professional development efforts that support the state agriculture teachers. This development work will be done with the same partnership of science and agriculture educators incorporated into the agricultural education course offered to the pre-service students. Once completed, the curriculum will be available to science and agriculture educators nationally.

Resources needed

Minimal additional resources are required for departments that have established agriculture teacher preparation programs. There are a variety of ways to include a person with a science background in co-teaching. If it is not feasible to hire new faculty in the agricultural education department, collaboration with science education faculty or hiring an adjunct instructor are possibilities. Alternatively, involvement of science research faculty and graduate students in an agricultural education program may satisfy requirements by their funding agencies to conduct outreach activities.

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Innovative Idea

Professional Development, Community Outreach, and Fundraising through an Annual Lawnmower Tune-up Clinic

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Professional Development, Community Outreach, and Fundraising through an Annual Lawnmower Tune-up Clinic

Introduction and Need for Innovation

Participation in co-curricular clubs is important to the academic, personal, and professional development of undergraduate agriculture students (Whittington & Cano, 2007). Consistent with Tinto's (1993) model of student attrition, Cole and Fanno (1999) found that club participation had a significant, positive association with agriculture students' degree persistence at Oregon State University. Participants in co-curricular clubs also tended to have higher levels of academic achievement than non-participating students (Hernandez, Hogan, Hathaway, & Lovell, 1999). Agriculture students at Iowa State University reported that participation in co-curricular clubs provided significant access to faculty and peer mentors (Retallick & Pate, 2009).

Despite the many benefits of co-curricular clubs, one common challenge facing faculty and students is raising sufficient funds for club activities such as meetings, banquets, conferences, industry tours, and other educational and social events. This poster describes the cooperative "Lawnmower Tune-up Clinic" fundraiser conducted annually by the Agricultural Communicators of Tomorrow (ACT) and the Agricultural Mechanization (Ag Mech) clubs in the [Department] at the [University].

How It Works

The Lawnmower Tune-up Clinic is conducted each year on a Friday and Saturday in April, just prior to lawn mowing season. The Lawnmower Tune-up Clinic has three key objectives: (a) professional and technical development, (b) community service and outreach, and (c) fundraising. The activity requires the involvement of approximately 45 club members each year.

Professional and technical development is accomplished by dividing responsibilities between the two clubs consistent with the interests of the members. The ACT club is responsible for publicizing the event through local print and broadcast media as well as e-mail and telephone notifications to previous customers and distribution of printed promotional materials. ACT members also take the lead in customer service and business operations, which includes mower check-in, customer notification calls when service is completed, mower check-out, collection of payments, procurement of supplies and parts, and financial management. . These activities allow ACT members to gain career-related practical experience, especially in advertising, customer service, sales, and public relations.

Ag Mech club members perform the actual service on each mower. This includes sharpening and balancing the blade, changing the oil, servicing or replacing the air filter and spark plug, pressure washing the lawnmower, and, occasionally, troubleshooting an engine that will not start or run properly. Members gain experience using service manuals to specify necessary replacement parts and service procedures. Finally, Ag Mech club members interact with customers as they explain service details and make recommendations on how owners may better maintain their mowers. These activities allow Ag Mech club members to gain valuable technical and customer relations skills.

The annual Lawnmower Tune-up Clinic is also an opportunity for both clubs to engage in community service and outreach. Informal feedback from customers indicates that they appreciate the convenience of having their mowers completely serviced and ready to go just prior to the mowing season. The event also brings nearly 200 community members into our teaching lab each year; while they are there, club members and poster displays provide information about the department, student clubs, and career opportunities.

In addition to its value as an experiential learning opportunity, the Lawnmower Tune-up Clinic is also an excellent fundraiser. In 2011, students serviced 137 mowers at $30 each (plus parts) and grossed $4,100. After expenses (primarily advertising and engine oil), the two student clubs equally shared the $3,850 profit. The $1,925 received by each club supported a variety of activities including club meetings; travel to national and regional conferences and farm machinery shows. Travel to the Western Farm Show and parts for the ongoing restoration of a 1949 John Deere Model B tractor are two specific Ag Mech club projects supported by the fundraiser. Funds support ACT members' travel to at least three regional and national professional development conferences each calendar year.

Results to Date

The ACT and Ag Mech clubs have conducted the Lawnmower Tune-up Clinic each year since 2004. In 2004, 29 lawnmowers were serviced. From this modest start, the number of lawn-mowers has increased each year, reaching 137 in 2011. This increase is a positive reflection on the advertising and public relations skills of the ACT members and on the technical proficiency of the Ag Mech club members. Each year, club members take a great deal of pride in surpassing the number of lawnmowers serviced the previous year. Since its inception, this fundraiser has provided approximately $16,000 to support the activities of the ACT and Ag Mech clubs.

Future Plans/Advise to Others

Both clubs intend to continue cooperating in this successful fundraiser. A "Lawnmower Winterization Clinic" is currently being planned for fall 2011. This event will be carefully evaluated to determine its impacts on the annual spring event.

Clubs and departments considering conducting a Lawnmower Tune-up Clinic should carefully evaluate the availability of facilities and equipment, the level of student interest, and community needs. In addition, it is essential to establish the specific responsibilities of each club and reach agreement on dividing the profits prior to conducting the event. The Lawnmower Tune-up Clinic has proven itself to be an excellent way to promote professional development and community outreach, while also serving as an effective fundraiser.

Costs/ Resources Needed

Access to an agricultural mechanics laboratory is important to the success of this activity. Clubs in departments without such a facility should explore the opportunity for a cooperative event with another university department or a local secondary school that has a suitable laboratory. Minimal start-up money is required to purchase engine oil and replacement parts and to provide cash on-hand for change; however, this investment is fairly small and is quickly recovered. Most importantly, a successful Lawnmower Tune-up Clinic requires a significant commitment on the part of members and advisors of the clubs involved.

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Real Time Translation Using CTCSS Encoders for Outreach Programs for Beginning Farmers and Ranchers

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Assessment of CTCSS Encoders as a Tool for Real Time Translation in Outreach Programs for Beginning Farmers and Ranchers

Introduction

Agriculture is an important source of the U.S. economy. According to the 2007 Census of Agriculture, the market value of agricultural products sold in the U.S. was $297.2 million from which the state of Texas contributed to $21 million or 7%. Farms operated by Hispanic farmers comprised 66,671 of 2.2 million farms in the United States. Over one-third of these farmers are located in [State] (Feder and Cowan, 2010). [County], [State] is a major agricultural producing county in Northeast Texas. There are more than 750 Hispanic farm workers employed in the county. Additionally, 89 Hispanic farm operators were reported for [County] in the 2007 Census of Agriculture of the United States Department of Agriculture (USDA). With the increasing trend in the Hispanic population within the agricultural industry, it becomes vital that these Hispanic farmers and ranchers clearly understand and have knowledge of the resources available to support them (Swisher, et al. 2007).

The primary barriers to increasing Hispanic farm ownership in Texas include lack of awareness of agricultural agencies and programs, inability to obtain loans or financial assistance, lack of knowledge of crop or production systems, lack of understanding of marketing, and inadequate support from extension programs where the principal barrier is the language. Recently, [University] in collaboration with the county agricultural extension agent, received a USDA grant to provide focused outreach to area beginning Hispanic farmers and ranchers. The main objective of this project is to provide Hispanic farmers and ranchers, who are seeking to establish their own farm or ranch operation, with relevant agricultural training programs. These programs include business management, marketing, strategies and production management strategies, and also greater access to information, organizations, and agencies. To appropriately target the Hispanic audience in the region, the outreach team is primarily composed of bilingual speakers in Spanish and English. One limitation of having Spanish speakers as participants is that English speakers cannot communicate with the audience and vice versa. Real time translation is a key tool that solves this problem by instantly translating English into Spanish or Spanish into English; therefore, increasing the human sources available for providing training sessions in Spanish or English.

How it Works

Continuous Tone-Coded Squelch System (CTCSS) encoders may be used to generate an audible interference protected channel capable allowing for a real time English-Spanish translation in agricultural extension programs, breaking down the language as a barrier for Hispanic beginning farmers and ranchers that are not fully familiar with English. The uses of CTCSS encoders are a low cost technology available to extension and other outreach programs. This methodology will be evaluated through observations about the farmers' easiness on using the CTCSS encoders, face-to-face interviews and surveys that will be passed to the participants at the end of the seminars period.

In telecommunications, Continuous Tone-Coded Squelch System or CTCSS is a circuit that is used to reduce the annoyance of listening to other users on a shared two-way radio communications channel. It is sometimes called tone squelch. When more than one user group

is on the same channel (called co-channel users), CTCSS filters out other users if they are using a different CTCSS tone or no CTCSS. Receivers equipped with a CTCSS circuit usually have a switch that selects normal mode or CTCSS mode. When enabled, the CTCSS radio circuit, instead of opening the *receive audio for any* signal, causes the two-way radio receiver's audio to open only in the presence of the normal RF signal and the correct sub-audible audio tone (sub-audible meaning that the receiver circuitry can detect it, but is not apparent to the users in the audio output). This is akin to the use of a lock on a door. A carrier squelch or noise squelch receiver not configured with CTCSS has no lock on its door and will let any signal in. A receiver with CTCSS circuitry (and with it enabled) locks out all signals except ones encoded with the correct tone. CTCSS can be regarded as a form of in-band signaling.

Results to date/implications

This technology has been used in extension programs in [County] where bilingual program audiences have occurred. It has been especially useful with traditional programs that were presented in English yet speakers of another language (most frequently Spanish) were included in the audience.

Future plans/advice to others

This technology will allow targeted outreach and traditional extension programming to reach more Hispanic clientele. However, it may used with a wide variety of audiences. It cannot replace translation but can enable a translator to reach intended audiences in a real-time, traditional extension or outreach setting. It has the potential to be used in other outreach/extension programs across the nation.

Cost/resources needed

The equipment needed for this project includes radios with microphone for voice-activated (VOX) hands-free transmission. The pair of radios also includes rechargeable batteries and a "Y" wall charger that may also be used with AAA alkaline batteries. The radio cost is $60 per pair, and they are compatible with Cobra micro talk-CTX 225. Receiver headphones to attach to each receiver radio cost around $5 per unit with connecting adapters costing another $5. Therefore, this system can be put in place for approximately $70 per receiver.

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Reducing School Liability by Incorporating Brake Activation Devices on Woodworking Equipment

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Reducing School Liability by Incorporating Brake Activation Devices on Woodworking Equipment

Introduction & Need

Agricultural mechanics courses are popular among secondary students throughout the United States (Anderson, Velez, Anderson, 2011). This increase in popularity adds to the importance of maintaining a safe laboratory environment. The nature of the agricultural mechanics laboratory combined with the inexperience of secondary students and the proximity to dangerous equipment and chemicals creates the potential for injury (Dyer & Andreasen, 1999). The prevention of these potential injuries is the responsibility of the instructors, administrators, and school district. Alternatively, Gliem & Miller (1993) reported that administrators believe laboratory equipment safety is primarily the teacher's responsibility.

Ultimately, safety in the classroom is not only essential for learning, but a legal obligation as well (Daniels, 1980; Gliem & Hard, 1988). Even though agricultural educators may appear to be adequately providing instructional safety to students, susceptibility to legal action resulting from student injuries still exists (Dyer & Andreasen, 1999). In a study of Utah school shop accidents, Knight, Junkins, Lightfoot, Cazier, & Olson (2000) reported that in-patient charges for student injuries sustained in the shop averaged $3,821. This does not include potential pain and suffering compensation or personal injury settlements which typically exceed actual medical costs. In two thirds of school related injury settlements, school districts paid an average award of $562,915 (Barrios, Jones, & Gallagher, 2007).

