



Poster Session Proceedings  
American Association for Agricultural Education Annual Conference  
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Forty-two posters were submitted for the Conference, with 21 submitted in the innovative idea category and 21 in the research category. A total of 12 innovative posters were accepted (57% acceptance rate) and 10 research posters were accepted (48% acceptance rate).

*Poster Reviewers*

The following people generously donated their valuable time to review poster abstracts. Without their commitment, the poster session would not be possible. For this, we thank them.

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**Development of an Online Community of Practice for International Agriculture Education  
and Training**

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# **Development of an Online Community of Practice for International Agriculture Education and Training**

## **Introduction**

In many countries throughout the world, and especially in developing nations, there is a growing demand for agriculture educators and trainers who possess the skills and knowledge of contemporary teaching and learning practices. As technology has progressed, online communities of practice have increased in popularity (Stuetzer, Carley, Koehler, and Thiem, 2011). A community of practice is defined as “groups of people who share a concern or passion for something they do and learn how to do it better as they interact regularly” (Lave and Wenger, 1998).

The Department of Agriculture Leadership and Community Education and the Office of International Research, Education, and Development at (a land-grant institution) have partnered to develop an online community of practice for international agriculture education and training practitioners. The creation of this virtual community allows agriculture educators to collaborate by sharing information, knowledge, and resources, thereby supporting students, local practitioners, and the general public.

As this community of practice is part of a larger grant project funded by USAID, it will be supported by faculty and staff at (a land grant institution) and will have input from leading agriculture education experts around the world. While many communities of practice encounter great challenges, prior planning will assist in managing and surpassing these boundaries (Bloom & Stein, n.d.; Goodyear, 2011). The objectives of this study were to determine the current needs of the International Agriculture Education and Training community of practice and to determine improvements to the existing community of practice model.

## **Methodology**

The members involved in the International Agriculture Education and Training community of practice participated in separate focus groups by researchers. The focus groups were shown a variety of existing Communities of Practice websites and asked questions regarding what they liked and disliked about the examples (Milwaukee School of Engineering, 2013; National Association of Agriculture Educators, 2013; Northwestern University, 2013; Penn Foster, 2013). Notes were taken during the focus group views and were then transcribed using the Atlas TI Software. Participants were asked to describe various aspects of the community of practice website, including content and layout that were noticeable to them. Additionally, they were asked to provide positive and negative feedback about general attributes that they would prefer while using the online community of practice. The feedback was compiled and categories of negative attributes, positive attributes, and suggestions were created.

## **Results to Date**

It is evident that the International Agriculture Education and Training community of practice requires updates and adjustments, as any technological system will at times. The four overarching categories that were identified from participants were accessibility, content, aesthetics, and layout. Participants used these categories to describe positive attributes, negative attributes, and suggestions they had towards the online community of practice.

Accessibility is a critical component for an online community of practice. Without being able to access necessary content, the community of practice will take longer to progress and develop. Participants discussed various operating systems throughout the world, with the consideration that browsers may differ in another country. Participants had positive feedback

when observing tabs on the website that were very helpful for navigation, and using the search tabs and filters for navigation access with the browsers that they were currently using.

Content is the most significant motivator for joining a community of practice. Since it is an ongoing community of practice, there is additional content being added as the community of practice continues to grow and more members become active. The participants had positive feedback with the resources, contact information, links, and templates that had been given to them through the online source. The “Discussion” tab was also very useful in bringing shared and useful content to the community. Negative feedback from participants included individuals throughout the world being able to relate to certain content in their own local communities, and also discussions in various languages, due to a potential language barrier.

Layout of the online community of practice was considered to be a significant factor to retain membership and increase usage of the site and resources, although there seemed to be negative attributes concerning icons, excessive information on a single page in some areas, and wasted space in others. Other participants enjoyed a simple layout, where content was accessible and not hidden throughout various tabs.

Aesthetics, while being a minor component, still created difficulties for some participants, especially for individuals with vision problems, different operating systems, or other technical issues. Participants noted that some color schemes were not pleasing and the font size used on some of the online communities of practice was too small.

### **Suggestions**

One of the major recommendations from the focus groups was for this particular online community of practice to include translations to other languages. As this community of practice is intended for international use, it is necessary to have content translated into various languages, as well as providing applications for other technological resources, such as smart phones and tablets. Access and layout are another area of concern. To assist with the language barriers, it may be useful to use photo icons to represent categories and navigation areas within the website to also improve accessibility. In order to enhance the legitimacy of this practice, quality control must be implemented in order to monitor content throughout the “Discussion” tab. Young professionals in the field should be encouraged to become more involved in this online community of practice to share their thoughts and knowledge, while gathering input from other experts in the field. The use of social media and weekly e-mails may increase the engagement of participants, which coincides with literature recommendations where management, involvement, and commitment are critical in sustaining an online community of practice (Cambridge, Kaplan, & Suter, n.d.; Lee & Valderrama, K., 2003; Loertscher, 2011; Wenger, 2000). The International Agriculture Education and training community of practice will continue to grow and develop in upcoming years with continuous feedback from participants. Without feedback, and participation of members, online communities of practice would not be able to thrive and succeed.

### **Resources:**

Resources for this particular project were minimal and provided by (land grant university). Researchers utilized pre-existing online resources to use as examples for the participants to view. The ATLAS T.I. software used was provided by the department’s existing resource base. Costs for this project included travel by car to meet with the focus groups and a portion of funding allocated to an existing graduate student stipend for the transcription and coding of the data collected.

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**Early Field Experience Summer Reading Program for Teacher Candidates**

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## **Introduction/need for innovation or idea**

Student personal and professional development is an area of increasing importance in teacher education preparation programs. The practitioner of the future needs to be able to reflect and self-assess his/her learning in order to take intentional steps toward developing and improving their teaching competency. Many view the development of reflective practice as the foundation for the highest professional competence (Cole & Knowles, 2000; Jay, 2003). Hatton and Smith (1995) define reflective practice as the use of higher-level thinking, such as critical inquiry and metacognition, which allow one to move beyond a focus on isolated facts or data to perceive a broader context for understanding behavior and events. In order for agriculture education student teacher candidates to develop a reflective mindset, the (State University) Agriculture Education teacher preparation program has implemented a summer reading program for the incoming student teacher candidates. To encourage thoughtful and balanced assessment of their selected readings, students are required to submit a reading reflection. The program is designed to actively involve the student in his/her education by writing self-reflective blog posts throughout the summer focused on the reading text selected. Through this program, students will apply higher-level thinking to broaden their understanding of teaching practices. The purpose of the Summer Reading Program is to also provide teacher candidates with “food for thought” as they embark on their preservice professional development, specifically addressing dispositions of successful educators and stimulate the teacher candidates informed opinions about ideas presented in the text and to consider how they affect their interpretation. Reading reflections offer an opportunity to recognize – and perhaps break down – the teacher candidates’ assumptions, which may be challenged by the text(s).

## **How it works/methodology/program phases/steps**

The incoming student teacher candidates are required to take an early field experience course the fall of their senior year. The students are provided a list of texts that center on educational practices, educational research, teaching inspiration, practical teaching techniques, and innovative ideas for teaching. Students are required to select a text prior to the end of the spring semester of their junior year. The course instructor must approve the selected text. The assignment associated with the reading program is for students to read the text in stages and post reflective blog posts. Along with posting their own blog posts, teacher candidates are required and encouraged to read and comment on their peers reflections to foster conversations to expand their knowledge, skills, and dispositions. The first third of the book is to be read by the middle of June. A reflective blog post on the first third of the book must be posted to the teacher candidates dedicated NAAE Communities of Practice sub-space, where they post comments on their peers’ posts. The second third of the book is to be read and reflected upon by the middle of July. Again, a reflective blog post must be uploaded and thoughtful responses to their peers’ reflections are required. The final third of the book is to be completed and reflected upon by the middle of August. As required for the other two reflections, students must post their reflective blog post and comment on their peers’ reflections as well. A final blog post is required to be posted by the first day of the governing class. The final reflection encourages students to reflect on the entire reading and answering the question, “How is/has this reading going to impact me as a teacher?” The final reflection is posted on the NAAE Communities of Practice sub-space and

teacher candidates post comments on their peers' reflections. Teacher candidates receive points based on their timeliness, quality, and fulfilling all requirements. The course instructor posts comments to all students blogs to provide feedback and encourage more reflective thought.

### **Results to date/implications**

The reading program began with a predetermined text selected by the course instructor, *The Courage to Teach* by Parker Palmer. However, student feedback revealed students preferred to have the option of selecting their own text. A suggested reading text selection list was created and provided to students to review that included title, authors, brief description, and a web link of texts deemed appropriate for the assignment. Students have been receptive of the change. The blog posts have provided students the opportunity to familiarize themselves with the NAAE Communities of Practice website and navigate the site successfully. The goal of uploading reflective blog posts to have students expand their thinking beyond the texts and perceive a broader context has been underwhelming. The course instructor has seen that many students lack deep reflective thought beyond regurgitating the text contents. The instructor also faces the challenge of tardy submissions.

A current 2015 teacher candidate and her cooperating teacher decided to read the selected text, *Lean In: Women, Work and the Will to Lead* by Sheryl Sandberg, together. As a result, the cooperating center's FFA is hosting a stakeholder meeting to gather visionary women together to take action to empower the next generation of female leaders. The book inspired the cooperating teacher and the teacher candidate to create a Lean In Circle during the school year that will meet monthly to connect influential women with the school's female students to share life experiences, open eyes to unthought-of opportunities, and drive a cultural shift in young female minds. The two are currently planning a meeting for the Lean In Circle Advisory team to shape the program for the 2014-2015 year.

### **Future plans/advice to others**

Future plans are to continue the summer reading program/assignment. Since its inception, a new text that offers great information and is written with unique style has emerged as a text that may benefit all teacher candidates. The Agriculture Education teacher preparation instructional team at (State University) will review the text and consider removing the option of selecting a text and assign the specific text, "*Teach like a Pirate: Increase student engagement, boost your creativity and transform your life as an educator* by Dave Burgess. The instructional team is also evaluating the pros/cons of providing guiding questions for their reflective posts.

### **Costs/resources needed**

Each teacher candidate is responsible for obtaining his or her selected text for the assignment. The cost incurred differs depending on format in which they purchase, whether it be the actual book or digitally. The cost, however, can be avoided if students borrow from the university library. Each student must also create a profile on NAAE Communities of Practice to access the respective sub-space created for their teaching cohort.

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**Enhancing Career Development Event Preparation Using Snapchat:  
A Snapshot of Identification Components of Various Career Development Events**

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# **Enhancing Career Development Event Preparation Using Snapchat: A Snapshot of Identification Components of Various Career Development Events**

## **Introduction**

Career Development Events (CDEs) aim to enable students to think critically, clearly communicate, and perform in an effective manner (National FFA, 2013). There are 24 various CDEs that occur at the National FFA Convention on an annual basis. Many of the CDEs include an identification portion to the event. For example, the floriculture CDE has over 140 items that could be included in the identification portion of the event. The veterinary science CDE has over 350 potential identification items. Training teams to identify that many items could prove difficult to an agricultural education teacher who also has other components to their agricultural education program. Finding efficient, effective techniques to aid in preparing CDE teams could alleviate some of the time commitments agricultural teachers are already involved in. Croom, Moore, and Armbruster (2003) concluded that teachers and students alike are finding it difficult to develop a training schedule in which all teachers can be present. Furthermore, some teachers surveyed in this study reported spending 10 or more hours of time after school training teams. Croom, Moore, and Armbruster (2003) posited that teachers could face burnout if they spend too much of their personal time in preparing students for CDEs. Do any technologies exist that could alleviate the amount of time it takes to train CDEs in an effective manner?

Incorporating technology into the classroom can be an effective way to engage students in the preparation process for CDEs. The U.S. Congress Office of Technology Assessment (1995) reported that incorporating technology into the teaching and learning process is an important step in the continuous investment in educational technology. Trilling and Hood (1999) reported that the use of telecommunications hardware and software enhances student learning. Utilizing current technology can aid agricultural educators within their respective programs around the country. Grossek (2009) pointed out many advantages to utilizing web 2.0 technologies for education including cost reduction, faster access to information, low level of complexity, reliability in continuous usage, as well as less time and energy spent on information management (p. 480). McCubbins, Anderson, and Wells (2014) utilized Snapchat to enhance safety in an agricultural mechanics laboratory. The researchers found that the students enjoyed utilizing a social media platform to reinforce safety in the agricultural mechanics laboratory. This led the researchers to develop alternative ways to utilize social media applications in the teaching and learning process. This innovative idea aligns with AAAE National Research Agenda priority area number 2, *Technologies, Practices & Products* as well as priority area number 5, *Efficient & Effective Programs* (Doerfert, 2011). With these challenges in preparing students for CDE's, could the use of a social media application help agricultural education teachers be more efficient in the training teams for this component of the agricultural education program?

## **How it Works**

Snapchat can be used by secondary and post-secondary agricultural educators in several ways. Secondary agricultural educators can utilize Snapchat to help prepare students for various CDEs that include an identification component in the event. Agricultural education teachers must create

a Snapchat account using a valid email address. Once a username and password have been created the teacher can begin adding friends. The teachers are then able to send or post a photo to their friends or on the story section of their Snapchat account. This enables students to view the picture, and respond with the correct identification of the item in the snap or story. The photographs in the story are on a timer between one and ten seconds and can be viewed as many times necessary within a 24 hour period. Snapchat users can delete the photo on their story at any time. The instructor has the option to save each photo posted to their story to their smartphone or tablet for review at a later date. McCubbins, Anderson, and Wells (2014) noted a review session at the end of the semester would be beneficial by simply saving all the safety violations documented within Snapchat. Once all the identification components have been uploaded to Snapchat they could be saved and included into a presentation or reloaded to Snapchat for a more comprehensive assessment of where students' current identification skills fall.

