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**ABSTRACTS**

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Research Conference Co-Chairs, Editors

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## **Where Are We Now? A Nationwide Look at Agricultural Leadership Education**

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Aaron J. McKim, Oregon State University  
Lori L. Moore, Texas A&M University  
Carrie A. Stephens, University of Tennessee  
Jon C. Simonsen, University of Missouri

### **Abstract**

*Agricultural leadership education is an important component of agricultural education programs across the country, yet a national study of the scope and types of programs offered has not been conducted since 2003 (Fritz et al.). The purpose of the current study was to provide national and timely data regarding the scope and type of opportunities offered in agricultural leadership education. Of the 56 responding institutions, 41 indicated offering agricultural leadership education opportunities. The types of opportunities offered include leadership majors, minors, options, foci, industry programs, graduate student programs, undergraduate programs and leadership courses. Leadership courses and minors were identified as the two agricultural leadership education opportunities with the highest student enrollment, serving and estimate of 7,904 and 1,581 students respectively. Leadership minors were also found to serve the highest proportion of students outside of colleges of agriculture. Responding faculty members in agricultural leadership education perceived the continued growth of leadership opportunities within their institution. Additionally, the majority of responding faculty identified moderate to substantial support for their agricultural leadership education endeavors from their home department, university colleagues and the agriculture industry. Implications and recommendations for the future of agricultural leadership education are discussed.*

## **Perspectives on Agricultural Education at the University of Idaho**

Jeremy Falk, University of Idaho  
P. Troy White, University of Idaho  
Carly Gerwig, University of Idaho  
Kylie Shaul, University of Idaho

### **Abstract**

*The purpose of this study was to examine the perspectives faculty members at the University of Idaho held toward agricultural education. Improved communication is predicated upon better understanding of the perspectives of all team members involved in interdisciplinary studies. Q-methodology and purposeful sampling techniques were used to discover the perspectives of 21 participants from across the university. Four perspectives emerged, each differing on levels of agreement toward agricultural education programs. The perspectives added to the findings from similar studies conducted at other universities. The progressive idealist is a visionary who sees agricultural education as a rigorous academic content area capable of preparing students for any college major. Progressive realists see agricultural education as a program that creates better students, while most concerned with the positive impact it makes in the lives of students. Supportive idealists were not directly involved with agricultural education, but see it as an ideal model that should be aspired to by other sects of education. Skeptical academics are not convinced of the rigor and preparation agricultural education claims, but they acknowledge the overall benefit of the program while maintaining their skepticism. Trying to better understand these perspectives will improve communication in interdisciplinary projects involving agricultural educators.*

**A Descriptive Study of College of Agriculture Faculty Perceptions of Student Skills,  
Faculty Competence in Teaching Areas, and Barriers to Improving Teaching**

Shannon M. Blickenstaff

Kattlyn J. Wolf, University of Idaho

Jeremy M. Falk, University of Idaho

John C. Foltz, University of Idaho

*A demand for educational reform is echoing across the nation. Diverse job markets in a constantly evolving agricultural industry have created a need for college graduates who possess transferrable competencies such as critical thinking, problem-solving, and effective communication skills. A researcher-designed questionnaire was used to describe University of [State] College of Agriculture faculty perceptions of valuable graduate skills, perceived levels of competence and importance of teaching areas, and barriers to improving teaching. Faculty reported high self-perceptions in traditional areas of teaching such as lecturing and identified student engagement and critical thinking skill development as the most important aspects of teaching. Teaching areas in need of the most professional development training included student engagement and improving reading and writing. Barriers to improving teaching included lack of time and resources as well as limited emphasis and recognition of teaching in the promotion and tenure process. Further research is needed to evaluate student learning and skill attainment, improve faculty teaching, and address barriers that hinder the promotion of quality undergraduate education. Land-grant colleges and universities must revitalize their services if they wish to continue preparing the next generation for innovative agricultural careers.*

**The Effect of a Three-Day Professional Development on Climate Science on Teacher Attitudes toward Teaching Climate Science in the Classroom**

P. Troy White, University of Idaho  
Kattlyn J. Wolf, University of Idaho

**Abstract**

*The establishment of the Next Generation Science Standards (NGSS Lead States, 2013) has brought climate science into standards based education. However, teachers face challenges to be able to implement these standards. Choi, Niyogi, Shepardson, and Charusombat (2010) have outlined the shortcomings of science textbooks relating to climate science, suggesting that teachers cannot depend on textbooks alone to meet these new standards. In response, a climate science workshop was conducted to give teachers a climate change curriculum using agriculture as the context for delivery. Agriculture was the context for teaching about climate change, and provided teachers with opportunities to tie local, real-world climate change examples to their students' lives. Teachers attending our workshop expressed similar opinions to the general population ranging from denial to alarm (Leiserowitz, Maibach, Roser-Renouf, & Hmielowski, 2012). Teachers' opinions changed following the presentation of climate change facts in the absence of political agendas. Teachers appreciated receiving facts and deciding for themselves.. Contrary to what teachers in prior studies in the region perceived (White, Wolf, Johnson-Maynard, Velez, & Eigenbrode, 2014), communities considered skeptical were accepting of an agricultural based curriculum presenting climate change and adaptation as scientific facts void of political agendas.*

## **Knowledge and Perceptions of Visual Communications Curriculum in Arkansas Secondary Agricultural Classrooms: A Closer Look at Experiential Learning Integration**

Kristin Pennington, University of Arkansas  
Carley Calico, University of Arkansas  
Leslie D. Edgar, University of Arkansas  
Don W. Edgar, University of Arkansas

### **Abstract**

*In 2010, the University of Arkansas Agricultural and Extension Education Department received federal grant funding for the development of curriculum relating directly to visual communications technology and its role in agricultural communications. Curriculum was developed and teachers across the state were asked to participate in implementing the program. The primary purpose of this study was to evaluate the knowledge levels of students prior to being taught agricultural communications curriculum, after the curriculum was taught, and again after students (N = 138) participated in a day-long experiential learning activity utilizing the skills taught throughout the curriculum; students' perceptions were also assessed. Additionally, a content analysis was completed to assess the ability of students to apply skills learned in the curriculum. Eleven schools participated in the study. A significant difference was seen in test scores for each curriculum (photography, writing, and videography) unit. Overall, students had positive perceptions of the curriculum and the experiential learning activity. Also, the content analysis showed that students were able to apply skills taught via the curriculum and successfully conveyed stories and messages by producing short promotional videos about agriculture. The study found that the curriculum was successful in increasing student knowledge of visual communications as it relates to agricultural communications.*

## **The Effect of the Order of Experiential Learning Stage on Adult Learners' Knowledge of Solar Energy**

Catherine W. Shoulders, University of Arkansas  
Jarred D. Wyatt, University of Arkansas  
Donald M. Johnson, University of Arkansas

### **Abstract**

*Renewable energy has experienced sluggish adoption rates among businesses and homeowners in both rural and urban communities. Agricultural leaders, policy makers, and consumers are all key contributors to technological adoption, and the process of researching methods of increasing adoption rates of agricultural technologies is within the responsibilities of the agricultural education profession. Currently, the profession lacks research regarding best practices related to effective teaching in nonformal settings. This study sought to determine the effect of order of experiential learning stage on learners' knowledge acquisition. Dependent and independent samples t-tests indicated that while lecture and demonstration yielded similar scores on a knowledge exam, learners that engaged in lecture after demonstration scored significantly higher than those that engaged in lecture before demonstration. Further, lecture after demonstration yielded a significant increase in learners' mean score from before the lecture, while demonstration after lecture did not yield in a significant increase in learners' mean score from before the demonstration. These results indicate that in the context of nonformal renewable energy education, educators can impact knowledge acquisition by including both lecture and demonstration, provided the demonstration occurs before the lecture. Results also indicate that if time or costs limit the number of educational activities offered, educators can confidently offer either demonstration or lecture and expect similar knowledge acquisition.*



## **The Effects of Kolb's Experiential Learning Model on Successful Intelligence in Secondary Agriculture Students**

Marshall A. Baker, Oklahoma State University  
J. Shane Robinson, Oklahoma State University

### **Abstract**

*Experiential learning, as defined by Kolb (1984), is an important pedagogical approach used in secondary agricultural education. Though anecdotal evidence supports the use of experiential learning, a paucity of empirical research exists supporting this approach. The purpose of the study was to examine the effects of an experiential learning approach to instruction on secondary agricultural education students' successful intelligence. It was concluded that experiential learning led to higher domain specific creativity and practical use of knowledge, while direct instruction yielded higher analytical knowledge scores. Thus, it was recommended that agricultural educators utilize a blended approach of instruction to provide balanced growth in all four modes of learning.*