Injuries sustained from woodworking are relatively common due in part to the unpredictability of wood as it moves through the saw blade. In a report for the Consumer Product Safety Commission, Adler (2002) estimated that 93,880 saw-related injuries were treated in U.S. hospital emergency rooms in 2001 alone. Of these saw-related injuries, 55% involved table or other stationary saws, 15% involved miter saws, 8% were the result of band saw accidents, and 4% involved the use of radial arm saws. Specifically relating to secondary school incidents, Knight et al. found that 1,008 students from grades 7-12 were involved in shop class injuries in Utah from 1992-1996. Of these injuries, 88% were the result of equipment use (Knight et al., 2000).

The use of brake activation devices may prevent many of these types of woodworking accidents. Brake activation devices are currently available on various types and sizes of table and cabinet saws. Band saws, jointers, and miter saws with brake activation devices are in the advanced stages of development and will soon be commercially available. The development of these tools represents an opportunity for schools to reduce their liability in the woodworking area of the agricultural mechanics laboratory.

How it Works

A table saw blade is essentially a flywheel which stores a tremendous amount of energy. This inertia, combined with the power generated from a standard table saw motor creates a significant amount of force. This force must be stopped in a matter of milliseconds if an injury is to be prevented. In order to accomplish this, the brake activation system is composed of several parts. Initial activation is triggered by an electronic detection system. This system relies on the relative difference in conductivities between wood and the human body. A constant electrical

current flows across the saw's blade and through the monitoring device. In the event that a human body part makes contact with the saw blade, the current is disrupted, thereby signaling the monitoring device to activate the brake. The brake apparatus is composed of a spring and aluminum block, called a brake pawl. The spring is compressed by a fuse wire, which is burned by a surge of electricity generated by the monitoring device. Once the spring is released, the brake pawl is pushed into the teeth of the blade, stopping rotation almost immediately. Simultaneously, the entire blade is retracted below the table surface and the power is turned off. The entire braking process occurs in approximately $1/200^{th}$ of a second.

Implications

A survey conducted by Becker, Trinkaus, and Buckley (1996) found that 65% of 283 amateur and professional woodworkers in New Mexico had reported tool-related injuries. Of those 184 woodworkers, 61 had reported sustaining injuries of enough severity to require medical attention. Specifically relating to secondary agricultural education, Dyer and Andreasen (1999) reported that a mean of 1.3 student accidents requiring medical attention and 13.3 minor accidents occurred per year when high school agricultural programs were examined. To date, no lacerating table saw injuries requiring medical attention have been reported from table saws properly equipped with brake activation devices. The addition of these saws to secondary and postsecondary agricultural mechanics laboratories can significantly reduce the liability caused by students using standard table saw equipment. Moreover, Saucier, Vincent, & Anderson (2011) concluded that teachers who continue to use equipment not equipped with these devices are positioning both the teacher and administration for possible liability for professional negligence.

It should be noted that brake activation devices do not prevent all types of woodworking accidents, and do present some negative implications as well. Brake activation devices do not prevent wood kickback, as this phenomenon does not involve contact between the human body and the saw blade. Additionally, the electrical nature of the detection system creates limitations when cutting lumber with high moisture content. Keyed access also allows the brake activation system to be temporarily disarmed, or placed into bypass mode, for cutting this high moisture lumber or other conductive materials. Instructors leaving the saw in bypass mode will render the saw no safer than a standard table saw.

Future Plans & Advice to Others

[State] University intends to immediately purchase the miter saw, band saw, and jointer equipped with brake activation technology as soon as this equipment becomes commercially available. However, this advanced equipment is not intended as a replacement for traditional safety training. Secondary school budget restraints may create a barrier to the acquisition of this type of equipment. Saucier, et al. (2011) reported that reduced school budgets may lead to the use of unsafe equipment. However, given the exceeding high potential liability costs, the equipment is a relatively small investment. Nontraditional funding sources are available from the industrial sector, safety organizations, and labor unions.

Cost

The costs for the table saw equipped with brake activation at [STATE] University included $2,569 for the cabinet saw, $199 for the mobile base, $139 for a dust-collecting blade guard, and $69 for an additional brake cartridge. The total project cost was $2,976. Other brake activating table and cabinet saws are available and range in price from $1,600 to $4,800.

Multiple saw sizes, configurations, power options, and accessories account for the wide range of prices.

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Innovative Idea

Taking a systems approach to sustainable agriculture in a beginning Hispanic farmers and ranchers development program

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Taking a systems approach to sustainable agriculture in a beginning Hispanic farmers and ranchers development program

Introduction

Traditionally, a systems approach in agriculture refers exclusively to diversification of productive activities regarding the production of food or fiber as rigid entities and it is used to explain how to achieve sustainability. However, sustainable agriculture means more than continued commodity production at a given rate. It also addresses the social and environmental issues associated with harvesting the resources (Meyer and Helfman, 1993). Thus, a question arises why farmers choose to be farmers?

Hispanic agricultural activities are carried on as another household activity. In general, Hispanic farmers and ranchers in the United States lack awareness of the existence and access to government's agricultural programs, public and private agencies and organizations, that can help on the acquisition of information on finances and marketing resources, such as, market and loan programs, productive resources, management practices which can help their agricultural decision making process to make their productive activity successful. This problem is mainly caused by several constraints and barriers, such as, language, education level, technological knowledge and access, institutional discrimination (real or perceived), lack of culturally similar role models (farm and ranch owners or operators), among others. Hispanic farmers and ranchers have special needs and require specific tools to access and to understand information regarding these topics (Ariza and Sulvedi, 2009; Christiansen and Grajales-Hall, 1997).

To address sustainable agriculture with Hispanic producers, a systems approach should be followed; under this approach, the system becomes the unit of study and systems theory the main course of action. A system is defined as "…an entity which maintains its existence through the mutual interaction of its parts (von Bertalanffy, 1969)." In our view, the household becomes the unit of study or system.

In this context and considering the household as unit of study, the objective of this project is to provide to prospective Hispanic farmers and ranchers in [County], who are seeking to establish their own productive operation, with tools to be successful by delivering 1) training in sustainable agricultural management practices; 2) relevant information on how to access agencies and organizations involved in supporting farmers and ranchers; and 3) training on complementary knowledge in non-technical subjects.

Methodology

This three-year project has the main objective to assist prospective and beginning Hispanic farmers and ranchers to start their own agricultural business in [County]. To attain this objective a systems approach, where the basic unit of study is the household, would be used.

Specific methods would consist on a participatory, community based approach, to identify specific needs for training (technical and complementary) and delivery of information,

as perceived by the participants, to avoid the professional bias of the instructors. Although these methods are not new, and have been applied broadly in developing countries, they have not been implemented in the rural areas of the United States, more specifically, in the [State].

Results to Date

The initial phase of this project had various stages. First, an Extension Associate was hired to manage the day to day operation of the project. Second, an advisory committee was formed. This committee included farmers and ranchers already established in the County, as well as, professional personnel from FSA-USDA, the extension service, and the [University]. The third stage consisted in a promotional campaign: flyers and brochures were developed and media resources were used (radio and newspapers). Finally, once participants were identified, a brief survey was conducted to know their vision, needs and expectations about the project.

Answers obtained from the survey were then used as a basis to develop and provide a series of seminars on technical information about natural and productive resources management, as well as basic business information. These seminars were presented in Spanish, which was assumed to be the primary language of the participants. However, some English speakers demonstrated interest in this project thus a real time translation was provided and instructional written materials were provided in both Spanish and English languages.

Future Plans

Since the first phase was focused in the needs and interests of the participants on technical and business information, it would be complemented with the implementation of demonstration plots and field days to operations already established. Also, the next phase will address the needs of other members of the household regarding agriculture, although, not necessarily farming. By the third year it is expected that all three objectives will be implemented.

Resources

This project is funded by the USDA-NIFA Beginning Farmer and Rancher Development grant; the total budget, exceeding $800,000 for the three-year period.
The majority of the budget goes to salaries and benefits of staff employed exclusively for the development of the project: a full time extension associate, a full time extension assistant, a half-time administrative assistant, and three graduate assistants. All staff members are bilingual (Spanish and English). Some of the resources go to release time for project faculty and director.

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Innovative

Teaching Locally, Engaging Globally: Enhancing the Undergraduate Curriculum

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Teaching Locally, Engaging Globally: Enhancing the Undergraduate Curriculum

Introduction/Need for Innovation or Idea

To produce culturally-literate graduates able to function in an increasingly globalized context, many institutions in the field of agricultural and food sciences have incorporated into their programming international opportunities for undergraduates (Brooks, Frick, & Bruening, 2006). However, study abroad opportunities and internationally-focused courses only impact a small percentage of undergraduate students. Green, Luu, and Burris (2008) concluded that "the majority of students and faculty expressed support for international activities, but failed to participate in these activities" (p. viii). A report from the [University] estimated that only 2 to 5% of students in the food and agricultural sciences participated in study abroad programs (Institute of Food and Agricultural Sciences, 2002). Green et al. (2008) concluded that, given the low percentage of students gaining international experiences through the university, institutions should instead focus on internationalizing the curricula to benefit a larger number of students.

How it Works/Methodology/Program Phases/Steps

To globalize the education of undergraduate students in food and agricultural sciences, the Teaching Locally, Engaging Globally (TLEG) project initiated the creation of a series of reusable learning objects (RLOs) by faculty at three land-grant universities. These multi-disciplinary materials were created from the international experiences of faculty members in Latin America and the Caribbean to supplement existing curricula with case studies and global perspectives and to provide a cultural context to material taught in undergraduate courses in food and agricultural sciences. The RLOs themselves are short (2 to 15 minute) digital learning activities that can include text, charts, maps, PowerPoint presentations, photos, video clips, etc. RLOs generated by the project are cataloged and hosted by [University] for use by faculty and students both domestically and internationally.

Phase 1 focused on faculty experiences and developing the expertise necessary to create global content related to the USDA Priority Areas. The partner universities each coordinated a two-week international experience in Latin America and the Caribbean. Food and agricultural sciences faculty from each institution were able to apply. During the application process, potential faculty participants formalized and submitted an outline of the RLO they intended to create and the elements of culture they sought to include. Project team members provided trainings designed to assist participants in incorporating culture into their RLOs, along with technical training in the required multi-media equipment.

Phases 2 and 3 took place after the completion of the international experiences and focused on the creation of the RLOs for the purpose of globalizing curricula. In Phase 2, participating faculty utilized data collected and knowledge gained to develop their individual RLOs with the inclusion of scientific content and culture relative to their disciplines. The completed RLOs are hosted through [University's] institutional server. Phase 3, which is ongoing, is the implementation of the RLOs and the evaluation of their impact on undergraduate classes at all three universities. The Thurstone Method of Equal-Appearing Intervals was used to develop unique survey instruments to assess changes in student attitudes as a result of using the RLOs.