### **Results to Date**

Snapchat for CDE preparation was field tested by pre-service and in-service teachers in the spring of 2014. Pre-service teachers noted that the idea was an extremely unique way to incorporate social media technology into the teaching and learning process. Current in-service teachers reported faster retention of identification components to various CDE's offered through FFA. One current in-service teacher reported less time spent focusing on the identification portion of CDEs and better identification knowledge retention.

### **Future Plans/ Advice to Others**

Privacy of the educator and the students should be considered when utilizing Snapchat technology. Snapchat provides users the options to only receive pictures or videos from other people they add to their friends list. Strict parameters should be used when utilizing social media platforms between teachers and students. Continual evaluation of the effectiveness of the technology on the preparation for CDE's should be evaluated. It should be noted that Snapchat is very different from other social media platforms such as Instagram or Facebook. Pictures uploaded to either of those are permanently on the platform. With Snapchat, the photo disappears after a set timer. This allows the instructor to upload photos of plants or materials for identification purposes and the student must identify it within the set timer parameters.

### **Costs/Resources Needed**

Snapchat is a free social media application available on smartphones and tablets. Users of this free application must have an active email address. Data usage or wireless access is required to utilize the Snapchat features. Fees for data or wireless access on wireless technology vary with each provider. Aside from the costs of owning a smartphone or tablet, costs associated with this CDE preparation technique are minimal. Costs associated with traditional preparation for CDE identification portions of various contests could potentially outweigh the minimal cost associated with incorporating technologies such as Snapchat into CDE preparation.

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**Extreme Agricultural Mechanics Makeover**

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## Extreme Agricultural Mechanics Makeover

### Introduction

Phipps (1980) indicated that one of the goals in agricultural mechanics instruction is the development of psychomotor skills. Without adequate teaching materials, students are limited in their mastery of these skills. The seriousness of inadequate resources is well documented throughout the educational system. Niemann (1970, as cited in Veenman, 1984) indicated that inadequate facilities and equipment were two of the major areas of dissatisfaction among secondary teachers. In order to reduce teacher frustration, the Extreme Agricultural Mechanics Makeover was developed to assist a new teacher jumpstart the rebuilding process.

### How it Works

The extreme agricultural mechanics makeover is a community service project that focused on assisting a new agricultural education teacher whom inherited an agricultural mechanics laboratory that has been decimated by years of neglect. The [State] University Agricultural Education Club provided the funding for advertising, selected the winning school, and provided the man power the day of the makeover. The students enrolled in methods of teaching agricultural mechanics course spent one hour each week in class dedicated to planning the makeover. The class started by narrowing the applications down to three finalists for the club to choose from. Once the winning school was identified the class reviewed the application and broke into curriculum teams based on the content areas the teacher had hoped to teach. The students then visited the winning school and each curriculum team conducted a local needs assessment by interviewing the secondary students, the teacher, the industrial technology teacher, the administrators and a school board member. The curriculum teams developed a list of tools, equipment and any other supporting materials needed to teach the content areas that emerged from the needs assessment. Each curriculum team was responsible for identifying the companies that manufactured the items that emerged from the needs assessment. The teams then contacted those companies informing them of the makeover and determining their interest in developing a partnership. The students then secured donated items that would be stored in a semi-trailer loaned to the institution from the local community college until the day of the makeover. The local community college even provided the transportation of the trailer to the winning school. On the day of the makeover the students enrolled in the class and members of the club along with several graduate students and faculty members assisted in setting up and installing all of the items donated.

Table 1.

#### *Step by Step Guide on Implementing An Agricultural Mechanics Makeover*

<b>Steps</b>	<b>Actions</b>	<b>Responsibility</b>
Step 1	Develop program description, guidelines, and application	Instructor and Students
Step 2	Develop advertisement fliers and promotional video to be distributed at [STATE] FFA Convention	Club
Step 3	Distribute the Call for Applications and Applications to [STATE} Agricultural Education Teachers Via E-mail	Course Instructor
Step 4	Review applications and determine the makeover recipient	Students/Club
Step 5	Students divide into curriculum teams based on the content areas intended to teach as identified in the application	Students
Step 6	Tour the winning school to determine the laboratory layout and interview the teacher, students, & administrators to	Students

	determine local needs	
Step 7	Students determine the tools, equipment, and other items needed to successfully teach the content area they are responsible for.	Students
Step 8	Students contact industry representatives to develop partnerships to assist with the makeover. Instructor followed up with any representative that had additional questions.	Students
Step 9	Students collect donated tool, equipment, safety apparatuses and curriculum from industry partners	Students
Step 10	Laboratory, Classroom & Equipment Set up	Students, Club, Instructor, Teacher, Secondary Students & other volunteers

### **Results/Future Plans/ Advice to Others**

The Extreme Agricultural Mechanics Makeover was highly successful in revitalizing an agricultural mechanics laboratory that had no tools or equipment available to teach any hands-on activities. In total, the students had collected over \$120,000 in tools, equipment, textbooks, and safety apparatuses for the makeover. We intend to replicate this project on a semi-annual basis, the decision to not complete the project on an annual basis was due to the time commitment required for the course instructor to ensure the project was successful and to relieve the financial commitment from industry. The instructor highly recommends working with the students to develop a sales pitch prior to sending them out to meet with industry representatives. It is extremely important to collect the items that have been verbally agreed upon as soon as possible. Waiting to collect items closer to the makeover date gives industry time to forget and/or change their mind on the donations. The instructor also recommends setting this project up as a special topics course that is independent from the agricultural mechanics methods course. This will allow the students to spend more instructional time on agricultural mechanics coursework. This will also remove the students that had no interest in the project and provided little to no assistance to their curriculum group. The instructor also recommends working with your institution to offer service learning credits if available. This project can be replicated to fit the needs of other agricultural education laboratories as well, such as a greenhouse or an animal science facility.

### **Costs/Resources Needed**

Costs associated with this project to the department was minimal. The Agricultural Education Club covered the advertising costs associated with the makeover. The fliers, applications, and video production cost approximately \$300. The winning school had to commit \$10,000 in matching funds if they were selected. These funds were used to cover capital improvements and infrastructure costs. This included items like running new electrical outlets, reconditioning the concrete floor, removing an old gas line that was connected to an old kiln that was no longer functional, and tank rentals for the welder cylinders. Any funds left over after the capital improvements were used to purchase teaching materials that were needed such as additional Craftsman tool kits for the small engines that were donated by Briggs and Stratton.

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**Incorporating Experiential Learning Principles into a Methods of Teaching Agricultural Mechanics Course to Develop Pre-service Agriculture Teachers' Classroom Management Competencies**

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# **Incorporating Experiential Learning Principles into a Methods of Teaching Agricultural Mechanics Course to Develop Pre-service Agriculture Teachers' Classroom Management Competencies**

## **Introduction**

Agricultural mechanics instruction is a foundational tenet of school-based agricultural education programs (Anderson, Velez, & Anderson, 2011; Burris, Robinson, & Terry, 2005; Pate, Warnick, & Meyers, 2012). As agricultural mechanics technology is consistently updating and changing, experience in this content area is a must (Wells, Perry, Anderson, Shultz, & Paulsen, 2013). In order to more fully and successfully engage students, pragmatic teaching and learning experiences are required. Thus, agriculture teachers should be prepared to successfully engage students in the content area and actively manage both the classroom and laboratory environments (Phipps, Osborne, Dyer, & Ball, 2008).

In order to develop a firmer grasp of appropriate content and pedagogical techniques, hands-on experiential learning is recommended. As experiential learning is a foundational tenet of agricultural education (Roberts, 2006), such principles can also be appropriately used in an agriculture teacher education course to more fully develop classroom management competencies. As early-career teachers often struggle with classroom management (Phipps et al., 2008), perhaps providing additional experience in this area would be useful for pre-service agriculture teachers.

Agricultural education students at [UNIVERSITY] are required to successfully complete the Methods of Teaching Agricultural Mechanics course during their pre-service training. This course is designed to provide pre-service teachers with basic agricultural mechanics content knowledge coupled with sound pedagogical strategies. The technical content within this course includes instruction in mechanics laboratory safety, woodworking, welding, electricity, and small engine maintenance and repair. The pedagogical content covered within this course includes laboratory safety rule development, grading rubric development, mechanics laboratory planning, lesson planning, and content delivery strategies. Thus, pre-service teachers are provided a basic background in agricultural mechanics content while learning methods behind developing and implementing agricultural mechanics laboratory procedures and curricula.

## **How it Works**

Students enrolled in the course were required to teach two lessons during the semester that directly pertain to the aforementioned agricultural mechanics content. The first lesson, grounded in basic woodworking, was taught by students in pairs. Each lesson was designed to cover at least 25 minutes of class time with 10 minutes for lesson questioning and critique by peers and the course instructor. The second lesson, small engines mechanics, was taught by students on an individual basis and was designed to span at least 50 minutes of class time with additional time for questioning and critiquing. During each lesson, course students were asked to simulate an actual secondary agriculture classroom, thereby helping to further simulate the actual teaching experience. As a result of this occurrence, the students often began to respond naturally

to the lesson content in ways that would be expected of secondary students (i.e., boredom, disruption, excitement, interest, engagement, etc.).

Based upon students' responses to the lesson, the instructing student(s) were required to react in ways appropriate to a secondary classroom setting. In many instances, student disruptions were relatively minor and quickly corrected with a verbal warning. However, some behavioral issues escalated quickly. In one instance, a student left the work area during a small engines lesson and began to turn on all of the welding machines and ventilators in the facility, creating an excessive amount of noise and significantly diverting the flow of the lesson. Perhaps increased supervision could have prevented such an occurrence. It should be noted that in order to help maintain the fidelity of the classroom environment, the course instructor simply observed and allowed activities to occur organically. The final result of the student disruptions and responses to each instructor and his/her lesson was a deeper understanding of the experience of actively practicing and maintaining effective classroom management, a skill often lacking in early-career agriculture teachers (Phipps et al., 2008).

### **Implications**

The broadest implication of these additional experiential learning exercises in classroom management was students' conceptualizations of the essentialness of effective engagement and classroom management. During a discussion session at the final course meeting, most students reported this to be the single greatest challenge to their teaching lessons during the semester. Most students reported that their experiences will be useful as they prepare to enter into student teaching and, subsequently, their own classrooms. However, some students expressed hesitation at the use of the student disruptions, citing that practicing teaching an often unfamiliar content area (agricultural mechanics) was stressful enough without the added burden of student-related issues. However, as Phipps et al. (2008) indicated, the first year of an agriculture teacher's career is often the most stressful, as learning new content, maintaining effective classroom management, and keeping students engaged is a primary (and in some cases career-changing) challenge that must be overcome if an agriculture teacher is expected to survive in the profession.

### **Future Plans & Advice to Others**

It is expected that the course instructor will continue to implement this experiential learning approach during future offerings of the course. As the course is offered during both the fall and spring semesters, many pre-service teachers have the opportunity to enroll in the course and more fully comprehend a realistic classroom management experience. The authors of this poster recommend that other teacher education courses at [UNIVERSITY] adopt this approach. Other institutions should examine the possibility of adding this experiential classroom management exercise into agricultural teacher education program curricula.

### **Costs**

Other than the expected cost of compensating the course instructor, no additional costs were incurred as a result of implementing these classroom management learning exercises.

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**Introduction to and Exploration of SAE Through a Weekend SAE**

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## **Introduction to and Exploration of SAE Through a Weekend SAE**

### **Introduction and Need for Innovation**

Agricultural Education has a long history of using hands-on experience as a way for students to build knowledge. The SAE has its roots in the home project developed by Rufus Stimson in the early 1900's. Stimson (1919) proposed that home projects gave agricultural teaching the reality of actual life. John Dewey, arguably the father of experiential learning (EL) (Roberts, 2006), believed that all education comes through experience but that not all experiences are equally educational (Dewey, 1938). Dewey (1938) described the cyclical nature of experiential learning in his experiential continuum. The cyclical nature of experiential learning can be conceptualized in practice as PERT; prefection, experience, reflection and transfer (Retallick, 2010a). The stages of PERT help structure an SAE that is both experiential and educational by providing a framework for planned learning experiences.

Agriculture teachers embrace the concept of the SAE but have difficulty implementing it in practice (Dyer & Osborne, 1995; Retallick, 2010b; Wilson & Moore, 2007). Identified barriers to SAE implementation include changing demographics and societal attitude, mechanics and structure of schools, resource availability, image and the agricultural education system (Retallick, 2010b). Traditional SAE projects based on production or placement may not be a viable option for students. Alternative approaches, especially exploratory SAEs, are needed.

### **How It Works**

Many students, especially students considered at risk or with low socioeconomic status, may not have the resources, time, or support to initially participate in a traditional SAE. A small, easily managed project can help students take the first steps in planning their learning experiences, reflecting on what they have learned and applying their new knowledge in future experiences. A practical way to begin using PERT to guide students through learning experiences is to apply it to SAE projects that can be completed in a few days. The short time frame allows students to work through the EL cycle using PERT as guided practice. The experience they gain can then be transferred to more complex projects.

The Weekend SAE was implemented at [High School] to increase SAE participation. [High School] serves 1390 students in grades 9 – 12. The student body is 37.9% African American, 25.3% Hispanic, 34.3% White, 0.1% Native American, 0.9% Asian and 1.5% two or more races, 65.2% of the students are classified as economically disadvantaged. Most of the students live in urban and suburban areas.

