Poster Session Proceedings
American Association for Agricultural Education Annual Conference
September 19-21, 2013
Platteville, Wisconsin

Twenty-five posters were received with ten in the innovative idea category and fifteen in the research category. Eight innovative posters were accepted (80% acceptance rate). Twelve posters were accepted for research (80% acceptance rate).

Poster Reviewers

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

Barrick, Kirby	University of Florida
Christiansen, James	Texas A&M University
Chumbley, Steven	Eastern New Mexico University
De Lay, Ann	California Polytechnic State University, San Lius Obispo
Deeds, Jacquelyn	Mississippi State University
Edwards, Stephen	Mount Olive College
Graham, Donna	University of Arkansas
Killingsworth, Justin	Arkansas Tech University
Martin, Michael	Colorado State University
Maxwell, Lucas	Arkansas Tech University
Saucier, Ryan	Texas State University
Spiess, Michael	California State University, Chico
Touchstone, Allison	University of Idaho
Vincent, Stacy	University of Kentucky
Warner, Wendy	North Carolina State University
Williams, Robert	Texas A&M University – Commerce

Table of Contents

Innovative Ideas Posters

Research Posters

Ascertaining Pre-service Teachers' Mini-teaching Lesson Attitudes and Concerns through a Focus Group Approach

Trent Wells
Demopolis High School
701 U.S. Highway 80 West
Demopolis, AL 36732
ktw0004@iastate.edu

Thomas H. Paulsen, Ph.D.
Iowa State University
217C Curtiss Hall
Ames, IA 50011
tpaulsen@iastate.edu

Ascertaining Pre-service Teachers' Mini-teaching Lesson Attitudes and Concerns through a Focus Group Approach

Introduction & Need for Innovation

Pre-service agricultural education teachers exhibit many concerns as they prepare to enter into their chosen profession (Phipps, Osborne, Dyer, & Ball, 2008). These concerns range from confidence in teaching abilities to technical agriculture content knowledge (Leiby, Robinson, & Key, 2013; Stripling, Ricketts, Roberts, & Harlin, 2008). Pre-service teachers display much apprehension in effectively engaging students in their content as they prepare to enter into their own classrooms (Stripling et al., 2008). Pre-service teachers also cite concerns regarding subject matter knowledge, as found by Burris, Robinson, and Terry (2005). However, researchers (Burris, McLaughlin, McCulloch, Brashears, & Fraze, 2010; Stripling et al., 2008) found that teaching efficacy and content knowledge concerns tend to decline for both pre- and in-service teachers as greater fluency and experience in their content areas is established.

In order to provide the proper preparation for careers in teaching, pre-service teachers at [UNIVERSITY] are required to complete several technical agriculture courses along with pedagogical development classes ([UNIVERSITY], 2012). Pedagogy courses are designed to strengthen pre-service teachers' competencies in classroom management, student engagement, and methods of teaching (Phipps et al., 2008). On the converse, technical agriculture coursework is designed to develop pre-service teachers' competencies in agricultural curricula (Leiby et al., 2013). This coursework prescription is designed to adequately develop pre-service teachers into competent professionals ready to engage in their future careers. The agricultural education teacher preparation program at [UNIVERSITY] utilizes a blending of pedagogy and technical agriculture content delivery to facilitate pre-service teacher development in its Foundations of Agricultural Education Programs course. However, a question has arisen within this particular course: How do selected pre-service teachers regard their performance in mini-teaching lesson content planning and implementation?

How it Works

A teacher educator at [UNIVERSITY] currently conducts the Foundations of Agricultural Education Programs course twice per year. This course is designed to provide pre-service teachers with a broad overview of agricultural education programs, teaching methods and philosophies, and technical agriculture content delivery through mini-lessons. Each student enrolled in the course is required to present a fifteen-minute lesson on an agricultural topic. These mini-lessons are designed to provide pre-service teachers with an initial experience in delivering content in a formal classroom setting. Near the end of the course, the teacher educator utilized a single class meeting to discuss any issues, concerns, or anxieties that pre-service teachers experienced during their mini-teaching lessons. This discussion employed a focus group approach as described by Ary, Jacobs, and Sorenson (2010). Ary et al. (2010) defined a focus group as "[a] data gathering tool in which a researcher interviews a small group of people to obtain different perspectives on a particular issue" (p. 642). As the course's enrollment is

typically limited to twenty students, this group was small enough to elicit significant discussion of attitudes and concerns regarding mini-teaching lesson delivery and content.

Prior to the focus group, the pre-service teachers were given a set of questions to answer individually. This line of inquiry utilized such questions as "What anticipatory set worked the best? Why?". Pre-service teachers recorded their individual responses on paper to share during the focus group implementation. After a designated time for individual response recording, the teacher educator posed each question to the entire class and allowed discussion to occur amongst the pre-service teachers. These dialogues allowed the pre-service teachers to share their responses, ask questions of each other and the teacher educator, and provide constructive feedback within a closed atmosphere. This environment was conducive for insightful and thought-provoking discussions that yielded interesting results.

Implications

The focus group approach was well-received by the pre-service teachers and was successful in facilitating effective and constructive dialogue regarding concerns and attitudes toward their mini-teaching lessons. Many of the pre-service teachers reported that "Hands-on activities helped to keep us engaged" and that "Interesting anticipatory sets helped to set the stage" throughout the mini-teaching lessons. This feedback has helped pre-service teachers to improve their attitudes toward mini-teaching lesson delivery by enhancing their teaching efficacy and increasing their content self-efficacy. As a result, these pre-service teachers anecdotally reported heightened awareness and confidence in presenting content in a classroom setting.

Future Plans & Advice to Others

The focus group approach was useful in determining pre-service agricultural education teachers' attitudes and concerns toward their first mini-teaching lessons. The teacher educator developed a deeper understanding of the anxieties that these future teachers experienced during their mini-teaching lessons. Such data could be useful in future course offerings by developing content that could help to address pre-service teachers' concerns toward mini-teaching and teaching as a career. As this focus group approach was easy to implement, did not negatively affect the course schedule, and incurred no additional costs, the authors recommend that focus groups be used in further pre-service teacher preparation coursework. This approach should be used in other teacher education programs, including those outside of agricultural education (e.g., mathematics, science, etc.) as well.

The teacher educator intends to utilize this powerful and useful discussion tool in further offerings of the Foundations of Agricultural Education Programs course. It is advisable that other teacher educators find ways to incorporate the focus group approach into their pedagogy classes. The discussions that occurred throughout the focus group were very useful in providing peer-led constructive feedback and provided pre-service teachers with a venue to publicly voice their concerns. Qualitative research should be conducted to gather data regarding pre-service teachers' attitudes and concerns toward mini-teaching lesson activities.

Costs

There were no direct costs associated with implementing the focus group approach within the Foundations of Agricultural Education Programs course.

References

Ary, D., Jacobs, L. C., & Sorensen, C. (2010). *Introduction to research in education* (8th ed.). Belmont, CA: Wadsworth, Cengage Learning.

Burris, S., McLaughlin, E. K., McCulloch, A., Brashears, T., & Fraze, S. (2010). A comparison of fist and fifth year agriculture teachers on personal teaching efficacy, general teaching efficacy, and content efficacy. *Journal of Agricultural Education, 51*(1), 22-32. doi: 10.5032/jae.2010.01022

Burris, S., Robinson, J. S., & Terry, R. (2005). Preparation of pre-service teachers in agricultural mechanics. *Journal of Agricultural Education, 46*(3), 23-34. doi: 10.5032/jae.2005.03023

[STATE] State University. (2012). Agricultural and life sciences education curriculum sheet - Teacher certification. Retrieved from http://www.ageds.[University].edu/undergrad/curriculum/curr12/AgEd%20Cert%202012-2013.pdf

Leiby, B. L., Robinson, J. S., & Key, J. P. (2013). Assessing the impact of a semester-long course in agricultural mechanics on pre-service agricultural education teachers' importance, confidence, and knowledge of welding. *Journal of Agricultural Education, 54*(1), 179-192. doi: 10.5032/jae.2013.01179

Phipps, L. J., Osborne, E. W., Dyer, J. E., & Ball, A. (2008). *Handbook on agricultural education in public schools* (6th ed.). Clifton Park, NY: Thomson Delmar Learning.

Stripling, C., Ricketts, J. C., Roberts, T. G., & Harlin, J. F. (2008). Preservice agricultural education teachers' sense of teaching self-efficacy. *Journal of Agricultural Education, 49*(4), 120-130. doi: 10.5032/jae.2008.04120

Innovative Idea

Creating an Authentic and Experiential Learning Activity to Increase Pre-service Agricultural Education Teachers' Knowledge and Awareness of Supervised Agricultural Experience Program Conceptualization, Design, Implementation, and Supervision

Trent Wells
Demopolis High School
701 U.S. Highway 80 West
Demopolis, AL 36732
ktw0004@iastate.edu

Michael S. Retallick, Ph. D.
Iowa State University
206A Curtiss Hall
Ames, IA 50011
msr@iastate.edu

Creating an Authentic and Experiential Learning Activity to Increase Pre-service Agricultural Education Teachers' Knowledge and Awareness of Supervised Agricultural Experience Program Conceptualization, Design, Implementation, and Supervision

Introduction & Need for Innovation

Agricultural education is rooted, philosophically, in experiential learning theory (Baker, Robinson, & Kolb, 2012). As a portion of the comprehensive agricultural education model addresses Supervised Agricultural Experience (SAEs) programs (Phipps, Osborne, Dyer, & Ball, 2008), secondary agricultural education students are able to receive an abundant amount of practical, real-world learning within the context of hands-on, minds-on learning outside of the classroom (Phipps et al., 2008). Further, as the ideal goals of SAE programs are "enhanced learning and career exploration" (Bird, Martin, & Simonsen, 2013, p. 31), agricultural education teachers must be prepared to properly implement relevant and rigorous activities that challenge students to achieve in various ways (Edwards, 2004).

Recent evidence (Retallick, 2010) has indicated that agricultural education teachers philosophically value SAEs and emphasize them for a wide variety of reasons. However, actual emphasis on SAE design and implementation within secondary agricultural education program can be problematic, as reported by Retallick (2010). Perhaps these issues have resulted from systematic lack of experience with SAE programs. The researchers posit that previous experience plays a role in agricultural education teachers' decisions to implement SAE programs within comprehensive agricultural education programs. What is more, perhaps experiences gained during teacher preparation curricula may affect future intentions to work with secondary students in implementing high-quality SAE programs.

How it Works

Recently, a pilot program was developed at [UNIVERSITY] to provide pre-service teachers experience in designing, implementing, and supervising SAE programs. The intent of this program was to allow pre-service teachers to have a semester-long "simulation experience" in framing an out-of-class experiential learning activity. To provide a framework for further implementation of the authentic activity, one pre-service teacher participated in the pilot program. This practice was designed to be congruent with how a secondary agricultural education student would be expected to work with his or her agricultural education teacher to identify adequate SAE opportunities. The pre-service teacher was required to document his experiences through evidence of progress that included weekly journal entries and a final paper detailing SAE's place in the comprehensive secondary agricultural education program. In this case, the pre-service teacher's paper described the link between academic integration in agricultural education and SAEs. To provide additional insight into the documentation process, the pre-service teacher was also mandated to complete a [STATE] Proficiency Award in the Agricultural Education Placement area.

To provide for an appropriate simulation of a secondary student's SAE program, a requirement of this program was the use of an "SAE supervisor" who, much like how a secondary agricultural education teacher would be expected, worked with the pre-service teacher to identify a suitable SAE experience. The role of the SAE supervisor was played by an agricultural education teacher educator with a significant background in experiential learning theory and SAE supervision. The teacher educator worked with the pre-service teacher to identify expectations for the program. Because this experiential exercise was utilized as content for a "Special Topics" course and was thus used to satisfy credit requirements for the pre-service teacher's degree program, a learning contract was established that detailed course expectations and the pertinent student evaluation techniques.

Results to Date & Implications

This pilot program provided an interesting method through which to immerse a pre-service teacher in the full frame of a simulated SAE. This program was meant to replicate the process through which a secondary student would work with his or her high school agricultural education teacher to conceptualize, design, implement, and supervise an SAE program. The pre-service teacher, with the guidance and permission of the university supervisor, participated in an Agricultural Education placement-style SAE, working with the Agricultural Marketing Resource Center (AgMRC) to develop lesson worksheets that could be used by agricultural education teachers in classrooms across the United States. The pre-service teacher was, in this case, compensated by the AgMRC for his efforts.

The pre-service teacher reported, anecdotally, that "This experience helped me to realize just how much work goes into a proper SAE experience. It's no wonder that many agricultural education teachers have a hard time with it." These revelations were not lost on this pre-service teacher. As Retallick (2010) indicated, "factors… limited SAE programming" (p. 66). Perhaps some enhanced experiential learning during the pre-service phase could help to ease the transition.

Future Plans & Advice to Others

The relationship between the pre-service teacher and university supervisor that emerged and as further cemented during this "SAE simulation" semester was quite interesting to observe. As the pre-service teacher reported, "I think that this type of program is needed for *all* pre-service teachers." Teacher educators at [UNIVERSITY] have expressed support for this type of program and would like to see additional pre-service teachers participate in a similar experience, as anecdotally indicated in conversations between various teacher educators and the pre-service teacher at [UNIVERSITY].