**Relationships Between the Cognitive and Affective Learning Domains of FFA Members  
Who Attended Oklahoma FFA Camp**

Nicholas R. Brown, Oklahoma State University  
Robert Terry, Jr., Oklahoma State University  
J. Shane Robinson, Oklahoma State University

**Abstract**

*In the 1970s, the number of FFA camps expanded quickly in individual states across the country with the goal of increasing leadership capacities of FFA members. Although FFA camps were designed, originally, as a fun medium to increase leadership skills, current data suggests that camps also embed an element of seriousness and can improve students' content knowledge. The two major domains that impact the outcome of learning are cognitive and affective. Although recent research has been conducted regarding cognitive achievement at FFA camps, scholars have called for additional research on youth development related to the affective domain. The purpose of this descriptive-correlational study was to measure the relationship between the cognitive and affective learning domains of FFA members who attended Oklahoma FFA Alumni Leadership Camp. Although camp participants have an overall positive attitude about camp, there is no relationship between what they learned during small group sessions and their attitude toward the overall camp experience. As a result of this study, those responsible for planning the Oklahoma FFA Alumni Leadership Camp are advised to discontinue the use of academically structured learning material during small group sessions and consider incorporating activities that will help campers improve their learning of leadership concepts in the context of outdoor activities and recreation.*

**Successful Supervised Agricultural Experience Programs as Defined by American FFA Degree Star Finalists**

Eric D. Rubenstein, University of Florida  
Andrew C. Thoron, University of Florida

**Abstract**

*Within school-based agricultural education, supervised agricultural experience (SAE) programs remain an integral component of the total program. However, researchers have reported that SAE programs lack focus and direction. Furthermore, SAE programs lack a current definition of successful SAE programs. This study was conducted utilizing qualitative research methods to examine American FFA Degree Star Finalists definition of successful SAE programs. The data were analyzed using the constant comparative method and found seven components of successful SAE programs. Those components were: goal planning/ learning/career planning, utilization of program partners, income from SAE program, personal satisfaction, FFA participation, awards, and degree structure, hard work/personal growth, and complete records. The researchers concluded that learners should plan personal SAE goals, involve program partners in their SAE programs, be involved in the National FFA Organization, obtain monetary benefits, and complete accurate records. Therefore, practicing agriculture teachers should examine their current SAE instructional practices to ensure that SAE programs be based on the learners interest and provide support for a learner's personal, academic, and career goals.*

**Benefits of Career Development Events as Perceived by Agricultural Education Teachers  
in Oklahoma: A Delphi Study**

Jerrod Lundry, Oklahoma State University  
Jon W. Ramsey, Oklahoma State University  
M. Craig Edwards, Oklahoma State University  
J. Shane Robinson, Oklahoma State University

**Abstract**

*Agriculture is the nation's largest employer, with more than 24 million people working in some phase of the agricultural industry; however, the knowledge and skills needed in today's agricultural industry are lacking. Insuring future generations are agriculturally literate and taught the significance of agriculture is crucial. Systematic delivery of the secondary agricultural education program has the potential to highlight math and science through classroom and laboratory instruction, provide hands-on work experiences, and develop life skills that will help students discover their career paths. Through career development events (CDEs), agricultural education programs have the potential to prepare students for more than 300 careers in the science, business, and technology of agriculture. However, school-based, agricultural education teachers and students may not fully understand the technical and non-technical skills learned through CDEs. A Delphi approach was used in this study to identify the benefits of CDEs as perceived by school-based, agricultural education teachers in Oklahoma. Findings revealed teachers perceived CDEs supported the mission of career and technical education, particularly in the context of attaining valuable career and life skills beneficial for employment in the agricultural industry; however, less agreement existed about CDEs leading students to make career choices.*

## **Describing the Relationship between Coaching Behaviors and Student Performance at the National FFA Parliamentary Procedure Career Development Event**

Jeremy M. Falk, University of Idaho  
Douglas T. Masser, University of Idaho  
Haylee R. Palmer, University of Idaho  
Daniel D. Foster, University of Idaho

### **Abstract**

*The students who graduate from agricultural education programs need to have well-developed problem solving, critical thinking, collaboration, and creativity skills. Career Development Events (CDEs) focus on the success of the student and work to provide experiences to develop agricultural skills. At the center of this skill-building process is the coach. Differing coaching styles and behaviors exist however, prompting the question: which coaching behaviors affect student performance? The purpose of this research study was to describe the relationship between the team performance and 1) the coaching behaviors and 2) coach/team demographics at the National FFA Parliamentary Procedure CDE. Survey research methods were used to describe the 41 coaches and teams. Moderate, positive relationships existed between social support and training and instruction behavior constructs. The amount of team and individual practice also had a moderate, positive relationship with the team performance. Exam score had a significant, positive relationship with the overall team medal ranking, suggesting that coaches need to focus on providing foundational knowledge in parliamentary procedure during practice time. The researchers recommend professional development that shares coaching best practices and future research that continues to describe coaching behaviors from the student standpoint.*

## **Experiential Learning and Student Safety: Planning for Student Safety with Supervised Agricultural Experience (SAE) Supervision**

Rebecca G. Lawver, Utah State University  
Michael L. Pate, Utah State University

### **Abstract**

*This descriptive survey research study sought to gather evidence of school based agricultural education teachers' beliefs towards supervision of and planning for student safety within supervised agricultural experience (SAE) programs. This study was conducted in Region I of the National Association of Agricultural Educators (NAAE). The majority of respondents (71%,  $f = 186$ ) were male. Roughly half of the respondents (49.8%,  $f = 130$ ) indicated having completed a master's degree program. The majority of agricultural education teachers (63.0%,  $f = 165$ ) indicated being a single teacher program. School based agricultural education teachers within Region I NAAE agreed ( $M = 3.50 - 4.49$ ) that secondary agricultural education teachers should require students to follow SAE safety procedures during experiential learning in work settings. Agricultural education teachers' responses indicate the majority of planning and supervision of student SAE programs involves the secondary agricultural education teacher. University teacher educators should consider implementing community outreach seminars and develop curriculum to support teachers' professional development in engaging community stakeholders to improve safety conditions for student agricultural workers. Additional professional development may be dedicated towards emergency response training targeted for specific production agriculture hazards. Recommendations for further research include determining teachers' justification for implementing certain safety procedures. Additional research should investigate teacher awareness or estimation of students' cognitive and physical abilities to perform SAE work tasks.*

**Socioscientific Issues-based Instruction: An Investigation of Agriscience Students' Argumentation Skills based on Student Variables**

Jarred D. Wyatt, University of Arkansas  
Catherine W. Shoulders, University of Arkansas  
Brian E. Myers, University of Florida

**Abstract**

*Many researchers in science education have recorded high school student achievement in areas of scientific literacy stemming from socioscientific issues (SSI)-based instruction. The purpose of this study was to describe agriscience students' argumentation skills following a six-week SSI-based instructional unit according to students' grade level, socioeconomic status, and experiences in agricultural education. Results indicated students improved their argumentation quality from pretest to posttest, but students' changes in the number of arguments they offered varied by grade level, socioeconomic status, number of completed agriculture classes, and FFA involvement.*

## **Engine Trouble? Effects of Cognitive Style and Problem Complexity on Preservice Agriculture Teachers' Ability to Solve Problems in Agricultural Mechanics**

J. Joey Blackburn, Washington State University

J. Shane Robinson, Oklahoma State University

Alexa J. Lamm, University of Florida

### **Abstract**

*The purpose of this experimental study was to determine the effects of cognitive style and problem complexity on Oklahoma State University preservice agriculture teachers' (N = 56) ability to solve problems in small gasoline engines. Time to solution was operationalized as problem solving ability. Kirton's Adaption-Innovation Inventory was administered to determine cognitive style as more adaptive or more innovative. Preservice teachers were assigned randomly, by cognitive style, to solve either a simple or complex problem in a small gasoline engine. The simple problem was related to the electrical system of the engine, specifically a closed spark plug gap. The complex problem was related to the fuel/air delivery system; specifically, debris was placed into the main jet of the carburetor. Additionally, students were administered a 30-item criterion-referenced test to determine content knowledge. The findings of this study indicated that no statistically significant differences in content knowledge existed based on cognitive style. All students were able to solve their problem successfully; however, regarding time to solution, a statistically significant interaction effect existed between cognitive style and problem complexity. A simple main effects test revealed a statistically significant difference between the more innovative students based on problem complexity.*