Because of the diversity of students and the number of them who were unable to establish a traditional SAE, the weekend SAE was developed and implemented. It was essential for the Weekend SAE to be student-centered so that it would engage the students and give them experience that could lead to longer term, more complex SAE's. The stages of PERT were followed to plan the experience. For example, on Friday students participated in prelective activities to focus their project by identifying what they wanted to learn and how they would learn it. Preflection is a great opportunity for cross-curricular instruction and may include

writing or internet searches. The actual experience took place over the weekend outside of the classroom. On Monday, the students reflected on their experience with a writing assignment, class presentation, and/or poster. Reflection needs to be more than just a summary of the experience. The students drew conclusions, connected it to their preconceptions during the reflection process, analyzed what they learned and applied their new knowledge to other experiences. As the students applied their new knowledge to new experiences they built the foundation for an SAE that is both experiential and educational. One outstanding weekend SAE centered on wildlife and natural resource, specifically fishing.

**Reflection** – Brainstorm ideas for a weekend project with other students and the agriculture teacher. Choose a topic of interest and set learning objectives. Objectives in this case were to document the species and weight of fish caught, time of day, and bait used.

**Experience** – Spend Saturday fishing and document the pertinent information.

**Reflection** – The student wrote a brief reflection paper in class that stated his results. Then he identified other variables that could affect his fishing.

**Transfer** – The student went fishing the next Saturday and added documentation on weather conditions to his catch chart. The student continued this project by later comparing data collected in various locations over several days. Those observations evolved into the reflection element of a national resource research SAE and agri-science fair project.

### **Results to Date and Implications**

The Weekend SAE concept was attempted and achieved moderate success. The concept was introduced as an assignment in three agriculture classes with a total of 38 students. All of the students completed the assignment. Three students who had never participated in an SAE embraced the concept and are developing more complex research SAEs based on their weekend experience. The example above is from one of these students. The Weekend SAE concept should be developed further as a tool to increase SAE participation.

### **Future Plans and Advice to Others**

The Weekend SAE has the potential to engage students from diverse backgrounds in experiential learning. It should be seen as an exploratory SAE designed to give students practice developing and applying their knowledge. Initial experience gained in the Weekend SAE needs to be transferred to more complex SAE's that fit the more traditional time frame needed for FFA scholarship and award applications.

### **Cost**

The cost of the Weekend SAE is minimal. There is no direct cost to the school district, only a time commitment from the facilitating agriculture teacher. The student's cost will vary depending on the SAE they design. Some projects can be free while others may require some supplies or transportation.

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## **Outback Wildcat: Teaching Agricultural Education in the Land Down Under**

North Central Region of American Association for Agricultural Education  
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## **Outback Wildcat: Teaching Agricultural Education in the Land Down Under**

### **Introduction/Need for Innovation or Idea**

The Institute of International Education (2010) reported that the United States is behind several countries with similar economic stature in developing a sense of global competence in college students. Though the number of American students studying abroad is still limited, it has more than doubled from 1991/1992 to 2005//2006 (Institute of International Education, 2006). Reasons for the lack of interest or involvement in study abroad at the undergraduate level vary. Dolby (2005) found that US students' strong national identity prevents them from exploring the possibility of global experiences while Salisbury et al. (2009) believed it was the socio-economic status and the amount of capital resources retained prior to college admission. However, Bunch et al. (2013) believed the barriers and motivators were different at every university after comparing students between two land grant institutions.

Nonetheless, positive attributes are acknowledged when a student expands their travels and scholastic studies internationally. Research in 2004 revealed study abroad having a significant impact on students' continued language use, academic attainment measures, intercultural and personal development, and career choices (Dwyer, 2004). Agricultural education is no different. In a study conducted by Foster et al. (2014), positive results were found in students participating in an established study abroad course. Some of the results were: sustained change in the cultural knowledge, perceptions of knowledge, perceptions of skills, and perceptions of dispositions related to global competency.

### **How it Works/Methodology**

A partnership was between the University of Kentucky and Charles Sturt University in the New South Wales state of Australia and The Scots School in Bathurst, Australia. In a program coined, "Outback Wildcat" agricultural education students are selected to student teach for half of their capstone semester in Australia under the supervision of trained teacher education faculty at Charles Sturt University. Participating student teachers from the University of Kentucky pay their normal tuition cost. Furthermore, students at Charles Sturt University are allowed to attend the University of Kentucky (UK) at the cost of their own university's set tuition. The partnership is set up on a 1:1 attendance ratio.

Agricultural Education students interested in the student teaching experience complete an application, participate in an interview, and expected to meet a variety of expectations (3.2 cumulative grade point average, record of leadership success, maturity growth, etc.). Considering the academic calendar in Australia, UK student teachers are assigned a domestic cooperating teacher for their first two months (January & February) and complete their final two months (March & April) at the assigned agricultural education program in Australia. Cultural growth and competency evaluations are collected three times during the international experience and qualitative data is collected on a weekly basis.

## **Results to Date/Implications**

Two students participated and completed the pilot program during the Spring 2014 academic semester. In addition, a faculty member within the College of Education at Charles Sturt University received training necessary for the successful completion and teacher certification of all Kentucky post-secondary students for a Kentucky teaching certificate.

Ninety secondary youth received Agricultural Science instruction from the two pre-service teachers. During the international student teaching experience, the pre-service teachers participated in five Supervised Agricultural Experience home visits; three regional and national livestock shows; two regional equestrian competitions, and numerous extracurricular school activities. Student teachers maintained daily and weekly journals to highlight their experiences and document the multicultural growth and understanding of the cultural dynamic observed and taught. Finally, five students have completed applications and participated in interviews for the upcoming 2015 “Outback Wildcat” agricultural education student teaching experience.

## **Future Plans/Advice to Others**

Future goals of the “Outback Wildcat” program as it relates to the student teachers include: (a) expansion into the Fall semester and (b) growth of agricultural education student teacher placements throughout the Bathurst region. Once the partnership is secure and quality relationships are established it is the intent of the UK agricultural education program to (c) establish a secondary agricultural education teacher exchange during each country’s summer break and (d) create a two-week international course for undergraduate agricultural education students to participate in field experience observations. Finally, throughout the exchange the professors at each partnering university look to (e) evaluate cultural awareness gained and transition of cultural competence to secondary domestic classrooms.

## **Costs and Funding Sources Associated with Participation**

There are several noteworthy features of mechanism to fund students who participated in the pilot project. Each participating pilot student received a \$1000 scholarship toward tuition cost. Nonetheless, each student was responsible for her own transportation to and from Australia (~\$1600); room and board provided by The Scots School (\$3200); study abroad fees (~\$200); and incidentals (\$500). The Scots School provided the student teachers with transportation while living in Bathurst. Charles Sturt University provided housing during the Easter break and weekend activities when school were not in session. When school was not in session, Charles Sturt University and The Scots School facilitated homestay programs for the students. We anticipate that, in the future, participating student teachers will be eligible for scholarships from the University’s Education Abroad office and College of Agriculture, Food and Environment. It is the intent of the program faculty to establish an endowment to assist students with travel expenses.

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**Public Service Announcement: Spreading Farm Safety Awareness Through The Use of the Mobile Application, Glide**

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## **Public Service Announcement: Spreading Farm Safety Awareness Through The Use of the Mobile Application, Glide**

### **Introduction**

Programs in sustainable agriculture are becoming ubiquitous in the colleges of agriculture at the college and university level (Thompson, 2009). With students partaking in these courses, agricultural educators must place emphasis on their students' safety (Daniels, 1989). [Course] is the senior level capstone course in which students enroll during their final year of a production agriculture-focused curriculum. The [Course] offers students an experiential learning rich laboratory that allows them to gain the practical experience of managing and operating a typical Midwestern farm (Trede & Andreasen, 2000). As stated by Crunkilton, Cepica, and Fluker (1997), a capstone course allows students to integrate previously learned subject matter with new information to solve real world or simulated issues. The experiential learning activities utilize the five required components of a capstone course which includes team work, problem solving, decision-making, critical thinking, and communication (Andreasen, 2004) as students must work together and make decisions to sell commodities, purchase inputs, and maintain resources on the farm (Trede & Andreasen, 2000). Since they are working on a farm, the students assume the risk of the multiple hazards farming can pose.

Ranked as one of the most hazardous occupations, farming has one of the highest accident rates in the United States, stemming from farming machinery and equipment, storage bins, silos, and animals (DeRoo and Rautainen, 2000). Farm safety educational programs are utilized to educate, convince, and persuade farmers to participate in safe behavior while at and away from work (Ambe, Bruening and Murphy, 1994). One excellent way to promote farm safety is to conduct public service announcements. As stated by O'Keefe and Reed, (1990), public service announcements (PSAs) are created to influence public beliefs, attitudes, and behaviors concerning situations that are of great importance to a community, while informing citizens of possible solutions to these situations. Social networking has become popular as an instructional tool with educators since society has rapidly taken to social media (Settle, Telg, Irani, Baker, Rhoades, and Rutherford, 2011). Glide, which has 2 million active users, is a walkie-talkie styled app that records a video and sends it to the user's friends while simultaneously alerting them that they have received a recording (Olson, 2013). Though it is mainly utilized for social communication, it has been tested by the instructor and graduate assistant for educational uses in the classroom. Could the integration of a mobile phone application, Glide, be utilized to develop PSAs in an agricultural capstone course to help students recognize and prevent or potential safety hazards and also educate their classmates about these situations?

### **How It Works**

Students utilized Glide to develop PSAs that were distributed to their classmates via iPad to educate each other about possible safety hazards that have arose during experiential learning activities on the farm. Students performed weekly tasks on the farm, they recorded five minute Glide videos of possible hazards and educated classmates on how to prevent, avoid, or remedy these hazards. The videos were saved within the application and were also saved for reviewing. For students who did not know their classmates' numbers or the students who did not want to give their numbers out, the app provided them with a pin number that allowed their friends to contact them through the app. Glide does allow the user to email the videos they have created to

their intended recipients, provided that the recipient has Glide to view the videos. Table 1 outlines the steps in creating a Glide account and the utilization of the app to send PSAs to other students to educate them on potential farm safety hazards.

**Table 1.**

**Steps to Utilizing Glide to Develop Public Service Announcements for a Capstone Course**

Steps	Activity	Description
Step 1	Download the Glide app and follow instructions to set up app.	Download glide from either the Apple Store or Google Play, depending if the user has an iPhone/iPad or Android. Follow instructions that allow the user to utilize Glide.
Step 2	Add classmates and teacher	Students normally will have each other's contact information, and the teacher's contact information is usually on his/her syllabus.
Step 3	Begin recording videos	Students should recognize potential hazards on the farm, record 5 minute videos of hazard and how to remedy it, and send to either one class member or multiple class members and teacher.
Step 4	Review videos	Recipient of videos may review videos multiple times after receiving. This allows the teacher to grade for content and can even make room for discussion via Glide.

**Results to Date**

This innovative idea was tested by the instructor and the graduate assistant. The instructor found the application very easy to use. Assignments utilizing this application are being developed for the students. Since every student in the class may not have a smart phone, they will use the iPads which are provided since the app is iPad accessible.

**Future Plans/Advice to Other**

Safety and privacy is very important when users share information through the internet. Two users can only interact via Glide when both parties have the app installed on their device. This app also encourages the enhancement of team work, communication, decision making, problem solving and critical thinking between students due to the fact that there are assignments students must collaborate on outside of the classroom.

**Cost/Resources Needed**

Users who plan to utilize this app will need either a smartphone or a tablet that has a wireless connection. The app is downloadable from both the Apple App Store for iPhones and Google Play for Androids. Other than the personal charges that the user will incur from owning a smartphone, which may include data usage, the app is free to download. The app is also usable via other devices such as iPod touch.

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**Saving Lives in Rural Appalachian Communities through Agricultural Mechanics  
Education**

**Innovative Idea Poster**

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# **Saving Lives in Rural Appalachian Communities through Agricultural Mechanics Education**

## **Introduction/Need for Innovation or Idea**

According to Adekoya and Pratt (2001), over 2000 youth under the age of 20 were fatally injured on farms over a twenty-year period. The absence of safety features on tractors, including seat belts and Rollover Protective Structures (ROPS), have been correlated to many of these fatalities (Purschwitz, Stueland, & Lee, 1994). When purchasing a tractor the size, jobs to be undertaken and the cost are three of the most common considerations for farmers, followed by safety (Franklin, Stark, & Fragar, 2006). Farmers believe that they are resistant to such accidents, and this false sense of security is often passed to younger family members (Ambe, Bruening, & Murphy, 1994).

Previous attempts at teaching tractor safety to adults have been ineffective at changing work practices and behavior (Ambe, Bruening, and Murphy, 1994). As a result, trends reveal an effort to educate farm youth in an attempt to improve safer farm practices (Carrabba, Jr. et al., 2001 and Goldcamp, Hendricks, & Myers, 2003). One approach for engaging and implementing farm safety practices among youth could be through experiential, service-learning projects. According to Shoulders, Blythe, and Myers (2013) giving students ownership in the laboratory activity was the most important lesson-based attribute. With the implementation of ROPS as a service-learning project for the community, an attempt is being made to reduce the number of youth injuries and fatalities.