Costs

Minimal costs were incurred through conceptualizing, designing, implementing, and supervising the pre-service teacher's SAE simulation experience. These costs primarily dealt with documenting the SAE experience, such as photographing various portions of the SAE experience and printing any necessary documentation (i.e., the final Agricultural Education

Placement Proficiency Award application). All supporting documentation was sent to the university supervisor via e-mail communication, thus avoiding postage fees.

References

Baker, M. A., Robinson, J. S., & Kolb, D. A. (2012). Aligning Kolb's experiential learning theory with a comprehensive agricultural education model. *Journal of Agricultural Education, 53*(4), 1-16. doi: 10.5032/jae.2012.04001

Bird, W. A., Martin, M. J., & Simonsen, J. C. (2013). Student motivation for involvement in supervised agricultural experiences: An historical perspective. *Journal of Agricultural Education, 54*(1), 31-46. doi: 10.5032/jae.2013.01031

Edwards, M. C. (2004). Cognitive learning, student achievement, and instructional approach in secondary agricultural education: A review of literature with implications for future research. *Journal of Vocational Education Research, 29*(3). 225-244.

Phipps, L. J., Osborne, E. W., Dyer, J. E., & Ball, A. (2008). *Handbook on Agricultural Education in Public Schools* (6th ed.). Clifton Park, NY: Thomson Delmar Learning.

Retallick, M. S. (2010). Implementation of supervised agricultural experience programs: The agriculture teacher's perspective. *Journal of Agricultural Education, 51*(4), 59-70. doi: 10.5032/jae.2010.04059

Innovative Idea

Listen to me: Using Voiceboard Technology to Energize Peer Critique

Rebecca Swenson
University of Minnesota

146 Ruttan Hall
1994 Buford Avenue
St. Paul, MN 55108
612.625.3866
boli0028@umn.edu

Listen to Me: Using Voiceboard Technology to Energize Peer Critique

Introduction and Need for Innovation

Students who want to be the next generation of agricultural teachers, communicators and leaders must learn how to engage all types of audiences. Post-college success requires more than mastery of technical knowledge; all graduates must know how to clearly share information and ideas in order to make an impact and enact change. To prepare students for these challenges, many departments include an oral communication course, or unit within a course, in which students in majors related to agriculture, food, and natural resources practice verbal communication skills. These courses provide hands-on opportunities for students to practice creating and delivering messages for professional situations encountered in the applied sciences.

Peer review and assessment can strengthen the message preparation process in these courses (Brown & Dove, 1991). Giving and receiving peer feedback improves confidence, performance, and the quality of oral presentations (Williams, 1995; Topper, 1998; Mitchell & Bakewell, 1995). Despite their high value, instructors are often challenged to include effective peer workshops in courses. Instruction time is very limited, especially in courses with speech components, as speech delivery takes up much in-person course time. Students also do not always fully participate in peer workshops, which decreases their usefulness.

The purpose of this poster is to describe experience using a voiceboard as an instructional tool to make peer critique more effective, efficient, and to energize student participation in workshops.

How it Works

In our agricultural communication course, students are required to prepare informational and persuasive speeches. The week before students deliver their speech to the class, they are required to use our Wimba voiceboard to record a practice delivery of their speech. After recording themselves, students post their audio recording to our course page on Moodle, where the entire class can listen to the speech. After recording themselves, students are required to log back into Moodle, listen to two peer speeches, and use the Wimba voiceboard to record two "response comments" that provide feedback to peers.

Voiceboards work just like threaded, asynchronous, online discussion boards in which audio comments are posted as messages in a forum. Students scroll through the list of audio postings, click on a link to play, and then hit "reply" to record their response and comments. The voiceboard tools are user-friendly and intuitive; in addition, detailed user guides can be found on the web (see Blackboard Inc. reference for resource link).

Implications

Voiceboards save valuable class time for instructors. Our class was able to time-shift the assessment exercise, so students could complete their recording and give peer feedback outside of class. It also simplified the process of matching participants and arranging contact between them; students simply logged into our course webpage and browsed the postings on the voiceboard to find speech titles of interest to them and in need of peer feedback comments. The

voiceboard also made the peer critique process more transparent, as the instructor could easily listen to both speeches and feedback to assess quality of participation.

Students report that using the voiceboard made them more confident and the process more interesting. On a questionnaire requesting feedback on the voiceboard tool, one student wrote, "I found the voiceboard helpful with rehearsing because I was able to hear what I sound like when speaking. I was able to analyze when I paused and when I said words like um, like, uh, which was actually really helpful." Another said, "I was able to hear my tone and mistakes. I most likely would not have practiced my speech out loud if I didn't have to record it. The recording also gave me a little more confidence in my speaking ability and allowed me to hear what the audience would hear."

Although students were only required to listen to two peer speeches, students reported listening to 6 on average. As the ability to give constructive criticism to others in a verbal format is required of managers in many professions, recording feedback also gave students another opportunity to practice important verbal communication skills. Students also reported that they are more comfortable sharing audio recordings than video clips of practice speeches. For example, one student said, "I thought the voiceboard was super cool and clever. I'm glad we didn't have to do a video because I feel like that would have been uncomfortable. With the voice board tool, classmates are able to just listen to the speech with no distractions. I also liked it because it made me practice more and I was able to listen to things that I do in the speech while not knowing."

Voiceboards also help students to locate their performance in relation to the performance of their peers; this can improve the accuracy of their own self-assessment, and in turn the quality of their presentation, before they deliver their speech to the class.

Future Plans and Advice to Others

Based on feedback from students, voiceboards will continue to be a valuable tool for self-reflection and peer critique in our class. We recommend that instructors give students a demonstration of the tool in class and encourage students to practice using the audio tool in advance of deadlines.

Resources Needed

A voiceboard is part of the Wimba Voice Tool suite, which is included with most learning management systems, including Moodle, WebCt, and Blackboard. Other valuable free tools exist, including Flipgrid, which instructors could leverage to simulate a voiceboard.

References

Blackboard Inc. *Wimba Voice Version 6 User Guide.* Retrieved from http://www.wimba.com/assets/resources/WV_60_User_Guide.pdf

Brown, S., & Dove, P. (1991). *Self and peer assessment.* Birmingham, England: Standing Conference on Educational Development.

Mitchell, V. W., & Bakewell, C. (1995). Learning without doing—Enhancing oral presentation skills through peer-review. *Management Learning, 26,* 353-366.

Topping, K.J. (1998). Peer assessment between students in college and university. *Review of Educational Research,* 65(3): 249–76.

Williams, J. (1995). Using peer assessment to enhance professional capability. In M.Yorke (Ed.), *Assessing capability in degree and diploma programmes* (Vol. 1, pp. 59-67). Liverpool, England: Centre for Higher Education Development.

Moving Across the Desk: From Pupil to Professional

Laura L. Sankey Rice, MS
The Pennsylvania State University
009 Ferguson Building
University Park, PA 16802
(814) 553 - 0324
sankey@psu.edu

Douglass T. Masser, Graduate Associate
University of Idaho
875 Perimeter Drive, MS 2040
Moscow, ID 83844
(570) 809 – 3000
douglasm@uidaho.edu

Moving Across the Desk: From Pupil to Professional

Introduction

Agriculture Education preservice teacher candidates often experience a transformation during the months leading up to their student teaching internship. The preservice teacher candidate begins to foster and develop a growth mindset while continually developing professional presence and dispositions. Teacher preparation programs and educators are beginning to deveote more attention to professional behavior with an emphasis on student dispositions through programs and activities that facilitate thoughtful reflection and personal advancement. As stated in Stoddard, Braun, Dukes, Korrland, and Hewitt (2006), "Professional behavior for educators is often defined as the process in which an individual engages while making ethical or moral decisions regarding dilemmas that occur as part of the act of teaching" (p. 49). The National Council for Accreditation of Teacher Education (2003) defined dispositions as "the values, commitments and professional ethics that influence behaviors." Teacher preparation programs benefit from operating in a reflective manner to continually improve and serve the needs of preservice teachers and their professional nature and attitudes. The importance of providing opportunities to think critically and practice the skills of professionalism is more prevalent now than ever before.

How it Works

An hour workshop was developed and executed for sixteen preservice teacher candidates during the 2014 Agriculture Education Cooperating Teacher orientation. The orientation was held in conjunction with the state's Association of Agriculture Educators' summer conference. The workshop was designed to not only present the standards and expectations of the teacher preparation program but to establish a mindset for the upcoming fall semester conducive to a successful agricultural education senior capstone experience. The workshop was facilitated by a current doctoral candidate in the Agriculture Education Teacher Education program at the participating university, a 2010 graduate of the university's Agriculture Education teacher preparation program, a 2012 graduate of the university's Agriculture Education teacher preparation program, and a 2013 graduate of the university's Agriculture Education teacher preparation program. The hopes of having more impact on the preservice teacher candidates' retention and reception of the information disseminated during the workshop was the main reason for including these specific individuals.

The educational goals of the preservice teacher candidates' workshop was focused on specifically addressing the following: 1) Appropriate Dispositions/attitude for a professional conference. How do you maximize your brief state association of agriculture educators conference experience?; 2) How to thrive in the Fall course block for your preparation; 3) Professional Dispositions of an Agricultural Educator.

A "Graffiti Wall" activity was utilized during the workshop to help meet the educational goals. Students were asked to walk around the room and visit five large Post-It™ Notes each having an

essential term written across the top relating to the workshop. The terms included: 1) University Teacher Educators; 2) Fall Semester Coursework; 3) Peers; 4) Professionalism; and 5) the acronym for the state's Association of Agriculture Educators. The students were asked to make "Graffiti Walls" by capturing the words/terms/thoughts they associated with each of the marked Post-It™ Note essential terms. The first purpose was to explain how the word is essential to their development as an agriculture educator. The second purpose was to settle angst, dispel wrong information, provide encouragement, and ignite the thought process of becoming a professional.

Professional attire was stressed upon the preservice teacher candidates and the importance of their appearance at school, state, and national functions. An acronym was developed by the workshop facilitators with visuals to help students have more clarity on what type of attire will be required for different occasions. The acronym will be adopted by the teacher education faculty to refer to when explaining what attire is appropriate in the future. The acronym, STATE, was broken down into categories covering casual attire, business casual, to formal.

The final thought presented to the preservice teacher candidates included the never ending development of an effective, professional teacher. The facilitators jointly expressed the importance of constantly assessing one's decisions, actions, and thought processes. The significance of reflection as a developing professional was addressed as well. To encourage reflection and foster a growth mindset, the facilitators provided each preservice teacher candidate with a "Teacher Big Idea" journal. The goal of the journal was to have a compact, space saving journal to carry for easy access to capture thoughts, ideas, responses, or other information as it transpired for future reference and use. The teacher candidates were provided a few minutes to personalize their journal and capture in a few sentences how they would maximize their remaining time at the teacher conference.

Results to Date

Preservice teacher candidates appreciated the information presented during the workshop and felt a sense of increased confidence and relief pertaining to the upcoming fall semester coursework. The teacher candidates agreed the acronym for appropriate dress will be useful for the upcoming year. All teacher candidates utilized the "Teacher Big Idea" journal throughout the rest of their time at the conference, capturing ideas from other instructional workshops, meetings, and interaction with other agriculture educators.

Future Plans

This was the initial, pilot year for this particular workshop. Future plans are to expand the length of the workshop to allow more time to assess the current dispositions of the preservice teacher candidates and incorporate activities that challenge the preservice teacher candidates to reflect, analyze, and synthesize their current mindset.

Costs

Sixteen 5x8, spiral bound, lined paper journals were purchased for the preservice teacher candidates. The journals were purchased in packs of three for $4.00/pack.

References

National Council for Accreditation of Teacher Education. (2003). *Program standards for Accreditation of schools, colleges and departments of education.* Washington DC: NCATE.

Stoddard, K., Braun, B., Dukes III, L., Korrland, M.A., & Hewitt, M. (2006). Professional behavior assessment: Building and measuring professionalism in preservice teachers. *Journal of Authentic Learning, 3*(1), 48-59.

Innovative Poster

Putting a face to SAE: Utilizing vignettes to improve teacher candidate dispositions towards SAE implementation

Dr. Daniel Foster
Assistant Professor

The Pennsylvania State University

211 Ferguson Building
University Park, PA 16802
(814-863-0192)
ddf12@psu.edu

Putting a face to SAE: Utilizing vignettes to improve teacher candidate dispositions towards SAE implementation

Introduction

According to the National FFA Organization (National FFA Organization, 2012, p.3). (A SAE is "a practical application of classroom concepts designed to provide 'real world' experiences and develop skills in agriculturally related career areas." In addition, SAE is a critical component of a total agricultural education program (Talbert, Vaughn, Croom & Lee, 2007). In fact, the profession has recently highlighted the concern over effective implementation of SAE by conducting the 2011 National Agricultural Education Summit in Orlando, Florida with one of the primary focuses being SAE and planning for the 2014 National Agricultural Education Summit being on the topic of the same nature. Further complicating the matter is that more and more agricultural teacher candidates are coming from non-traditional sources having not experienced school-based agricultural education as a student (Kantrovich, 2010).

How it works

Students enrolled in the experiential education and youth organization class in the <university> agricultural teacher education program were exhibiting difficulty in grasping the multiple possible permutations that an effective supervised agricultural education program properly implemented could have on total student success. To add clarity and personal connection, a solicitation was sent to state and national agricultural education email list serves and posted on the NAAE community practice requesting "student SAE success" stories, stories that are not necessarily aligned with degrees and proficiency awards, but rather on long term life experiences and career success as a result of an SAE project.