## **Influence of FFA Activities on Critical Thinking Skills in Texas Three-Star FFA Chapters**

Lindsey Latham, Texas A&M University  
John Rayfield, Texas A&M University  
Lori Moore, Texas A&M University

### **Abstract**

*The purpose of this study was to determine the effect of FFA activities on critical thinking skills of Texas FFA members in three-star FFA chapters. This descriptive study was conducted in eight purposively selected three-star agricultural education programs throughout Texas. Seniors within each agricultural education program were selected to complete a demographic survey and the Watson-Glaser Critical Thinking Appraisal (WGCTA). The mean score for all FFA members who completed the survey was 39.85, which is considerably lower than the WGCTA norm group at 48.5 (Watson & Glaser, 1980). With a mean score of 39.85, the FFA members who completed the WGCTA scored in the 25<sup>th</sup> percentile of high school students in the 12<sup>th</sup> grade (Watson & Glaser, 1980). FFA members performed best on the Evaluation of Arguments subtest with a mean on 9.02 and scored lowest on the Inference subtest with a mean of 5.35. The only FFA activity that was an indicator of FFA members' critical thinking ability was the State Leadership Development (LDE) contest. Gender was an indicator of FFA members' critical thinking ability.*

## **Establishing a Benchmark for Critical Thinking within a Department of Agricultural Education and Studies**

Dustin K. Perry, Iowa State University  
Michael S. Retallick, Iowa State University  
Thomas H. Paulsen, Iowa State University

### **Abstract**

*Due to an ever changing world where technology seemingly provides endless answers, today's higher education students must master a new skill set reflecting an emphasis on critical thinking, problem solving and communication. The purpose of this study was to establish a benchmark for critical thinking abilities of students majoring in agricultural education and studies. Seventy-five senior-level undergraduates completed a critical thinking assessment test during the spring 2013 semester. A one sample t-test utilizing national norm data and a step-wise regression model analyzing predictors of critical thinking ability were used to address research objectives. The only critical thinking skill area wherein participants' mean score was statistically higher than the national norm mean score was in the ability to summarize a pattern of results in a graph without making inappropriate inferences. Further, the step-wise regression for total critical thinking score revealed that ACT score was the only significant predictor of overall critical thinking ability.*

## Assessing the Impact of Sequencing Practicums for Welding in Agricultural Mechanics

Malcolm Rose, Wasatch High School, Heber City, UT  
Michael L. Pate, Utah State University  
Rebecca G. Lawver, Utah State University  
Brian K. Warnick, Utah State University  
Xin Dai, Utah Agricultural Experiment Station

*This study examined the impact of sequencing practicums for welding on students' ability to perform a 1F (flat position-fillet lap joint) weld on low-carbon steel. Participants were randomly assigned a specific practice sequence of welding for using Gas Metal Arc Welding (GMAW) and Shielded Metal Arc Welding (SMAW). A total of 71 participants (70.3%,  $N = 104$ ) completed the research project. The majority of participants (95.8%,  $f = 69$ ) were male. There was no significant difference between treatment groups on the written pretest ( $F = .847(3)$ ,  $p = .473$ ) or posttest scores ( $F = .669(3)$ ,  $p = .574$ ). Few students (15%,  $f = 11$ ) met the performance standards for passing the cracks criterion using SMAW. The majority of students were able to meet the undercut criterion standard using both GMAW and SMAW. The mean weld performance test score among all treatment groups for GMAW was three out of four ( $SD = 1.04$ ) while the mean weld performance test score for all SMAW treatment groups was two out of four ( $SD = 1.36$ ). There were no significant differences between treatment groups and weld test performance. This project provided baseline data in understanding sequencing welding laboratory practicums by limiting operator-controlled variables.*

## **Does the Number of Post-secondary Agricultural Mechanics Courses Completed Affect Teacher Competence?**

Alex Preston Byrd, Iowa State University  
Ryan G. Anderson, Iowa State University  
Thomas H. Paulsen, Iowa State University  
Matthew J. Shultz, Murray State University

### ***Abstract***

*Preparing teachers to teach agricultural mechanics is a difficult task since many topic areas are covered. This study examines the effect of the number of college courses taken on a teacher's perceived competence to teach agricultural mechanics. Agricultural educators in Iowa ranked themselves according to their perceived, individual competence in 54 skill areas associated with agricultural mechanics curricula. These teachers also indicated the number of agricultural mechanics courses they completed in their teacher preparation program. Teachers who completed one or no courses had low to slight perceived competence while teachers who took two or more courses identified a moderate perceived competence in agricultural mechanics. Teachers indicating six or more classes completed exhibited a high-perceived competence. A positive correlation was identified between courses completed and perceived competence as the more courses taken the higher the self-perceived competence level of the teacher. To develop the competence of pre-service agricultural education teacher candidates it is recommended to examine the current agricultural mechanics curricula in teacher preparation programs. It is recommended that professional development be offered in areas identified as having low perceived competence.*

## **Does Agricultural Mechanics Laboratory Size Affect Agricultural Education Teachers' Job Satisfaction?**

Alex Preston Byrd, Iowa State University  
Ryan G. Anderson, Iowa State University  
Thomas H. Paulsen, Iowa State University  
Matthew J. Shultz, Murray State University

### **Abstract**

*Secondary agricultural education teachers were surveyed to examine if a relationship existed between the physical attributes of agricultural mechanics laboratories and agricultural education teachers' enjoyment of teaching agricultural mechanics. Teachers also indicated their competence to teach courses other than agricultural mechanics, perceived importance of Iowa agricultural education curricula, and training an agricultural mechanics Career Development Event (CDE) team. Responses were collected from 103 Iowa agricultural education teachers. It was found that shop size and the age of the shop did not have a correlation to agricultural education teachers' enjoyment of teaching agricultural mechanics, competence in other courses, importance of, or training a team to compete in the state CDE. Teachers' enjoyment of teaching agricultural mechanics was positively correlated to the size of the budget for consumables and equipment for their agricultural mechanics laboratory. It was recommended that further research be conducted to identify motivating factors of agricultural education teachers that teach agricultural mechanics within their secondary agricultural education program.*

## **Effect of Student-Centered and Teacher-Centered Laboratory Instruction on Students' Content Knowledge and Activity Perception**

Carmelita E. Goossen, Oklahoma State University  
Amanda Kacal, Oklahoma State University  
Richie Roberts, Oklahoma State University  
Ashley S. Whiddon, Oklahoma State University  
J. Shane Robinson, Oklahoma State University

### **Abstract**

*Students in secondary education are failing in science and are not adequately prepared for college. This deficit has led to the use of student-centered teaching methods, including inquiry-based instruction (IBI). IBI has gained popularity because of its realistic and problem-based strategy. The purpose of this study was to determine the effect of IBI and lecture on students' content knowledge as well as determine the effect of IBI and lecture on Oklahoma State University pre-service agricultural education teachers' (N = 41) perceptions after completing a science-based laboratory activity. Students were randomly assigned to either an IBI group or lecture group in the completely randomized 2x2 design. A Lab Aids classroom kit, based on the principles of biofuels, served as the content for the treatment. The findings of this study revealed a statistically significant difference in the IBI treatment, indicating increased content knowledge, provided student-centered instruction. As such, teachers can implement effective IBI as a means to increase content knowledge. As this study was exploratory in nature, it is recommended that it be replicated with a larger sample size to increase generalizability.*

*This work has been funded, partially, by the NSF EPSCoR award EPS 0814361.*

## **Agriculturists' Personal and Business Use of Online Communication Tools**

Kelsey Shaw, Texas Tech University  
Courtney Meyers, Texas Tech University  
Erica Irlbeck, Texas Tech University  
David Doerfert, Texas Tech University  
Katie Abrams, Colorado State University  
Chris Morgan, University of Georgia

### **Abstract**

*American agriculture has dramatically changed during the past century. New programs and efforts are being promoted to help farmers and ranchers succeed in their efforts, both in their daily operations and in their attempts to reach consumers. Online communication tools may be one way agriculturists can share their stories and market directly to these audience members, but much is unknown regarding the extent to which these tools are currently being implemented. The purpose of this study was to determine agriculturists' current use of online communication tools for both personal and business purposes. The target population for this study was members of organizations targeting beginning farmers and ranchers in three states. An online survey was administered electronically to members of seven organizations, and 185 completed questionnaires were analyzed. The findings indicated websites and Facebook are the commonly used online communication tools for personal and business use. Many tools are not used at all for either purpose. A significant correlation was found between the use of online communication tools in personal and business settings. Additional research is needed to further explore agriculturalists' use of these tools for both purposes.*

## **The Capacity of Texas Alliance for Water Conservation (TAWC) Producers to Share Information with Other Producers: A Social Network Analysis of Within and Outside of Project Interaction**