## **How it Works/Methodology**

This project is called Cost-effective Rollover Protective Structures (CROPS), which provides a high quality learning experience for students at no cost to them. The goal of this project is to deliver an engaging and relevant learning opportunity for secondary agriculture mechanics programs in rural Appalachian communities; identified as a high risk area for tractor rollovers (Struttman & Spurlock, 1994). Teacher educators and state staff identified a pool of possible participating teachers that were considered instructionally proficient in the area of agricultural mechanics and recommendations. Therefore, eight agricultural education programs were selected in the Appalachia region of [STATE] to construct and install 2 – 6 CROPS. Once consent was received, the selected programs sought farmers in their communities for CROPS installation.

Curriculum is provided to the teacher with intent to serve as a resource for the instruction of farm safety prior to the construction of the CROPS. The curriculum assist in providing a deeper understanding and ownership toward the CROPS assembly for farmers and the impact that they will leave on the community. Once the CROPS have been constructed, installation begins. Upon installation, local media is invited to report. Before the final CROPS is installed, each participating program The agricultural mechanics programs allow the University of [STATE] to collect data in the form of student knowledge gained, perceptions and change in youth mindset, successes and concerns from teachers, and stories from participating farmers.

## **Results to Date/Implications**

Grant renewal has recently been approved for a third consecutive year (2014-2015), bringing the total project to nearly \$155,000. Plans for the third year are to expand further into the Appalachia regions of two more states; more specifically western North Carolina and eastern Tennessee, to include twelve schools and 36 CROPS. To date, nearly 200 agricultural education students have participated in the construction and installation of 26 CROPS. According to census data, participated schools were located in areas identified with a household poverty rate of 19.2% or higher. Qualitative and quantitative data were collected with one publication under review in an agricultural medical journal. In addition, the researchers discovered methods that decreased the cost for production of the CROPS project by over 200%.

## **Future Plans/Advice to Others**

For this academic year (2014-2015) the region is the Appalachian areas of Kentucky, North Carolina and Tennessee. From the results of the collected data, it is the intent of the researchers to obtain an Educational Opportunity Program grant that will extend the project to agricultural mechanics programs throughout southeastern and Appalachian regions of the United States. Curriculum is being developed in order to continue the relevance and importance of the ROPS use and farm safety awareness. The use of social media will expand the visibility of CROPS and attempt to provide sustainability of the project for all participating schools in following years.

## **Cost/Resources Needed**

The costs associated with this project are funded by a grant sponsored through the Southeast Center for Agricultural Health and Injury Prevention. All totaled material costs equate to \$387.66 to construct a CROPS and an additional \$238.75 to add a seat and seatbelt. These combined are \$626.41, which is much cheaper than the purchase and installation cost from a manufacturer. The grant furnished each participating agriculture mechanics program with all materials, tools, and fabrication supplies.

Besides the physical construction of the CROPS, a classroom component is also part of the project. Farm safety curriculum is provided to the teachers for utilization prior to the fabrication process. The curriculum was funded from a previous grant project, Community Partners for Healthy Farming Project.

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**Science of Agriculture Response (SOAR): Integrating Science Content Standards into 4-H  
Youth Development Curriculum and 4-H Projects**

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## **Science of Agriculture Response (SOAR): Integrating Science Content Standards into 4-H Youth Development Curriculum and 4-H Projects**

### **Need for Idea**

Science achievement in the United States among K-12 youth has lagged behind many of their grade level peers from other countries for many years, prompting much concern from researchers (e.g., Miller, 2006; Murcia, 2007; Scarce, 2007) as well as from federal agencies such as the National Academy of Sciences (2007). 4-H encourages members to acquire project and life skills through project-based experiential learning (Boleman, 2003).

Non-formal educational experiences, such as those found in 4-H, can play an important role in increasing children's exposure to, and interest in, science. Science-related projects are the most common among the myriad of projects available to youth through their 4-H programs and account for nearly one-half of all 4-H projects administered nationally (USDA, 2002). Exposure to 4-H science-related programming in particular appears to be significantly associated with higher-level science coursework taken in high school (Heck, Carlos, Barnett & Smith, 2012).

Despite some promising evaluation research on nonformal science education, such as the impacts of educational delivery in an experiential-learning, inquiry format, less attention has been paid to the impact that out-of-school programs may have on science interest in youth. Research on science programs in nonformal settings has suggested that nonformal science programs have the potential to increase science interest among young people and that these programs can have long-lasting impacts. (Heck, Carlos, Barnett & Smith, 2012) The Science of Agriculture Response Program (SOAR) was designed to integrate and make the cognitive connection that exists between science content standards and 4-H member projects.

### **How it Works**

The Extension Center for Youth Development, volunteers, community leaders, and advisory board members collaborated to create the Science of Agriculture Response program. The goal of SOAR is to encourage 4-H members to develop a deeper understanding of science content standards associated with 4-H projects and activities.



SOAR will utilize an experiential learning approach that employs the skills gained from a 4-H project and require students to demonstrate the acquisition of those concepts via a visual presentation. The 4-H members will participate in the SOAR program on 3 levels; the local club level, regionally, and at the State 4-H Agriscience Summit. The matrix above illustrates the sequence of events for the SOAR program.

### **Results to Date**

During the phase one development of the SOAR program, 8 primary topic areas were identified: animal science, agriculture mechanics, plant sciences, STEM, healthy lifestyles, wildlife and natural resources, biotechnology, and leadership development. Currently, agriculture curricula, resources, and state science content standards that exist are being evaluated by a panel of experts to identify the key components that should be included within the SOAR curriculum. The identified components will be used to develop the SOAR curriculum and the required 4-H volunteer training programs specific to SOAR.

### **Future Plans**

During the spring of 2015, 4-H members will participate in a pilot test for the first annual State 4-H Agriscience Summit. During the Summit, 4-H members will display posters that they developed and/or deliver oral presentations regarding an issue within the topic matrix that relates to their 4-H project. There will be a poster division and presentation division for each of the 8 topic areas identified. The posters and presentations will be evaluated by industry leaders, stakeholders, and members of academia. Scholarships and awards will be presented to the top 5 individuals in each topic area division. Surveys will be provided to the participants and volunteers. The survey data will be analyzed and modifications and improvement will be made to the SOAR program based on data collected. The SOAR program will be used to facilitate the annual State 4-H Agriscience Summit.

### **Resources Needed**

Currently, a faculty member at the [UNIVERSITY] serves as the SOAR program coordinator. The coordinator and panel of experts working on the SOAR program require access to current agriculture curricula and state science content standards. The coordinator is

reimbursed for their travel expenses to visit agribusiness/industry locations in order to make connections, deliver workshops, and evaluate program progress. The reimbursement is sourced funding from grants, foundations, and sponsors.

4-H volunteers are needed to deliver the curriculum to 4-H members and locations for volunteer training will be required. Regional 4-H Extension offices will be utilized for Regional 4-H Agriscience Summits. When implementing the State 4-H Agriscience Summit, sponsors will need to be obtained for scholarships and awards. Industry leaders, stakeholders, and members of academia will need to be obtained to evaluate the 4-H posters and presentations. Statistical Package for the Social Sciences (SPSS) data analysis software will be required to evaluate data collected from the surveys collected.

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Teach Ag! Summer Recruitment Academy

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## **Teach Ag! Summer Recruitment Academy**

### **Introduction/Need for Innovative Idea**

The success of secondary Agricultural Education programs depends on an adequate supply of qualified and certified agriculture teachers. During the past few years, the teacher shortage in Agricultural Education has become a critical issue for many states. Previously, Kantovich (2010) published that there was a shortage of newly qualified agriculture teachers and some programs would face challenge when attempting to fill positions. In response to these concerns, local and national leaders have concentrated efforts in the area of recruitment and retention of teachers to address the critical issue. The Teach Ag! campaign has been on the front lines of agriculture teacher recruitment by leading and organizing efforts to recruit future teachers. As the certifying body for secondary agriculture teachers, university programs provide a critical function in the Teach Ag! campaign by certifying teachers and recruiting students into the teaching profession.

### **How it Works/Phases**

Based on the growing demand for agriculture teachers, the [Department] at [University] developed a focused three-day Teach Ag! recruitment academy for high school students interested in agricultural education as a career. The event was planned in conjunction with the [College]. The event was targeted toward students entering their Junior or Senior year of high school and was advertised through personal contact at a statewide Teach Ag! workshop, an email to current agriculture teachers, and posted on the [University] website. Interested students completed an application along with providing a letter of recommendation from their local agriculture teacher or guidance counselor. Based on the applications and recommendations, a group of students were invited to attend. The goals for the academy were to foster an interest in teaching agriculture, build a sense of cohort amongst the students, and promote the [University].

### **Results to Date/Implications**

The first Teach Ag! Summer Academy was held July 2014. There were 20 high school students that attended representing 19 schools from across the state of [State]. The students arrived on a Sunday afternoon, where they were greeted by four current Agricultural Education students serving as counselors. Students and parents attended an opening reception welcoming them and outlining the details of their stay, include dining and residence hall logistics. Upon completion of the reception, students engaged in low and high ropes courses to begin building comradery. The evening finished with a pizza party and presentation on networking and social media use. As Monday began, students toured the university and were given a welcome by the department faculty and counselors. Students then received their capstone assignment for the academy: to work in teams to teach an agricultural lesson to their peers. As the second day progressed, interactive presentations were given about what it is like being a teacher of agriculture, keys to teaching in a classroom, and the role of Supervised Agricultural Experience programs. Students also engaged in three lessons from the Curriculum for Agricultural Science Education (CASE) Animal Science curriculum. The evening finished with an inside look into the athletic facilities and recreation at the student recreation facility. Tuesday was the final day of the

academy. The morning began with discussing what is it to be an FFA advisor. The rest of the morning was filled with the students teaching lessons. It was not only educational and enjoyable, but gave the students a chance to experience teaching. The academy finished with a luncheon at a local restaurant. Parents, guardians, families, and teachers were invited to attend. With over 50 people in attendance the luncheon was a true celebration of the academy.

Students indicated on an exit questionnaire the Teach Ag! academy positively influenced their decision to attend the [University] and to major in Agricultural Education. Students developed a strong sense of cohesion with fellow students and with the Agricultural Education counselors, observed as a special connection and trust with other participants and counselors in both face-to-face interactions and in social media posts.

### **Future Plans/Advice to Others**

The department does plan to continue the event in the future. It will be held at approximately the same time next summer as the date seemed to miss several county fairs and other potential competing activities. The length of the academy will stay the same as it met the goals that were set forth but also left most of the students with a desire for more. The program sections will stay similar with a few changes. The CASE lessons were a highlight and will continue to be an essential section of the program. In coming years, the department will work to bring in current teachers to share their experiences with the students. The department will continue to stay in contact with these students over the next year through mailings and phone calls from the counselors. Additionally, the department will continue to work to build a relationship with the parents/guardians. It became very evident during this academy that not only was the department recruiting the student but also the parents/guardians.

If looking to implement a similar event there are some key pieces to keep in mind. The current high school agriculture teacher of the student is very important. They were the initial contact that was made to recommend a student. Once the application was submitted it is essential to stay connected to the student in an attempt to make sure they attend the academy. Once on campus, the experience needs to be a balance of experiencing the university along with learning about the career of teaching agriculture. The use of personable Agricultural Education students as counselors can make or break the experience. The combination of all these pieces must be in place for an effective recruitment experience. The final key is to remain in contact over the next year with not only the student but also parents/guardians and the local agriculture teacher.

### **Costs/Resources Needed**

The cost for the event was approximately \$150 a student. The student was asked to pay a small portion of the cost as a registration fee. The remaining expense was covered by the college, department, and donations. All entities viewed this as an investment in the future and did not want the cost to be a barrier for students. This cost included room, meals, supplies, and promotional items. Ag Ed counselors were paid for their time through the support of the college. The additional indirect cost was in the form of faculty time. With this being done as a departmental effort the individual time allocated was not extensive.

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**Utilizing Authentic Assessment Strategies in a Methods of Teaching Agricultural Mechanics Course to Develop Pre-service Agriculture Teachers' Laboratory Management Competencies**

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# **Utilizing Authentic Assessment Strategies in a Methods of Teaching Agricultural Mechanics Course to Develop Pre-service Agriculture Teachers' Laboratory Management Competencies**

## **Introduction**

Agricultural mechanics remains an ever-important content area in school-based agricultural education (Anderson, Velez, & Anderson, 2011; Burris, Robinson, & Terry, 2005). The popularity of such coursework helps to ensure its continued offering in modern school-based programs (Hubert & Leising, 2000). Further, high-quality agricultural mechanics content can help secondary students to better connect with and understand academic coursework (e.g., mathematics) through hands-on learning situations (agricultural mechanics) that help to engage them cognitively and cohesively, thereby helping to solidify the educational process (Parr, Edwards, & Leising, 2006).

Because agricultural mechanics remains a diverse and important content area, it is vital that beginning agriculture teachers be prepared to teach the subject matter (Burris, McLaughlin, McCulloch, Brashears, & Frazee, 2010). Agriculture teachers must be prepared to implement a wide range of learning activities using various technologies to accomplish the purposes of mechanics laboratory instruction. To this end, laboratory management remains an important skill development area for new teachers as well (Saucier & McKim, 2011). In order to properly manage the agricultural mechanics laboratory and its assets, teachers must possess a broad knowledge and skill base that is up-to-date regarding equipment and facilities, organized in its approach, and comprehensive in its nature (Saucier & McKim, 2011).

Based upon these revelations, researchers at [UNIVERSITY] have pondered upon the notion of developing pre-service agriculture teachers' agricultural mechanics laboratory management competencies. This notion was guided by specific competencies detailed by Saucier and McKim (2011). Specifically, as the Methods of Teaching Agricultural Mechanics course is designed to address pre-service teachers' professional competency needs in the aforementioned content area, it was determined that laboratory management needs should be addressed in the course through an authentic assessment approach.