Results to Date/Implications

In Phase 1 (from 2010 to 2011) the partner universities completed trips to Ecuador, Costa Rica, and Trinidad and Tobago. The experiences were hosted by partner universities, and faculty participants were paired with counterparts from these institutions. The experiences included meetings with local farmers, visits to the host universities, farmer field schools, and agricultural Ministries. Post-Trip Learning Community Meetings were conducted by each institution directly afterwards to allow participants to reflect on their experiences and receive assistance with developing their RLOs.

Data generated from the preflective/reflective instruments completed by faculty participants identified increased global interest in teaching, research, and extension (the three sectors of land-grant academe). Many faculty participants from all three universities expressed interest in continuing to utilize global activities in their coursework and research due to participation in the project, and indicated that conversations during and around the international experiences led to improved teaching-and-learning practices, innovative strategies, and possible new content for undergraduate courses.

To date, 11 RLOs are available for use on the project website. The number of RLOs is not reflective of the number of faculty participants, as the majority of participants at two of the partner universities have yet to submit their RLOs for publication. The fall semester of 2011 marked the initiation of Phase 3, despite the lack of completed RLOs from some faculty participants. To date, three RLOs about Ecuador have been implemented in undergraduate courses at the [University]. Preliminary results indicate that exposure to an RLO has a positive, statistically significant effect on undergraduates' attitudes about Ecuador.

Future Plans/Advice to Others

Over the next year participating faculty from each university will complete their respective RLOs and implement at least one in their undergraduate teaching. Faculty and student outcome assessment tools will be utilized to further analyze and assess changes in behavior among participating faculty and student recipients. Class observation of courses involving these RLOs will be recorded and assessed for the purposes of project evaluation. Also, the increased incorporation of international perspectives into future research and curricula by participating faculty will need to be measured. Specific focus will be given to long-term outcomes and impacts relative to the project objectives, not just immediate results. Dissemination of the project results and data collected from the experiences of faculty participants and student involvement will also continue.

The project team has learned several lessons that should be implemented in future projects. First, faculty were very comfortable at including their respective science in RLOs, but have struggled with providing cultural context. Future efforts should provide greater training for faculty in this area. Second, some faculty participants have been very slow in creating their RLOs. Future efforts should build incentives throughout the project rather than relying upon the trip experience, which occurs early on. Finally, sufficient human resources are needed to support the project at each partner institution. Budgeting for staff should be considered mandatory.

Cost/Resources Needed

This project has a budget of $1,541,857 over three years, and is funded through federal monies and institutional matching funds. Of the federal money allotted for this project, 42% is for personnel and 16% is for international travel for faculty and project team members. Direct federal funds are divided evenly between the three universities to emphasize equal partnership.

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Team Advising: New Path for Academic Scheduling

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Team Advising: New Path for Academic Scheduling

Introduction/Need for Innovation

Academic advising is one responsibility, among many, that agricultural teacher educators have in their annual teaching tasks. Boyer's concept of scholarship (1990) clearly defines advising as a portion of teaching. While faculty are highly trained in teaching, not all have received institutional training in academic advising. According to Stull (1997), the primary goal of advising is to assist in the student development of a meaningful educational plan which will enable students to reach their life goals. Advising can be characterized as a process that is on-going which involves the student, advisor, and the institution (Stull, 1997).

Academic success of students can also be tied to advising. According to Pascarella and Terenzini (2005) advising is a major factor in institutional satisfaction which ultimately leads to student retention. Pascarella posits a positive interaction with faculty advisors positively correlates to degree completion. Tinto (1993) also cites institutional incongruence as a reason students leave the university. Incongruence is sometimes caused by isolation or insufficient contact with other members of the social and academic communities. Students consider advising important and value honesty, friendliness, caring and excellent communication skills in an advisor (Radhakrishna & Thompson, 1997). Academic advising has also been linked to the overall success and retention of agriculture students at the post-secondary level (Smith, 2008).

Agricultural education faculty at (STATE) university has worked to develop efforts to increase student retention, decrease university incongruence, and to provide a positive interaction with faculty and students during academic advising. To provide an efficient and consistent advising system, the agricultural education faculty at the University of [STATE] implemented team advising sessions.

How it works/Methodology/Program Phases/Steps

Team advising begins with the faculty agreeing on two dates for academic advising for all undergraduate students in the program. A time frame for each date is then scheduled followed by a room reservation. The room must be large enough to hold all faculty members and an equivalent number of students. Two weeks prior to advising a registration sheet is distributed in each undergraduate agricultural education course and posted outside the director of undergraduate studies office. A reminder email is sent to each student the day prior to his or her scheduled, 15-minute advising time. Up to four students can register for the same advising time.

During the advising time, undergraduate students come with multiple course arrangements and discuss the best option with one of the agricultural education faculty. Once an agreement is made upon the best option, a copy is made of the student's schedule, the student's academic hold is lifted, and students begin their registration for the following semester. At the end of advising time, each student completes an evaluation that requests feedback on the advising experience. This feedback is anonymous. The agricultural education faculty reviews the evaluations once the scheduled team advising days are complete.

Results to Date/Implications

After three semesters of implementation, time spent on academic advising among agricultural education faculty has decreased 200%. In return, the agricultural education faculty has increased availability for research, course planning, and student development. Students receive consistent advising from all faculty members. Because of the team advising, agricultural educations students share similar schedules. This could be a contribution to the decrease in students in academic stress. With team advising, students determine that there is not one faculty member that serves as their academic advisor, rather the entire program. Therefore, students can meet throughout the semester with any faculty member in the program for academic advice.

Future Plans/Advice to Others

Due to the success, the agricultural education faculty plans to continue the undergraduate team advising sessions. For best practices, it is recommended that a college counselor be present to provide clarity for students with special circumstances (i.e. transfer, double major, minor, probation). In addition, by utilizing a graduate student, departmental staff member, or college counselor to be responsible for removing academic holds at the completion of each student's advising session, would help improve time efficiency.

Cost/Resources Needed

In order to organize, implement, and facilitate the team advising effectively, time is the major resource. Time must be provided to determine a unified time among all faculty members. Additional time is utilized Hard copies of the program of study are distributed to the students and serves as a check sheet for completed courses and guide for registrations. A carbon-copied tri-sheet is developed for the final draft of the student's final draft of classes for the upcoming semester. One sheet is provided to the student, one sheet is submitted into the student's file, and the final sheet is sent to the college's counseling office.

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Innovative Idea

The New SAE:
Charting the Future for Experience Programs in School-based Agriscience Education

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The New SAE:
Charting the Future for Experience Programs in School-based Agriscience Education

Introduction

Prior to the adoption of the National Vocational Education Act (Smith-Hughes) in 1917, students (boys) studying agriculture (farming) in schools were involved in hands-on learning. Stimson formulated a new way of teaching agriculture, using what he termed the home project method (Moore, 1988). The Smith-Hughes Act specifically called for directed or supervised practice for students enrolled in the newly-established vocational agriculture programs in the public high schools. Students were to be provided the opportunity for such experiences either on the home farm or by the school (Roberts and Harlin, 2007).

Over the years, the concept has developed and the term to describe it have evolved. Students conducted supervised experiences as part of their supervised occupational experience program; eventually "occupational" was replaced by "agricultural" in both terms. SAE and SAEP continue to be the common terms (Camp, Clarke & Fallon, 2000). The Vocational Education Amendments of 1963 and 1968 broadened instruction in agriculture but the concept of hands-on experiences continued.

Camp et al. (2000) reported the results of a Delphi panel study about supervised agricultural experience. While several recommendations were posited, no official action was taken to adopt them. The most recent national publication regarding SAE is *Experiencing Agriculture*, the handbook on SAEP (Barrick et al., 1992). Definitions, models and descriptions of various types of SAEs were distributed along with lesson plans for teachers to use in the classroom.

The National Research Council study (NRC, 1988) promoted the new dual concept of instruction *in* agriculture and instruction *about* agriculture. But with that differentiation in instructional programs, there was no indication that SOEs [sic] should differ among students. Perhaps agriculture teachers have experienced difficulty in identifying suitable opportunities for students studying *about* agriculture as well as those studying *in* agriculture.

The National Research Agenda (Osborne, n.d.) identified a research priority to "enhance program delivery models for agricultural education." This poster presentation will address "What is the new SAE, is it still rooted in common assumptions, and how do we make change occur?"

Program Phases

In March 2010, the National Council for Agricultural Education "created an Experiential Learning Planning Committee as part of the National Council for Agricultural Education and report back at the October 2010 meeting that include a preliminary report on the literature on experiential learning, identify objectives, a timeline and to include a budget" (unpublished minutes, March 2010). That was translated into the following objectives.

1. To bring all organizations together to create a definition of experiential learning.
2. To identify the educational merits of experiential learning.
3. To add SAE to the college-ready/career-ready conversations.
4. To identify strategies that will help get SAE implemented by teachers.
5. To answer the question, "What does the construct of experiential learning contribute to learning?"
6. To identify resources that exist to make SAE happen.

While the concept of supervised experience in agriculture is not innovative, the concept

of an innovative approach, or approaches, to modern-day experience-based programs in agriscience education is. This poster addresses the innovation of new experience program concepts by addressing these three primary questions:

Are long-established assumptions about agricultural experience programs still valid?
What is the new experience program in school-based agriscience education?
What must teachers, supervisors and teacher educators do to enact the new SAE?

Results to Date

A comprehensive review of the literature was conducted on two topics: experiential learning, and supervised agricultural experiences. From that review a listing of the philosophical and theoretical principles that are frequently used in the study of SAE has been established. The literature also reveals a set of commonly held assumptions about SAE. A report of the research that affirms (or contradicts) those assumptions was developed.

The poster will present the philosophical and theoretical concepts that have been reported to be the foundation of SAE. In addition, the concept of experiential learning as developed from Dewey and expanded by Joplin and Kolb will provide the background for a new definition of SAE. The assumptions that support practice in supervised experience programs, based on the work of Jenkins (2008), will be listed. Three sessions during the March 2011 National Summit on School-based Agricultural Education provided an opportunity to receive feedback from teachers, supervisors and teacher educators. A summary of that information will be presented, as well as a new title and definition of "SAE." Additionally, ideas will be shared on the topic "who needs to do what to renew SAE" will be presented. A full report of the task force was presented to The Council in September 2011.

In summary, the poster will present these aspects of the innovation of what is currently called SAE.

1. Philosophical foundations and assumptions regarding supervised experience programs in school-based agricultural education.
2. Definition of experiential learning that includes "SAE" concepts.
3. A new definition of school-based agriscience education experience programs.
4. Recommendations for national, state and local adoption and implementation of the new SAE.

Future Plans

In addition to the report to The Council, the results from this poster presentation will help guide additional national conversation and state and local action to enact needed change.

Resources

The project was funded by The Council and the various institutions that provide resources for teachers, supervisors and teacher educators to participate in the appointed committee. Costs associated with the initial effort were covered by The Council. Future resource needs depend upon constituent groups' acceptance of the work and movement toward implementation.

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The Sixth Sense…developing an agricultural mechanics laboratory awareness

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The Sixth Sense…developing an agricultural mechanics laboratory awareness

Introduction

The nature of the agricultural mechanics laboratory combined with the inexperience of secondary students and the proximity to dangerous equipment and chemicals creates the potential for injury (Dyer & Andreasen, 1999). Lawver and Fraze (1995) concluded that 13.2% of students examined indicated being injured in an agricultural mechanics laboratory. More recently, a study by Knight, Junkins, Lightfoot, Cazier, & Olson (2000) that examined Utah school shop accidents determined a shop injury rate of 7.1% among students in grades 7 through 12. Eighty eight percent of these injuries involved shop equipment. The prevention of these injuries is primarily the responsibility of the instructor. Gliem & Miller (1993) reported that administrators believe laboratory equipment safety is primarily the teacher's responsibility.