Nellie Hill, Kansas Department of Agriculture  
David L. Doerfert, Texas Tech University  
Cindy Akers, Texas Tech University  
Courtney Meyers, Texas Tech University

### **Abstract**

*Networks of relationships form the foundation of our social lives. Understanding and utilizing these connections can help practitioners and researchers more effectively and efficiently disseminate information and innovations within a group. The Texas Alliance for Water Conservation (TAWC) is concerned with identifying the best practices and new technologies for water management in Texas and then sharing that knowledge beyond the project membership to other producers in the region. This study sought to describe the interpersonal relations of the TAWC producers through social network analysis and the potential reach of these producers. Semi-structured interviews were conducted with TAWC producers in order to describe producers and their interpersonal connections in terms of relations and typology. NodeXL for Microsoft Excel, QDA Miner, and WordStat software tools were used for data analysis. Results indicated TAWC producers are diverse in their attributes, both personally and in their farming operations. Analysis revealed an intended change agent and emergence of several opinion leaders within the TAWC producer network. Furthermore, the knowledge developed through the TAWC project has reach beyond the project's producers. The study results will facilitate further social network analysis of the population and guide further information and innovation dissemination to the TAWC producer network.*



## **Agricultural Communications Programs: A National Portrait of Undergraduate Courses**

Karen J. Cannon, University of Nebraska, Lincoln

Annie R. Specht, Ohio State University

Emily Buck, Ohio State University

*Considerable research has been conducted regarding competencies needed by agricultural communications program graduates during the past four decades. However, no studies have considered actual program offerings. This study used a qualitative approach to analyze courses offered in agricultural communications programs in the United States. Using content analysis methods, researchers analyzed published course descriptions and discovered 21 categories among 172 courses. Most popular were writing focused courses, followed by courses introducing students to the major, internship courses, writing for publication and graphic design courses. Categories of courses with the fewest offerings included research, study abroad, and international focused courses. These findings are consistent with previous literature noting the variety existing in agricultural communications programs nationally. With the current growth of agricultural communications as an academic discipline and the fundamental role agricultural communicators play in sharing information about key societal issues at a time when agriculture has never been under greater pressure, this study is a first step in creating a national portrait of curricular offerings in agricultural communications programs to help with the creation of a national level model for curricula.*

## **Knowledge and Perceptions of Agricultural Communications Pilot Curriculum in Arkansas Secondary Agricultural Classrooms**

Carley Calico, University of Arkansas  
Leslie D. Edgar, University of Arkansas  
Don W. Edgar, University of Arkansas  
Donald M. Johnson, University of Arkansas

### **Abstract**

*The purpose of this mixed method study was to assess the effectiveness of Agricultural Communications (ACOM) curriculum developed and incorporated into a semester-long agricultural leadership and communications course for secondary agricultural education programs in Arkansas. Students (N = 297) participated in newly developed instructional modules addressing four categories of agriculture themed curricula predetermined by a committee of agricultural education and communications faculty at the University of Arkansas (careers, writing, design, and multimedia). Student ACOM knowledge change was assessed using pre- and post-test instruments in each module of study. Additionally, content analysis of participating teachers' journals was used to identify emergent themes related to teachers' experiences teaching the curriculum throughout the semester. Overall, the findings from this study indicated students' knowledge increased after instruction, for each curriculum module: careers (16.2%), writing (23.1%), design (35.7%), and multimedia (31.3%). Lack of time, limited technology, teacher training, and curriculum content were the most common emergent themes among teachers. Based on findings from this study, it was concluded future efforts should be made to provide technology for agricultural education instructors to improve ACOM program effectiveness and reach.*

## **Agricultural Mechanics as Agriscience: Secondary Teacher Perceptions in Idaho**

P. Troy White, University of Idaho  
Kattlyn J. Wolf, University of Idaho

### **Abstract**

*The purpose of this study was to examine the perceptions of Idaho agriculture teachers toward integration of physical science concepts in agricultural mechanics courses. Three decades of research and application show the effectiveness of incorporating biological science concepts into plant and animal science courses. However, agricultural mechanics courses received little of the attention. Study results indicate teachers are favorable toward the integration of physical science into agricultural mechanics courses, and science integration overall. Teachers in this study agreed; physical science concepts would enhance agricultural mechanics instruction, physical science fits naturally into the curriculum, and scientific principles were easier to understand when integrated into agriculture courses. Teachers in this study reported slight agreement that they were prepared to teach physical science concepts. Teachers were split in relation to their perceptions of their administrations' view of the rigor of their science courses, suggesting there is not consensus in this area. Overall, agriculture teachers considered themselves competent to integrate physical science concepts into their curriculum and they were willing to do so.*

## **Perceptions of Secondary School Agriculture Teachers regarding Teaching about Biomass Production in Iowa**

Guang Han, Iowa State University  
Robert Martin, Iowa State University

*With the boom of biorenewable energy, biomass production has become an important segment in agriculture industry (Iowa Energy Center, 2013). More workforces will be needed for this burgeoning biomass energy industry (Iowa Workforce Development, n. d.). Instructional topics in agricultural education should take the form of problems and questions faced by the agriculture industry itself (Phipps, Osborne, Dyer, & Ball, 2008). This study sought to assess the perceptions of secondary agriculture teachers regarding biomass production education in Iowa. Results of this study indicated that teachers held strongly to moderately positive perceptions toward biomass production and moderately positive perceptions toward teaching about biomass. In addition, seven topics related to biomass production education were identified with higher needs for future inservice training. Past experience of teachers participating workshops about bioenergy was found to have a positive impact on teachers' perceptions regarding teaching about biomass production. In conclusion, teachers may have interest in inservice training about biomass production education. It is recommended that institutes, extension organizations and corresponding professional organizations should hold more workshops about biomass production.*

## **Can Scientific Reasoning Scores Predict the Likelihood of SBAE Students' Intent to Pursue a STEM Career, a Career in Agriculture, or Plan to Attend College?**

Catherine A. DiBenedetto, University of Florida  
R.G. Easterly III, University of Florida  
Brian E. Myers, University of Florida

### **Abstract**

*Demands placed on teachers and students continue to increase in order to develop the skills required of the 21<sup>st</sup> century workforce. There continues to be a need to utilize curriculum and instruction to inspire students to engage in STEM majors and careers. Improving instructional methods and providing opportunities for students to question and problem solve, through the use of inquiry-based instruction (IBI) can increase scientific reasoning abilities. This instructional approach may assist in improving, not only the academic achievement of students, but it may encourage students to plan to attend college and develop potential career aspirations for agriculture and STEM. This research used the scientific reasoning scores from 663 students enrolled nationwide in school-based agricultural education programs (SBAE) to predict students' likelihood to indicate plans to pursue a career in agriculture, STEM or plan to attend college. The findings reveal scientific reasoning scores predict students' likelihood to indicate intention to pursue a STEM career and plan to pursue college. Implications from this research suggest SBAE instructors should continue their efforts to incorporate IBI into instruction in order to engage students to think critically and solve real world problems, while exposing students to the skills requisite for STEM major/career access.*

## **Effects of Integrating Mathematical Concepts into an Animal Science Curriculum**

Andrea R. Clark Gardner, Utah State University

Brian K. Warnick, Utah State University

Rebecca G. Lawver, Utah State University

*Achievement test scores in mathematics have been a concern among educators for many years. Teaching contextualized math has been found to be effective and includes providing a direct application to real-life scenarios rather than teaching linear equations and algebraic principles in isolation. This study measured the effects of integrating mathematical skills in an animal science curriculum. Students from eight schools participated in the research study. Students received a pretest measuring their existing mathematical skills and self-efficacy in math. All students were taught a unit of instruction about animal nutrition and feeding. The control group received a typical nutrition unit and the treatment group received the same unit of instruction with the addition of mathematical skill integration. Following the unit of instruction, students completed a posttest survey, which included a math attitudinal scale, posttreatment self-efficacy scale, and posttreatment math skills questions. No statistically significant difference was found in math self-efficacy or math skills between the control group and treatment. However, results indicated a strong positive relationship between students' math self-efficacy and their math skills. Further, highest level of math courses completed and overall grade point average were statistically significant factors in predicting math self-efficacy.*