## **How it Works**

In order to more fully develop an authentic format for students' intellectual and professional development, several activities were utilized that would reflect vital components necessary to high-quality agricultural mechanics laboratory instruction. Because authentic assessment is a useful tool for measuring students' abilities and content mastery (Newmann & Associates, 1996), such a method naturally reflected upon the use of the preceding course activities. Agriculture teachers are often challenged to provide learning activities that are comprehensive in nature, depth, and scope, and reflect occurrences that happen within the real world, i.e., authentic settings and assessments (Phipps, Osborne, Dyer, & Ball, 2008). Additionally, as laboratory management remains a high concern of pre-service agriculture teachers (Saucier & McKim, 2011), the authors of this poster believed that such authentic assessment principles could be used realistically within the course to better prepare future agriculture teachers to implement their agricultural mechanics laboratory management strategies

and ideas all the while granting them the opportunity for peer and instructor assessment of their work.

The laboratory management activities included the development of safety rules for an agricultural mechanics laboratory, the creation of a shop clean-up roster and rotation, project grading rubric development, mechanics laboratory layout specifications, and lesson development and planning. Each activity was designed to provide much-needed practice in cognitively assessing needs for the given facilities. Additionally, each activity was chosen based on selected literature pertinent to effective agricultural mechanics laboratory management (Johnson & Schumacher, 1989; McKim & Saucier, 2011). As each assignment was presented during the semester, students based their work upon pre-existing students, lessons, projects, and facilities within the Agricultural Mechanics Laboratory at [UNIVERSITY]. For example, the project grading rubric was developed based upon students completing an actual woodworking project during the course, while the laboratory layout plan was based upon the facilities used within the class. Also, students were allowed to present their work to their peers and course instructor for additional feedback. As a result, students were allowed to complete various laboratory management-related activities within the context of a university agricultural mechanics course and facility, thereby increasing the authentic feel of the experience.

### **Implications**

During an open discussion held between the course instructor, the graduate teaching assistant, and the students during the final course meeting of the Spring 2013 semester, many useful discussion points emerged regarding the implemented laboratory management strategies. Most students expressed support for the use of these activities and the authentic context through which they were developed. For example, many students enjoyed the opportunity to create their own laboratory rules and have them critiqued by peers, as they reported a deeper understanding of the cognitive strategies behind such activity development. Most students reported a heightened awareness regarding the importance of appropriate laboratory management strategies and the role they play in ensuring a smooth flow of activities in the laboratory environment.

### **Future Plans & Advice to Others**

Based upon the success that was witnessed within the course during the Spring 2013 semester, the authors of this poster recommend that these activities be used within future offerings of the course. These activities, based upon students' responses, made some impact regarding the importance of developing and maintaining effective laboratory management strategies. To this end, other agriculture teacher preparation institutions should consider a similar approach in addressing pre-service teachers' laboratory management competencies.

### **Costs**

The additional time needed to facilitate the authentic learning process comes with a cost to the students with some loss of instructional time that could have been devoted to additional skill development (i.e., the time spent developing laboratory rules in class versus the instructor setting the rules prior to the beginning of the semester). However, beyond the typical cost of compensating the course instructor, there were no additional monetary costs to implementing these activities and the aligned authentic assessment strategies within the course.

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**AAAE North Central Region Research Conference: Why We Attend**

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## **AAAE North Central Region Research Conference: Why We Attend**

### **Introduction**

Research conferences can be useful venues for sharing scholarly work for professional societies such as the American Association for Agricultural Education (AAAE). Benefits to attending research conferences can include professional development, interaction with peers for collaborative research activities, experiences for graduate student development, and acknowledging the accomplishments of members through award recognition. An important function that research conferences can also serve is to provide membership opportunities to conduct the ongoing business of the organization. This includes defining the objectives, purpose, and future direction of the organization. It is with this thought in mind that the following research project was initiated. AAAE holds an annual, national research meeting in addition to regional research conferences. This paper examines AAAE members' motives for participating in the North Central region research conference.

### **Theoretical Framework**

Motivation to attend a conference is situated within the workplace expectancy model (Vroom, 1964). The theory supposes that members make rational choices (e.g. attending a conference or not) based on two successive relationships, (a) effort and performance expectancy and (b) performance and outcome expectancy; the model is often written as, Effort → Performance expectancies, Performance → Outcome expectancies. In this study, the effort and performance expectancy relationship can be described as a member's expectation of the amount of effort required to lead to successful performance. In other words, members would evaluate whether the effort to attend the conference (e.g. accessing funding, submitting work) is likely to lead to actually attending the conference. The expectancy model suggests that low effort leading to a high likelihood of attending the conference would result in increased motivation.

The second relationship, performance and outcome expectancy, can be described in this situation as a member's evaluation that performance (i.e. attending the conference) will yield expected outcomes (e.g. professional development, building professional network, new ideas). The expectancy model suggests that if attending the conference yields a number of strong, valued outcomes, motivation to attend the conference would be maximized. The survey used in this study provides insight into the members' motivation to attend the conference through gaining information about the amount of effort required to attend the conference and the associated positive outcomes associated with attending the conference.

### **Methodology**

This descriptive study utilized an online survey mailed to AAAE members residing in the 24 states of the North Central region (American Association for Agricultural Education, 2012). The survey was constructed by the authors and reviewed by the past North Central region vice-president and the national president for AAAE during fall, 2013. Test items were constructed as Likert-type and yes/no questions with dialogue boxes for further explanations. The 16-item questionnaire related to past attendance at the North Central region research conference, motivating factors for attending/not attending, preferences for conference format and location, and intentions to attend future regional research conferences. Fifty-eight useable responses were received from a total of 110 individuals contacted on the AAAE North Central region list serve.

## **Results/Findings**

When asked their perspectives on the future of the North Central region research conference respondents were split in their views. Several stated they believe the regional AAAE membership in North Central is too small to conduct a separate conference and suggested eliminating the conference and/or joining with another region (Western or Southern). Others indicated that a number of other current professional meetings could provide opportunities for North Central AAAE members to gather (NAAE, ACTER, etc.) or suggested a format similar to the eXtension conference held virtually each year. Dwindling resources and the time required to attend the conference were listed as common reasons for discontinuing the current format of the North Central region research conference. Respondents in favor of continuing the regional conference cited most often the needed outlet for assistant professors and graduate students to publish their research. Opportunities for professional development and networking were additional reasons given for continuing the regional conference format.

Over 60% of respondents indicated they intended to participate in the 2014 regional conference. When given their choice, three-quarters of the respondents preferred meeting on a university campus compared to other venues. Reasons that were provided included “experiencing the culture” of another university, “interacting with students from the host institution”, and the chance to “see the facilities utilized by our sister programs.” However, when asked about the location for future conferences, 59% of respondents indicated they were in favor of meeting in a larger city/airport hub that is more accessible for attendees flying to the conference. The ease of travel, potentially lower costs, and convenience were stated as common benefits to meeting in this setting.

Respondents were asked to rate their interest in attending specific activities at the regional conference. Using a 4-point scale of “not at all interested” to “very interested” respondents were most interested in “professional development related to delivering programs in higher education” (M=3.54) and “directed roundtable/SIG discussions regarding research/grant opportunities” (M=3.23). “Tours of local points of interest (non/agriculture/non-university)” received the lowest rating (M=2.60).

## **Conclusions**

Professional development opportunities afforded by the North Central region conference and the chance to dialogue with other scholars in the region regarding research and funding opportunities provide the greatest benefit to those advocating continuation of the conference. Additionally, an outlet for early career scholars’ research was cited most commonly as rationale for future conferences. The cost necessary to attend and the time needed serve as significant barriers for attending the conference. Interest in aligning with existing conferences and/or moving to a virtual format were seen as alternatives models to the current regional structure for North Central AAAE members.

## **Implications/Recommendations/Impact on Profession**

It is evident that members of the North Central AAAE region need to determine a clear purpose and objectives for an annual meeting. Aligning with Vroom’s workplace expectancy model, once the purpose and objectives of the meeting are identified the expectancy model suggests that if attending the conference yields a number of strong, valued outcomes, motivation to attend the conference would be maximized.

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## **Academic Advising Expectations: The Students' Perspective**

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## **Academic Advising Expectations: The Students' Perspective**

### **Introduction and Background**

The American higher education system is in the midst of transforming itself from an industrial and agrarian focus to one centered on information and service (Teitelbaum, 2000). The impetus for this transformation includes 1) increasing costs of higher education and impact of enrollment growth, 2) demand for constituent-based education and rapid changes in the labor market, 3) focus on student learning and outcomes, and 4) technology advancements (Teitelbaum, 2000).

While the faculty roles and responsibilities have changed; specifically, the amount of time faculty members spend advising students has decreased (Milem, Berger, & Dey, 2000), the student body has become more diverse (Pascarella & Terenzini, 1998; Renn & Reason, 2013). Today's students are not only more ethnically diverse, but also have changed in attitudes and behaviors (Astin, Oseguera, Sax, & Korn, 1997). These factors have been identified as putting students at risk for not persisting toward degree completion (Horn & Premo, 1995).

Academic advising is an important element in student persistence and retention. The reshaping of higher education has impacted the structure and strategies of academic advising. The academic adviser and the student each have a role and responsibility in the advising experience (Larsen & Brown, 1983). In studying the various functions of advising, Smith & Allen (2006) discovered that students valued different functions that theorists would consider essence. The changing landscape of higher education institutes, the increased diversity of the student body and the differing expectations and demands of students give credence to the continued study of academic advising, especially from the student perspective.

### **Problem Statement and Purpose of the Study**

The purpose of this study is to explore undergraduate student expectations of academic advisers. The following objectives were developed to meet this purpose.

- 1) Determine what expectations undergraduate students have of their academic advisers.
- 2) Determine what expectations undergraduate students believe academic advisers can expect of them.
- 3) Explore various demographic variables to determine if there are any differences based upon classification, gender, entry type, and pre-collegiate academic performance.

### **Methods**

This study is a part of a larger study designed to explore student expectations of faculty and staff. Traditional-age undergraduate college students who were classified as freshman and seniors in the College of Agriculture and Life Sciences at [Midwestern State University] were surveyed ( $N=1885$ ), using a researcher-designed instrument administered via Qualtrics (Qualtrics Labs, Inc, Provo, UT). Likert-style questions assessed students' perceptions regarding their expectations of advisers and what students felt advisers could expect of them (i.e., "1" = "never", "2" = "rarely", "3" = "sometimes", "4" = "most of the time", and "5" = "always"). Descriptive statistics were used to analyze these questions. Variables were computed to represent student expectations of advisers and what students believed advisers could expect of them. Inferential statistics were used to examine mean differences of the computed variables based on gender, classification, entry type, and ACT.

## Results

Eight-hundred and twenty-eight students (43.93% response rate) responded to the survey. Of those that responded, 480 (58%) were female and 348 (42%) were male. Students who entered directly from high school represented 664 (80.2%) and transfer students represented 164 (19.8%). Two-hundred and sixty-nine (32.5%) were freshman and five-hundred and fifty-nine (67.5%) were seniors.

Students were given twelve statements and asked, “*To what extent do you expect your academic adviser to...*” Students rated each of the expectations above a 4.0, with the highest two responses being, “be knowledgeable about degree programs and requirements” ( $M = 4.68$ ) and “be knowledgeable about university deadlines” ( $M = 4.62$ ). “Assist you in clarifying career and life goals” ( $M = 4.15$ ) was rated the lowest by students.

When given a list of nine statements and asked, “*To what extent do you feel your academic adviser can expect you to...*,” students rated, “take an active role in your own educational progress” ( $M = 4.70$ ) the highest, followed by “be prepared for advising meetings” ( $M = 4.68$ ) and “make and keep advising appointments” ( $M = 4.68$ ). One item received a rating less than 4.0; “communicate on a regular basis” had a mean of 3.95.

Expectations varied based on several independent variables. Females ( $M = 54.24$ ,  $SD = 5.75$ ) had higher expectations of advisers than males ( $M = 51.63$ ,  $SD = 7.37$ ,  $t(522.03) = -4.97$ ,  $p = .000$ ). Females ( $M = 40.51$ ,  $SD = 4.13$ ) also felt that advisers could expect more of students than did their male counterparts ( $M = 38.89$ ,  $SD = 4.83$ ,  $t(550.81) = -4.56$ ,  $p = .000$ ). The same trend was true based on classification, where freshmen ( $M = 53.87$ ,  $SD = 5.88$ ) had higher expectations of advisers than seniors ( $M = 52.79$ ,  $SD = 6.89$ ,  $t(462.57) = 2.07$ ,  $p = .039$ ). Freshman ( $M = 40.38$ ,  $SD = 4.27$ ) also believed advisers could expect more of students than did seniors ( $M = 39.57$ ,  $SD = 4.59$ ,  $t(673) = 2.19$ ,  $p = .029$ ). However, significant differences were not found based whether students entered the university direct from high school or as a transfer student or based on their ACT score.

## Conclusions/Recommendations

Smith & Allen (2006) would argue the dichotomous approach to academic advising (i.e., developmental vs. prescriptive) is problematic because both approaches have elements that are important. The results of this study would indicate that student expect both approaches. Today’s students expect to control their advising experience and want advisers to know degree requirements and understand university policy. Students’ access to technology for information and communication as well as their upbringing, where they have been the focus of the family nucleus and controlled the family agenda, may be influencing factors and need further study.