Collected vignettes were scheduled through Microsoft Outlook to be emailed to teacher candidates in <university> agricultural teacher education program on a daily basis for the month of November.

Results to Date

Twenty two "student SAE success" were collected. Stories were emailed on every business day in the month of November. Stories were sent in from 10 different states from 18 different teachers. Three examples of Vignettes are as follows:

Story #1 - Iowa

In 2008, I came up with the idea of "giving" each student a "free" packet of seed - vegetable, fruit, flower, whatever they chose. [I buy from Gurneys and a few other catalogs and if I buy when I have coupons or hit their sales, it doesn't cost me more than $100 - and I get a full, live garden started before school gets out as well as produce through the summer.] The stipulation is that they each have to give me a) two live plants for me to use at home in May or b) a small portion of the produce (cut bouquets, squash, preserved produce, etc) through the growing season. In 2009, one of my young ladies bough additional seeds, started over 500 tomato plants in the greenhouse, sold a bunch of small plants and transplanted the rest into a 1-acre field at home. I think she grossed more than $2,000 that year. She and a few other members started what we still call "Blue Jacket Growers" today, which is a sort of co-op that allows students to share booth space at a farmers market to sell produce, eggs, baked goods and more.

Story #2 - Arizona

Young lady named Katie is in our program and she lives in the city with not a lot of land. her parents are scraping by and need Katie to help pay the for college and her vehicles. Katie has really only the skills that she learned in the ag program so she decides to start a business marketing and selling metal insects that she learned to make in class. She spends her time outside of class designing and fabricating these items both in our shop and at home. She has made money to help pay for both her vehicle and her college (she wants to be an ag teacher). This SAE has also given her confidence and helped her grow closer to her dad who helped her on the project. I think this last part is the most important!

Story #3 - Wisconsin

I began teaching at a small rural high school in northern Wisconsin and I had one student in my classes that lived in town, across the street from the high school. When I introduced SAE (actually SOEP at that time) I told the students that they must keep records on their program and would be graded each month (last Friday of the month) on the progress experiences, etc. Well the student who lived in town, kept making excuses for why he couldn't have an program and couldn't keep records (I live in town, we don't have a farm, I just go home after school and watch TV, etc.) -- I met with him and told him that the requirement would not be waived and told him that, until he developed a more worthy experience, he would keep records on what he watched on TV, including times, themes/plots, and special guest stars, if he had no other experiences which were more agriculturally related -- he recorded on his record book the TV programs for a couple of weeks and then asked to meet with me once again -- he told me that he had a summer 'business' mowing lawns and worked part time at the local feed store processing, mixing and bagging feed and asked if he kept records on these activities, could he stop keeping records on the TV programs, which, as it turned out was more time consuming than if he had just kept records on the 'real' SOEP activities. He received a recordkeeping award for his efforts at the chapter banquet that year, as selected by the Ag Ed Advisory Committee.

Future Plans/Advice to Others

The value of "putting a face" and/or name with specific student success stories representing programming opportunities in school-based secondary agricultural education is practice that is planned to be continued at <university>. Plans are expand the program to include FFA student success stories for the month of October and SAE stories for the month of November.

To strengthen the emotional impact of the student success stories, student photos are going to be requested in addition to potential creation of 1-2 minute video stories that can be shared via online video sharing programs like Youtube.

Costs/Resources Needed

The primary investment of resources for this program implementation involved time in collection of stories and preparation of scheduled emails. Total time invested for this learning activity was a total of 8 hours.

References

Kantrovich, A. J. (2010). *A national study of the supply and demand for teachers of agricultural education from 2006 -2009.* Morehead, KY: Morehead State University.

Talbert, B.A., Vaughn, R., Croom, D.B., & Lee, J.S. (2007). *Foundations of Agricultural Education* (2nd Eds.). Danville, IL: Professional Educators Publications.

National FFA Organization. (2012). Introduction to SAE programs [PowerPoint slides]. Retrieved from https://www.ffa.org/About/WhoWeAre/SAE/Pages/SAEResources.aspx

School-Based Agricultural Education in Different Contexts with Different Populations: *A Domestic Study Abroad*

Daniel D. Foster, Ph.D.
The Pennsylvania State University

211 Ferguson Building
University Park, PA 16801
814-863-0192
foster@psu.edu
Twitter: @FosterDanielD

School-Based Agricultural Education in Different Contexts with Different Populations:
A Domestic Study Abroad

Introduction

There is a shortage of agricultural education teachers across the nation (Kantrovich, 2010) However, that some states have a surplus while others have a devastating shortage (Thompson, 2012). Literature (Pence & MacGillvray, 2006; Willard-Holt, 2001) indicates that even a short-term experience by pre-service teachers can impact the context and content instructed in the future and impacts multicultural competency or empathy to those not like ourselves. Additionally, the United States is more diverse ethnically and racially than at any time in history (Cano & Martin, 2009) with the world's increasing globalization requiring more interaction among people from varied backgrounds. Learning that is situated in context with reflection is enduring with opportunity for disposition change. Therefore, to increase candidate mobility and to broaden their perspective of what school-based agricultural education can look like to different populations in different contexts, a domestic study abroad facilitated through the major's student organization was conducted.

Program Phases

In order to increase student opportunity for involvement (thus increase recruitment and retention in the AEE Major option), the follow phases were implemented in creating an annual domestic study abroad event:

- Phase I – Identify Primary Learning Objectives. In 2013, the objectives where:
- Phase II – Contact potential private entity sponsors
- Phase III- Generate list of strategic partners in host state.
- Phase IV – Provide list learning objectives, finances available and contact list of partners to student committee to design experience, budget, and application/selection process.

Results to Date

In May 2012, 13 teacher candidates traveled to Arizona and spent 8 days traveling 1500 miles visiting 6 school-based agricultural education programs and three national/state parks. Trip highlights included:

- Visiting two multiple teacher urban/suburban programs in Gilbert and Peoria with unique facilities. Gilbert has a meat processing laboratory and Peoria has extensive biotechnology labs and landscape/turf/horticulture facilities.
- Visiting two rural programs with unique facilities and local partnerships in Payson and Chino Valley. Payson has a brand new agriscience facility focused on animal science instruction. Chino Valley has a strong relationship with the local community college, a large agronomy land lab, and an aquaculture facility.
- Visit two different school-based agricultural education programs on the Navajo Nation, a sovereign nation: Monument Valley and Many Farms. Monument Valley is a state operated public school with an extensive veterinary science facility that has been highlighted by 60 minutes and Time magazine for "Schools that work". Many Farms is a Bureau of Indian Affair boarding school.
- Deliver instruction to Navajo students on agricultural education as a career path.

- Tour State and National Parks including: Grand Canyon, Canyon De Chelly and Monument Valley. Discuss career opportunities in natural resource education.

Future Plans

The program intends to continue this effort through the major specific student organization. A committee of AEE majors will be appointed in the Fall semester to begin planning the 2014 excursion. Tentatively, discussion of visiting school-based agricultural education programs in the New England and northeastern region of the country have occurred. In addition, partnerships are being discussed of including like-minded agricultural teacher preparation programs from different parts of the nation on the trip to increase synergy and teacher candidate exposure to agricultural education from other regions of the United States through interpersonal interactions.

Resources Needed

The costs or resources to conduct a domestic study abroad will vary greatly depending on location selected, number of participants and availability of key strategic partners. The budget for the inaugural trip is presented in Table 1.

Table 1

*Budget in US Dollars for Arizona Domestic Study Abroad Trip for 12 student participants**

Item	Per Student cost	Total Cost
Airfare	450	5,400
Ground Transportation [A]	250	3,000
Hotel Accommodations [B]	175	2,800
Meals [C]	157.50	1,890
Programming Fees [D]	33.33	400
	Total	13,480

Note: Due to unexpected circumstances, Thirteen candidates actually participated in the trip
[A] Two Rental Vans for 8 days and Fuel ; [B] Four students per room, four rooms, seven nights; [C] 21 meals per student; [D] National Park Entrance Fees and other unexpected costs

The source of funding is presented in Table 2.

Table 2

*Sources of Funding in US Dollars for Arizona Domestic Study Abroad Trip for 12 student participants**

Source	Amount
University Activity Funds [A]	3,500
Partner/Host Sponsorship [B]	1,000
Business & Industry Sponsorship [C]	3,000
Student Paid Fees [D]	6,000
Total	13,500

Note: Due to unexpected circumstances, Thirteen candidates actually participated in the trip
[A] University collects student activities fee every semester that organizations can apply to use; [B] Local schools provided some meals and some lodging accommodations; [C] Private funding was sought through grant application; [D] Each student remitted a $500 fee for participation

References

Cano, J. & Martin, R. (2010). Preparing Teachers for Diverse Audiences. In R. M. Torres, T. Kitchel, & A. L. Ball (Eds.), *Preparing and advancing teachers in agricultural education* (pp. 257-267) Columbus, OH: The Ohio State University.

Kantrovich, A. J. (2010). *A national study of the supply and demand for teachers of agricultural education from 2006 -2009.* Morehead, KY: Morehead State University.

Pence, H. M., & MacGilivray, I. K. (2006). The impact of an international field experience on preservice teachers. *Teaching and Teacher Education, 24*. 14 – 25.

Thompson, Ellen (2012). *National Teach AG! Profile of Supply and Demand.* National Association of Agricultural Educators. Retrieved from: http://communities.naae.org/community/mpa/teachag

Williard-Holt, C. (2001). The Impact of a short-term international experience for preservice teachers. *Teaching and Teacher Education, 17*. 505-517.

"Survey Says"…Using student feedback to enhance online instruction

Julie Robinson
2120 Fyffe Road, Room 250
The Ohio State University
Columbus, OH 43210
614-292-1354
robinson.1180@osu.edu

Caryn M. Filson
2120 Fyffe Road, Room 204A
The Ohio State University
Columbus, OH 43210
614-247-6001
filson.5@osu.edu

Robert J. Birkenholz
2120 Fyffe Road, Room 202
The Ohio State University
Columbus, OH 43210
614-292-8921
birkenholz.1@osu.edu

"Survey Says" . . . Using student feedback to enhance online instruction

Introduction

The number of students enrolling in online courses and degree programs continues to grow each year (Sloan Consortium, 2013). Many institutions have moved from offering some online courses to offering complete degree programs online (Sloan Consortium, 2013). To meet the growing demand for online degree programs the Department of Agricultural Communication, Education, and Leadership (ACEL) at STATE University developed an online master's degree program in 2010. The ACEL Department has a long history of providing flexibility in its graduate degree programs (Scheer, Ferrari, Earnest, & Connors, 2006). Based on a needs assessment, the department developed an online option for the existing M.S. degree in Agricultural and Extension Education (AEE) (Rhoades, Miller, Scheer, Bruns, & Cochran, 2010). Two of the program's largest graduate student populations include Extension professionals employed by STATE University Extension system, and public school agricultural science teachers in STATE. The first cohort of AEE online master's degree students began autumn semester, 2012.

How it works

Online master's courses are delivered predominantly online, with two required annual face-to-face meetings held outside of CITY. The department goal is to admit 25 students per cohort beginning in the fall semester each year. Students who follow the degree plan are able to complete the program in two years. During the fall semester of 2012, three courses in the department were initially taught online: AEE 7000 - Graduate Orientation Seminar, AEE 8000 – Leading through Historical Perspectives, and AEE 8850 Research Methods.

The AEE 7000 - Graduate Orientation Seminar course was a one semester credit hour course in which students completed four assignments and actively participated in weekly discussion posts using Carmen; the university's course management system. The purpose of AEE 7000 - Graduate Orientation Seminar was to promote engagement and collaboration among students, faculty, and staff to enhance scholarly interests of the department. This seminar provided opportunities for students to examine the concept of scholarship in a variety of contexts.

AEE 8000 - Leading through Historical Perspectives was a three semester credit hour course in which students had to complete seven assignments and actively participate in weekly discussion posts using Carmen. The objective of AEE 8000 was to examine the mission, purpose, and historical foundations of Agricultural and Extension Education, Leadership, and Agricultural Communication in America. This course focused on the contemporary issues facing Agricultural Communication, Agriculture Education, Extension Education, and Leadership.

AEE 8850 - Research Methods was a two semester credit hour course in which students completed weekly quizzes or assignments. Quizzes were composed of 10-15 questions, and assignments involved short case studies or a series of multiple choice questions. Quizzes and assignments reinforced material from the weekly assigned readings. Students completed quizzes and assignments via Carmen. In addition, students also completed a comprehensive final exam.

This course focused on research principles and techniques that are appropriate for planning, conducting, and reporting in the applied social and life sciences.

Results to date

Near the end of each academic term, STATE University Registrar collects Student Evaluation of Instruction (SEI) from students. Student Evaluation of Instruction are collected electronically for all instructors at the university. Students are not required to complete SEI's, however, they are strongly encouraged to do so by faculty. Students rate their agreement with ten statements using a five-point Likert-type scale with "5" being high and "1" being low.

Student Evaluation of Instruction for AEE 7000 - Graduate Orientation Seminar had a response rate of 60% (n = 6). The mean overall rating for AEE 7000 was 4.8 (SD = 0.4) on the five-point scale. This course had a face-to-face counter-part that received mean overall rating of 4.7 (SD = 0.5), which was slightly lower than the online course.