## **Informing Extension Programming With Research: A Look into Local Food**

Keegan. D. Gay, University of Florida

Joy. N. Rumble, University of Florida

Alexa. J. Lamm, University of Florida

### **Abstract**

*The demand for local food has risen dramatically over the last decade and many states have created brands to promote products grown within that state. However, the effect of state brands on consumer perceptions remains unknown. Extension agents serve as change agents and a bridge between science and the public to purvey information for adoption decisions. Thus, this study sought to determine if differences exist between consumers perceptions of food labeled local and food labeled [State Brand] in order to inform Extension programming. [State] residents (N = 530) were surveyed utilizing a between-subjects experimental design. Respondents were asked questions about their attitudes, trust, and transparency, and information preferences toward food labeled [State Brand] or local food, depending on the experimental treatment they received. Results of this study indicated that consumers shared similar perceptions of local and [State Brand] foods, except for the belief that [State Brand] comes from larger farms, [State Brand] labeling is more trustworthy, and there is a greater desire to see a definition of [State Brand] food. When Extension agents develop programming on economic viability, information on local food and state brands should be included to help producers market their products and increase revenues.*

## **Experiences of Hispanic Students Enrolled in a Secondary Agricultural Education Program**

Ann M. De Lay, California Polytechnic State University, San Luis Obispo  
Karina Salomon  
José Vargas

*Nearly 52% of the [state] students enrolled in agricultural education are Hispanic. However, many agriculture programs fail to have Hispanic students engaging in the agriculture program beyond the classroom setting. Diversity fails to mirror enrollment. The purpose of the study was to interpret the phenomenon of Hispanic student engagement in a [state] secondary agriculture program. In this phenomenological study, a focus group interview of 9 Hispanic agriculture students was conducted at a [state] high school with the reputation for strong Hispanic student engagement. The following question guided the work: How do Hispanic students experience the secondary agriculture program? Findings suggest the accumulation of strong family support, departmental financial assistance, and advisor encouragement create positive opportunities for program experiences. The students' participation in the program continues to be driven by their cultural heritage, manifested by keeping their school's legacy alive, maintaining a family-like atmosphere to promote an inviting environment for prospective members, and to take advantage of opportunities. Recommendations include: (1) challenging agriculture teachers to establish strong personal connections with students and their families and (2) encouraging older students in the program to mentor younger students.*



## **Paxton Revisited: The Essence of the Lived Experiences of Urban Agricultural Education Students**

Nicholas R. Brown, Oklahoma State University  
Richie Roberts, Oklahoma State University  
Ashley S. Whiddon, Oklahoma State University  
Carmelita Goossen, Oklahoma State University  
Amanda Kacal, Oklahoma State University

### **Abstract**

*The rapidly growing world population and need for more food and agricultural knowledge has inspired city dwellers to explore urban cultivation practices such as vertical farming and community gardening. Ultra-modern approaches to growing crops and livestock in urban high-rise buildings has sparked the imagination of scientists, agriculturists, and engineers as well as rural and urban citizens in recent years. With this new piqued interest for urban agriculture, secondary urban Agricultural Education programs are in a prime position for growth. However, more research is needed to inform the profession regarding quality Agricultural Education growth in American cities. The purpose of this transcendental phenomenology was to discover the essence of the shared experiences of urban students who were persistently enrolled in Agricultural Education. The findings, conclusions, implications, and recommendations associated with the study are reported as five interpretive themes of meaning including: (a) disorienting experience, (b) critical assessment, (c) shared experiences, (d) thoughtful planning, and (e) projected transformation. The essence of the shared lived experiences of Thomas High School Agricultural Education students was discovered through the lens of the Transformational Learning Theory and can be described best as a Journey Toward Transformation.*

## **Urban FFA Members' Sense of the Organizational Culture of the FFA as Experienced through the National FFA Convention**

Michael J. Martin, Colorado State University  
Tracy Kitchel, University of Missouri

*Organizational culture shapes how members of a group act. The culture has the power to exclude potential new members who do not fit into the culture of the organization. Research on urban school-based agriculture programs indicates that urban agriculture students face barriers to their participation in the National FFA Organization (FFA). Experiences of urban FFA members at a national FFA convention can provide researchers with an understanding of how urban agriculture students view the FFA organization. The purpose of the case study presented in this paper was to explore how urban FFA members experienced the FFA organizational culture while attending the 2012 National FFA Convention. We followed one urban FFA chapter during the 2012 FFA convention and conducted interviews before, during, and after the convention. We also conducted focus group interviews and made field notes at the convention. Belmont FFA members did not generally perceive their experiences at the convention as a barrier to their involvement in FFA. The members were positive toward the FFA artifacts as well as the beliefs and values they identified at the convention.*

## **Clashing of Views: Agricultural Education Students' Conceptualization of Agricultural Values**

Michael J. Martin, Colorado State University  
Kellie J. Enns, Colorado State University

*American agriculturalists are currently divided between two broad opposing camps with differing values: conventional agriculturalists and non-conventional agriculturalists. We know that how our students think about agriculture shapes how they will work in their future classrooms, schools, and communities as well as how they will interact with students and community members; however, undergraduate agricultural education students' conceptualizations of agriculture have not been explored. The purpose of this narrative study was to describe undergraduate agricultural education students' conceptualization of their values about agriculture. The findings from this study highlighted the polarization of American agriculture. The agricultural education students' conceptualization of agricultural values was conventional. Some students formed conventional agriculture values as they grew up while other students experienced a change of their values towards conventional attitudes while in college. Some students were more negative and non-conciliatory than others who more combative towards non-conventional agriculture values. These differences indicate a real challenge for us as agricultural educators at the post-secondary level. Students have the right to maintain their own values in agriculture; however they must be able to work with others who have differing values. Research is needed evaluate the most effective way to help students learn how to work with people who have differing agricultural values.*

## Identifying the Characteristics, Use, Perceptions, and Barriers of the School Farm

Angela Gilbert, Texas Tech University  
Jonathan D. Ulmer, Texas Tech University  
Scott Burris, Texas Tech University  
Rudy A. Ritz, Texas Tech University

### Abstract

*Due to the increasing gap between the general public and production agriculture there is an increasing need for agricultural education to be taught utilizing the experiential learning theory. The school farm provides a venue for practical application (laboratory instruction) of principles learned in the classroom. The purpose of this study was to determine the barriers that agricultural science teachers, face when pre-planning laboratory experiences on the school farm. The target population for this study included secondary agricultural science teachers, in Texas, who have or previously have utilized a school farm as part of their classroom instruction. This study used a descriptive, quantitative research design consisting of an in-depth questionnaire. School farms vary in their characteristics, enterprises, structure, and uses. The available resources are primarily for livestock and general shop. Agricultural science teachers view the school farm as a place for SAEs. Teachers identified important factors when pre-planning activities on the school farm which include: facilities, student's attitude, finances, condition of the school farm, ability to oversee and help with the activity, and student experience. There are many potential barriers that could inhibit teachers from pre-planning activities on the school farm.*

## **Teacher Perceptions of Adult Volunteers Serving Local, School-based Agricultural Education Programs**

Stephen Tillinghast, Oklahoma State University  
Jon W. Ramsey, Oklahoma State University  
Robert Terry, Jr., Oklahoma State University

### **Abstract**

*Service provided by volunteers is vital to the success of many nonprofit organizations. The purpose of this study was to describe volunteerism associated with local, school-based agricultural education programs in Oklahoma. Specifically, this study investigated teachers' perceptions regarding value, uses and benefits of volunteers serving their programs. The study also inquired about training and rewards provided to volunteers. Teachers find utility with volunteers providing transportation and supervision for FFA members. They recognize volunteers can help ease their stress, but believe there are roles that should not be assumed by volunteers. While teachers value trained volunteers, they provide little formal training for individuals who serve them and their programs. Rewards provided to volunteers are limited to simple, local recognitions. Findings lead to the conclusion that people willing to serve school-based agricultural education programs are underutilized, under-trained, and under-recognized. We recommend teachers be educated about volunteer management through coursework and professional development programs. Further, we recommend the National FFA Organization develop programs to train volunteers for general and specific roles and create a system to reward volunteers on the local, state, and national levels. Programs offered by the Boy Scouts of America should be considered models for these efforts.*

## **Inquiry-based Instruction: Perceptions of National Agriscience Teacher Ambassadors**

Jessica M. Blythe, University of Florida  
Catherine A. DiBenedetto, University of Florida  
Brian E. Myers, University of Florida

### **Abstract**

*To assist students in developing positive scientific attitudes and improve student scientific literacy, learning environments should utilize inquiry-based instruction (IBI). In order to further develop the implementation of IBI in agricultural education settings, this research sought to describe the perceptions of National Agricultural Teacher Ambassador Academy participants' transitions to IBI. Utilizing focus groups, this research identified three themes concerning the implementation of IBI: the perceptions of time required to implementing IBI, perceptions of the transition from former teaching methods into IBI, and perceptions of the reactions from their school environment of participants' implementation of IBI. Though participants reported initial personal and student struggles when transitioning to IBI, they also perceived that once students understood the processes associated with IBI students reported learning more than with other teaching methods. The findings indicate that a variety of professional development opportunities and supports must be provided for agricultural teachers implementing IBI in their classrooms.*