The agricultural mechanics laboratory presents unique safety challenges as a learning center within the secondary school system. The inherent risk of working in such a laboratory requires instructors to be trained to provide lessons that are both safe and engaging (Dyer & Andreasen, 1999). The ability to accomplish this can be enhanced by developing an agricultural mechanics laboratory sixth sense. This situational awareness, or sixth sense, is the ability to observe situations and anticipate potential human hazards. Observing students in agricultural mechanics laboratories from simultaneous multiple perspectives can provide insight into the identification of potential hazards.

The development of a teacher's agricultural mechanics laboratory awareness is cross linked between two priorities of the national research agenda. Those priorities are: Priority 2 – new technologies, practices and products adoption decisions, and Priority 4 – meaningful, engaged learning in all environments. Supporting the national research agenda will provide useful information in the training of future agriculture teachers.

Procedures

Agricultural mechanics laboratory awareness is comprised up of three senses: vision, hearing, and smell. The following are the steps used for enhancing each of the pre-service teacher's senses. Star and Strickland (2007) concluded the use of video in pre-service teaching methods courses increases the ability to notice features of the classroom environment. Split-screen playback video ability provides pre-service teachers with the opportunity to see potentially unsafe behaviors of students in the agricultural mechanics laboratory that might have otherwise gone unnoticed.

Vision

Step 1. Students will teach a lesson
   i. Video recorded for replay with split-screen technology

Step 2. Students will complete a self-reflection prior to watching their recorded lesson

Step 3. Students will review video

Step 4. Students will complete a self-reflection and compare it with their first reflection

Hearing

Step 1. Students will listen to shop noises

a. Noises would include running equipment, opening of doors, cabinets, etc.
b. Video recorded for replay

Step 2. Students will have to identify the source of the noise and location

Step 3. Students will review video

Step 4. Students will complete an evaluation

a. Students will identify shop noises while not looking at equipment

Smell

Step 1. Students will be exposed to various smells that can occur

a. Smells would include acetylene, flammable liquids, chemicals, burning materials that are associated with improper uses or faulty equipment

Step 2. Students will complete an evaluation

a. Scenario based – given a situation what type of smell would be present
b. Smell test - students will identify smell when they are presented by instructor

Results

Students have demonstrated more awareness of their surroundings, especially with identifying potentially hazardous situations. They have been more active in alerting the instructors of unsafe practices, behaviors, and equipment before they could cause serious injuries or equipment damage. In one instance students identified a damaged hole saw blade prior to operation that could have resulted in a serious hand injury. The students have also become more aware of the noises that are not typical with the laboratory activities associated with that lesson such as binding plywood while attempting to cut it on the tablesaw. The students alerted each other and the instructors of something burning when an individual was operating a saw with a dull blade. They have also started to police each other more as they observe unsafe habits and/or situations.

Future Plans

At [State] University, this procedure will be used in the pre-service methods of teaching agricultural mechanics course. The researchers will track the students' process from the beginning of the course through the final evaluations to track their enhancement of their sixth sense in an agricultural mechanics laboratory. The researchers recommend investigating the awareness levels of novice, intermediate, and advanced teachers that have taught agricultural mechanics courses to indicate what level of awareness pre-service teachers have attained compare to experienced teachers.

Resources Needed

The only resources required for this project were media equipment and installation. Media equipment included multimedia video projector ($895.00), two network cameras ($1,336.04), multiple microphones ($485.30), and video and audio accessory equipment ($1,028.42). When combined with equipment installation ($1.662.38), the project cost was $5,407.14. Other costs associated with this activity are minimal including scrap wood and gas.

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Poster Type: Innovative

Training Cooperating Teachers to Use the Situational Leadership Model When Working with Student Teachers

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Training Cooperating Teachers to Use the Situational Leadership Model When Working with Student Teachers

Need for Innovation

The agricultural education profession struggles annually to fill all the teacher vacancies with qualified teachers (Kantrovich, 2007). Prior research has communicated the importance of the student teaching semester to the student's eventual career path decision (Deeds, Flowers, & Arrington, 1991; Norris, Larke, & Briers, 1990; Schumacher & Johnson, 1990). Cooperating teachers are an essential element in the preparation of student teachers. Past studies recognize the importance that cooperating teachers play in a successful student teaching experience (Barnes & Camp, 2002; Deeds, 1993; Deeds, Flowers, & Arrington, 1991; Edwards & Briers, 2001; Moss & Rome, 1990; Norris, Larke, & Briers, 1990; Roberts, 2006).

Grieman, Addington, Larson, & Olander (2007) recommend that professional development be designed and implemented to allow agricultural teachers more insight into their leadership style and how that impacts their followers. One way the relationship may be improved is through training and utilization of the Situational Leadership Model (Hersey & Blanchard, 1969). This model states that the leader should match their leadership style to the developmental level of their follower.

The *American Association for Agricultural Education's Research Priority Areas for 2011 – 2015* lists the priority area of "developing the models, strategies, and tactics that best prepare, promote, and retain new professionals" (Doerfert, n.d., p. 9). One way that this may be accomplished is training cooperating teachers to more effectively meet the developmental needs of the student teachers, in order to encourage more student teachers to accept a teaching position after graduation.

How it works

The workshop was developed to train cooperating teachers to utilize the Situational Leadership Model (Hersey & Blanchard, 1969) when working with their student teacher. Thirty-three agriscience teachers were identified as potential cooperating teachers for the 2011-2012 school year. Invitations were sent out via email and postal mail. Teachers were asked to reply using an online survey site.

Cooperating teachers participated in a two hour workshop to learn how to use the Situational Leadership Model (Hersey & Blanchard, 1969). The two main components, leadership style and follower development, were explained. The four leadership styles were explained to the cooperating teachers. Follower development level was explained as a combination of the student teacher's level of commitment and competence on job related tasks.

Examples of how to utilize the model, when working with student teachers, were demonstrated. Throughout the workshop, cooperating teachers were encouraged to share their experiences and ask questions related to implementing the model when working with the student teacher.

Results to date/Implications

Thirteen potential cooperating teachers attended the training. At the conclusion of the workshop cooperating teachers were asked to respond to three questions.

When asked what they enjoyed most about the workshop, the teachers responded that they enjoyed hearing the experiences of the other teachers present. They also appreciated knowing more about what the student teachers think when they are leaving campus to go to their student teaching site and the preparation that they receive while still on campus. Several mentioned that they like knowing what they can do to better help the student teacher.

> "The best part of the workshop was knowing that we are all on the same page trying to make it a good experience for the student teachers. Knowing the students are all different and need different instruction in different areas, I believe the workshop will help us identify these areas and their abilities better."

Cooperating teachers also appreciated that there is work being done at the college level to better match student teachers with cooperating teachers.

> "I feel like the idea of matching student and cooperating teacher personality types is a great idea. A large part of the first few weeks of hosting a student teacher is learning more about them and what will make their experience the best it can be, so the idea of placing them in a setting where the relationships will be mutually beneficial is definitely a step in the right direction."

In regards to what could be improved, several cooperating teachers desired more clarification about the model.

> "I am kind of a weird duck but I would like to know more about the theory of the four quadrant personality diagram you had on the board. Maybe give some statements a teacher, who was on a different level than the student teacher, might be able to say to that student teacher to help or encourage him/her. I would hate to say something being a certain personality type and accidently discouraging a different personality type student teacher when in reality he/she could be a great ag teacher."

The cooperating teachers also requested to know how the student teachers feel after completing the student teaching semester.

Future Plans

Cooperating teachers were overall receptive to the new method of working with their student teacher. Efforts should continue to be made to help cooperating teachers develop methods to successfully work with student teachers. Those that are selected to serve as a cooperating teacher during the 2011-2012 school year will receive additional educational material during the semester. They will also receive diagnostic information on their student teacher in order to begin to match their leadership style to meet their student teacher's needs.

Costs/Resources Needed

The only costs associated with this workshop were incentives provided to increase participation rate.

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Innovative Idea

Using a Digital Gaming Approach to Teach Animal Science Content to 21st Century Learners: Collaboration with Corporate America

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Innovative Idea

Using a Digital Gaming Approach to Teach Animal Science Content to 21st Century Learners: Collaboration with Corporate America

Introduction

It has been established that today's students, also known as digital natives, expect to be engaged at all times in the classroom through the use of technology (Prensky, 2001, 2005). As such, teachers need to be competent at using technology and engaging students both cognitively and emotionally. Because most digital natives are consumed with playing games, a two-day in-service workshop was designed to introduce teachers to a digital game-based learning (DGBL) approach to teaching animal science.

Little research has existed regarding the use of DGBL in agricultural education. In fact, few studies have existed that focus on how agricultural education teachers incorporate various technologies into their pedagogical practices (Kotrlik, Redmann, & Douglas, 2003). Therefore, a need existed to introduce teachers to games and prepare them, pedagogically, for teaching using the DGBL approach.

According to Oblinger (2004), "In order to consider games as potential learning environments, the structure and practice of games must have useful parallels to sound pedagogy and the current generation of learners" (p. 8). Because animal science is one of the most common courses in secondary agriculture programs in [State], a digital game, known as *Virtual Walking the Pens* was used as the context for the workshop. *Walking the Pens* is a simulation designed to allow students to experience a swine confinement and detect unhealthy pigs.

How It Works

Ten agricultural education teachers were purposively sampled and recruited based on the researchers perception of their level of innovativeness regarding their use of technology. Factors such as availability of a computer laboratory were considered. The 10 teachers were invited to participate via electronic mail and telephone. All 10 teachers agreed to participate. The teachers were then assigned randomly to the treatment group and comparison group.

The treatment was the digital interactive three-dimensional (3D) game, *Virtual Walking the Pens*, presented by Pfizer Animal Health. The game was designed, originally, as a means to assist swine producers learn about production and management practices through digital gaming (personal communication, S. Miller, February 15, 2010). Essentially, *Virtual Walking the Pens*, allows participants to interact with the barn, equipment, and pigs in a simulated virtual world. Participants are enabled to work in and experience a virtual swine confinement operation. The learners perform virtual barn walkthroughs to identify and treat unhealthy swine in the barn. In addition, this game allows students to experience a total of 10 swine disease scenarios within a virtual world, comparable to those real-life experiences that a pork producer faces daily.

The two-day in-service workshops were held on [State] University campus on July 27-28, 2011. Three major objectives were addressed during the two-day workshops: 1) to provide an overview and discuss the purpose of the study; 2) to provide expert content knowledge for teaching the 10 swine diseases; and, 3) to review the DGBL teaching strategy to be used with the digital game-enhanced lessons.

On July 27, 2011, the research team (i.e., agricultural education faculty and Dr. Miller, DVM) provided an overview and purpose of the study. Teachers were exposed to the reality of teaching digitally. Further, because the game was based on swine, Dr. Miller provided extensive training on swine confinement operations. In particular, an extensive amount of time was spent on terms and basic concepts of swine husbandry. Further, multiple scenarios were provided to teachers regarding the types of queries veterinarians receive from swine producers who cannot discuss their swine's' signs and symptoms accurately. Dr. Miller provided examples of swine with various health-related issues and how those should issues should be treated. In addition, Dr. Miller provided the teachers with the *Virtual Walking the Pens Curriculum Manual*, which listed major points of reference regarding swine health-related concerns.