Student Evaluation of Instruction for AEE 8000- Leading through Historical Perspectives had a response rate of 82% (n = 14). The overall mean rating for AEE 8000 was 4.0 (SD = 1.3) on the five-point scale. Eight of the items had a mean score of 4.0 or higher. Two items had a mean score below 4.0: "the instructor was genuinely interested in teaching" ($\bar{x}$ = 3.9, SD = 1.1) and "the instructor communicated the subject matter clearly" ($\bar{x}$ = 3.9, SD = 1.3).

Student Evaluation of Instruction for AEE 8850 - Research Methods had the lowest response rate of 30.4% (n = 7). The overall mean rating for AEE 8850 was 4.1 (SD = 0.7) on a five-point scale. Three of the items had a mean score below 4.0, between neutral and agree. The three items that received a mean score below 4.0 were "the instructor was genuinely interested in teaching" ($\bar{x}$ = 3.8, SD = 0.8), "the instructor encouraged students to think for themselves" ($\bar{x}$ = 3.8, SD = 0.8), and "I learned a great deal from this instructor" ($\bar{x}$ = 3.8, SD = 0.8).

Qualitative data collected from students offered even more valuable feedback than the SEIs. The written comments informed instructors about specific aspects of the course or assignments that were the most beneficial or least desirable. Students also provided detailed feedback and suggestions to improve the course for future semesters.

Future plans

Courses for spring 2013 semester will generate additional SEI evaluations and the results will be analyzed and taken into consideration when planning and organizing courses in the future. Feedback received from courses offered in autumn 2012 will be used to improve planning and revising course offerings for the autumn 2013 semester and beyond.

Costs/resources needed

In order to conduct an online course, the time required to convert a face-to-face course to an online format must be considered. Access to a course management system is also necessary when offering online degree programs.

References

Rhoades, E., Miller, L., Scheer, S., Bruns, K., & Cochran, G. R. (2010). *Needs Assessment for Online M.S. in Agricultural and Extension Education*. Staff Study. Department of Human and Community Resource Development, The Ohio State University, Columbus, OH.

Scheer, S. D., Ferrari, T. M., Earnest, G. W., & Connors, J. J. (2006). Preparing Extension Professionals: The Ohio State University's model of Extension education. *Journal of Extension* [On-line], 44(4). Available at http://www.joe.org/joe/2006august/a1.php

Sloan Consortium. (2013). *Changing Course: Ten Years of Tracking Online Education in the United States*. Retrieved from http://www.onlinelearningsurvey.com/reports/changingcourse.pdf

Utilizing the Agricultural Marketing Resource Center (AgMRC) Website to Increase the Critical Thinking Skills of Secondary Agricultural Education Students

Trent Wells
Demopolis High School
701 U.S. Highway 80 West
Demopolis, AL 36732
ktw0004@iastate.edu

Ryan Anderson
Iowa State University
206E Curtiss Hall
Ames, IA 50011
randrsn@iastate.edu

Dustin Perry
Iowa State University
223A Curtiss Hall
Ames, IA 50011
dkperry@iastate.edu

Preston Byrd
Iowa State University
223B Curtiss Hall
Ames, IA 50011
apbyrd@iastate.edu

Utilizing the Agricultural Marketing Resource Center (AgMRC) Website to Increase the Critical Thinking Skills of Secondary Agricultural Education Students

Introduction & Need for Innovation

The agricultural industry is continually diversifying its efforts to adequately market to consumers (Thilmany & Watson, 2004). The need for an agriculturally-literate populace is apparent as consumers attempt to navigate their ways through a myriad of food, feed, and fiber choices (Doerfert, 2011). As agricultural markets have globalized, traditional producers must understand how to adequately address issues regarding the distribution of their products in an increasingly difficult and evolving marketplace (Thilmany & Watson, 2004). This plight is not lost solely on adult producers and consumers. The forthcoming generation is facing a similar predicament: lack of awareness in and about the agricultural industry (Doerfert, 2011; Powell, Agnew, & Trexler, 2008).

Historically, agricultural education teachers have attempted to teach individuals about the complex nature of the agricultural industry through school-based secondary agricultural education (Phipps, Osborne, Dyer, & Ball, 2008). Agricultural education has also been utilized as the medium for the industry to reach youth and adult consumers as well as producers through a comprehensive and inclusive approach to agricultural science (Phipps et al., 2008). To help foster the development of cognitive abilities of secondary agricultural education students, the need exists for curricula that encourages higher-order thinking and problem-solving skills and the ability to develop and synthesize information to arrive at viable solutions to agricultural issues (Doerfert, 2011; Edwards, 2004; Thoron & Myers, 2012). Perhaps the utilization of the Agricultural Marketing Resource Center (AgMRC) website can help to bridge the gap.

The United States Department of Agriculture, in conjunction with [State] University, has created the AgMRC website to serve as "an electronic, national resource for producers interested in value-added agriculture" (Agricultural Marketing Resource Center, 2013a, ¶ 1). Information provided through this resource details data concerning agricultural commodities, markets, business, and more (Agricultural Marketing Resource Center, 2013a). In addition to reaching out to agricultural producers, lessons have been developed to "educate students on value-added agriculture" (Agricultural Marketing Resource Center, 2013b, ¶ 1). These lessons revolve around introductory material related to various sectors of the agricultural industry, particularly the value-added portion of the industry.

How it Works

Agricultural education teachers are able to utilize the AgMRC as a resource for curriculum enhancement through the use of worksheets developed by curriculum experts with content experience at [University] (Agricultural Marketing Resource Center, 2013b). These worksheets are available for use free-of-charge and are designed to provide students with a variety of knowledge concerning "value-added agriculture" (Agricultural Marketing Resource Center, 2013b, ¶ 1). To aid in understanding the uses of the website, an orientation guideline for searching the database is provided. Teachers can use this resource to supplement classroom

instruction in a given agricultural topic or commodity, ranging from business development to livestock. Currently, twenty worksheets incorporating data-seeking questions have been developed and are ready to use. Additional worksheets are being developed and added to the website regularly. Upon conclusion of the appropriate lesson, agricultural education teachers and students are able to use internet-capable technology (i.e., classroom computers, smart phones, etc.) to access the AgMRC website by going to the "AgMRC Curriculum" tab and selecting the appropriate lesson (Agricultural Marketing Resource Center, 2013b). These worksheets require students to seek out information to answer various questions pertaining to the agricultural industry. Using technological resources to create "an original product" (Krathwohl, 2002, p. 215) allows students the opportunity to perform at the highest level of Bloom's Taxonomy.

Implications

As commodity prices fluctuate daily, students must monitor market occurrences and adjust their conclusions when appropriate. This unpredictability lends itself to increasing students' awareness of the agricultural industry's constant state of transformation, thereby address gaps in agricultural literacy (Doerfert, 2011; Powell et al., 2008). Through constant surveillance and reporting of market activities, these worksheets emphasize higher-order cognitive abilities by providing students opportunities to enhance their knowledge of the agricultural industry by seeking out new information and forming new conclusions and answers based on the available data (Krathwohl, 2002). As these students mature into adulthood, this knowledge of the vitality and volatility of agriculture will, hopefully, remain with them as they become consumers of agricultural industry products and services.

Future Plans & Advice to Others

It is recommended that agricultural education teachers evaluate ways to incorporate higher-order thinking skills into their curricula (Edwards, 2004; Thoron & Myers, 2012). These worksheets provide students with a method to use technology to synthesize and create new information in accordance with Krathwohl's (2002) research. The ease of availability of the worksheets enhances their flexibility to be used within school-based agricultural curricula. However, a challenge remains: disseminating information regarding this supplementary curriculum source to agricultural education teachers. Boone, Gartin, Boone, and Hughes (2006) found that information about new technologies in agricultural education can be effectively conveyed through the use of teacher in-service training sessions and workshops. The researchers recommend that AgMRC workshops and teacher training be conducted at both state- and national-level agricultural education teacher conferences to increase awareness of this effective teaching tool.

Costs

The worksheets are free-of-charge and are accessible through the AgMRC website. The worksheets were developed with secondary agricultural education teachers' needs in mind. All that is required to access these materials is an internet connection and internet-capable technology. Additional costs may incur if smart phone technology is utilized, as individuals would be subject to additional charges from their service providers.

References

Agricultural Marketing Resource Center. (2013a). Agricultural marketing resource center home page. Retrieved from http://www.agmrc.org/

Agricultural Marketing Resource Center (2013b). AgMRC special projects initiative curriculum page. Retrieved from http://www.agmrc.org/curriculum/

Doerfert, D. L. (Ed.) (2011). *National research agenda: American Association for Agricultural Education's research priority areas for 2011-2015*. Lubbock, TX: Texas Tech University, Department of Agricultural Education and Communications.

Edwards, M. C. (2004). Cognitive learning, student achievement, and instructional approach in secondary agricultural education: A review of literature with implications for future research. *Journal of Vocational Education Research, 29*(3). 225-244.

Boone, Jr., H. N., Gartin, S. A., Boone, D. A., & Hughes, J. E. (2006). Modernizing the agricultural education curriculum: An analysis of agricultural education teachers' attitudes, knowledge, and understanding of biotechnology. *Journal of Agricultural Education, 47*(1), 78-89. doi: 10.5032/jae.2006.01078

Krathwohl, D. R. (2002, Autumn). A revision of Bloom's taxonomy: An overview. *Theory into Practice, 41*(4), 212-218. Retrieved from http://www.tandfonline.com/doi/pdf/10.1207/s15430421tip4104_2

Phipps, L. J., Osborne, E. W., Dyer, J. E., & Ball, A. (2008). *Handbook on Agricultural Education in Public Schools* (6th ed.). Clifton Park, NY: Thomson Delmar Learning.

Powell, D., Agnew, D., & Trexler, C. (2008). Agricultural literacy: Clarifying a vision for practical application. *Journal of Agricultural Education, 49*(1), 85-98. doi: 10.5032/jae.2008.01085

Thilmany, D., & Watson, P. (2004). The increasing role of direct marketing and farmers markets for western US producers. *Western Economics Forum, 3*(2), 19-25. Retrieved from http://ageconsearch.umn.edu/bitstream/27982/1/03020019.pdf

Thoron, A. C., & Myers, B. E. (2012). Effects of inquiry-based agriscience instruction on student scientific reasoning. *Journal of Agricultural Education, 53*(4), 156-170. doi: 10.5032/jae.2012.04156

Poster Type: Research

Agricultural Education Teachers' Deconstruction of Content Knowledge

Amber Rice
Tracy Kitchel
University of Missouri

121 Gentry Hall
Columbia, MO 65211
(502-294-6137)
Amber.houck@mizzou.edu

Agricultural Education Teachers' Deconstruction of Content Knowledge

Introduction

Pedagogical content knowledge (PCK) is what truly separates a teacher from an expert in content (Shulman, 1986). Teachers' content knowledge and understanding of material is influential in their ability to break down content for students (Diakidoy & Iordanou, 2003). Transformation of subject matter requires critical interpretation, representations of ideas in various forms, choosing specific instructional methods for topics, and tailoring adaptations based on the needs of students (Shulman, 1987). Due to the complexity of this process, beginning teachers often struggle to figure out how deconstruction of knowledge occurs. Examining agricultural education teachers' process of breaking down subject matter could aide teacher preparation programs in preparing preservice teachers.

Conceptual Framework

A framework by Chick, Baker, Pham, and Cheng (2006) provided clarity on what characteristics teachers exhibit when tapping into their pedagogical content knowledge. The categories of PCK were: teaching strategies, questioning techniques, student thinking, student misconceptions, explanations, cognitive demands of task, representations of concepts, knowledge of resources, purpose of content knowledge, deconstructing content, curriculum knowledge, and other (Chick et al., 2006). For each PCK category in the framework there was a corresponding piece of evidence for how that might look in the classroom.

Purpose of Study

The purpose of this case study was to explore how teachers deconstruct their content knowledge expertise for student understanding. The central question was: how is content knowledge being used by teachers in the process of planning and teaching for student understanding? Guiding questions included: 1) What are agriculture teachers sources of content knowledge? 2) How do agriculture teachers determine what content is important? 3) What strategies do agriculture teachers use to teach the content? 4) How do agriculture teachers assess student understanding of the content?

Methodology

In this qualitative case study, a multiple-case design was utilized. The purposeful sample for the study included two agriculture teachers in [state]. One was a novice and the other had been teaching for seven years, which falls in the expert range (Darling-Hammond & Bransford, 2005). Having both a novice and an expert case provides two different lenses in which to understand PCK. The researcher viewed this study through a pragmatic lens. Data were collected through semi-structured interviews and field observations in the classroom. Upon transcription of

the interviews and classroom observations the data were coded and then grouped according to emergent themes. Categories were then collapsed into the final themes for the findings. To ensure trustworthiness of the data, member checking was utilized (Creswell, 2013). Relevant literature was also utilized as a basis for discussion and conclusions. Credibility of the data was insured by richness of the data obtained and reflexivity from the researcher through memoing.

Findings

In the first theme, *Sources of Content Knowledge,* both teachers identified their own high school experiences as their most significant source of agriculture content knowledge. The second theme, *Choice and Purpose of Content,* demonstrated both teachers had similar goals in how the content knowledge was to be used by their students, which was to develop agricultural literacy. Student cognitive ability was also a factor in choice of content. The third theme, *Strategies for Teaching Content,* varied by teacher. The novice chose her teaching methods based on her comfort with the content and student approval and the expert chose her methods based on time limits, efficiency, and classroom management. The fourth theme, *Limitations of Teaching Content*, ranged from student understanding of the content itself to practical limitations such as the number of students to serve in one classroom. The novice teacher indicated problems with understanding by students, but focused more on her own limitations with the content.