## **Factors Contributing to Attrition as Reported by Leavers of Secondary Agriculture Programs**

Laura L. Lemons, Mississippi State University  
Todd Brashears, Texas Tech University  
Scott Burris, Texas Tech University  
Courtney Meyers, Texas Tech University  
Margaret (Peggie) Price, Texas Tech University

### **Abstract**

*There exists in our profession a persistent shortage of quality teachers in our high school agricultural education classrooms. A multitude of studies have identified challenges faced by agriculture teachers, however, few, if any, have investigated reasons for attrition by directly asking leavers why they left. This study sought to identify reasons for leaving the profession as perceived by former high school agriculture teachers. Nine former secondary agriculture teachers were interviewed. Themes emerging from this qualitative case study include 1) passions for the profession, 2) alternative opportunities, 3) expectations, 4) burdens, retrospectively and 5) people. Teachers were passionate about their students, their content area and competition inherent in agricultural education. All of the participants had chosen to accept alternative employment opportunities. Former teachers recalled having high expectations for themselves and their career, and perceiving others to have high expectations as well. The teachers recalled the burdens of their job retrospectively, and people played an integral role in their career as well as their decision to leave the profession. Former teachers were satisfied while teaching, but found greater benefit in alternative opportunities. Recommendations include encouraging realistic expectations, developing mentor programs for novice teachers, and strengthening the benefits of remaining in the profession.*

## **An Examination of Professional Commitment, Job Satisfaction, and Perceived Ability to Achieve Work-Life Balance among Oregon Agriculture Teachers**

Tyson J. Sorensen, Oregon State University  
Aaron J. McKim, Oregon State University

### **Abstract**

*Agriculture teachers participate in various work and life roles, which can create challenges when trying to balance the pressures and responsibilities associated with each role. When one is unable to balance and prioritize between roles, both satisfaction and professional commitment may be reduced. The purpose of this study was to describe Oregon agriculture teachers' job satisfaction, professional commitment, and perceived ability to balance work and life roles. Additionally, this study sought to describe the relationship between perceived ability to balance work and life roles, job satisfaction, and professional commitment. Sex, marital status, parental status, and career stage had only small to negligible effects on job satisfaction, professional commitment, and work-life balance. Statistically significant positive correlations were found between job satisfaction, professional commitment, and work-life balance. Implications and recommendations are discussed.*



## Investigating the Influence of Cooperating Teachers on Student Teachers' Intent to Teach

Gaea Wimmer Hock, Mississippi State University  
Todd Brashears, Texas Tech University  
Scott Burris, Texas Tech University  
Steve Frazee, Texas Tech University

### Abstract

*Agricultural education is in need of more teachers. The impact of the student teaching experience on a student's decision to teach is an area of interest. This descriptive study examined student teacher satisfaction with their cooperating teacher and the influence their cooperating teacher had on their intent to teach agriculture after the student teaching experience. Student teachers were highly satisfied with their cooperating teacher's psychosocial support, amount of assistance provided compared to the amount needed, similarity and satisfaction with relationship. Participants did not indicate a large increase in intent to teach from before the student teaching experience ( $M = 3.84$ ,  $SD = .65$ ) to after ( $M = 4.07$ ,  $SD = .70$ ). It appears the intent to teach of these student teachers was set before they left campus for the student teaching experience. Improvements should be made to the quantitative instruments and administered to a larger sample in order to establish when, in the college preparation process, intent to teach becomes set. More opportunities for teacher candidates to meet and visit with current teachers and future students should be implemented in an effort to increase intent to teach.*

## **Phases of Beginning Teacher Development and the Relationship to Concerns Expressed by Agricultural Education Student Teachers**

Jaclyn F. Tweeten, Iowa State University  
Thomas H. Paulsen, Iowa State University  
Ryan G. Anderson, Iowa State University

### **Abstract**

*Student teaching is an important capstone experience where pre-service teachers learn the skills they need to become effective teachers. Research has determined that during the student teaching experience candidates develop concerns for themselves and for their students. As pre-service teachers encounter challenges and obstacles it is important for them to communicate these concerns. This study was designed to identify concerns of student teachers, determine if they varied by gender, and determine if they aligned with the phases of a first year teacher developed by Moir (1990). Understanding teaching concerns in the pre-service agricultural teacher education program will allow teacher educators to develop successful pedagogies that lower the self-adequacy concerns of pre-service teachers. Further research is needed to determine if gender differences impact student teachers' success.*

## **Determining the Effectiveness of Teaching Personal Development at an FFA Camp**

Kevin D. Herndon, University of Kentucky

Rebekah B. Epps, University of Kentucky

Joenelle L. Futrell, University of Florida

Kristie B. Guffey, Division of College and Career Readiness, Kentucky Department of  
Education

### **Abstract**

*Personal development is one of the most important outcomes of attending an FFA camp. Ensuring that these camps meet the needs of their campers is vital to the success of that outcome. This study focused on campers attending one FFA camp during the summer of 2013 and asked them to reflect on their experiences in reference to nine factors of personal development. Using a survey developed by the American Camp Association, student responses were analyzed to determine the strengths and weaknesses of the FFA camp related to student growth in the personal development factors. Students rated themselves very highly in each of the nine personal development factors. Campers agreed that the camp program did provide them growth in each of the areas of personal development, but only to a small degree. Recommendations were drafted for camp administration based on study results, which include evaluating the camp program for connections to personal development and creating new activities if certain factors are not met.*

## **The Cultural Adaptation Process of Agricultural and Life Sciences Students on Short-term Study Abroad Experiences**

Nathan W. Conner, Tennessee Tech University  
T. Grady Roberts, University of Florida

### **Abstract**

*Globalization constantly shapes our world and influences post-secondary education. This study explored the cultural adaptation process of participants during a short-term study abroad program. Participants experienced stages which included initial feelings, cultural uncertainty, cultural barriers, cultural negativity, academic and career growth, feelings throughout the program, and cultural growth. The findings from this study should be used to design and implement short-term study abroad programs that infuse cultural learning with academic learning and focus on experiential learning practices.*

## **Service-Learning's Journey as a Method of Instruction in Agricultural Education: Dewey's Presaging and the Method's Development during the 20th Century and Beyond**

Richie Roberts, Oklahoma State University  
M. Craig Edwards, Oklahoma State University

### **Abstract**

*American education's journey has witnessed the rise and fall of various progressive educational approaches, including service-learning. In many respects, service-learning is still undergoing formation as a teaching method, specifically in agricultural education. For this reason, the interest existed to understand service-learning's origins and its evolution as a method of instruction. As such, this historical study sought to describe the events and philosophical underpinnings presaging service-learning's emergence as a method of instruction, and how this approach to learning has been incentivized and used in school-based, agricultural education (SBAE). Findings and implications from the study revealed that its deep philosophical roots are traceable to great thinkers, including Aristotle, Plato, Rousseau, Kant, and Dewey. Moreover, the researchers suggest the core principals of service-learning align with delivering SBAE's three-circle model in effective and powerful ways. Moving forward, scholars and practitioners of SBAE should ask themselves, "Is service-learning the teaching method of choice for conflating the components of the three-circle model such that the whole really is greater than the sum of its parts?"*

## Using Reflective Journals to Compare an International Faculty-Led Study Tour and Student Internship Experience

Amanda Northfell, University of Arkansas  
Hayley Jernigan, University of Arkansas  
Leslie D. Edgar, University of Arkansas

### Abstract

*The globalization of society presents the need for intercultural communication skills. International experiences impact students' global perceptions which affect the industry's future. This study sought to determine agricultural students' values and how these values influenced their perceptions regarding the unique international experience. Students from four universities who participated in a three-week faculty-led study tour (N = 11) were compared to University of Arkansas students who participated in a six-week internship (N = 5) in Ghent, Belgium. Students used reflective journals to record their perceptions, and a content analysis was conducted to identify emergent themes. Students from both experiences struggled most when communicating with researchers, but gained confidence as they successfully served an international client. Host families were the most pressing concern for students but were impactful in exposing students to Belgian culture. Students sought normalcy by comparing Europe to America and stepped up as leaders when faculty guides were not present. Regardless of whether students were led by a faculty member (study tour) or navigated the international experience predominately on their own (internship), each found value in studying internationally. Earlier research recommended placing students in international settings to increase students' knowledge of global agriculture and is reinforced by this study.*