Gender and classification affects students’ expectations of academic advising. Females have higher expectations of themselves when it comes to academic advising which is supported by the work of Lowe and Cook (2003). Freshmen not only have higher expectations of themselves, but they also have higher expectations of their advisers. While the expectations are different between freshmen and seniors, their needs are also different (Khali & Williamson, 2014) which may demand differing advising approaches.

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**Associations between Learner Interaction and  
Achievement in an Online Course: A Longitudinal Study**

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# **Associations between Learner Interaction and Achievement in an Online Course: A Longitudinal Study**

## **Introduction and Theoretical Framework**

The Internet is having a significant impact on education, and online learning offers many advantages over traditional classroom instruction (Draves, 2002). One advantage is that course management systems automatically collect data on the extent to which students interact with course materials, with other students, and with the instructor. An opportunity exists to mine this data for clues on how to enhance teaching and learning online.

This study was framed by Kearsley and Shneiderman's (1998) engagement theory. "The fundamental idea underlying engagement theory is that students must be meaningfully engaged in learning activities through interaction with others and worthwhile tasks" (para. 1). Michael Moore (1989) operationalized interaction to include three types: learner-learner, learner-instructor and learner-content. Swan (2003) placed learning at the intersection of these three types of interaction. Consistent with the idea that interaction is important, Hrsastinski (2009) theorized that online learning results from participation.

Time on task studies from the 1970s suggest that overall engagement is associated with learner achievement (Stallings, 1980). More recent studies (Pratt-Phillips, 2011; Syler, Cegielski, Oswald, & Rainer, 2006; Wang & Newlin, 2000) involving online courses have shown that some measures of interaction correlate positively with grades. However, evidence from these studies is not sufficient to make generalizations across a variety of students and subject areas. As a result, Roberts, Moore, and Dyer's (2005) recommendation that research be conducted to determine how much interaction is taking place and how much is needed remains relevant.

The purpose of this study was to analyze interaction in an online graduate-level research methods course taken by students majoring in agricultural education and related disciplines. Objectives of the study were as follows: (1) describe student interaction by grade group and year; (2) describe associations between specific interactions and percentage grade in course by year.

## **Methodology**

The population included 117 graduate students enrolled in an online research methods course taught one time per year over a five-year period of time. To address the first research objective, students' grade in course was used to form two groups. The first group consisted of 59 students who earned grades of B+ or lower. The second group was made up of 58 students who earned grades of A- or A.

Although updates were made to the course over time, the overall instructional design remained consistent. Tools used in the course included course content, assessments, calendar, discussions, mail, syllabus, roster, and grades. The frequency of interactions recorded by the course management system were not factored into course grades.

WebCT Vista/Blackboard Version 8 was the course management system that was used each semester. The tracking tool was used to generate reports of student interactions. Data were analyzed with PASW Statistics 18 Release 18.0.0. Means, standard deviations, and Pearson

correlations were used to summarize the data. Effect sizes for Pearson correlations were based on Cohen's (1988) descriptors.

## **Results**

Overall, there were 54 comparisons between groups of students who earned grades of B+ or lower and those who earned grades of A- or A. In 45 of these comparisons, the average number of interactions for the A- or A groups exceeded the average number of interactions for the B+ or lower groups. The groups of students who earned an A- or A had a higher mean for number of sessions, total time in minutes, discussions read, and content files viewed in every comparison with the groups of students who earned a grade of B+ or lower. Furthermore the groups of students who earned an A- or A had a higher mean for discussions posted, mail messages sent, mail messages read, and content folders viewed in a majority of comparisons with the groups of students who earned a grade of B+ or lower. In three of the five years studied students in the group earning grades of B+ or lower had a higher mean for number of times viewing the course calendar when compared to the group earning grades of A- or A.

Pearson correlations were used to describe the associations between interactions and students' final percentage grade. The number of sessions, total time in minutes, number of discussions read, and number of content files viewed were positively correlated with achievement in each of the five years studied. The magnitude of the associations between specific interactions and percentage grade in course varied significantly by year. For example, the effect size for the correlation between number of sessions and final percentage grade was large in one year, medium in 2 years, small in one year and had no effect in one year. Besides number of sessions, the variables with moderate effect sizes in at least two years were total time in minutes, number of discussions posted, number of discussions read and number of content folders viewed.

## **Conclusions and Recommendations**

Overall engagement, as indicated by frequency of interaction, was related to student achievement in the online research methods course over a five-year period. In addition, learner-content, learner-instructor, and learner-learner interaction all had an influence on grades. Interaction with course content had the greatest impact on achievement. To promote positive learning outcomes, instructors should engage students early and consistently throughout the course in interactions with the course content, with the instructor, and with other students.

The magnitude of the associations between grades and specific interactions varied by year. This suggests that instructors should not expect any particular amount or form of interaction to be reliably predictive of a group's achievement and certainly not of individual achievement. We know that students differ in the ways that they approach learning and in their need for different types of interaction. To accommodate a range of student needs and preferences, it is recommended that students be afforded a variety of ways to interact with the course content, the instructor and each other. This recommendation is consistent with Moore's (1989, p. 6) admonition "that distance educators in all media do more to plan for all three kinds of interaction".

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**Change in students' Diversity Awareness Profile: What evidence can journaling and reflections provide?**

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## **Change in students' Diversity Awareness Profile: What evidence can journaling and reflections provide?**

### **Introduction and Theoretical Foundation**

The purpose of this study was to describe change in students' Diversity Awareness Profile (DAP) scores, based on evidence provided in their weekly journaling and opening class reflections. DAP is designed to highlight individuals' behaviors as they interact with others different from themselves in their living, learning, and working environments (Stinson, 2007). When students use DAP to reflect upon their interactions with others, they are self-reported into one of five categories: naïve, perpetrator, avoider, change agent, or fighter. The DAP scale mirrors the theoretical foundation that encompasses Cross, Bazron, Dennis & Isaacs (1989), Cultural Competency Continuum, which identifies six stages of cultural proficiency including: destructiveness, incapacity, blindness, pre-competence, competence, and proficiency. The continuum ranges from destructiveness, when one sees a difference in the cultures of others and tries to stomp it out, to proficiency, when one sees the differences between cultures and responds positively and affirmingly. Students enrolled in a fifteen-week, university general education course, are presented with a curriculum designed to advance students along Cross et al.'s (1989) cultural competency continuum to the level of proficiency. The curriculum helps to form a 21<sup>st</sup> century citizen that can demonstrate cultural awareness along with communication and interpersonal skills. Cultural Proficiency is defined as a way of being that enables both individuals and organizations to respond effectively to people who differ from themselves (Marsh, Marsh, and Whittington, 2012). Benefits of cultural proficiency include: contributes to self-awareness, builds confidence, breaks down barriers, builds trust, opens horizons, develops listening skills, and finds common ground (Marsh et al., 2012).

Students journal and participate in opening reflections on a weekly basis as part of the course. The researchers chose to use these assignments as instruments for this study because of the valuable insights each one provides into the student's thought processes and unsolicited insights on their cultural perspective. Not only can journaling help students develop metacognitive skills, it can also encourage students to practice problem solving by analyzing situations (Dunlap, 2006). Journals can be assigned with several different purposes in mind including examining students' perceptions and course understanding, multicultural attitudes, professional development, and personal growth (Hubbs & Brand, 2010). Through both of these weekly activities, journaling and opening reflections, students are able engage in metacognition and examine the role of diversity and multiple perspectives in their living, learning, and working environments.

### **Methodology**

Forty-two students, enrolled in a cultural proficiency course at a large Midwestern Land Grant University, were the subjects of this fifteen-week study. Using the DAP, researchers conducted a pre- and post-assessment of each student to identify their position on the cultural competency continuum (*naïve-perpetuator-avoider-change agent-fighter*). Students were administered the DAP assessment, so they could identify their position on the continuum on day one of the course. In addition, students were asked to submit a journal entry each week (n=15) given one parameter, to use the weekly-changing critical thinking stem provided during the first class session. The critical thinking stems were student-generated during the first class session using Kagan Question Dice©. Students roll two die, one having each part of the stem on it, resulting in the first two words for a question that students create themselves to reflect upon for

their journal entry (i.e. Which will?, How would?, Why might?). Finally, opening reflections were a part of every class session; fifteen students were randomly assigned to complete an opening reflection. At the beginning of each class session, the student in charge presented material to the class and provided a question(s) to ponder as a five-minute writing prompt. Opening reflections were one of four presentations that students could have been assigned. The other three were Culture Behind the Music, Book Club, and Moment of Zen, all of which asked students to reflect on some aspect of their own culture or the culture of others. These three instruments, the DAP, journals, and reflections, were used to describe students' movement along the cultural competency continuum.

### Results

Over the fifteen-week course, students provided evidence such as "I should show more acceptance to other people of different religions." This was a quote from one student who was classified as a *perpetuator*, someone who reinforces racism and prejudice, on the DAP pre-assessment, indicating positive movement towards *change agents*, someone who feels compelled to eliminate racism by challenging forms of discrimination when witnessed. The mean pre-DAP score of students was 74.21 (*change agents*) after a semester's worth of cultural literacy curriculum, students mean post-DAP score was 84 (*fighters*). During the pre-assessment, scores ranged from 44 to 92 points, encompassing all stages except the *naïve* perspective, someone who acts with no knowledge or awareness of biases and prejudices and their negative impact. Upon completion of the course, students were administered the same assessment with scores ranging from 60 to 93 points, the average change in score between the pre- and post-assessments was 9.8 points.

Journals (n=488) and opening reflections (n=506) were categorized into five different themes including: cultural proficiency, introspection of ones' self, service learning, societal improvement suggestions, and other. The researchers summarized and pulled-out direct quotes to highlight the particular theme on which the student was reflecting during the assessment of each entry. One student was quoted as saying, "while our culture and society has made significant leaps and bounds in the aspect of equality, we still have a long way to go to completely rid the notions of superiority amongst cultures and races." This particular student was categorized as a *fighter*, always on the lookout for prejudice and sees it everywhere, in both the pre- and post-assessment. This student is classified as someone who sees biases and prejudice actions around them. Another student with a pre-score of 67 (*avoider*) and a post-score of 85 (*change agent*) mentioned in a journal during week twelve of the course, "anymore, the shows on TV have so much sex, violence, and homosexuality, that kids are thinking that all of that stuff is okay." This is an example of digression along the continuum, individuals can still have certain triggers, in this student's case, homosexuality, that causes them to move backward on the continuum.

### Conclusions, Implications, and Recommendations

In conclusion, the results from this study indicate that students were able, overall, to move forward along the cultural competency continuum as a result of this course and cultural awareness training. Journals and opening reflections provided valuable insight into each student's progression on the cultural competency continuum. Through the activities of this course, students were able to develop cultural literacy skills that will allow them to be aware, 21<sup>st</sup> century citizens. It is the recommendation of the researchers that more cultural literacy programs be available for students throughout their post-secondary career.

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**Comparison of Teacher Competence in Agricultural Mechanics among Traditionally and  
Alternatively Certified Agricultural Education Teachers**

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# **Comparison of Teacher Competence in Agricultural Mechanics among Traditionally and Alternatively Certified Agricultural Education Teachers**

## **Introduction**

One ongoing problem in agricultural education is the shortage of qualified teachers to fill all the vacant teaching positions (Camp, Broyles, & Skelton, 2002). With a lack of qualified candidates, school administrators have hired uncertified teachers to fill the positions (Roberts & Dyer, 2003). Alternative routes to teacher certification have become a more popular avenue for schools in order to fill teaching vacancies. Alternative certification is a process where teaching licenses are obtained by a person who has not completed a post-secondary teacher education program (Duncan & Ricketts, 2008). The National Center for Education Information (2005) stated that 47 states and the District of Columbia offer an alternate teacher certification program. Furthermore, the National Center for Education Information (2005) indicated a 62 percent retention rate for alternatively certified teachers. Prior research has shown differences between alternatively and traditionally certified agricultural education teachers regarding competence in teaching agricultural concepts and in-service needs (Roberts & Dyer, 2004; Rocca & Washburn, 2006). Consequently, are there similar differences in alternatively certified and traditionally certified teachers regarding their competence and in-service needs in agricultural mechanics? Efficient and Effective Agricultural Education Programs Priority Area 5 of the American Association Research Agenda aligns with this research specifically objective one which states “define the characteristics of effective agricultural education programs and teachers and the means to correctly assess the current state of these characteristics” (Doerfert, 2011, p. 10). The objectives sought in this study include 1) determine the self-perceived competences of alternatively and traditionally certified teachers in teaching mechanic skills and 2) identify differences between the self-perceived competences of alternatively and traditionally certified teachers in teaching mechanics skills.

## **Theoretical Framework**

Bandura’s (1977) theory of teacher efficacy guided this study. Bandura (1977) defined teacher efficacy as the self-perceived belief of one’s capabilities to bring about desired teaching outcomes. Teacher efficacy has been shown to positively increase motivation and levels of achievement in students when the teacher exudes a high level of efficacy (Ashton & Webb, 1986; Guskey & Passaro, 1994). A teacher’s efficacy may change from one class period to another depending on their perceived level of confidence within the subject being taught (Ross, 1992). To effectively make a judgment on a person’s efficacy it is necessary to assess the strengths and weaknesses of a person’s teaching tasks (Goddard, Hoy, & Hoy, 2000).

## **Methods**

This study utilized descriptive research methods to summarize characteristics and attitudes of a norm (Ary, Jacobs, Razavieh, & Sorenson, 2006). The population consisted of 130 [STATE] secondary agricultural educators that attended the [STATE] agricultural education teachers’ conference. A print based survey was distributed to the 130 secondary agricultural education teachers at the teacher’s conference. Of the 130, ( $n = 103$ ) surveys were returned for a response rate of 79.2%. PASW Statistics 18, a software program for statistical analysis was used to analyze data. Mean scores and standard deviations were calculated. A chi-square test was computed to determine differences in the perceived competence of teachers who were traditionally and alternatively certified. Effect size of the chi-square test, Cramer’s  $V$  was calculated using PASW Statistics 18.