Conclusions

Both the novice and expert teacher demonstrated PCK through their interview and classroom teaching observation. This is consistent with Magnusson, Krajcik, and Borko (1999) who stated PCK begins to develop in preservice and beginning teachers. Previous high school education being the primary source of agriculture content knowledge for both the novice and the expert teacher could have future implications on the profession if incorrect knowledge is passed down from teacher to teacher over generations. How the two teachers choose their teaching methods was based on themselves primarily and on the students' needs secondarily but very little was based on the application to the content. This aligns with the report from Haston and Leon-Guerrero (2008) which stated there is concern in the education profession with the connection in methods courses between content and curriculum. The novice teacher indicated she struggled with answering questions from students and the students themselves understanding the content. This could be a beginning teacher efficacy issue or indicate a lack of content knowledge.

Recommendations

The researcher recommends continued exploration into the PCK of teachers to determine if they are making the connection between teaching strategies and the content they are teaching. Further investigation into subjects teachers do not feel like they have expertise in could also aid in the process of deconstructing knowledge. Overall, the researcher recommends a similar study be conducted with a grounded theory design to focus more on the process of developing PCK and breaking down the content for student understanding with a larger sample of teachers.

References

Chick, H. L., Baker, M., Pham, T., & Cheng, H. (2006). Aspects of teachers' pedagogical content knowledge for decimals. *In Proceedings of the 30th annual conference of the International Group for the Psychology of Mathematics Education.*

Creswell, J. W. (2013). *Qualitative Inquiry & Research Design: Choosing Among Five Approaches*. United States: Sage Publications.

Darling-Hammond, L., & Bransford, J. (Eds.). (2005). *Preparing teachers for a changing world: What teachers should learn and be able to do.* San Francisco, Calfornia: Jossey-Bass.

Diakidoy, I. N., & Iordanou, K. (2003). Preservice teachers' and teachers' conceptions of energy and their ability to predict pupils' level of understanding. European Journal of Psychology of Education, XVIII (4), 357-368.

Haston, W., & Leon-Guerrero, A. (2008). Sources of pedagogical content knowledge: Reports by preservice instrumental music teacher. *Journal of Music Teacher Education, 17*(2), 48-59.

Magnusson, S., Krajcik, J., & Borko, H. (1999). Nature, Sources, and Development of Pedagogical Content Knowledge for Science Teaching. In J. Gess-Newsome & N. G. Lederman (Eds.), *Examining Pedagogical Content Knowledge* (pp. 95-132). Boston: Kluwer Academic Publishers.

Shulman, L. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(2), 4-14.

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1-22.

Frequency of Administrator Supervisory Practices in the Nonformal Components of Agricultural Education

Thomas H. Paulsen, Ph.D.
Iowa State University
217C Curtiss Hall
Ames, IA 50011
tpaulsen@iastate.edu

Frequency of Administrator Supervisory Practices in the Nonformal Components of Agricultural Education

Introduction

A recent report by Pearson (Unit, 2012) indicated that the United States ranks 25th out of 34 countries in math and science achievement. Many factors have been identified to increase student achievement, however, Wright, Horn, and Sanders (1997) profess "the most important factor affecting student learning is the teacher" (p. 63). High school principals use instructional supervision techniques to enhance the pedagogical skills of teachers with "the ultimate goal of enhancing student achievement" (Marzano, Frontier, & Livingston, 2011, p. 2). Recent attempts to reform teacher supervision and evaluation (Marzano & Toth, 2013) demonstrate that the importance of teacher supervision has never been greater.

Agricultural education uses a three component, whole person approach to agricultural education (National Council for Agricultural Education, 2009; Phipps, Osborne, Dyer, and Ball, 2008). Etling (1993) posited that powerful learning experiences can be implemented in each of the three components of agricultural education and most effective teachers are able to facilitate learning in both formal and nonformal settings. However, are high school principals supervising agriculture teachers in the nonformal components of the agriculture education program?

Theoretical Framework

The theoretical framework underlying this study originated from Ferguson and Bargh's (2004) who purported that social knowledge, activated through perception, can shape and guide complex human behaviors automatically without one's knowledge of how or why these behaviors are taking place. Agricultural education teachers' overall experiences with supervision conducted by their principals may impact the manner in which they respond to administrator instructional supervision and approach their personal instructional practice. How often do agricultural education teachers experience instructional supervision practices within the nonformal components of their programs?

Purpose/Objectives

The purpose of this descriptive study was to identify the frequency in which selected administrator supervisory practices were experienced by agricultural education teachers in the nonformal components of the agricultural education program.

Methods/Procedures

This descriptive, base-line study utilized a cross-sectional survey design and was implemented electronically using the tailored design method (Dillman, Smyth, & Christian, 2009). Items were developed and aligned within the following constructs of instructional supervision practices as identified by Zepeda and Ponticell (1998): validation, empowerment, coaching, visible presence, and professionalism. A panel of experts reviewed the instrument for content, face, and construct validity. A pilot-study was conducted with 20 randomly selected agricultural education instructors using the recommendations of Sudman (1976). All constructs had acceptable or good Cronbach's Alphas (George and Mallery, 2003).

The target population for this study consisted of high school agricultural education teachers in the United States who were identified in available, electronic state agricultural education

instructor directories. A total of 234 agricultural education teachers from the randomly selected 664 potential respondents provided complete responses for a 35.24% response rate.
Due to the anonymity of the responses, non-respondents were not able to be identified. Responses of early and late respondents were compared (Lindner, Murphy, & Briers, 2001). No statistically significant differences were found. This study was limited to agricultural education teachers who responded.

Results/Findings

The average agricultural education teacher in this study was male, aged 40.62 years, held a Bachelor's degree, and had 14.87 years of teaching experience. Frequencies and percentages were calculated within each of the five Likert options for each of the 28 items. Grand means were calculated by construct. Respondents indicated that they experienced *empowerment* and *validation* more than any other construct area; however, frequencies identified for all constructs were rated less than *sometimes*. The grand mean and standard deviation for each construct are displayed in Table 1.

Table 1

Frequency of Supervisory Practices Experienced in Nonformal Settings by Construct

Supervisory Construct	*Construct Mean*	*Construct SD*
Empowerment	2.59	.88
Validation	2.59	.90
Professionalism	2.49	.88
Coaching	2.31	.89
Visible Presence	2.30	.79

Note: Each item was rated on the following scale: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, and 5 = always.

Conclusions/ Implications/Recommendations

The grand mean for each construct fell below three, or the level labeled *sometimes* for every construct. Teachers identified the frequency of experience with each of the constructs below *sometimes* with most of the constructs being marked as *never* or *rarely.* No constructs were rated *often* or *always.* Teachers report being observed in a wide variety of nonformal settings, but infrequently. If principals have the ability to assist teachers in improving instruction through supervisory practices (Marzano & Toth, 2013) and powerful learning opportunities exist in all aspects of the agricultural education program (Etling, 1993), it is then a matter of concern that agricultural education teachers are not experiencing appropriate supervisory practices in the nonformal components of the program.

Agricultural education teachers hold the key to initiating professionally engaging collaboration with their principals. Agricultural education teachers can initiate this process by inviting high school principals to provide them with feedback regarding the pedagogical practices that take place in FFA and SAE activities. Pre-service teacher training and beginning teacher mentoring programs should include training to assist agricultural education teachers in developing the skills to initiate collaborative relationships with principals and other evaluators. By further exploring instructional supervision, a list of appropriate supervisory strategies could be developed that

could be used to positively impact student achievement through instructional supervision in all components of the agricultural education program. The results of this study could be useful in developing a model for implementing supervisory practices in agricultural education.

References

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail and mixed-mode surveys: The tailored design method*. Hoboken, NJ: Wiley.

Etling, A. (1993). What is non-formal education? *Journal of Agricultural Education, 34*(4), 72-76. doi:10.5032/jae.1993.04072

Ferguson, M. J., & Bargh, J. A. (2004). How social perception can automatically influence behavior. *Trends in Cognitive Sciences, 8*(1), 33-38.

George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update* (4th ed.). Boston: Allyn & Bacon.

Lindner, J. R., Murphy, T. H., & Briers, G. E. (2001). Handling nonresponse in social science research. *Journal of Agricultural Education, 42(4), 43-53.* doi:10.5032/jae.2001.04043

Marzano, R. J., Frontier, T., & Livingston, D. (2011). *Effective supervision: Supporting the art and science of teaching*. Alexandria, Va: ASCD.

Marzano, R. J., & Toth, M. D. (2013). *Teacher evaluation that makes a difference*. Alexandria, Va: ASCD.

National Council for Agricultural Education. (2000). *The national strategic plan and action agenda for agricultural education: Reinventing agricultural education for the year 2020*. Retrieved from http://www.teamaged.org/council/images/stories/pdf/plan2020.pdf

Phipps, L. J., Osborne, E. W., Dyer, J. E., & Ball, A. (2008). *Handbook on agricultural education in public schools* (6th ed.). New York: Thompson Delmar Learning.

Unit, E. I. (2012). The learning curve. Lessons in country performance in education. Retrieved from: http://thelearningcurve.pearson.com/the-report

Sudman, S. (1976). *Applied sampling*. Academic Press, INC. 111 Fifth Avenue, New York, New York 10003.

Wright, P. S., Horn, S. P., & Sanders, W. L. (1997). Teacher and classroom context effects on student achievement: Implications for teacher evaluation. *Journal of Personnel Evaluation in Education 11*(1), 57-67. doi: 10.1023/A:1007999204543

Zepeda, S. J., & Ponticell, J. A. (1998). At cross-purposes: What do teachers need, want, and get from supervision? *Journal of Curriculum and Supervision, 14*(1), 68-87.

Influence of Short-Duration Career Exploration Sessions on Middle School Students' Educational and Career Plans

Krystin Bodden, Bekah Nortrup
Graduate Research Assistants
Department of Youth Development and Agricultural Education
Purdue University
221 Agricultural Administration
West Lafayette, IN 47906
Phone: 317-642-7566
Emails: kbodden@purdue.edu, rnortrup@purdue.edu

Levon Esters, Ph.D.
Associate Professor
Department of Youth Development and Agricultural Education
Purdue University
219 Agricultural Administration
West Lafayette, IN 47906
Phone: 765-494-8423
Email: lesters@purdue.edu

Influence of Short-Duration Career Exploration Sessions on Middle School Students' Educational and Career Plans

Introduction

As the push for an adequate science, technology, engineering, and mathematics (STEM) workforce remains, there has been a growing need to increase STEM interest. Additionally, with the era of "scientific agriculture", the distinction between many science disciplines and agriculture has nearly disappeared (National Research Council, 2009), creating a synchronous goal of teaching science and agriculture. The middle school age serves as an ideal time for students to learn about important issues and opportunities related to the agricultural sciences as they reach a key stage in choosing their educational career path (Flanders & Bell, 2006).
To help address this need, the National 4-H Council has launched initiatives aimed at increasing participant's exposure to STEM careers (The National 4-H Council, 2010). Studies have found that students' out-of-school time activities, such as science related camps, competitions, hobbies, and clubs, encourage students to pursue university majors in STEM, and eventually select a career in a STEM related area (Dabney, Tai, Almarode, Miller-Friedmann, Sonnert, Sadler, & Hazari, 2012).

One program implemented in [state] that addresses career exploration and discovery for middle school students is 4-H Round Up. Programming for youth in extension should be more than simply sharing informational pieces (Smith, Hill, Matranga, & Good, 1995), but rather have students actively involved. 4-H Round Up showcases science and science careers in short-duration, informal sessions that focus on generating interest by hosting activities that are hands-on and provide authentic learning experiences. The purpose of this study was to describe the career and educational plans of students who participated in a short-duration 4-H Round Up session and explore any influence that session may have on these plans.

Methodology

A one-hour educational outreach program was developed that allowed middle school students the opportunity to explore educational and career options within the agricultural and life sciences, specifically animal sciences. The program was implemented to three separate groups of middle school students during a three day conference centered around 4-H youth development, agriculture, and career discovery. The research questions guiding this investigation were:
1) What are 4-H Round Up participants' educational plans? 2) What are 4-H Round Up participants' career plans?, and 3) What is the influence of a single session of 4-H Round Up on participants' educational and career plans?

Due to the small amount of time allotted for the session, a post-test only approach was utilized to collect the data. The post-test administered was a modified version of the Virginia Governor's School for Agriculture Alumni Survey (Cannon, 2005), a previously validated instrument. This instrument was designed to measure the effects of a short duration program on participants' education and career plans and was composed of short answer and Likert-scale items.

Results

On average, participants were 13.5 (SD=0.82) years of age, going into the 8th grade for the Fall 2013 semester, and most were from a rural community. Females made up 73.5% of the participants, and males comprised 26.5%. Of the 49 participants who completed the survey,

83.7% were White, 4.1% African American, 4.1% multiracial, and 8.1% unknown or unreported. All but three students were 4-H members, with the average 4-H membership length being 5 years (*SD*= 2.07), and 87.2% of the participants attending the Round Up for the first time.