On July 28, 2011, the teachers were split into two groups. The research team discussed with the treatment group how to use the game from both technical and pedagogical perspectives. An agricultural education faculty member discussed effective teaching methods (non-digital game-based methods) with the control group. Over 14 hours of professional development was devoted to training the teachers involved in this project. After the completion of the workshop, the teachers returned home to begin teaching the content to their animal science class. The teachers used the Pfizer Animal Health Curriculum Manual as their primary source for content.

Results To Date

In all, 10 teachers received the professional development workshop on swine disease and health management, digital game-based learning, and effective teaching methodologies (non-digital game-based). However, one teacher was lost due to leaving the profession. The reactions of the treatment group teachers regarding the game were positive. In addition all teachers' reactions to the curriculum developed by Pfizer Animal Health have been positive.

Future Plans

The researcher will continue to analyze the data and report findings at the conclusion of the study. In addition, the researcher will conduct focus-group interviews with the treatment group to gain a better understanding of the barriers associated with the use of DGBL. Further, post-post test will be administered to student participants to measure the detainment of knowledge.

Cost

A two-page grant proposal was written to Pfizer, Inc. to offset the cost of the in-service workshops. This proposal led to a collaborative agreement between Pfizer, Inc. and [State] University. Pfizer, Inc. agreed to provide hotel rooms for ten teachers, a representative who is a veterinarian as well as a content expert in the area of swine confinement and designer of *Virtual Walking the Pens*, airfare for the representative, and free access to the game for five teachers. [State] University agreed to host the two-day workshop by providing expertise related to pedagogy, expense free. In all, three [State] University faculty members led sessions regarding appropriate pedagogical approaches. In particular, the treatment group was exposed to student-centered approaches, while the control group focused on teacher-centered methods. In all, this workshop totaled more than $10,000.00.

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Innovative Idea

Using a Learning Community for Continuous Improvement of an Agricultural Education Teacher Preparation Program

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Using a Learning Community for Continuous Improvement of an Agricultural Education Teacher Preparation Program

Introduction

Each year, fewer and fewer undergraduate agricultural education students enter teacher education programs with prior knowledge of the agricultural education or an agriculture background (Shelley-Tolbert, Conroy, & Dailey, 2000). As students entering undergraduate agricultural education programs change, so too must the curriculum. As scholars, teacher educators must constantly reflect upon and critique their own work, including the curriculum used to prepare pre-service teachers (Knobloch, 2010). Knobloch stated that collaboration is key to solving complex problems, and cooperatively faculty can more effectively evaluate courses and course content. To help foster collaboration and continuous improvement, faculty at the [university] in agricultural education created the Teacher Education Learning Community (TELC). Together, members of the TELC worked to identify possible points of improvement in the undergraduate curriculum, and to modify course content to better meet the needs of the pre-service teachers.

Methodology

The TELC met once a week for an hour. This group included faculty and graduate students in agricultural education. Collectively, this group had more than 100 years experience in agricultural education. Members ranged from a professor with over 30 years experience to a first semester master's student who had just completed an undergraduate teacher education program. Additionally, this diverse group had agricultural education experience from seven states.

To begin the first meeting, the organizer explained the purpose of the meetings and determined the focus of the rest of the year's gatherings. The first half of the scheduled meetings were guided by a scholarly reading that explored issues pertaining to teacher education. The second half of the meetings were used to examine how well the current undergraduate curricula was meeting the needs of pre-service teachers. The organizer outlined how each meeting would be conducted and presented guidelines for choosing articles. It was determined that a different person would be responsible for identifying the article for each week and then would be responsible for leading the discussion of that article. Individual members of the learning community were given the latitude to select articles that reflected a personal interest in agricultural teacher education.

Results to Date/Implications

To date, the TELC has carefully examined the requirements of the undergraduate agricultural education program at [university]. Based on the National Standards for Teacher Education in Agriculture (AAAE, 2001), the group has addressed the main question of: what does a graduate of our program need to know? Using this question as a framework, the TELC reviewed the total undergraduate curricula to determine how well pre-service teachers' needs were being met. Specific course content was adjusted to better meet students' needs as determined by the TELC. When discussing the courses and outcomes, the TELC often referred to

the most recent graduates of the program to ensure that the perception of the outcome of the course is the same from both the instructor and student sides.

The climate for teacher education is not static. Students are constantly changing. University graduation requirements are evolving and state teacher certification requirements may also adjust. To stay on top of this situation, teacher educators must continuously examine their programs and make appropriate adjustments. The methodology implemented by the TELC at [university] can serve as a model for continuous improvement. Teacher educators at other universities should consider adopting a similar approach.

Future Plans/Advice to Others

Future plans are to continue the weekly TELC meetings. At the beginning of each semester the group will collectively identify a topic related to teacher education for examination. Weekly meetings with the group members will continue to use scholarly articles to guide the conversation around the newly selected topic.

If a similar approach were adopted at another university, the following advice is offered:

- Take time to truly establish a community of scholars where every opinion is respected and appreciated. Although a teacher educator with over 30 years of experience may offer a longitudinal perspective, a recent graduate of a teacher education program can offer a unique and valuable perspective not held by other members.
- Do not underestimate the value of teacher education experiences in other states. Each state and university have unique strengths and weaknesses. Developing a learning community with a breadth of experiences will enrich the discussion and perspective.

Costs

The costs of establishing a learning community are minimal. Articles need to be printed, but over 15 meetings with 13 participants and an average of 8 pages per article, copy costs add up to only around $30. A more significant cost is time. Over the roughly 15 meetings held each semester, the department loses approximately 195 work hours to discussion time.

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Innovative Idea Poster

Using Authentic Rubrics to Assess Technical Competencies in Agricultural Mechanics: An In-service Devoted to Student-centered Teaching

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Using Authentic Rubrics to Assess Technical Competencies in Agricultural Mechanics: An In-service Devoted to Student-centered Teaching

Introduction

In today's fast paced world, it is imperative that all teachers subscribe to lifelong learning (Layfield & Dobbins, 2002). Agriculture teachers are no exception. The sheer diversity of agricultural education requires that agriculture teachers be involved in professional development to remain current on the demands of the profession (Sorenson, Tarpley, & Warnick, 2010). Agricultural mechanics is an area within the school-based program that demands the instructor to master the competencies, if the program is to be successful (Burris, Robinson, & Terry, 2005).

Research has shown that, in general, teachers need assistance in managing the agricultural mechanics laboratory (Johnson, Schumacher, & Stewart, 1990). According to a national study, higher education faculty perceived teachers to be "poorly prepared" to handle shop equipment and machinery (Burris et al., 2005). A recent study indicated that teachers need the greatest amount of professional development in the area of selecting and using shielded gas effectively (Leiby, Robinson, Key, & Leising, 2011). However, the most alarming finding, perhaps, is that teachers often need assistance in maintaining safety while instructing students in the shop (Leiby et al., 2011; Saucier, Terry, Jr., & Schumacher, 2009). Therefore, this in-service sought to increase teachers' competence in and efficacy to teach skills related to agricultural mechanics. Specifically, tools that teachers used during this training were the oxy-acetylene torch, MIG welder, stationary and hand grinder, drill press, Miter cut-off saw, and tape measure. Teachers were also asked to design an authentic rubric to assess small-scale projects in the agricultural mechanics laboratory.

In addition to technical content knowledge, agriculture teachers must refine their pedagogical skills continually. Related to agricultural mechanics, Saucier and McKim (2011) utilized the Delphi technique to determine the agricultural mechanics skill areas needed by early-career Missouri agriculture teachers. The second ranked skill identified by the panel of experts was "methods used to teach agricultural mechanics" (Saucier & McKim, 2011, p. 179). Therefore, professional development, in-service programs should focus on pedagogy related to agricultural mechanics, as well as technical content knowledge.

How it Works

A professional development, in-service workshop was offered through [State] University during June 2011. The workshop was located in [City, State] and delivered, primarily, by Mr. [name], the agricultural mechanics instructor. Mr. [name] is respected across the state for conducting a high quality agricultural mechanics program. The focus of this workshop was introducing teachers to appropriate tools and equipment used for completing shop projects, designing authentic assessments for evaluating students' work, refreshing teachers on skills related to hot metal work (i.e., welding, cutting, drilling, grinding), and emphasizing the basic mathematics needed to teach agricultural mechanics effectively.

Results to Date

Ten agriculture teachers attended the workshop. During the workshop, views and strategies were shared for emphasizing safety and assessing students in the agricultural mechanics laboratory.

Mr. [name] emphasized the way in which he manages his laboratory. Specifically, he provided the teachers an opportunity to 1) identify tools and equipment needed for teaching agricultural mechanics effectively; 2) share point systems associated with grading students' laboratory projects; 3) practice their technical construction skills by designing a small-scale shop project; and 4) create a rubric for assessing students authentically on their shop projects. After the presentation of the content, the teachers were afforded an opportunity to pair up and build a small-scale project in the agricultural mechanics laboratory that had been designed previously by Mr. [name]. A rubric for this project was provided. When the participating teachers completed their assigned project, Mr. [name] demonstrated his method of assessing the students' work. For objective portions of the rubric, such as measurements, he used a micrometer to calculate the grade. For more subjective portions, such as appearance, he demonstrated how he negotiated a score with the students to ensure they understood the importance of reflecting on their work critically. Teachers left the workshop with their own small-scale design and rubric developed for evaluating their project, as well as 36 authentic assessments created by Mr. [name].

Future Plans

This in-service was extremely successful, as teachers discussed the usefulness of what they learned and how it will be applied with their students in their own school-based programs. Future plans include conducting a follow-up study to assess the impact this training had on these teachers' students' achievement in agricultural mechanics. Specifically, students of these teachers will be assessed to determine how the use of authentic rubrics affected their performance on end-of-instruction tests in agricultural mechanics when compared to those students whose teachers did not attend the training. Further, queries will be administered to determine the frequency of teachers' use of applying authentic rubrics to their laboratory teaching. Based on the findings, another round of in-service will be planned with the attempt to encourage more teachers to participate. In future trainings, factors such as emotional cognition, motivation, self-efficacy, and long-term retention of the material will be assessed regarding students whose teachers used authentic rubrics versus those students whose teachers did not.

Costs

As an incentive for attending the in-service, the researchers wrote a grant to the agricultural education division of the [State] Career and Technology Agency. The money awarded from this grant was used to incentivize teachers by providing them with a laboratory coat, safety glasses, leather gloves, and over 36 authentic rubrics for assessing their students in laboratory settings (see Table 1). The rubrics were printed at no cost to the researchers. In addition, these teachers were provided numerous repetitions to improve their technical competencies related to agricultural mechanics by participating in the construction of small-scale projects.