## **Use of Citations within Manuscripts Published by the *Journal of Agricultural Education***

Hanna E. Kildow, University of Arkansas  
Bryan W. Zimmerman, University of Arkansas  
Kate W. Shoulders, University of Arkansas  
Donald M. Johnson, University of Arkansas

### **Abstract**

*Because publications serve as the institutional memory of a discipline, researchers have the responsibility of becoming familiar and acknowledging previous literature. The use of citations in manuscripts is considered ethical best practice, and is a method of manuscript evaluation. In agricultural education, researchers have recommended that an evaluation of manuscript citations be conducted every ten years in order to ensure the integrity of the profession's research repository. This study served as a descriptive evaluation of the use of citations in the Journal of Agricultural Education from 2003 to 2012. Findings indicated that the average number of citations used, the number of citations to support the conceptual framework, the number of citations from within and outside the profession, and the number of citations used to support findings increased over the 10-year time span.*

## **The Merger of the NFA & FFA: A Determination of Barriers to Success**

Donald F. Gilman, Lee County High School

Brian A. Parr, Auburn University

Jason B. Peake, University of Georgia

### **Abstract**

*The merger between the NFA (New Farmers of America) and the FFA (Future Farmers of America) was an event that occurred nearly 50 years ago between two student organizations in secondary education. Prior to that time, the NFA was a viable organization for African-American males interested in agriculture and leadership. Since the merger, African American participation has declined to the point that this ethnic group is underrepresented in FFA membership. To better understand the problem, grounded theory research was employed to investigate stakeholders present at the time of the event. This study examined the perceptions of topics generated by fourteen white agricultural educators concerning their recall of events and situations prior to and just after the merger of the NFA with the FFA during desegregation.*



## **The Merger of the NFA & FFA: Perceptions of White Educators of the Period**

Donald F. Gilman, Lee County High School

Brian A. Parr, Auburn University

Jason B. Peake, University of Georgia

### **Abstract**

*The low number of minorities, in particular African-American students who participate in the National FFA Organization is a well-documented problem in Agricultural Education. While the 1965 merger of the NFA (New Farmers of America) and the FFA (Future Farmers of America) was intended to unify African-Americans and whites within a single student organization minorities enrollment and participation has suffered as a result of this merger. A grounded theory research was employed to investigate stakeholders present at the time of the event. Numerous studies have examined the perspective of African-Americans on this phenomena, this study examines the perceptions of topics generated by fourteen white agricultural educators that were employed prior to and just after the merger of the NFA with the FFA during desegregation. While neither white nor black educators during this event had clear direction on how to complete the merger, both sides had similar feelings on the outcome. Both white and black educators reported that loss of black educators as role models has led to lower participation by minorities in agricultural education classes and FFA.*

## **The Development of Agricultural Education in the Pacific Northwest**

P. Troy White, University of Idaho  
James J. Connors, University of Idaho  
Kattlyn J. Wolf, University of Idaho

### **Abstract**

*Localized histories of agricultural education are important in understanding the development of both local programs and the state departments that supervise them. The lack of high schools in many parts of the region required the creation of less than college grade courses at all four of the regions' land-grant universities. As secondary schools became more proficient they took over agricultural education. This was not without struggles, one state enacted legislation limiting teacher education, states struggled to find qualified teachers, funding was of concern across the region, and each state uniquely developed their own curriculum requirements. However many positive advancements evolved across the region. Summer conferences to train teachers on best practices, county level vocational agriculture programs, and development of the demonstration method are among the pillars of agricultural education to emerge at the turn of the 18th century. Understanding the evolution of these practices places current practices on a firm foundation allowing them to evolve without repeating the mistakes of the past.*

## **The Relationship between Agriculture Knowledge Bases for Teaching and Sources of Knowledge**

Amber Rice, University of Missouri  
Tracy Kitchel, University of Missouri

*The purpose of this study was to describe the sources of content knowledge of current agriculture teachers using a review of literature, the perceived knowledge bases using an existing model of pedagogical content knowledge (PCK), and to determine if a relationship exists between the two utilizing a multiple regression analysis. All of the sources of content knowledge were perceived as effective by teachers. The perceived ability for all six constructs of the PCK model were to at least a fair extent. Six of the seven sources of content knowledge were significant predictors for at least one of the constructs. Despite the high averages of perceived ability there were no significant models for two of the six PCK constructs.*

## **Are We Preparing Teachers for the Challenging Times? Physiological Stress Impacting pre-service Agricultural Educators**

Erica B. Thieman, University of Illinois at Urbana-Champaign  
Tracy Kitchel, University of Missouri

### **Abstract**

*With agricultural educator attrition continually mounting and a wave of Baby Boomer retirement impending, retention of qualified, effective teachers is vital to the continued success of the field of agricultural education (Kantrovich, 2007). In the coming years, it is essential that teacher stress be more effectively understood (Kyriacou, 2003). The purpose of this mixed methods study is to bring to light issues in pre-service agriculture teacher development through examination of physiological stress and personal reflections. Data was collected surrounding microteaching experiences from a variety of sources including heart rate monitors, hourly activity logs, reflections, and follow-up interviews. Individual stress profiles were grouped according to overall mean stress levels with low, medium, and high groups naturally emerging from this population. Qualitative themes emerged relating to how stress profile intersected with responsibility for student outcomes, stress cognizance, and present-mindedness.*

## **Introducing Prospect Evaluation through Exploring Great Plains Wheat Producers' Behaviors and Attitudes Regarding Web 2.0 Technology**

Nicholas R. Brown, Oklahoma State University  
Kathleen D. Kelsey, University of Georgia

### **Abstract**

*The purpose of this manuscript is two-fold: to introduce a new evaluation model, prospect evaluation, and to document wheat producers' levels of awareness and attitudes regarding the use of Internet technology, specifically Web 2.0 tools. We approached the prospect evaluation of iWheat.org from the stance of an emerging and original design expanding the role of evaluation logic and reasoning into the ideation phase of project and product development, as a prequel to the well-established developmental, formative, and summative evaluation models. This prospect evaluation was underpinned by the concept of trust, leading to participants' willingness to contribute private and, at times, proprietary information to a Web 2.0 application for the purpose of enhancing all contributors' wheat production operations. On average, wheat producers own and comfortably use computers. We conclude that respondents conceptualized the Internet with a Web 1.0 mindset in that they depended on a centralized model and were not as comfortable with active participation – the fundamental underpinning of the Web 2.0 paradigm. Using the previously established base of trust, Extension specialists and educators should focus on the rewards of contributing to Web 2.0 sites and forge ahead in diffusing Web 2.0 into the wheat-farming sector of production agriculture.*

## **Deconstructing Content Knowledge: Coping Strategies and their Underlying Sources of Motivation for Beginning Agriculture Teachers**

Amber Rice, University of Missouri  
Tracy Kitchel, University of Missouri

### **Abstract**

*The purpose of this grounded theory qualitative study was to explore how beginning agriculture teachers break down content knowledge for student understanding. The overarching theme that emerged during data collection and analysis indicated beginning teachers had a content knowledge deficiency in various subjects within agriculture. This initial finding guided subsequent collection and analysis which focused on how teachers coped with this feeling of inadequacy in content and the underlying sources of motivation that guided those actions. Various coping strategies occurred during planning and in-the-moment teaching stages. Underlying motivations for choosing a particular coping strategy included a combination of internal and external circumstances. Structure of the school environment, individual department structure, and agriculture courses for science credit were all external circumstances influencing teachers' coping strategies. Internal motivations included teachers' content knowledge interest, perceived credibility as a content knowledge teacher, and philosophies regarding agricultural education. Recommendations include reconciling the purpose of agricultural education in teacher preparation programs, creating more accessible professional development opportunities, and examining experienced teachers in the field for similar findings.*

## **Needs Assessment for Prospective Hispanic Farmers and Ranchers**

Baleshka Brenes, Texas A&M University-Commerce  
Robert Williams, Texas A&M University-Commerce  
Teresa Duch, Texas A&M University-Commerce  
Jim Heitholt, Texas A&M University-Commerce

### **Abstract**

*The purpose of this qualitative study was to identify the needs and interests of prospective Hispanic farmers and ranchers in the target counties in order to improve outreach programs. The results will help outreach programs to mitigate the barriers identified by study participants and focus on the needs of Hispanic farmers. The methodology used was basic qualitative research using focus group interviews, observational analysis, and literature review of previous studies. Three focus group interviews with 6-14 people in each group were used for data collection. Interviews were conducted in Spanish and recorded. Comparisons were made within groups and also among groups. The information was analyzed to identify patterns or trends in discussion. The categories found included family support, education, culture, communication, economic stability, immigration status, services, agriculture, fear, language, vision and opportunities, how to start and maintain a business, and community opinion leadership.*