Participants' self-reported plans past high school graduation revealed that all 49 participants planned to attend a college or university. After attending the Round Up session, students were asked to report which college major they planned to pursue by reflecting back on their experiences prior to the Round Up session, and then stating their current views on which major they intend to pursue in college. Veterinary medicine and its related fields were reported as 34.8% prior to the session, and 29.5% after the session. Animal science increased from 8.7% before the session to 20.5% after the session; general agriculture decreased from 4.3% before to 2.3% after the session; agricultural education remained approximately the same; and non-agriculture related fields such as medical fields and engineering went from 19.5% before the session to 15.9% after the session. Those participants that were undecided in their choice of major, 8.7% before the session, decreased to 6.8% after attending the session.

Participants were asked to report on a Likert-type scale (ranging from 1= *No Influence* to 5= *Much Influence*) what influence the Round Up session had on their choice of college major, their choice of career, their knowledge and perception of agriculture, and their knowledge and perception of animal science careers. Participants reported on average that the session had "some too much" (*M*= 3.59, *SD*= 1.11) influence on their choice of college major; "some too much" (m= 3.18, SD= 1.31) influence on their career choice; "some too much" (*M*= 3.62, *SD*= 1.21) influence on their knowledge and perception of agriculture; and "some too much" (*M*=3.70, *SD*= 1.26) influence on their knowledge and perception of animal science careers.

Conclusions

The majority of the participants were from rural backgrounds, and every participant reported that they planned to attend college after high school graduation, most selecting a major within the field of agriculture. The short-duration career exploration sessions had only some influence on students' choice of college major, choice of career, and knowledge and perception about agriculture and animal science careers. Less than 20% of students reported that the session influenced their choice of major; among those who said the session had little influence, statements were made that they already knew what they wanted to do. Despite little influence on choice of major, over 6% of the participants said the session had "some or much influence" on their knowledge and perception of careers in animal science, stating that the session helped them understand more about the jobs, and that the session made them think about their career choices.

Implications

Based on the results of this study, engaging youth in short-duration programs that involve hands-on activities seems to indicate that the sessions have influence on youth's interest in and perceptions of agriculture and agriculture related careers. As indicated in previous studies, situations that encourage interest are critical in learning and long-term interest, and exposure to STEM activities during middle school has been linked to higher likelihood of choosing a STEM career (Dabney et. al, 2012). Future research should continue to study how short-duration programs can be designed to influence youth's educational and career plans to address the need for a science and agricultural science inclined workforce.

References

Cannon, J. (2005) *Perceptions of the influence of the Virginia Governor's School for Agriculture on VGSA alumni* (Doctoral dissertation). Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

Dabney, K. P., Tai, R. H., Almarod, J. T., Miller-Friedmann, J. L, Sonnert, G., Sadler, P. M., & Hazari, Z. (2012). *Out-of-School Time Science Activities and Their Association with Career Interest in STEM*. International Journal of Science Education, Part B: Communication and Public Engagement. 2:1. 63-79.

Flanders, F., & Bell, C. (2005). *Middle school programs in agricultural education.* Committee for Middle School Improvement Programs and the Georgia Department of Education. Retrieved July 28, 2007, from http://aged.ces.uga.edu/Program_Information/Middle%20School%20Development%20Guide.pdf

Laursen, S., Liston, C., Thiry, H., Graf, J. (2007). What good is a scientist in the classroom? Participant outcomes and program design features for a short-duration science outreach intervention in K–12 classrooms. *Life Science Education, 6*, 49–64.

The National 4-H Council. (2010). *Evaluating the 4-H science initiative: The 2010 youth, engagement, attitudes and knowledge survey results.* Retrieved from: http://www.4-h.org/about/youth-development-research/science-program-research/

Smith, M., Hill, G.C., Matranga, M., & Good, A. (1995). Working with high-risk youth: A collaborative approach. *Journal of Extension, 33* (3).

Is Agricultural Mechanics Competency Affected by the Number of Post-secondary Courses Completed?

Alex Preston Byrd
223-B Curtiss Hall
Iowa State University
apbyrd@iastate.edu

Dr. Ryan G. Anderson
206 Curtiss Hall
Iowa State University
randrsn@iastate.edu

Dr. Thomas H. Paulsen
217 Curtiss Hall
Iowa State University
tpaulsen@iastate.edu

Matthew J. Shultz
223-A Curtiss Hall
Iowa State University
mjshultz@iastate.edu

Is Agricultural Mechanics Competency Affected by the number of Post-Secondary Course Completed?

Introduction

Creating a teacher-education program to prepare secondary agricultural educators is a difficult task, but not a new issue (McCullock, Burris, & Ulmer, 2011). The American Association for Agricultural Education (AAAE) National standards for teacher-education in agriculture (Doerfert, 2011) section 2c states that "programs must be designed to allow teacher candidates to attain competence in basic principles, concepts, and experiential practices." Several studies have been conducted that look at perceived competence in agricultural mechanics (Lester, 2012; Saucier & McKim, 2011). Do the post-secondary courses cover the competency areas found within these studies? When looking at agricultural education major requirements from universities across the nation, the agricultural mechanics requirements varied from zero to twenty hours (Burris, Robinson, & Terry, 2005). Burris et al. (2005) determined the majority of universities require five to eight credits, while [UNIVERSITY] only requires three credits specific to agricultural mechanics of the 36.5 technical agricultural credits required. Does the agricultural mechanics curriculum requirement at [UNIVERSITY] provide adequate time for pre-service teachers to develop essential skills to become competent to teach?

Conceptual Framework

The model for teacher preparation in agricultural education (Whittington, 2005) served as the conceptual framework for this study and is based upon the philosophical foundations of agricultural teacher-education: experiential learning, problem–based teaching, social cognition, and reflective practice. These standards guide program graduates to achieve the goal to obtain the necessary knowledge, skills, and disposition for entry into the teaching profession. The researchers specifically considered the building foundations portion of the model by examining if the number of classes taken at the post-secondary level provided a strong enough foundation for the agricultural education teachers to teach agricultural mechanics competencies.

Purpose and Objectives

The purpose of this study was to describe the perceptions of secondary agricultural education teachers regarding their competence teaching selected agricultural mechanics skills based on the number of college courses taken. The study was also intended to describe the relationship between the number of post-secondary courses taken and the agricultural education teachers' perceived agricultural mechanics competence. The following objectives were identified to address the purpose of this study.

1. Describe self-perceived competency of secondary agricultural education teachers in teaching agricultural mechanic skills.
2. Describe the number of post-secondary agricultural mechanics courses completed by [STATE] agricultural education teachers.
3. Describe the relationship between teacher competence and the number of post-secondary courses taken in agricultural mechanics at a two and four year college.

Methods

This descriptive study used survey research methods to summarize characteristics, attitudes, and opinions to accurately describe a norm (Ary, Jacobs, Razavieh, & Sorensen, 2006). A researcher-modified, questionnaire was pilot tested and used to address the objectives of the

study that had a post-hoc reliability coefficients for competency (α=0.98) that was estimated following the suggestions of Gliem and Gliem (2003). Data were collected through a census study conducted during the [STATE] agricultural education teachers' conference.

Results

The first research objective sought to describe the perceived competence of [STATE] agricultural education teachers to teach agricultural mechanics skills. Agricultural education teachers had the highest average perceived competence in Structures and Construction Skills (M = 3.46). Electrification had the lowest average perceived competence (M = 2.65).

Objective 2 sought to describe the amount of post-secondary courses taken by [STATE] agricultural education teachers. The responses to this question ranges from zero to thirteen courses. The highest percentage (34.95%) of agricultural education teachers took no post-secondary courses related to agricultural mechanics. Only 29.13% of agricultural education teachers responded that they took one post-secondary course. The last 35.92% of responses ranged between two and thirteen post-secondary agricultural mechanics courses completed. The relationship between the variables of teacher competence and the number of post-secondary agricultural mechanics courses taken were calculated by using Pearson's χ^2 for objective three. The critical value for χ^2, (df = 4) for this study was 9.49. The effect size of the relationship between the two variables was calculated by running Cramer's V on the χ^2 data. The standards proposed by Gravetter & Wallnau (2009) were used to interpret the Cramer's V data. By those standards (df* = 2) the relationships found range from medium (0.21) to large (0.35) effect. Out of the 54 content areas approximately 30% (n=16) displayed a significant

Conclusions and Discussion

Research objective one sought to describe the perceived competence of teaching agricultural mechanics skills at the secondary level. The data showed that agricultural education teachers are moderately competent in agricultural mechanics and mostly in Structures and Construction skills. In a study by Lester (2012), Arizona agricultural education teachers also had a high perceived competency in these content areas. On the other hand, the results from Peake, Duncan, and Ricketts (2007) who studied the competencies of agricultural teachers in Georgia, reported that respondents perceived themselves less competent to teach construction than other areas.

Objective two explored how many post-secondary courses were completed by [STATE] agricultural education teachers. The data shows a majority of agricultural education teachers gained enough competence with no or one course in agricultural mechanics. This falls below the average requirement of five to eight credit hours reported by Burris et al. (2005). When looking at the framework are we allowing for enough time for professional practice within our teacher preparation programs to allow for the pre-service teachers to gain enough competence?

The goal of objective three was to describe the relationship between teacher competence and the amount of post-secondary courses taken. Sixteen competency areas (30%) have a significant correlation with the number of post-secondary courses completed. Since only 30% of the competency areas had a correlation with the number of post-secondary courses taken, is the number of courses taken important or is it the quality of the course they took. The quality of the agricultural mechanics courses needs to be examined. Also, the need to teach agricultural mechanics should be examined on a national level to determine how important it is to have such courses available to agricultural education undergraduates.

References

Ary, D., Jacobs, L. C. Razavieh, A., & Sorensen, C. (2006). *Introduction to research in education.* (7th ed.). Belmont, CA: Wadsworth Publishing

Burris, S., Robinson, J.S., & Terry, R., Jr. (2005). Preparation of pre-service teachers in agricultural mechanics. *Journal of Agricultural Education, 46*(3), 23-34. doi:10.5032/jae.2005.03023

Doerfert, D. L. (Ed.) (2011). *National research agenda: American Association for Agricultural Educations research priority areas for 2011-2015.* Lubbock, TX: Texas Tech University, Department of Agricultural Education and Communications.

Gliem, J. A., & Gliem, R. R. (2003). Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. *Proceedings of the 2003 Midwest Research to Practice Conference in Adult, Continuing, and Community Education*, 82-88.

Lester, M. (2012). *Agricultural Mechanics Professional Development Needs Assessment of Secondary Arizona Agricultural Educators* (Unpublished Master's Thesis) The University of Arizona. (Retrieved from http://cals.arizona.edu/aed/Lester.pdf)

McCullock, A., Burris, S., & Ulmer, J. (2011). Do we have the right recipe? A study of current teachers' perceptions on the needed ingredients for adequate teacher preparation. *Proceedings of the 2011 American Association for Agricultural Education Research Conference 38*, 449-462

Peake, J. B., Duncan, D. W., & Ricketts, J. C. (2007). Identifying technical content training needs of Georgia agricultural education teachers. *Journal of Career and Technical Education, 23*(1), 44-54.

Saucier, R., & McKim, B. (2011). Assessing the Learning Needs of Student Teachers in Texas Regarding Management of the Agricultural Mechanics Laboratory: Implications for the Professional Development of Early Career Teachers in Agricultural Education. *Journal of Agricultural Education, 52*(4), 24-43. doi: 10.5032/jae.2011.04024

Wittington, S. (2005). Using Standards to Reform Teacher Preparation in Career and Technical Education: A Successful Reformation. The Presidential Address to the Association for Career and Technical Education Research. *Career and Technical Education Research, 30*(2).

Is the VRTEX 360 helping to reduce our carbon footprint?

Alex P. Byrd

Iowa State University

223-B Curtiss Hall

Ames, IA 50011

apbyrd@iastate.edu

Ryan G. Anderson

Iowa State University

206 Curtiss Hall

Ames, IA 50011

randrsn@iastate.edu

Is the VRTEX 360 helping to reduce our carbon footprint?

Introduction/Problem Statement

Agricultural mechanics coursework is considered an important construct of the secondary agricultural education curriculum (Burris, Robinson, & Terry, 2005). With the expectations of offering secondary agricultural mechanics coursework apparent, it is vital that agricultural education teachers be prepared to offer such courses. Recent evidence (Burris, McLaughlin, McCulloch, Brashears, & Fraze, 2010) indicates many agricultural education teachers (particularly early-career teachers) feel less comfortable teaching agricultural mechanics than other agricultural content areas. Clark (2011) recommended using the Lincoln Electric VRTEX 360 Virtual Reality Welder as a tool to help better prepare pre-service teachers to teach the welding component.

One of the major problems that post-secondary agricultural education programs face is the reduction in budgets. The addition of a VRTEX 360 into the welding component of the agricultural mechanics course(s) offered for pre-service teachers can appear to be excessive ($54,900; Clark, 2011). However, Byrd & Anderson (2012) recommended that if the VRTEX 360 increased the learning curve of beginning welders then the amount of consumables used such as metal, electrodes, gases, and electricity reduced offsetting the cost of the virtual welder. They also indicated that the use of the VRTEX 360 could help reduce the carbon footprint left by traditional welding process. The purpose of this study was to determine the financial impact on consumables saved by the implementation of the VRTEX 360 in a pre-service agricultural education program.