## Findings

Objective one determined the self-perceived competence of alternatively and traditionally certified teachers in teaching mechanic skills. Participants who were traditionally certified were those who participated in a post-secondary teacher preparation program to obtain certification. Those who were alternatively certified were those that sought an alternative route. Table 1 identifies the mean and standard deviations of participants who were alternatively and traditionally certified in regards to teaching mechanics skills.

Table 1

*[STATE] Secondary Agricultural Teachers Perceived Level of Competence by Mechanics Skills and Certification Type*

Construct	Items	Alternatively Certified		Traditionally Certified	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Mechanic Skills	19	2.70	1.14	2.89	1.58

*Note:* The competence scale, 1 = not competent, 5 = very competent.

Objective two determined differences between the self-perceived competence of alternatively and traditionally certified teachers in teaching agricultural mechanic skills. A chi-square ( $\chi^2$ ) test indicated statistically significant differences between secondary agricultural teachers who were alternatively and traditionally certified. This statistical significance was found in mechanic skills, specifically in the competence area of fencing. The critical value for this study was 9.49 ( $df = 4$ ). If the competency areas had a critical value of over 9.49 they were considered statistically significant. The effect size was determined using Cramer's *V* on the  $\chi^2$  statistics. Cohen (1988) proposed standards to interpret Cramer's *V*, (.10) is a small effect, (.30) is a medium effect and (.50) is a large effect. The statistical difference is shown in Table 2, which indicates the mean, standard deviation,  $\chi^2$ , and Cramers' *V*.

Table 2

*Chi Square Test to determine significance between Teacher Competence in Mechanics Skills and Certification Type*

Competency Area	<i>n</i>	<i>M</i>	<i>SD</i>	$\chi^2$	<i>V</i>
Fencing	84	2.88	1.09	11.02	0.36

*Note:*  $df^* = I df^*$  is calculated by taking (Row-1) or (Column-1), whichever is smaller.  $p < .05$

## Conclusions/Implications/Recommendations

It can be concluded that there are some slight differences in teachers' perceptions who are alternatively and traditionally certified. This supports the findings from Roberts and Dyer (2004) and Rocca and Washburn (2006) that indicated alternatively certified teachers and traditionally certified teachers are different in their competence. As teacher self-efficacy has been shown to positively increase teachers' motivation, it is imperative to understand the specific areas of agricultural mechanics in which teachers are competent. To increase teachers' self-efficacy and confidence, it is recommended that teachers continue to seek professional development opportunities in agricultural mechanics.

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**Determining the Quality of Life for a Sample of Ohio Farmers:  
Implications for Extension**

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## **Determining the Quality of Life for a Sample of [State] Farmers: Implications for Extension**

### **Introduction**

In order for Extension systems to focus in rural areas, enhance educational programs, and serve farmers efficiently, it is necessary to examine and determine their quality of life. The purpose of this study is to describe and explore factors which may affect the quality of life of [State] farmers

### **Conceptual or theoretical framework**

The quality of life is a multi-dimension and complex concept. Quality of life category reflects subjective and objective well-being and life conditions. The World Health Organization defines “quality of life” as “an individual’s perception for their positions in life in the context of the culture and values system in which they live and in relations to their goals, expectation, standards, and concerns” (WHOQOL-Group, 1997: p.1). Molnar (1985) studied determinants of subjective well-being among farm operators and emphasized that quality of life is a global construct based on individual’s expectation and life experience. The lack of unified definition of “quality of life” and/or “farmers’ quality of life” in literature creates a challenge for measurement of this category. This study attempted fills out the gap in literature and measure farmers’ quality of life.

### **Methodology**

The descriptive-exploration design was based on survey research. A34-item questionnaire was developed and utilized. Two constructs were analyzed based on social-demographic questions; external-environmental factors; and work-health-leisure factors. Cronbach’s alpha for both constructs were 0.73. Group of [State] farmers were studied. Respondents were a convenient sample of [State] farmers who participated in agricultural annual meetings, conferences, and extension programs.

#### ***Research Objectives:***

1. Describe farmers according to selected social-demographic characteristics, outlook on life and stress.
2. Describe external-environmental factors as related to farmers’ quality of life.
3. Describe health-work-leisure factors as related to farmers’ quality of life.
4. Explore differences in farmers’ overall quality of life based on demographic characteristics and social factors, external-environmental factors, and health-work-leisure factors.

### **Results**

A total of 400 farmers completed the questionnaire.

*Research Objective 1.* The average age participated in this study farmers were 35-64 years old (69.8%), with almost 83% male. [State] farmers differ in terms of work status and number of hours worked during their busiest seasons of the year. Over 60% consider their farm employment status as a full time job. Farmers worked an average 12-14 hours per day, work season comprised more 9 months, and 95% of them had a positive outlook on life and experienced stress less than two days a week.

*Research Objective 2.* Factors as having a negative effect of farmers' quality of life were: financial pressure, input costs, and agricultural equipment costs, government /environmental regulations. The positive factors affecting farmers' quality of life were: weather condition, time management skills, market price for agricultural products and machinery breakdown (lack of).

*Research Objective 3.* Farmers reported higher satisfaction almost with all factors. The most dominant factors were overall quality of life score, where - 99.0%, emotional support - 95.7%, farm work during the production season – 96% and overall health - 94.5%. Farmers were less satisfied with hours of sleep and managing family and farm during the production season.

*Research Objective 4.* The result of Pearson's chi –squared test revealed ten significantly different factors associated with farmers' overall quality of life (if  $p < .05$ ). These factors were: gender (males more satisfied), health status, stress, farm work, work hours, hours of sleep, managing family and farm, time for vacation, social activities and emotional support. Variables of age, type of employment, farm size and external environmental factors were not significantly different for this study group.

### **Conclusions**

The conclusion of this study can be summarized as follows: 1) the sample of farmers who reported had a positive outlook on life and experienced stress less than two days a week, 2) external –environmental factors such as financial pressure, input costs, and agricultural equipment costs, government /environmental regulations were reported as having a negative effect of farmers' quality of life, 3) farmers were less satisfied with hours of sleep and managing family and farm during the production season, and 4) gender, health status, stress, farm work, work hours, hours of sleep, managing family and farm, time for vacation, social activities and emotional support were variables that influenced farmers' overall quality of life.

### **Implications/recommendations**

An important clientele of Extension organizations are rural and farm populations. Therefore, it is important for Extension educators to have knowledge about farmers' perceptions, feelings, life outlook and other aspects affecting their quality of life. Having this background will enable educators to develop educational programs and organize appropriate training materials to meet the farmers' needs. For example, farmers were especially concerned about hours of sleep during the production season and/or eligibility for government programs. Overall, all farmers showed a need for programs related to stress management, getting enough sleep, and balancing farm work with family life during their production season. Having these topics addressed by local Extension educators will help farm families develop a more positive outlook on life and ultimately increase their overall quality of life.

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**Environmental Learner Outcomes Assessment: How do [Department] Students  
Compare to National Norms?**

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## **Environmental Learner Outcomes Assessment: How do [Department] Students Compare to National Norms?**

### **Introduction/Conceptual Frame**

“Consumers and policy makers must have access to information that is critical for informed decision making about agriculture, food, and natural resources” (Doerfert, p. 12). To meet this goal, [College at University] has developed a set of learner outcomes which includes environmental awareness expected of all baccalaureate degree recipients. This study provides a departmental benchmark regarding environmental awareness to assist faculty “to continually improve student achievement” ([College], n.d., Learner Outcomes Assessment para. 1).

Environmental awareness has been measured previously by the National Environmental Education and Training Foundation’s (NEETF) survey from the National Report Card on Environmental Attitudes, Knowledge, and Behavior (2001). NEETF is a congressionally authorized, private non-profit organization whose purpose is to “help America meet critical national challenges by connecting environmental learning to issues of national concern” (NEETF, 2001, n.p.). [Department] faculty selected the NEETF survey to determine graduates’ attainment of environmental knowledge while at the same time providing a national benchmark with which to compare. As part of a larger, comprehensive assessment, this study assessed [Department] graduating seniors’ knowledge environmental awareness.

### **Methods**

All senior level undergraduates (N = 80) who had applied for graduation from the [Department] by April 23, 2014 were considered the population for this study. [Department] graduating seniors (N=80) were assessed by means of the online survey instrument Qualtrics®. Sixty-three responses were received for a 78.8% response rate. Students received an invitation to participate via an email message with an embedded link to the survey. Appropriate follow-up reminders were sent following the tailored design method (Dillman, Smyth, & Christian, 2009). In addition to environmental attitude, activity participation, and demographic questions, the NEETF instrument contained 12 questions related to environmental knowledge.

To address non-response error as a threat to external validity; (Lindner, Murphy, and Briers, 2001) twenty non-respondents were contacted via telephone according to the recommendations of Dollisso and Martin (1999). Five non-respondents agreed to complete the survey over the telephone. Since less than 20 non-respondents provided data, the responses were merged and the first half of the respondents were compared with the second half using t-tests to determine potential differences (Linder et al., 2001). Since no statistically significant differences were found, responses were merged and are presented together. Frequencies and percentages of responses were calculated and compared to national survey responses.

### **Results**

Student responses to twelve close-ended questions were compared to the National NEETF study respondents from 1997 and 2000. [Department] graduating seniors provided a higher percentage of correct answers to 11 of the 12 questions when compared to respondents to the national study. Fifty-one percent ( $n=30$ ) of the students correctly identified the largest source of carbon monoxide in the United States from a list of four choices. [Department] graduating seniors’ correct responses are displayed with the NEETF 2000 and 1997 results in Table 1.

Table 1

*[Department] Graduates' Responses to NEETF Environmental Knowledge Questions Compared to National Report Card Responses (1997 & 2000)*

Question #	Content of Environmental Knowledge Questions	2014 [Dept]	2000 Nat'l	1997 Nat'l
1	Definition of biodiversity	96.5%	41%	40%
<b>2</b>	<b>The largest source of carbon monoxide in U.S.</b>	<b>50.9%</b>	<b>65%</b>	<b>69%</b>
3	How most electricity in the U.S. is generated	71.4%	33%	33%
4	The most common source of water pollution	75.4%	28%	23%
5	Recognition of a renewable resource	80.7%	65%	66%
6	Protection provided by ozone in upper atmosphere	68.4%	54%	57%
7	Where most household garbage ends up	87.7%	85%	83%
8	Federal agency that works to protect environment	94.6%	72%	74%
9	Knowledge about materials considered hazardous waste	87.7%	67%	67%
10	Primary reason for extinction of animal and plant species	93.0%	74%	73%
11	Disposal of nuclear waste in the U.S.	68.4%	57%	58%
12	The primary benefit of wetlands	78.6%	53%	53%

*Note:* Bold faced font indicates percentage correct below national NEETF responses.

Mean differences between demographics were analyzed by t-test (gender) and ANOVA (major option and minor) on the knowledge questions. There were no statistically significant differences found between the genders in their responses to the knowledge questions. Additional analysis was conducted to determine differences by departmental major/option and academic minor. No statistically significant differences were found.

### **Conclusions, Implications, and Recommendations**

[Department] graduating seniors are knowledgeable regarding basic environmental facts. Students scored higher than respondents to a national survey of environmental knowledge except on one question regarding the primary source of carbon monoxide in the United States. It is recommended that faculty in the [Department] identify coursework and outcomes which support the College's environmental awareness outcome. Once identified, specific content should be mapped to avoid excessive overlap and build appropriate reinforcement. Since many content-related courses taken by [Department] majors are taken outside of the department, it is critical that the College Outcomes Committee share these results to assist in developing a [College]-wide scope and sequence for the Environmental Learning Outcome. Once developed, this map will provide important information to improve teaching and advising related to the environmental outcome. Nationally, other agricultural education programs should study the extent to which their students demonstrate environmental awareness.

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**Gender Influences in Agricultural Education Teachers Competence to Teach Electrical Skills**

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# **Gender Influences in Agricultural Education Teachers Competence to Teach Electrical Skills**

## **Introduction**

The profession of teaching is often considered a female dominated career, although in agricultural education it appears to be male dominated (Rocca & Washburn, 2008). Even with low numbers, research by (Kantrovich, 2007) indicated that the percentage of women in agricultural education is increasing. Eccles, Wigfield, Harold, and Blumenfeld (1993) indicated that differences emerge in an individual's perceived competence in gender based activities. Learning skills in an agricultural mechanics course may have higher perceived competency by males as it may appear to be a dominated male activity. Ensuring agricultural education teachers have and maintain a high level of competence requires dedication on the part of both the secondary and post-secondary teacher. One such area that is in need of improvement before and after accepting a teaching position in agricultural education is agricultural mechanics (Hubert & Leising, 2000). Numerous studies have been conducted regarding agricultural education teachers and the professional development needs in regards to agricultural mechanics (Lester, 2012; McKim, Saucier, & Reynolds, 2010). As women are becoming prominent in agricultural education is there a difference in competence and professional development needs between the two genders? The following research objectives were sought in this study 1) determine the self-perceived competencies of electrical skills by gender, and 2) identify differences between the self-perceived competences of electrical skills by gender.