Table 1
The cost Associated with Hosting a One-day In-service on Agricultural Mechanics

Item	No. of Teachers	Dollar Amount
Laboratory coat ($50/teacher)	10	500.00
Safety glasses ($15/teacher)	10	150.00
Leather gloves ($20/teacher)	10	200.00
Stipend for lead instructor ($500)	1	500.00
Total		**1,350.00**

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Innovative

Using Cognitive Style to Group Graduate Students in a Virtual Team Environment

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Using Cognitive Style to Group Graduate Students in a Virtual Team Environment

Introduction/Need for Innovation or Idea

"With the advent of the global economy and high-speed Internet, online collaboration is fast becoming the norm in education and industry" (Ubell, 2010). Many organizations and universities are beginning to utilize virtual worlds, such as Second Life, as a setting for organizational interactions and team-based activities. Although virtual settings have many benefits (e.g., reduced costs, increased access), they do not always foster conditions for ideal group dynamics and communication. Therefore, educators must consider ways to promote positive group dynamics. Lamm et al. (2011) concluded that "educators working to enhance educational programs [should] be aware of, and address, the impact individual cognitive styles can have on group dynamics" (p. 415).

Cognitive style involves "characteristic modes of perceiving, remembering, thinking, problem solving, and decision making, reflective information-processing regularities that develop in congenial ways around underlying personality trends" (Messick, 1994, p. 122). One view of cognitive style that has received theoretical and empirical attention is adaption-innovation theory (Kirton, 1976, 2003). This theory contends that one's problem solving style can be located on a continuum ranging from adaption, an ability to "do things better," to innovation, an ability to "do things differently" (Kirton, 1976, p. 622). Characteristics and behaviors of adaptors and innovators can be seen in Table 1.

Table 1

Adaptor and Innovator Characteristics and Behaviors
(Based on Kirton, 2000 & 2003, as presented by Robinson, Sherwood, & DePaolo, 2010)

Problem	**Adaptors**	**Innovators**
Risk	Appear to take fewer risks.	Take great risks.
Nature of solution	Produce consistent small wins and are creative at solving problems within existing rules & norms.	Think in terms of creating the "big win." and are less constrained by current rules & norms.
Solutions fit organization	Solutions may fit well with the organization's existing capabilities.	Solution proposed may require more change in order to implement.
Defining the problem	Want to be efficient. They focus early and work to clarify the problem.	Will redefine the problem to fit their understanding of the situation.
Problem scope & clarification	Ask questions to narrow the scope of the problem. (e.g., "What do you really mean here?")	Ask little clarification, ignore instructions, and prefer to answer to problem in the way they think it should be answered.

How it Works/Program Phases

The Kirton's Adaption-Innovation Inventory (KAI; Kirton, 1976) was used to assess the cognitive styles of students enrolled in *Risk & Crisis Communications in Agriculture and Natural Resources* at [university]. The KAI instrument is comprised of 32 scaled items used to calculate an overall participant score ranging from 32 to 160. Although one's degree of adaption or innovativeness is relative to the specific population or group, according to the general

population mean, individuals scoring below 95 points are considered adaptors and those scoring 95 or above are consider innovators.

The students' overall scores ranged from 72 to 117. Ten students were classified as adaptors and four students were classified as innovators. Cognitive style was then used to divide the students into groups. Because there were considerably more adaptors than innovators, students were divided into the following 3 or 4-person groups: two homogenous groups of adaptors and two heterogeneous groups with at least one adaptor and two innovators.

In these assigned teams, the students will complete five phases of a crisis simulation in Second Life by mid-December 2011:

1. Prevention phase: Gather information and assess potential risks
2. Preparation phase: Conduct a crisis management team meeting with community members
3. Recognition phase: Engage in signal monitoring and identification of the crisis
4. Response phase: Conduct a press conference, addressing the concerns of the community
5. Evaluation phase: Engage in a evaluation of crisis assessment and monitoring procedures

Results to Date/Implications

To date, the homogeneous adaptor groups seem to more successful in their virtual teams than the heterogeneous groups. All groups have displayed evidence which aligns with previous research. Students from each of the groups shared the following comments about their activities in Second Life and the group dynamics of their virtual team:

Team Type	**Student Comment**	**Characteristic highlighted**
Homogeneous (adaptors)	"I feel we worked well together. By preparing questions in advance and compiling a list of most crucial inquiries, we were able to approach the meeting prepared."	How adaptors want to be **efficient**, focusing **early** & working to clarify the problem.
Homogeneous (adaptors)	"While in Second Life, no definite crisis came to mind. I helped the group come up with a few that could possibly happen due to other things that are going on right now."	How adaptors are creative at solving problems **within existing rules & norms**.
Heterogeneous (innovator perspective)	"We REALLY WANT to be right about the potential crisis [at the end] and therefore were VERY driven to find and share information."	How innovators think in terms of **creating the "big win."**
Heterogeneous (innovator perspective)	"After reviewing the island Twitter feed, we eliminated those [crises] that we felt were too obvious (i.e., climate-related issues like the drought or wildfires)."	How innovators are **less constrained by current rules & norms**.
Heterogeneous (adaptor perspective)	In discussion of her two innovator teammates, she said "I was a little apprehensive because [we] haven't done as much pre-planning as it seemed other groups had done."	How adaptors want to be **efficient** & focus **early** which is **not typical** of innovators.
Heterogeneous (innovator perspective)	"She is very detail-oriented…so she's very good at making decisions that we otherwise might dither around with."	How innovators prefer to answer to problem **their way** verses how adaptors are **more efficient.**

Future Plan/Advice to Others

As the semester continues, additional evidence towards the effectiveness of cognitive-style student grouping will be gathered and considered in the decision to repeat this type of grouping with students in virtual teams. The virtual component does not seem to alter the distinct adaptor or innovator characteristics displayed by the students in the teams. Initial results indicate consistency with other findings that cognitive style differences are problematic in teams but stretch students to create more optimal solutions; whereas, homogeneous cognitive style teams are desirable for more timely solutions (Robinson, Sherwood, & DePaolo, 2010).

Costs/Resources Needed

Resources needed included access to Second Life (available free via download from the Internet) and the Kirton's Adaption-Innovation Inventory (KAI) instrument. Use of the KAI instrument does involve a fee and a KAI Certificated Practitioner must administer and score the instruments.

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Innovative Idea

Using Digital Classrooms to Conduct 4-H Club Meetings

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Using Digital Classrooms to Conduct 4-H Club Meetings

Introduction

The phrase, "do more with less" is becoming increasingly more common in Extension. With the changing economic climate, Extension faces the challenge of delivering quality programming with fewer Extension personnel. Hiring freezes and budget cuts have burdened county Extension faculty and forced them to continue to deliver additional 4-H programming with limited staff. With budget decisions being made based on program output and outcome evaluation data, showing impact in the community is vital to the long term sustainability of Extension, and 4-H programs in particular. Creative ways are needed to deliver programming to more youth with fewer resources. Using digital meeting rooms such as Horizon Wimba, Skype, and ooVoo to deliver 4-H programming is one way to alleviate some of the time and resource pressures felt by Extension personnel.

Computer technology has become pervasive in our society and is of obvious interest to youth for communication and social networking purposes. According to Lenhart, Purcell, Smith and Zickuhr (2010), 66% of internet users between the ages of 12 and17 go online for news and political information, and 73% of wired American teens now use social networking websites. However, little research has been done on the use of media by youth (Alpizar, 2010). Digital technology for learning is an effective tool used by universities to conduct online courses for Extension professionals. In one study, nearly three-fourths of Extension agents expressed an interest in pursuing education at a distance (Edwards, McLucas, Briers, & Rohs, 2004).

In addition to being an effective teaching tool, digital technology can also help make 4-H club meetings more productive and parent-friendly. By meeting virtually, parents forgo the added burden of traveling to a meeting location, and youth can engage with the technology to interact with their Extension agent, adult volunteers, and peers. Using digital meeting rooms can even improve teamwork and brainstorming skills among 4-H'ers (Greenburg & Nilssen, 2008).

In [County Name, State], 4-H'ers and Extension staff participated in workshops and trainings using a Wimba virtual classroom in an attempt to increase Project Achievement scores. Project Achievement consists of two parts: portfolios and illustrated talks. By using digital classrooms, many 4-H'ers could develop a project at once, saving valuable time for Extension staff. Parents were invited to sit-in on the classroom discussions to give them a better understanding of the process and an ability to assist their child in project development.

Digital Classroom Participants

All Junior and Senior 4-H'ers were encouraged to participate in the digital classroom sessions. Nineteen youth actively participated in the launch of the digital club meetings which lasted approximately an hour and a half. After a tutorial about the digital classroom application, 4-H'ers participated in a series of seven workshops focused on improving project development. As

4-H'ers began to understand the applicable nature of the technology, they were given opportunities to lead discussions and brainstorming sessions. This helped build skills in communication and leadership.

Digital Club Meeting Approach

1. A preliminary meeting was held with 4-H'ers and their parents to introduce them to the technology. Instructions for digital classroom application use and scheduled classroom times were distributed.
2. Nineteen Junior and Senior 4-H'ers logged on for the first digital portfolio writing workshop in November of 2010. A PowerPoint® presentation, discussions, and a question and answer session were included. The meeting lasted approximately an hour and a half.
3. 4-H'ers and their parents were invited to give input to make the workshops more effective as a teaching tool. This was facilitated by informal discussions and a Google Docs questionnaire. Over the months leading up to District Project Achievement, seven online workshops were held to prepare competitors. Workshops were interrelated and 4-H'ers facilitated many of these meetings.
4. To gather input on the effectiveness of the digital classroom meetings and whether improvements were needed, participants were invited to complete a questionnaire. A Google document was created and sent to all participants and their parents, requesting their feedback on the meetings.

Preliminary Findings

Nineteen Junior and Senior 4-H'ers participated in program delivery through digital classroom technology in order to improve their Project Achievement scores and participation in other 4-H programs. Eighteen of the 19 digital classroom participants increased their average Project Achievement scores from the previous year by 11%. In addition, seven participants had scores high enough to advance to the State Congress competition; an increase from the previous year of 350%. For Extension staff, an estimated seven hours of travel time and 26 hours of instruction time were saved by utilizing digital classroom technology in a three month period.

Using Digital Classrooms in Your Program

The authors offer these recommendations to those considering program delivery through digital classrooms:

- Contact your home institution to see what technology is available for you to use at the University level.
- Research the many educational software applications available and choose the one that is right for your program based on cost, ease of use, and features. Many applications offer whiteboard, audio, and video technology.

- Create instructional materials using PowerPoint® or Word® documents and make these available to participants—youth and adults. These materials can be updated and used year after year to save even more time.
- Consider involving community stakeholders in your online discussions or even inviting someone from another county or state to participate. There are no time or location limitations with this technology!

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Using New Technologies to Effectively Capture Scholarship Creativity and Save Time

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Using New Technologies to Effectively Capture Scholarship Creativity and Save Time

Introduction/Need for Innovation or Idea

Inundated with information and responsibilities, faculty and students agree that time is precious to many aspects of higher education. It is challenging and time-consuming to learn and try new research and instructional methods and to keep track of an exponentially increasing number of available options that may potentially enhance teaching, learning, and research (Jepson et al., 2005). Lieberman and Pointer-Mace (2010) noted that educators need to focus on capturing the potential of the Internet and multimedia tools for professional scholarship. Molnar and Fields (2004) reported the full potential of this technology is centered on the sharing of instructional materials as well as the availability of online source materials (e.g., images, presentations, and diagrams) to supplement materials. Unorganized thoughts waste critical time and can be changed through implementing new developments.

New software such as Mendeley, PosterGenius, and KeePass can save researchers time and increase research productivity and effectiveness. Many students and faculty conducting research may find it difficult to keep their findings organized. Mendeley, online academic software can manage, share, read, and edit papers as well as create a researching network, helps alleviate this problem. Additionally, poster creation can be time consuming. However, with the PosterGenius software more time can be spent on creativity and content because this software allows users to quickly layout a poster design. It offers a simplistic, effective tool to create and edit charts or tables, insert and size images and captions, and/or define dimensions.