Methodology

The VRTEX 360 was used over a two year period of time, during the first year the VRTEX 360 was used in one class specifically designed for agricultural education majors, the class used the VRTEX 360 during a two week period in which the SMAW and GMAW processes were being taught. A second agricultural mechanics class was created at the beginning of the second year, that class utilized the VRTEX 360 over a four week period. In total the VRTEX 360 was used 16 out of the past 104 weeks. The researchers collected the data that was stored in the Weldometer™ instructor tool file that is built into the virtual welding simulator. The researchers then collected the retail prices for metal, consumables, gas, etc. from local welding retailers. The researchers then utilized the Lincoln Electric Return on Investment Calculator to determine the amount of money saved on welding coupons, consumables, gas and energy. The researchers also calculated the Return on Investment independently to cross check the calculations for accuracy.

Results/Findings

The students practiced both Gas Metal Arc Welding and Shielded Metal Arc Welding processes on the VRTEX 360. The data on the Weldometer indicated two hours and eleven minutes of actual run time had been completed using the SMAW process, and five hours and fifty-four minutes of run time had been recorded during the GMAW process. Please note that run time is classified as the time in which the welder is actually welding, not the total hours the machine was on. As a result of their practice they virtually "used" 222 pounds of welding rods which would have a retail cost of $751.84. The students also used 48.5 pounds of welding wire which would have a retail cost of $172.90. A total of $924.74 was saved on welding wire and rod, for a

breakdown of consumables used and cost see Table 1. Please note that this does not include any potential welding tips, gas nozzles, or liners that might have been damaged during the initial development of psychomotor skills used in the welding process or labor costs for repairs.

Table 1
Potential Consumable Savings

Consumable Used	Cost Per Pound	Pounds Used	Total Cost
1/8" E6010 SMAW	$3.54	94	$332.76
1/8" E6013 SMAW	$3.26	83	$270.58
1/8" E7018 SMAW	$3.30	45	$148.50
0.045" ER70S-6 GMAW	$3.54	41.4	$146.56
0.035" ER70S-6 GMAW	$3.71	7.1	$26.34

The amount of shielding gas that was virtually used during the Gas Metal Arc welding process was 174.9 Cubic Feet for a total cost savings of $48.15 as outlined in Table 2. This does not account for the cost of tank storage, delivery fees, etc.

Table 2
Potential Gas Savings

Gases Used	Cost Per Cubic Feet	Gases Used (CF)	Total Cost
90% Argon, 10% CO_2	$88 per bottle	126	$36.96
75% Argon, 25% CO_2	$70 per bottle	48	$10.92
100% CO_2	$90 per bottle	0.9	$0.27

*Note 300 Cubic Feet of gas per bottle

The students virtually welded on one thousand, two hundred and seventy-three welding coupons. The total retail cost savings for virtual steel was $962.98. Please note that the data provided in Table three does not reflect any cost saving on labor or equipment wear and tear that would normally occur during metal processing.

Table 3
Potential Steel Savings

Base Material Used	Cost Per Coupon	Number of Coupons Used	Total Cost
3/8" Plate	$0.84	938	$787.92
¼" Plate	$0.56	278	$155.68
10 Gauge Plate	$0.34	57	$19.38

Conclusions/ Recommendations

The VRTEX 360 used in this study saved 270.5 pounds of wire/rod and 1,273 welding coupons from being consumed and roughly 175 cubic feet of shielding gas from entering the atmosphere. However, the estimated total savings for the VRTEX 360 was just under $2000, which clearly does not offset the cost of the VRTEX 360 ($54,900). The primary benefit of the VRTEX 360 is the impact on psychomotor skill development. The cost savings and reduced carbon footprint are secondary benefits in this case. Other institutions and industry might find different results based on run time. Institutions considering investing in a VTREX 360 should purchase the mobile unit where run time of the machine can be maximized by loaning the machine to secondary schools.

References

Anderson, R., & Byrd, A.P. (2012). Green Welding… utilizing the VRTEX 360 to reduce our carbon footprint. National American Association for Agricultural Education Conference. Asheville, North Carolina.

Burris, S., McLaughlin, E. K., McCulloch, A., Brashears, T., & Fraze, S. (2010). A comparison of first and fifth year agriculture teachers on personal teaching efficacy, general teaching efficacy, and content efficacy. *Journal of Agricultural Education*, *51*(1), 22-31. doi: 10.5032/jae.2010.01022

Burris, S., Robinson, J.S., & Terry, R., Jr. (2005) Preparation of pre-service teachers in agricultural mechanics. Journal of Agricultural Education, 46(3), 23-34. doi:10.5032/jae.2005.03023

Clark, M. (2011). Virtual Reality Arc Welding: Training the Digital Native. The National American Association for Agricultural Education Conference. Cour, D'Alene, Idaho.

Research Poster

Motivators and Barriers of Student Leadership Participation in Collegiate Agricultural Student Organizations

Justin Sharpless
124 Gentry Hall
Columbia, MO 65211
863-412-8986
Justin.sharpless@mizzou.edu

Anna Ball, Ph.D.
127 Gentry Hall
Columbia, MO 65211
573-882-7451
Ballan@missouri.edu

Motivators and Barriers of Student Leadership Participation in Collegiate Agricultural Student Organizations

Introduction & Theoretical Framework

Leadership development is a visible theme and objective in higher education. Evidence of this is observed in the mission statements of numerous institutions where leadership development is a focal point, including Beloit College, Colgate University, The College of Wooster, Colorado College, Davidson College and Occidental College (Thompson, 2006). Participating in collegiate organizations presents opportunities to develop leadership experientially (Ewing, Bruce, & Ricketts, 2009). Students that report any level of involvement in student organizations demonstrate significantly higher scores in leadership outcomes. This finding by Dugan & Komives suggests students that develop leadership experientially through participation in student organizations have greater leadership ability than students not involved in student organizations (Dugan & Komives, 2007).

Students differ in their beliefs about leadership and how much they value participation in student organizations (Shertzer & Schuh, 2004; Ewing, Bruce, & Ricketts, 2009). Colleges and universities need to understand why students value becoming involved in such organizations. Atkinson's Expectancy-Value Theory of Achievement Motivation can elucidate this need by describing students' expectancy and the value of organization activities and culture. According to the theory, the behavior of an individual depends on their expectancy of attaining a particular outcome; it also depends how much they value the outcome (Schunk, 2012). In this study, the researchers attempt to address this need by describing student beliefs about leadership, the value students place in student organizations, and the student perceptions of barriers to participation within these organizations including physical and logistical. The present study addressed the National Research Agenda, priority area six: Vibrant, Resilient Communities, specifically "Examine the aspects of vibrant, resilient communities that encourage youth and adults to become future members and leaders of the community" (Doerfert, 2011, p. 10).

Methodology

Eleven general interest agricultural student organizations from a Midwestern land grant universities' college of agriculture were invited to participate in this study through an email to the organization's leader. Six organization leaders from the list responded and consented to their organization's participation. A total of 192 student members (n = 192) were surveyed to examine their perceptions of leadership and beliefs related to motivation and barriers of student leadership involvement. This study was descriptive in nature and employed a researcher-designed questionnaire as the technique of data collection. The questionnaire consisted of 29 Likert-type items using a five-point scale (1 = strongly disagree, 2 = slightly disagree, 3 = neither agree nor disagree, 4 = slightly agree, and 5 = strongly agree), with the addition of demographic items.

An established panel of experts determined face and content validity. The panel of experts consisted of 3 Agricultural Education Faculty at the same institution as the study. A post hoc analysis revealed the construct perceptions of leadership to be unreliable, alpha being less than 0.70. According to Field, "A value of 0.70 to 0.80 is an acceptable value for Cronbach's

alpha; values substantially lower indicate an unreliable scale" (Field, 2009, p. 675). The constructs of value of organization and perceptions of physical and logistical barriers were reliable with Cronbach's alpha being 0.78 and 0.79 respectfully.

Findings

The data sample consisted of 190 college students (n = 190); 2 responses were excluded due to response set answering. The sample consisted of 56.3% male (n = 107), 38.9% female (n = 74) and 4.7% (n = 9) not answering. The overwhelming majority of the students surveyed were White (92.6%, n = 176) and from a rural background (76.3%, n = 145). Students rated items derived from three constructs on a Likert scale of 1-5, to describe their beliefs of leadership, the value they have in their organization, and their perceptions of physical and logistical barriers to participation in student leadership. The value of organization construct had a mean of 4.64, which signifies the students slightly to strongly agree that participating in student organizations is a valuable. The perceptions of physical and logistical barriers construct has a mean of 3.57, which signifies that the students are between neutrality to slightly agreeing that physical and logistical barriers affect student participation in organizations.

Conclusions & Recommendations

This is a homogenous sample containing White students from a rural background. The researchers recommend further research is done on populations that are more diverse consisting of ethnicities not represented in the study. While findings from Ewing, Bruce, & Ricketts (2009) claims that students differ in how much they value participation in student organizations, this study concludes this group values participation in student organizations. The researchers recommend that universities continue to offer organizations that students value as participation in student organizations presents opportunities to develop leadership experientially (Ewing, Bruce, & Ricketts, 2009).

The researchers further conclude that students are neutral about their perceptions of physical and logistical barriers' affect on the participation of students in collegiate student organizations. This is contrary to claims by Kulm & Cramer (2006) that suggest there is a negative correlation between participation in student organizations and the extent to which a student is employed. One recommendation that the researchers suggest from this finding is that a qualitative study be completed to gain a deeper understanding into why students are neutral about this particular construct. In conclusion, the researchers have described the sample population's value placed in student organizations in addition to perceptions of barriers to participation within these organizations. The researchers recommend that further research be conducted with a larger representative sample in order to generalize these findings.

References

Doerfert, D. L. (Ed.) (2011). *National research agenda: American Association for Agricultural Education's research priority areas for 2011-2015*. Lubbock, TX: Texas Tech University, Department of Agricultural Education and Communications.

Dugan, J. P. & Komives, S. R. (2007). *Developing leadership capacity in college students; Findings from a national study*. College Park, MD: National Clearinghouse for Leadership Programs.

Ewing, J. C., Bruce, J. A., & Ricketts, K. G. (2009). Effective Leadership Development for Undergraduates: How Important is Active Participation in Collegiate Organizations?. *Journal of Leadership Education 7*(3), 118-132.

Field, A. (2009). *Discovering statistics using SPSS*. Sage Publications Limited.

Foreman, E. A. & Retallick, M. S. (2012). Undergraduate Involvement in Extracurricular Activities and Leadership Development in College of Agriculture and Life Sciences Students. *Journal of Agricultural Education 53*(3), 111-123.

Kulm, T. L., & Cramer, S. (2006). The Relationship of Student Employment to Student Role, Family Relationships, Social Interactions and Persistence. *College Student Journal 40*(4), 927-938.

Shertzer, J. E., & Schuh, J. H. (2004). College Student Perceptions of Leadership: Empowering and Constraining Beliefs. *Journal of Student Affairs Research and Practice 42*(1), 111-131.

Schunk, D. H. (2012). *Learning theories: An educational perspective*. Boston, MA: Pearson Education, Inc.

Thompson, M. D. (2006). Student Leadership Process Development: An Assessment of Contributing College Resources. *Journal of College Student Development 47*(3), 343-350.

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

Jaclyn Tweeten
Graduate Student
Iowa State University
223E Curtiss Hall
Ames, IA 50010
jtweeten@iastate.edu

Thomas H. Paulsen, Ph.D.
Assistant Professor
Iowa State University
217 Curtiss Hall
Ames Iowa, 50010
tpaulsen@iastate.edu
(515) 294-0047

Ryan G. Anderson, Ph.D.
Assistant Professor
Iowa State University
206 Curtiss Hall
Ames Iowa, 50010
randerson@iastate.edu
(515) 294-4139

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

Introduction and Theoretical Framework

Student teaching has been described as having "a significant impact on prospective teachers" (Ronfeldt & Reininger, 2012, p 1103) where many student teachers develop concerns for themselves and for their students (Edgar, Roberts, & Murphy 2011). Communicating these concerns with peers can help to alleviate problems that student teachers may face. A form of communication popular among college aged students is the social media application Twitter, a microblogging service which allows users to send 140 character messages called tweets (McFedries, 2009). Understanding the concerns of student teachers is important, but knowing how the concerns change over time will allow "teacher educators [to] address concerns more appropriately during coursework and teacher in-service to retain students in the agricultural education program" (Stair, Warner, & Moore, 2012, p. 2). This study was developed upon previous work by Fuller (1969) and Fuller and Brown (1975) that describes shifts in concerns of teachers during their teaching experience.

Moir (1990) identified five phases of teachers' attitudes toward teaching during the first year which include: anticipation, survival, disillusionment, rejuvenation, reflection. Anticipation is the first phase where teachers look forward to the upcoming year and elicit excitement about working with students and the impact that can be made (Joerger, 2002). The second phase, survival, is where perceived difficulties dominate teacher's attitudes (Joerger, 2002). The third phase, disillusionment, is marked with several weeks of non-stop work when teachers first realize that things may not be going as planned (Moir, 1990). Rejuvenation occurs towards the end of the experience when the teacher's attitudes toward teaching become more positive (Moir, 1990). The next phase, reflection, is a process of personal debriefing where teachers consider areas of improvement to be implemented in the future. This phase transitions into the last phase of anticipation where teachers reflect upon the upcoming year. The purpose and objective of this study was to determine if the concerns expressed by student teachers aligned with the phases of a first year teacher.