## **Theoretical Framework**

The theoretical framework for this study is Bandura's (1977) social cognitive theory. The social cognitive theory relates to a person's self-efficacy. A person's judgments on his or her own beliefs in order to execute a plan of action for a performance are defined as self-efficacy (Joet, Bressoux & Usher, 2011). Within the social cognitive theory, individuals attend to four sources of efficacy expectations. Mastery experiences, vicarious experiences, physiological and emotional states, and social persuasion are the four master experiences (Joet et al., 2011). Participant's actions, feelings, and communication with others about the specific skill will all have an effect on how participants rated their competency in agricultural mechanics.

## **Methods**

A descriptive research method was used to analyze the characteristics of respondents' agricultural mechanics perceptions. This research analyzed specifically participants competency related to agricultural electrification skills construct area. Secondary agricultural teachers that attended [STATE] agricultural education teachers conference were the population for this study (N= 130). During the conference a print based survey was distributed to the participants. A response rate of 79.2% was established as (n=103) of the 130 surveys were returned. Data was analyzed using PASW Statistics 18 a software program for statistical analysis. Descriptive statistics and a chi-square test were used to compute differences in the perceived competency of males and females. Cramer's *V* was calculated to determine the effect size using PASW Statistics 18. Meaningful, engaged learning in all environments, Priority Area 4 of the American Association for Agricultural Education Research aligns with this research specifically objective three which states "examine the role of diversity and multiple perspectives in meaningful learning across agricultural contexts" (Doerfert, 2011, p. 9).

## **Results**

Objective one determined the self-perceived competency between males and females in teaching agricultural electrification skills. Table 1 identifies the mean and standard deviations among males and female participants. The mean score for electrification skills among males ( $M = 3.36$ ,  $SD = 1.04$ ) was higher than females ( $M = 2.30$ ,  $SD = 1.16$ ).

Table 1

*[STATE] Secondary Agricultural Teachers Perceived Level of Competence of Electrification by Gender*

Construct	Items	Males		Females	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Electrification	6	3.36	1.04	2.30	1.16

Note: The competence scale, 1 = not competent, 5 = very competent.

Objective two sought to determine if there were differences between the self-perceived electrification competence skills and gender. To determine statistical significance of differences between genders in electrification skills, a chi-square was calculated. Statistical differences were found in electricity controls, wiring skills, electrical tools, types of electrical motors, and electrical safety. The critical value for  $\chi^2$  ( $df = 4$ ) in this study was 9.49. Statistically significant differences between gender and electrification skills were found if the critical value was over 9.49. To determine the effect size Cohen (1988) proposed standards to interpret Cramer's *V*, which are (.10) is a small effect, (.30) is a medium effect and (.50) is a large effect. Table 2 indicates the statistical significance, mean, standard deviation, chi-square, and Cramer's *V*.

Table 2

*Chi Square Test to determine significance between Teacher Competency of Electrification and Gender*

Competency Area	<i>n</i>	<i>M</i>	<i>SD</i>	$\chi^2$	<i>V</i>
Electricity Controls	89	2.58	1.11	28.02	0.56
Wiring Skills	91	2.98	1.28	24.48	0.51
Electrician Tools	90	2.89	1.27	23.98	0.51
Type of Electrical Motors	86	2.43	1.06	18.13	0.45
Cleaning Motors	81	2.35	1.02	11.39	0.37
Electrical Safety	88	3.08	1.32	12.94	0.38

Note:  $df^* = 1$   $df^*$  is calculated by taking (Row-1) or (Column-1), whichever is smaller.  $p < .05$

### Conclusion/Implications/Recommendations

It can be concluded that there are differences in competence based on gender in the area of electrification. This research is consistent with Eccles et al., (2014) who indicated that perceived competence abilities differ by gender related activities. As agricultural mechanics may appear to be a male dominated field it is important to understand the areas in which female teachers perceive themselves less competent. Understanding the area in which females perceive themselves less competent will allow other agricultural mechanics post-secondary faculty to propose solutions to improve female competence. One solution is to hold workshops specifically for the female gender. If females are taught skills during these workshops, it may boost their competence in teaching electrical skills.

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## **High School Educators' Opinions of a Contextual Science Class in Agriculture**

### **Introduction**

The purpose of this study was to describe and analyze the attitudes, perceptions, and challenges faced, by high school Biological Science Applications in Agriculture (BSAA) teachers and guidance counselors. The BSAA curriculum is designed to teach science as both content and process by integrating science concepts and principles with specific practices in agriculture (Osborne & Dyer, 1998). Themes of perceived value of contextualized learning, teacher training and efficacy, and insights into guidance counselors' opinions of the BSAA course are discussed. These themes are important because the perceptions of educators are influential and may affect the success of an agriculture program.

### **Conceptual/Theoretical Framework**

The theoretical basis for this study is Fishbein and Ajzen's (1975) Theory of Planned Behavior. In the context of this study, the theory suggests that educators' personal experiences, beliefs, values, and knowledge affect their attitudes and ultimately, their behavior. These attitudes influence teachers' beliefs and curriculum decisions, including behaviors such as selecting which content to teach and how to go about teaching it. Regarding guidance counselors, this theory may "explain" whom they will refer for enrollment in a particular class.

### **Methodology**

Case study and modified grounded theory (Lofland & Lofland (1995) and Stake (1995)) were followed for data analysis and procedures of this study. The population for the study was high school BSAA teachers and guidance counselors located in east-central [state]. A sample of four (n=4) BSAA teachers and three (n=3) guidance counselors agreed to participate in individual interviews. Data were collected through interviews and field notes. Open coding was used on the data set from the interviews, which was aggregated into code families and then into themes. Preliminary findings were shared with participants to provide consensual validation of analysis.

### **Results/Findings**

Four themes were identified and developed from the interviews of teachers and counselors. The themes spoke directly to strengths and challenges faced by agriculture educators and guidance counselors.

#### **Teachers and counselors believe there are benefits of learning science in the context of agriculture**

One teacher said she loves the hand's-on approach to learning. "The fact that [students] get to see it, and they get to touch it, and 'Here it is, this is real life stuff.' That's what's wonderful about the curriculum". A guidance counselor said, "This class is important, it makes connections between things students may have learned in classes, learned at home, or in the world. The advantage of this class is that they can see, touch, feel, taste, and make connections that are more tangible". All seven participants shared the opinion that student learning is enhanced by seeing and doing in a meaningful context.

#### **Although the teachers in the study generally have received little training to teach science, BSAA teachers feel generally competent and confident to teach science content**

Teachers of BSAA in [state] are not required to have earned a science certification. One teacher related that there were no science pedagogy courses in her curriculum, but she did take one class on how to teach BSAA as a component of her Masters degree. "I guess that was the first time someone taught me how to teach science, maybe." She said despite her lack of experience with science pedagogy, she still has a stronger science background than most agriculture teachers.

### **Teachers acknowledge challenges of limited instructional hours and challenging student populations**

Every teacher said that covering the BSAA curriculum in its entirety is difficult. "I don't even get through 50% of this [curriculum], I can't do it. I get through as many labs as I can and I would love to incorporate more but there is just not enough time." Three of the four teachers said they were challenged by perceptions of BSAA as a class for low-performing students. "There's a lot of times that I guess people will think that BSAA or the ag department is kind of a dumping ground for students, and I'm not going to say that it's not, as I am sure you have picked up on based on me not wanting you to see some of the students that come through BSAA." When one counselor was asked if students with IEP's were placed in BSAA more so than other classes he said, "Well, I think it does happen, putting kids with IEP's in ag."

### **Guidance counselors hold generally positive opinions of BSAA but are uncertain of the content of the course and appear to not identify with science**

Unlike the findings of Dyer and Osborne (1999), in which guidance counselors were found to be knowledgeable about program content and objectives, none of the counselors were able to articulate what specific science content was taught in the course. One said, "Um, they do a lot of lab work, um, a lot of, I think, looking at food, and breaking it down, and things like that. Umm, plants, you know, breaking those down, things like that." When counselors were asked if they ever visit the BSAA classroom, or if they have an affinity for science, two of the three professed no great love for science. One replied, "No, never," and "Not particularly (laughing), science and math was not my thing in school." Another said, "No, not at all. I am more of an English person."

### **Implications/Recommendations**

This study is relevant because it confirms other studies about teachers' and counselors' positive opinions of integrating science content into agriculture curriculum (Myers, Thoron, & Thompson, 2009; Thompson & Balschweid, 1999) and findings that agriculture teachers feel prepared to teach science content (Washburn & Myers, 2010; Scales et al. 2009).

The findings of counselors' professed ignorance of the science content in the BSAA curriculum and their disassociation with science were poignant because guidance counselors exercise great influence over student assignment and enrollment, which may be reflected in the academic ability of students placed in agriculture programs (Dyer & Osborne, 1999).

The researcher plans to continue this research, expanding it to include classroom observations of teaching, to connect context to teacher identity. How do influences and experiences shape BSAA teachers' practice and how does teacher identity influence how the BSAA curriculum is interpreted and taught?

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**Student Preparation Perception of the National  
Farm Business Management Career Development Event**

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# **Student Preparation Perception of the National Farm Business Management Career Development Event**

## **Introduction**

The National FFA Organization (FFA) is committed to developing youth through premier leadership, personal growth and career success. Student's participation in career development events (CDEs) is one way students can showcase their knowledge and skills in a competitive setting. CDE's are meant to add a real world experience for students involved in agricultural education (National FFA, 2014).

The purpose of this study was to determine how well students were prepared for the national farm business management career development event and what instructional methods were used in preparing students for the event. The study focused on the following objectives: 1) develop a demographic profile of FFA members participating in the national farm business management career development event; 2) determine when and how often students practiced for the career development event; 3) determine who served as the coach for the CDE's team; and 4) determine what activities perceived by the student would improve their preparation.

## **Theoretical/Conceptual Framework**

Research focusing on Career Development Events has examined factors resulting in perceived value of FFA contests and awards by students (Blakely, Holschuh, Seefeldt, Shinn, Smith & Vaughn, 1993), student perceptions of benefits of participating in a national-level contest (Gamble, 1986) and student perceptions of level of preparation for CDE events (Deeds and Thomas, 1999).

Vaughn, Kieth and Lockaby (1999) found having the opportunity to compete in career development events provides students the opportunity to be recognized and helps students to be motivated by setting goals. Townsend and Carter (1983) examined the relationship between activities and the development of competencies in leadership, citizenship and cooperation.

## **Methods and Procedures**

The study was conducted using a researcher-developed instrument modified from research conducted by Deeds and Thomas (1999) in Mississippi. The instrument was reviewed by a panel of experts for face and content validity including state agricultural education staff, agricultural education teachers and teacher educators with experience in CDE preparation. The instrument was piloted with 34 students competing in a state-level CDE competition. The reliability of the instrument was established at 0.78.

The instrument was broken into five demographic questions, and thirteen questions regarding why students selected to participate in the event and preparation for the event. The population for the event consisted of all FFA members who participated in the National FFA Farm Business Management Career Development Event at the 2013 National FFA Convention. Participation was voluntary. A total of 166 instruments were returned for a response rate of 98.8%.

## **Findings**

A total of 166 participants completed the questionnaire, with 91 (54.81%) males and 75 (45.18%) female participants. A majority of the participants were seniors and high school graduates ( $n=105$ , 63.25%). Most participants had been involved with FFA for four years ( $n= 54$ , 32.53%). Over seventy six percent of the participants had a high school GPA over a 3.5 ( $n=127$ , 76.5%). Slightly more than fifty five percent ( $n= 94$ , 56.62%) of students were from a chapter with less than 100 members.

Sixty five percent ( $n=109$ ) of the participants indicated this was their first experience participating in a National FFA Career Development Event. Participants indicated they practiced for CDE events most often after school ( $n= 106$ , 63.85%). Participants indicated their advisor ( $n= 108$ , 65.06%) served as their main coach in preparation for the Career Development Events. Over three quarters ( $n=127$ , 76.5%) of the participants indicated they were very familiar with the scantron forms used in the event.

Participants indicated their reason for participating in the career development event was because their advisor recommended it ( $n= 63$ , 37.95%). Preparation time spent on the career development event was most commonly from 2-4 hours per week ( $n= 60$ , 36.14%). Participants indicated they would have been prepared for the event if they had known more about the written exam and individual activity ( $n= 88$ , 53.01%). Over fifty three percent ( $n=88$ , 53.01%) of the time participants indicated the career development event content area was not covered in their agricultural education class. More than fifty seven percent ( $n= 95$ , 57.22%) of the participants indicated they did not have plans to pursue a career in the farm business management area.

### **Conclusions/Implications**

This study examined student preparation for national farm business management career development event. Participation in the farm business management career development event was slightly higher by males than females. Students indicated over fifty percent of the time the content to their career development event was not covered in the class, but most often preparation for the event took place after school (63.85%). A local advisor (65.06%) was responsible for serving as the main coach for their event. More than half the students indicated they did not plan to pursue a career in this CDE area.

Preparation for career development events need to be covered more thoroughly to ensure students are well prepared for the event. Teachers should seek additional assistance from their community, teachers or parents to assist in coaching and preparing students for career development events. Additionally, teachers need to seek ways to incorporate CDE content into their curriculum. If the CDE's are not relevant, recommendations need to reflect what agricultural educators are teaching in the classroom. If students are not pursuing a careers in this CDE area, coordinators need to ensure the materials covered in the events are applicable to multiple career options. More importantly the content we are expecting students to learn for this CDE event needs to reflect what is occurring in the industry.

Secondary agricultural educators need to realize the career development events should build off of the content being taught in the classroom. Teacher educators should be responsible in preparing new teachers and provide recommendations of how to train and incorporate career development event content into their course curriculum.

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