With the continued, exponential increase in secure, login required websites it can be difficult for students and faculty to remember all their usernames and passwords required to operate different software(s) and sites. KeePass is a password manager that operates based on one master password or file password. It is portable or installable using encrypted algorithms to protect usernames and passwords. With better organization of usernames and passwords, more time can be spent doing productive tasks rather than wasting time figuring out login information.

How it Works/Methodology/Program Phases/Steps

Mendeley was designed for researchers. The software should be used when preparing research or innovative ideas to better compose results. Files can be dragged and dropped from anywhere to a user's library including websites, existing software, document folders, desktops, or copied from "watch" folders designated by the researcher (Add and Organize, 2011). Mendeley allows researchers to organize files by groupings; whether it is title, author, keyword, or type of paper. Users can annotate and highlight files; even add sticky notes to PDFs (Read and Annotate, 2010). Mendeley has a repository of over 100 million papers (Network and Discover, 2011). This software is beneficial to researchers who are familiar with specific scholarship as well as for newcomers less familiar but seeking resources and guidance.

PosterGenius can be/is used by faculty and students to efficiently create scholarly posters. Because of its intuitive nature, it allows more time for creators to focus on the content portion of the poster. A "wizard" provides options for the basic set-up of the poster. This program offers unique features such as optimal reading distance, image optimizer, content quick review, and templates for scientific posters. Optimal reading distance informs the author of approximately how far away the poster can be read from (Unique Features, 2010). Image optimizer takes into account the poster dimensions, number of columns, and various other parameters to best

determine the size of the image at the time of insertion (Unique Features, 2010). There are more than 100 templates available to users of this program (Templates, 2010). Tutorials are also available as well as online troubleshooting and updates.

KeePass is for any web user who needs a database in order to better organize usernames and passwords for important logins. This program is OSI certified and uses two of the most secure encryption algorithms currently known as Advanced Encryption Standard and Twofish algorithm (KeePass Features, 2003-2011). Groups can be created, modified, and deleted with this program to which passwords can be stored to. There are search and sorting options for quick look-ups. KeePass has a strong password generator portion to the software that is completely random. One remarkable factor is its ability to be translated into other languages. Thirty different languages are available. The program is utilized with a master password or key file.

Results to Date/Implications

Mendeley can assist faculty and graduate students to better organize and find information for scholarship and to create a comprehensive research reference list. PosterGenius can be used for research/innovative poster competitions to specifically create high resolution, effective posters. KeePass can improve work productivity by tracking username and login information for a plethora of secure websites. Little research has been completed on the software (Mendeley, PosterGenius, and KeePass) to determine the effectiveness and efficiency of these resources. However, authors note, through personal application of these resources, that time and energy can be saved with the utilization of these resources.

Future Plans/Advice to Others

Future plans will focus on determining if additional faculty and students within our department find the software useful and efficient in producing scholarship. For example, PosterGenius will be used to create accepted abstracts for poster competitions at future conference presentations. The quality of the posters will be compared to those not created by this program to determine visual appeal, acceptability, and time saved. Also students working on theses and dissertations who used Mendeley and KeePass software will be surveyed and/or interviewed to determine the effect of these software programs on their results. The websites for these products are free or offer free 30-day software trials to new users.

Costs/Resources Needed

The software (Mendeley, PosterGenius, and KeePass) noted are all either low cost or free to use. KeePass is a free open-source password manager that is encrypted to prevent theft of passwords. Updates to the program are free as well. PosterGenius prices vary depending on how many are purchased and if a student is purchasing the software. The cost for a student license is $49. A single license for personal use includes two licenses for your possession and the cost is $139 for a computer with a Windows OS. Site licenses are used to cover institutions, departments, and research groups for five computers and costs $435. Site licenses can also be purchased for 10 computers and costs $790. PosterGenius licenses for Mac OS computers have similar pricing structures. Mendeley is free-of-charge software with a complementary 1GB of online web storage space. If additional space is required a premium software package can be purchased for additional storage space and more features. The cost ranges from $4.99 to $9.99 per month. The only resource needed is a computer in which to add selected software.

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Innovative Idea Poster

Using Rubrics in Secondary Agricultural Mechanics Classes to Assess Students' Performance in the Laboratory

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Using Rubrics in Secondary Agricultural Mechanics Classes to Assess Students' Performance in the Laboratory

Introduction

One of the best aspects of agricultural education programs is that they provide opportunities for students to prepare for careers through experiential learning (Baker & Robinson, 2011; Phipps, Osborne, Dyer, & Ball, 2008; Roberts, 2006). The agricultural mechanics laboratory is an ideal venue for this experiential learning process to occur. However, due to the way the laboratory (i.e., shop) is designed, it has its downfalls. One such downfall is how instructors are able to evaluate students' performance and assign grades when students are working in the shop. Since a large portion of the agricultural mechanics course occurs in the laboratory setting, it can be difficult for teachers to evaluate students and assign grades that reflect student learning and participation accurately and fairly.

How it Works

The lead researcher for this proposal designed this project as the creative component for his master's degree. The purpose of this project was to provide a systematic approach for agricultural educators to evaluate their students' performance in laboratory settings easily and quickly, while also maintaining a fair grading system between students. Rubrics were implemented into an instructional unit that was created, titled, "Metal Project Construction and Planning." The unit consisted of lesson plans, PowerPoint® presentations, and application exercises. Rubrics were deemed an important component to the unit because they 1) help to keep the grading fair; 2) provide the students with an idea of what they are expected to do; 3) and help instructors keep grading consistent by ensuring that each student is held to the same standard and graded in the same manner (Goodrich, 1997).

As such, each lesson of the unit had a specific application that involved working in the shop, and each rubric designed sought to evaluate students' work in the laboratory setting based on the students' skill level. In addition to these lesson-specific rubrics, a daily work rubric was also developed for evaluating students each day they spent working in the laboratory.

In all, three lessons were created. Lesson one served as a tutorial on shop safety and hot metal work and was designed to refresh students' on the safety aspects of working in the shop before being able to participate in the laboratory. The rubric that accompanied this lesson strived to evaluate students' ability to use both a plasma arc cutter and an oxy-fuel cutting torch, as well as their welding ability to use both a MIG and arc welding machine. A worksheet was created and to provide each student with the specifications of what should be built. Thus, students will be evaluated on how closely they follow the directions and dimensions of the worksheet.

Lesson two was a lesson on how to read and use project plans correctly to build a project in the agricultural mechanics laboratory. It incorporated the skills needed to perform lesson one, and added new material to challenge the students further. The corresponding rubric was designed to evaluate students' performance in project plan literacy (i.e., dimensions, squareness, and design), hot metal skills, safety, and end product presentation.

Lesson three was a lesson on how to construct project plans using graph paper. In this lesson, students will be assigned to work in teams of two and decide on an idea for a project of their choice. After the idea is approved by the instructor, students will be allowed to create a project plan. The plan must use graph paper and include the proper scale and dimensions, complete with a bill of materials. The corresponding rubric to this lesson seeks to evaluate the teams' project plan, the quality of the construction of their project, safety, and their skills in hot metal work.

The daily work rubric is designed to be used throughout the entire semester while working in the laboratory. Since not all projects can be completed in one class period, the rubrics for each of the lessons will not apply for projects that encompass multiple days of students working in the laboratory. Rather, the daily work rubric will provide a way for the instructor to evaluate students on days in which the laboratory assignments extend over a period of several days and will evaluate variables such as work ethic, project progress, cleanliness, and safety.

Results to Date

The comprehensive unit of instruction titled, "Metal Project Construction and Planning" has been constructed, complete with lesson plans, PowerPoint® presentations, assessment exercises, and rubrics to evaluate students' performance, authentically, in agricultural mechanics laboratories. The lead researcher has defended his creative component to his committee and has made the edits to the final product. Further, he has accepted a teaching position in agricultural education in [State] and is using the unit and rubrics currently with his students. Finally, the unit is set to be shared electronically with other agriculture teachers in [State] through the student teacher website [http://aged.[XX]state.edu/studteac/downloads.htm].

Future Plans

All of the rubrics used in this project can be modified easily by current and aspiring teachers, and because of this, they can be adapted and used for other lessons taught in the agricultural mechanics class. In addition, with some creativity, they could be used in other laboratory settings (i.e., greenhouse and outdoor classrooms). The daily work rubric may or may not need to be modified to use in different agricultural mechanics classrooms/laboratories across the state.

Costs/Resources Needed

The primary costs associated with this project would be the instructor's time and materials (i.e., graph paper and scrap iron) needed for designing and constructing student projects (~25.00 per student). Secondary agricultural educators' time is precious. However, by developing rubrics for use in the laboratory settings beforehand, the instructor should save time in the long run because the rubrics can be recycled and re-used each year. Additionally, teachers will be able to evaluate students' performance authentically, based on their technical skill acquisition, in the career-related area of agricultural mechanics, which is important for preparing students for both careers and college (Roberts & Ball, 2009).

Some of the assignments in the project construction lesson require the students to purchase materials to construct a project of sufficient complexity. In such cases that students cannot afford to purchase materials to build the project, it would be up to the school or program to purchase these materials for the students. The completed projects could then be auctioned off at the end of the school year to provide money to fund student projects the following year.

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Innovative Poster

Using Text Messages to Increase Student Engagement in the College Classroom

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Using Text Messages to Increase Student Engagement in the College Classroom

Introduction/need for innovation or idea

Today's college students are different than past generations (Carlson, 2005). The millennials are intelligent and ready to learn, however they expect learning to be on their terms and to encompass today's technology (Carlson, 2005). Millennials are more interested in interactive media and controlling their learning than past generations (Berk, 2009). They may not be interested in sitting passively in a lecture style classroom and taking notes (Carlson, 2005). Millennials often prefer active learning and expect immediate feedback (Nelson & Litzenberg, 2011). In response to the millennials needs, Nelson and Litzenberg (2011) utilize a personal response system (PSR) in their classrooms. This technology allows students to engage in the learning by providing answers to proposed questions and then receive immediate feedback (Nelson & Litzenberg, 2011). However, there is a substantial monetary cost associated with implementing PSR or other clicker systems (Nelson & Litzenberg, 2011).

In order to encourage active learning in the classroom and engage students through interactive media, an online text message polling system was incorporated into a course. *Polleverywhere* was the audience response system chosen because it is easily accessed through the Internet and students only needed a cell phone capable of sending text messages in order to engage in the activity.

How it works/methodology/program phases/steps

The following steps were taken to create the texting poll through *polleverywhere.com* (2011):

1. Once on the *polleverywhere* website, you may choose to continue without an account, register for a free account, or you may purchase a subscription account. A free account will allow for up to 30 responses. If more responses are needed, a subscription account would be needed.
2. Click on create a new poll.
3. Type your multiple choice or open-ended questions into the text box and click on the preview icon and then click continue.
4. Follow the provided instructions to download the question into a PowerPoint slide.
5. Insert the slide in to your PowerPoint presentation (see Figure 1).
6. Conduct you class session as you would normally do. When you reach the point of your class that you wish to ask the question, instruct students to take out their cell phones and follow the instructions on the screen.
7. Student responses will appear instantly. You can use student response to give students immediate feedback as well as to provide feedback for yourself.