## Identifying Agriculturists' Online Communication Tool Training Needs

Courtney Meyers, Texas Tech University  
Kelsey Shaw, Texas Tech University  
Erica Irlbeck, Texas Tech University  
David Doerfert, Texas Tech University  
Katie Abrams, Colorado State University  
Chris Morgan, University of Georgia

### Abstract

*Online communication tools, specifically social media, have provided new ways for agriculturists to promote and advocate for agriculture. Although agricultural producers find value in using social media to communicate about agriculture, many are not comfortable using these tools. The purpose of this study was to identify and prioritize training needs of agriculturists regarding use of various online communication tools. The USDA's Beginning Farmers and Ranchers Development Program provided funding to develop workshops that would help agriculturists learn to effectively utilize online communication tools. Members of seven agricultural organizations in three states were sent a link to an online questionnaire and 185 completed responses were analyzed for this study. Across all tasks, the highest means for importance dealt with website tasks while Twitter and blogging tasks had the lowest overall importance means. Many of the tasks respondents were most competent completing were the beginning steps and they were least competent completing more complex uses of social media. Using the Borich needs assessment model, respondents indicated a greater need for training on topics related to websites, other online communication tasks, and Facebook. These results were used to develop a daylong online communications training workshop in each of the states.*



## **Knowledge, Skills, and Competencies Needed for Agricultural Communications Graduates: A Delphi Study**

Corey Ann Clem, Texas Tech University  
David Doerfert, Texas Tech University  
Cindy Akers, Texas Tech University  
Scott Burris, Texas Tech University  
Keith Brigham, Texas Tech University

### **Abstract**

*Technology and agriculture continue to change at a pace unmatched in history. This dynamic nature makes it essential that agricultural communications students are meeting the needs of the changing industry. As such, it is crucial to frequently review the agricultural communications curriculum to ensure that the gap between industry and education is minimal (Akers, 2000). The purpose of this study was to gain a better understanding of what industry believes that future agricultural communications student must possess in terms of skills, knowledge, and competencies to ensure success in the workplace. To that end, members of the National AgriMarketing Association (NAMA) from California, Texas, and Iowa were part of a three-round Delphi study. Through the Delphi study, 116 skills, knowledge, or competencies statements emerged. Of the 116 statements, 77 reached the 80% level of participant agreement set by the researchers. Panel members were also asked to rank the top 25 statements in Round Three. The inclusion of soft skills within the agricultural communications curriculum emerged as important for the success. With limited room for change in degree curriculum, faculty members are faced with the challenge of including these emerging skills into the courses they are currently teaching.*

## **Perceptions and Training Needs of North Carolina Agriculture Teachers for Preparing Them to Be Effective Educators in the 21<sup>st</sup> Century**

R. Jason Davis, North Carolina State University  
K. S. U. Jayaratne, North Carolina State University

### **Abstract**

*The purpose of this descriptive survey research study conducted online with agriculture teachers in North Carolina was to determine their perceptions about skills and practices important for preparing students to be successful in the 21<sup>st</sup> century and agriculture teachers' in-service training needs. This study reaffirms the need for continuation of leadership education as an important skill and integration of reading, writing, and math concepts into all agricultural education curricula for preparing students to be successful in the 21<sup>st</sup> century. The role of agriculture in global food security; application of problem-based learning; planning and delivering lessons to utilize higher order thinking skills; teaching leadership skills; and development of teamwork and student collaboration were identified as the most important five in-service training needs for preparing agriculture teachers as effective educators. Agriculture teachers' overall training needs for preparing them to be effective educators do not vary with their years of experience, levels of education, or certification method but vary with their gender. Findings of this study are limited to North Carolina agriculture teachers. This limitation of applying findings for other states should be addressed by conducting a study with a diverse sample of agriculture teachers across the nation.*

## **Examining New Relationships: Agriculture Teachers' Self-Efficacy and Career Commitment**

Aaron J. McKim, Oregon State University  
Jonathan J. Velez, Oregon State University

### **Abstract**

*The purpose of this study was to investigate the differences in career commitment and perceived efficacy among early career agriculture teachers as well as the relationships between early career agriculture teachers' perceived efficacy and career commitment. Five areas of self-efficacy were investigated among early career agriculture teachers in five western states: classroom management, instructional strategies, leadership of students, science teaching and math teaching. Only small (Cohen, 1988) effects were found on four of the five self-efficacy variables based on years of teaching experience. No significant differences were found in teachers' career commitment or math teaching efficacy based on years of experience. Using multiple linear regression analysis, a predictive model for early career agriculture teachers' career commitment was developed. The final model explained a total of 20% of the variance in early career agriculture teachers' career commitment. Two areas of self-efficacy were identified as significantly related to early career teachers' career commitment, teachers' sense of efficacy in classroom management and science teaching. These findings implicate a need for increased emphasis on classroom management strategies and science teaching strategies throughout agriculture teacher development. Recommendations are made for potential self-efficacy building experiences based on Bandura's (1977, 1986) theory of the development of self-efficacy.*

## Identifying Influential Factors to Agriculture Teachers' Self-Efficacy

Aaron J. McKim, Oregon State University  
Jonathan J. Velez, Oregon State University

### Abstract

*The purpose of this study was to explain the role of personal and programmatic demographic variables in the variation of early career agriculture teachers' perceived efficacy in five important aspects of the agriculture teaching profession: classroom management, instructional strategies, leadership of students, science teaching and math teaching. Early career agriculture teachers in five western states were used as the population for this study. Backward deletion model selection was completed for each efficacy area, final models were analyzed using multiple linear regression. Final models were found to explain 17% of the variation in teachers' classroom management efficacy, 9% of the variation in instructional strategies efficacy, 10% of leadership of students efficacy, 8% of science teaching efficacy and 11% of math teaching efficacy. The authors seek to explain the significant predictors using Bandura's (1977, 1986) theoretical explanation of the development of self-efficacy. Recommendations are made for the agriculture teaching profession based on these findings. Potential research is also discussed as it relates to our understanding of early career agriculture teachers' sense of efficacy.*

## **Analyzing the Relationship between Teacher Development Experiences and Agriculture Teachers' Self-Efficacy**

Aaron J. McKim, Oregon State University  
Jonathan J. Velez, Oregon State University

### **Abstract**

*This study examined the relationship between teacher development experiences and early career agriculture teachers' perceived efficacy. Three teacher development experiences were analyzed by this study: agriculture teacher preparation, student teaching and professional development experiences. Five areas of perceived efficacy were measured: classroom management, instructional strategies, leadership of students, science teaching and math teaching. Early career agriculture teachers, those in their first five years of teaching during the 2012-2013 school year, in five western states were utilized as the population for this study. A multiple linear regression was run for each perceived efficacy area to identify which teacher development experiences significantly related to an increased sense of efficacy. No significant relationships were found in teachers' sense of efficacy in classroom management or instructional strategies. In the leadership of students regression two experiences, student teaching and professional development experiences were identified as significantly related to teachers' sense of efficacy. Professional development experiences were identified as significantly related to early career teachers' sense of efficacy in their science teaching. Early career teachers' sense of efficacy in their math teaching was identified as significantly related to their perception of the agriculture teacher preparation experience.*

## **Undergraduate Students Self-efficacy Related to the Performance of Animal Handling and Management Techniques: Implications for Pre-service Teachers**

Jon W. Ramsey, Oklahoma State University  
Rachel Thornburg, Oklahoma State University  
Blake Bloomberg, Oklahoma State University

### **Abstract**

*This study examined a census of students enrolled in a junior level undergraduate animal science course at Oklahoma State University during the spring of 2013. This course was designed to address the “skill gap” of pre-vet and pre-service agricultural education majors in the area of animal handling and management. The course focuses on the identification and acquisition of basic animal handling and management techniques in the context of beef, dairy, sheep, goat, horse, swine, and poultry. Data were collected at two points during the semester, the initial data collection occurred on the first day of the course. All (n = 39) students completed the instrument resulting in a 100% response rate. The second data collection occurred on the last day of the course. Thirty-six (three students dropped the course during the semester) of the 39 students completed the instrument resulting in a response rate of 92%. Findings from this study revealed an increased self-efficacy for undergraduate students after taking the undergraduate Animal Science course. Findings also revealed undergraduate students believe identifying proper injection sites and overall animal health are important. These results indicate student performance and acquisition of technical skills should inform curriculum development in Colleges of Agriculture.*