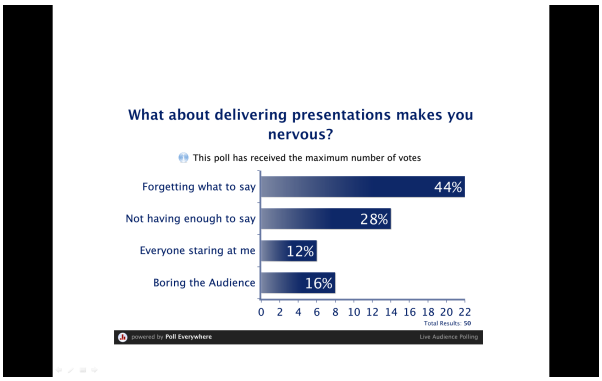

Figure 1. Screen Capture of a Texting Poll on PowerPoint

Results to date/implications

The audience response system *polleverywhere* has been utilized in an undergraduate course since the Fall 2010 semester. Student feedback has been positive and has indicated that students welcome the opportunity to use cell phone technology in the classroom. Students have indicated that they are more likely to answer questions through a texting poll because it feels less threatening than answering the question out loud in front of the entire class. Many students have chosen to incorporate texting polls into their required presentations for the course. *Polleverywhere* seems to be an effective way to engage the students and encourage active learning.

Future plans/advice to others

Future Plans

Polleverywhere texting polls will be incorporated into additional PowerPoint's to engage students and to encourage active learning. Students will also have the opportunity to create and propose questions about the content or assignments through *Polleverywhere.com*. This will give students some control over what is discussed in class.

Advice to Others

Start by creating and implementing 1 texting poll in the class. Then talk to your students about their experience and decide if this technology is appropriate for students in the class. If texting polls enhance the educational quality of your class, increase the amount of texting polls that you use overtime.

Costs/resources needed

To utilize *polleverywhere* texting polls, minimal resources and costs are needed. Internet access and PowerPoint software is needed to display the poll. Students will need to have cell phones with texting capabilities. Free subscriptions are available, but the subscription is limited and only works for an audience of up to 30 students. Options to poll larger audiences can be purchased for an additional monthly fee that increases based on the size of the audience. There is a $15.00 monthly fee for an audience of up to 50 students. An individual instructor plan may be purchased for $699.00 per year and offers more options such as grade reporting and response moderation.

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Utilizing Developmental Evaluation for Curriculum Rejuvenation

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Utilizing Developmental Evaluation for Curriculum Rejuvenation

Introduction

Developmental evaluation is categorized as a type of participant-oriented evaluation with roots that can be traced back to the work of Robert Stake's responsive approach (Fitzpatrick, Sanders, & Worthen, 2011). The underlying premise of participant-oriented evaluation is stakeholder involvement in the planning, design, and execution of the evaluation (Fitzpatrick et al., 2011). Stake (2002) explained that responsive evaluation sacrificed measurement precision, when compared to traditional evaluation approaches. What is gained; however, is increased usefulness of the findings to those involved in the program.

Developmental evaluation was originally conceived as a method of evaluation where the evaluator becomes involved in a program from the design stage through implementation (Patton, 1994). This approach allows the evaluator to assist the client by providing continuous feedback in a dynamic environment (Patton, 1994). Developmental evaluation is appropriate when both the path to and the end goal are not clearly defined and can be a useful methodology when a program must be modified because of a change (Gamble, 2008; Patton, 1994). Developmental evaluation helps program stakeholders cope with change by providing rapid and continuous feedback to decision makers, not necessarily to make improvements in a project (Patton, 1994).

How it Works

The [agricultural education department] at [institution] recently experienced what Patton terms *creative destruction* of the pre-service teacher education unit over the past two years (Patton, 2011). One significant change has been the reassignment of faculty within the department, specifically a new Director of Student Teaching (client) was appointed summer 2011. This change served as the catalyst for rejuvenation of the pre-service agricultural teacher education capstone experience.

The current capstone experience includes the student teaching block and the student teaching experience. The student teaching block is comprised of two, three credit-hour courses, teaching methods and laboratory instruction. The block occurs during the first four weeks of each semester. The student teacher is then placed in a local school district's agricultural education program for 12 weeks to complete the student teaching experience. It is well known among the faculty, graduate assistants, and pre-service teachers that this format is intensive and requires much time and dedication to be successful, often at the peril of stakeholder's other responsibilities, thus change was necessary.

Another concern was that the 4-week teaching methods course did not allow sufficient time for students to reflect and internalize the lessons before departing for student teaching. In order to take advantage of the change in personnel and expressed dissatisfaction with the current curriculum, the client engaged two evaluators to help him reorganize the program. The evaluators chose to employ the developmental evaluation framework to find alternative models for the student teaching block. To execute the evaluation, the evaluators met with the client to determine the type of information he desired. The client wished to be informed of best practices

of agricultural education capstone experiences used by comparable institutions as a starting point for building an ideal and state-of-the-art capstone experience at [institution]. Thus, developmental evaluation allows for a flexible method to gather information and rapidly respond to the client's needs to inform program design and implementation.

In order to create a new agricultural education capstone experience, the evaluators developed a logic model to describe the inputs, outputs, assumptions, and external factors associated with the current method of pre-service training. To conceptualize the ideal experience, the evaluators interviewed faculty and analyzed documents from the top five distinguished agricultural education programs identified by Birkenholz and Simonsen (2011) and synthesized the results.

Results to Date

The advantages of using developmental evaluation include rapid feedback of emerging ideas, remaining sensitive to the client's needs, and co-creating a program that reflects best practices among peer institutions. The focus of developmental evaluation is to report findings throughout the process and participate in co-creating the program using evaluation logic. The result is a program that holistically addresses stakeholders' needs while reflecting a theoretically grounded foundation.

Future Plans

Using the information obtained during developmental evaluation processes, the client and evaluation team will create several models of the ideal program. These models will be variations of the best practices obtained from the participating institutions. The end product of the developmental evaluation process will result in creating a new capstone experience for pre-service teachers.

Resources Needed

The resources needed to conduct developmental evaluation are similar to other evaluation projects. In addition, the evaluator must have superior inter-and intrapersonal skills such as working in a team environment, negotiation, facilitation, and reporting both positive and negative findings. The evaluator should be very comfortable with ambiguity. In addition, evaluators need to have an understanding of how to recognize patterns that are associated with the program to diagnose emerging trends that point to reducing uncertainty within the context of developing a new program (Patton, 2011). Developmental evaluation work is emergent and rife with ambiguity but the outcome holds the promise of creating programs that are state-of-the-art with built-in evaluation logic that allows for later formative and summative evaluation activity.

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Innovative idea

Utilizing the Agricultural Experience Tracker as an Experiential Program Planning and Chapter Management Tool

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Utilizing the Agricultural Experience Tracker as an Experiential Program Planning and Chapter Management Tool

Need for Innovation

Current economic climates around the world foreshadow an increased demand in accountability in all facets of government. Priority two and three of the National Research Agenda (2011) serve as the guide for this poster. Priority two states "education, and outreach activities must continually change to address the new challenges and opportunities brought about by rapidly advancing technologies" (NRA, (2011), p. 8). Priority three addresses preparing, promoting, and retaining a professional workforce (NRA, 2011). In a study by Roberts and Dyer (2004), over 96% of the respondents reported that agricultural science teachers should effectively manage, operate, and evaluate an agricultural science program. As teacher educators work to prepare students to be equipped for an uncertain future, attention should be given to the signs of change evident in the world. As proponents and perpetuators of the three circle model, teacher preparation programs should increase the preparation given to students in regards to program planning and chapter management. Roberts and Dyer (2004) posit teacher education programs should provide experienced-based learning opportunities to nurture the development of some of these characteristics mentioned above.

Numerous students aspire to become agricultural educators but lack comprehensive programmatic knowledge of facilitating and planning a total agricultural education program. There should be a concerted effort across agricultural science teacher preparation programs to train pre-service teachers to be better prepared to manage a program of activities, calendar of events, and program budgets. Utilizing the Agricultural Experience Tracker (AET) allows students to fully immerse themselves in a chapter management system as well as learn how to quantify the impact and outcomes of their program.

How it works/methodology

Currently, all students involved in the program planning class at [University] are assigned a username and password in the Agricultural Experience Tracker (AET). This has been done for two semesters. All students are required to complete an autonomous, pre-made record book scenario in an effort to increase the exposure pre-service teachers have to Supervised Agriculture Experience (SAE). Students have traditionally assumed the role of a high school student in scenarios. While this approach works well for allowing students to learn about the student side of record keeping and SAE through role playing, it does little to teach the students about program planning and chapter management. In an effort to expound upon prior knowledge and foster a more complete understanding of the responsibilities a student will soon assume as a teacher, they are now given the role of a "teacher" in an effort to increase exposure to all the facets of the program, not just student record keeping.

In addition to record book assignments, students are randomly assigned to five different learning communities and must work together to develop a program of activities, program calendar, and program budget. The learning communities are then assigned accounts with the AET so they can learn to work on the total program management aspect of an agricultural science program, experientially, before their first year of teaching.

Before this innovation, students would complete program calendars, budgets, POA's on paper and various computer programs. While there are other methods to accomplish these essential activities of local program success, utilizing the AET allows the faculty at [University] to view student progress anytime from anywhere that has an Internet connection. It also reinforces to the students who are role playing a FFA Advisor/agricultural science teacher the efficiency and flexibility an online chapter management tool can bring into an agricultural education program. Students are required to collaborate within their learning communities to utilize the AET to prepare a year long program of activities in accordance with National Chapter Award Application guidelines, develop a program budget, create student groups, send messages to "students" and produce and publish an activity calendar. Students also generate economic impact statements in an effort to reinforce the importance of SAE and the value agricultural science programs can have in a community. Utilizing the AET in this manner also enables the students to be prepared to work with cooperating teacher sites who are already utilizing the AET for chapter management, program planning and record keeping.

Results to date/Implications

Once students learn the flexibility and utility of the AET there is evidence of an increase in their likelihood of adoption. When the students are sent out to student teach, they realize how prepared they are for chapter management, program planning, SAE record keeping, program of activities, and calendars. Returning student teachers often report using the AET as one of the most valuable aspects of their curriculum. There have been some cooperating teacher sites which have adopted the program management aspect of the AET once student teachers explain how it works. Student teachers express excitement about being well prepared and helpful during their student teaching experience. They also appreciate that the many programs in [State] have adopted the AET and they feel as though they have an advantage when entering the work force.

Future Plans

Efforts are underway to assign students an AET account as they take the introductory agricultural education course at [University] to allow them to keep records of their experiences in college for at least a year and a half. Other plans are to expand instruction on the teacher side of the AET for a total of at least two semesters. In the near future, students will complete a mock State Degree, American Degree and National Chapter Application as a result of their immersion in the AET. Plans also exist to utilize the AET in conjunction with the collegiate FFA at [University] in an effort to continue to foster authentic learning experiences and increase American Degree applications from [State].

Cost of the Program

The only cost associated with the program is time. Large amounts of time were required to prepare the initial Ag Ed Program and SAE scenarios. As the program continues to evolve, greater time will be required to make sure there is continuity throughout the teacher education program at [University]. The Agricultural Experience Tracker has agreed to provide the program with five separate "chapters" to aid in allowing students to work toward the goal of total program management.

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