Methods

The population consisted of agricultural education student teachers from [University] (N=26) who participated in an electronic community of practice using Twitter. A Twitter group was specifically created for the participants of this study. The teaching concerns tweeted by student teachers were coded upon completion of the student teaching experience following the protocol developed by Fuller (1969) and modified by Fritz and Miller (2003) and then aligned with the phases of a first year teacher by organizing the concerns by date and week. The five phases included anticipation, survival, disillusionment, rejuvenation, and reflection. Intrarater reliability code was established at α=.95 level by coding the postings twice at a four week interval (Wier, 2005). An intrarater reliability code of zero indicated no reliability while a code of 1.0 indicates a perfect reliability (Wier, 2005). Frequencies and percentages were calculated and analyzed using Microsoft Excel.

Results/Findings

The concerns of student teachers are aligned with the phases of a first year teacher and are shown in Table 1.

Table 1

Student Teacher Tweets Aligned with the Phases of a First Year Teacher (N=2070)

	Anticipation Phase (*n*=298)		Survival Phase (*n*=551)		Disillusionment Phase (*n*=448)		Rejuvenation Phase (*n*=369)		Reflection Phase (*n*=404)	
Tweets	*f*	%	*F*	%	*F*	%	*f*	%	*f*	%
Anticipation	279	93.6	94	17.1	22	4.9	21	5.7	24	6.0
Survival	19	6.4	274	49.7	48	10.7	21	5.7	19	4.7
Disillusionment	0	0	173	31.4	293	65.4	31	8.4	11	2.7
Rejuvenation	0	0	8	1.4	85	19.0	285	77.2	125	31.0
Reflection	0	0	2	0.3	0	0	11	2.9	225	55.7

Note: Anticipation phase aligned with week zero through two. The survival phase aligned with weeks three through five. The disillusionment phase aligned with weeks six through nine, the rejuvenation phase weeks ten through twelve, and reflection phase consisted of weeks thirteen through fourteen.

The concerns tweeted by student teachers follow the progression of phases of a first year teacher. This can be seen in all the phases as illustrated in Table 1. In the anticipation phase, pre-service students anticipate the new year as student teachers. Student teachers had more anticipation tweets in the pre teaching week (week 0) than any other week (*f*=279, 93.6%). This is followed by the survival phase; many teachers are overwhelmed the first week as they are learning at a rapid pace and struggle to keep themselves from 'drowning' (Moir, 1999). Student teachers survival concerns were at the highest of any week during weeks one, two and three (*f*=274, 49.7%). The next phase disillusionment is marked with student teachers having the highest amount of tweets regarding disillusionment, or feeling overwhelmed (*f*=293, 65.4%). The fourth phase rejuvenation, teachers' show an improvement in their attitudes towards teaching. Week ten and 11 display the greatest number of tweets related to rejuvenation, (*f*=285, 77.2%). The last phase, reflection, student teachers tweeted more on reflection than any other phase as teachers think about changes they plan to make in the following year. Weeks 13, and 14 had the highest amount of tweets regarding reflection (*f*=225, 55.7%).

Conclusions and Implications

By having student teacher participate in an electronic community of practice, teacher educators can better understand the apprehension faced by pre-service teachers and can design instructional content to lessen these anxieties (Stair, Warner, & Moore, 2012). This study elucidates that student teachers go through the same phases as first year teachers. Moir (1999) posited that it is necessary to assist new teachers as they transition into full time professionals. Moir (1990) posited that beginning teachers need guidance as they are inducted into the profession. Student teachers are no different. In recognizing the phases that new teachers go through, teacher educators can adjust the curriculum to fit the needs of pre-service teachers prior to their student teaching experience. Understanding the phases of a first year teachers' attitude toward teaching has implications for teacher mentoring and induction programs as well. If "beginning teachers' initial beliefs and teaching practices play an important role in shaping, impeding, or facilitating what and how they learn in induction contexts" (Wang, Odell, & Schwille, 2008, p. 147) then it is critically important that mentors understand the phases through which beginning teachers progress.

References

Edgar, D., Roberts T. G., & Murphy, T. (2011). Exploring relationships between teaching efficacy and student teacher –cooperating teacher relationships. *Journal of Agricultural Education 52*(1) 9-18. doi: 10.5032/jae.2011.01009.

Fritz, C. A., & Miller, G. S. (2003). Concerns expressed by student teachers in agriculture. *Journal of Agricultural Education, 44*(3), 47-53. doi 10.5032/jae.2011.01009

Fuller, F. (1969). Concerns of Teachers: A developmental Conceptualization. *American Educational Research Journal 6*(2) 207-226. doi:10.3102/00028312006002207.

Fuller, F., & Brown, O. (1975). Becoming a teacher. In L. Ryan (Ed.), *Teacher education: Seventy-fourth yearbook of the National Society for the Study of Education*. Chicago: University of Chicago Press.

Joerger, R.M. (2002, January). One key to teacher retention understanding the experience and needs of beginning teachers. *NAAE News and Views.* Retrieved from http://www.naae.org/about/newsandviews

Knobloch, N. A., & Whittington, M.S. (2002). Novice teachers' perceptions of support, preparation quality, and student teaching experience related to teacher efficacy. *Journal of Vocational Education Research, 27*(3), 331-341.doi: 10.5328/JVER27.3.331

McFedries, P. (2009). *Twitter: Tips, tricks, and tweets.* Indianapolis, IN: Wiley Publishing, Inc.

Moir, E. (1990). Phases of first-year teaching. *Originally published in California New Teacher Project Newsletter*.

Moir, E. (1999). The phases of a teacher's first year. *A better beginning: Supporting and mentoring new teachers,* 19-23.

Stair, K., Warner, W., & Moore, G. (2012). Identifying Concerns of Preservice and In-Service Teachers in Agriculture Education. *Journal of Agricultural Education. 53*(2). 153-164.doi:10.5032/jae.2012.02153.

Ronfeldt M., & Reininger M. (2012). More or better student teaching? *Teaching and Teacher Education. 28*(8). 1091-1106. doi:10.1016/j.tate.2012.003

Wang, J., Odell, S., & Schwille, S. (2008). Effects of Teacher Induction on Beginning Teachers' Teaching. *Journal of Teacher Education. 59*(2).132-152.

Wier, J. (2005). Quantifying test-retest reliability using the intraclass correlation coefficient and the SEM. *Journal of Strength and Conditioning Research, 19*(1), 232. Retrieved from http://www.uta.edu/faculty/jcramer/KINE5300/Weir 2005 JSCR reliability.pdf

Research Poster

Plows, Cows, and Sows: Identifying and Measuring Outmoded Film Portrayals of Agricultural Production

Annie R. Specht
Assistant Professor, University of Nebraska-Lincoln
108 Agricultural Communications Building
Lincoln, NE 68583-0709
(402) 472-2761
aspecht2@unl.edu

Plows, Cows, and Sows: Identifying and Measuring Outmoded Film Portrayals of Agricultural Production

Introduction

Entertainment is embedded in humanity's understanding of culture. Per Stromberg (2011), "entertainment is by now so thoroughly woven into the fabric of our existence [that]…the culture of entertainment is arguably the most influential ideological system on the planet" (p. 3). History is constantly being recreated and repackaged for successive generations in film and television dramas, comedies, and documentaries (Eley, 2001; Steveker, 2009). As the nation has moved away from its agricultural foundations, a sort of mythology of the agrarian U.S. has emerged, hearkening back to—and even yearning for—the bucolic imagery of pre-industrial rural America. This "agrarian myth" (Appleby, 1982) has been in part shaped by entertainment media, and in order to understand the public's perceptions of the industry, the agriculture community must be aware of the images and themes propagated by agriculture-related media texts. The purpose of this study was to quantify the time incongruity of media portrayals of agriculture in order to establish a potential source of industry misinformation.

Theoretical Framework

The means by which film and television reappropriate cultural representations of history is cultural memory. Epstein and Lefkovitz (2001) define 'cultural memory' as "the legacy of history as history retains its ability to affect everyday lives" (p. 1). Cultural memory, therefore, is the aggregate of representations of historical epochs shaped by collective recollections of those events. Cultural memory stabilizes and normalizes shared cultural recollections through media, including literature, film, and art, that populate "the store of background knowledge that one calls upon when interpreting the everyday commonsense world" (Wekesa, 2012, p. 235; Steveker, 2009; Werner, 2003). These media preserve for successive generations the attitudes, actions, and landscapes of bygone days as framed by screenwriters, directors, and producers. Film and television are able to produce and reproduce mythologies that appeal to audiences because they "consistently distorted and sanitized the past" (Chadwick, 2002, p. 1), leading to pervasive, sometimes outdated interpretations of cultural events.

Method

Reflecting the American Association for Agricultural Education's 2011-2015 National Research Agenda's Priority 1: Public and Policy Maker Understanding About Agriculture and Natural Resources, the researcher examined films related to agriculture. Texts were selected for the study based on 3 criteria: the incorporation of agriculture as a plot device and/or setting; cultural significance, operationalized as wide viewership and/or recognition for excellence; and distribution between 1950 and 2013. A keyword search of the Internet Movie Database provided a comprehensive list of texts from which to draw a purposive sample. Nineteen films were selected based on their adherence to the criteria. The researcher then calculated an agricultural time differential for each film based on the numerical difference in years between the film's year of release and the time period depicted in the text and categorized each film by decade of release.

Findings

Breakdowns of time differentials for each film and decade are presented in Table 1. Overall, the 19 films' agricultural time differentials averaged just over 22 years (M=22.32; SD=22.06).

Though nearly half (*n*=9) of the films depicted agricultural practices contemporaneous to the year of their release, the time differentials for the remaining 10 films ranged from 21 to 57 years (*M*=42.4). Grouped by decade, the 1980s and 1990s represented a period of relative timeliness in filmic depictions of agriculture (*M*=10.6); films released in the early decades of the 21st Century, by comparison, regressed in the timeliness of their portrayals.

Table 1. *Mean time differentials of film portrayals of agriculture by decade*

Decade	Film and Release Year	Setting Year	Time Differential (Years)	Mean Differential for Decade
1950s				39.33
	East of Eden (1955)	1917	38.00	
	Oklahoma! (1955)	1906	49.00	
	Giant (1956)	1925	31.00	
1970s				21.00
	Charlotte's Web (1973)	1952	21.00	
1980s				9.80
	Places in the Heart (1984)	1935	49.00	
	Country (1984)	1984	0.00	
	The River (1984)	1984	0.00	
	Witness (1985)	1985	0.00	
	Field of Dreams (1989)	1989	0.00	
1990s				11.40
	City Slickers (1991)	1991	0.00	
	Babe (1995)	1995	0.00	
	A Thousand Acres (1997)	1997	0.00	
	The Horse Whisperer (1998)	1998	0.00	
	The Cider House Rules (1999)	1942	57.00	
2000s				33.75
	Signs (2002)	2002	0.00	
	Brokeback Mountain (2005)	1963	42.00	
	Charlotte's Web (2006)	1952	54.00	
	Fantastic Mr. Fox (2009)	1970	39.00	
2010s				44.00
	Temple Grandin (2010)	1966	44.0	

Implications and Recommendations

Based on the calculated time differentials of agriculture-focused films released between 1950 and 2013, American audiences have become accustomed to media depictions of outdated modes of agricultural production. In the past 60 years, images of antiquated agricultural technology, such as horse-drawn plows, and traditional small-scale production have become part of the cultural zeitgeist, being continuously reinforced over time. Two decades—the average time differential of the 19 films studied—represents a wide progress gap given the swift proliferation of agricultural technology (Alston, Anderson, James, & Pardey, 2010), and this disparity may help explain negative public sentiment toward modern production practices such as confinement housing, genetic modification, and the use of artificial hormones and antibiotics. This study

represents a starting point for further research into the impact of entertainment media portrayals of agriculture on public perceptions of industry practices.

References

Appleby, J. (1982). Commercial farming and the "agrarian myth" in the early Republic. *Journal of American History, 68*(4), 833-849.

Alston, J. M., Anderson, M. A., James, J. S., & Pardey, P. G. (2010). *Persistence pays: U.S. agricultural productivity growth and the benefits from public R&D spending.* New York, NY: Springer.

Chadwick, B. (2002). *The reel Civil War: Mythmaking in American film*. New York, NY: Vintage.

Eley, G. (2001). Finding the People's War: Film, British collective memory, and World War II. *The American Historical Review, 106*(3), 818–838.

Epstein, J., & Lefkovitz, L. H. (2001). Introduction. In J. Epstein & L. H. Lefkovitz (Eds.), *Shaping losses: Cultural memory and the Holocaust* (pp. 1–10). Chicago, IL: University of Chicago Press

Steveker, L. (2009). *Identity and cultural memory in the fiction of A. S. Byatt: Knitting the net of culture.* London, UK: Palgrave MacMillan.

Stromberg, P. G. (2011). *Caught in play: How entertainment works on you.* Stanford, CA: Stanford University Press.

Wekesa, N. B. (2012). Cartoons can talk? Visual analysis of cartoons on the 2007/2008 post-election violence in Kenya: A visual argumentation approach. *Discourse & Communication, 6*(2), 223–238.

Werner, W. (2003). Reading visual rhetoric: Political cartoons. *International Journal of Social Education, 18*(1), 81–98.

Research Poster

Recruitment and Retention of Illinois 4-H Special Interest Club Adult Volunteers

Melissa Bender
Program Coordinator, 4-H SPecial INterest (SPIN) Clubs - Champaign County
University of Illinois Extension
801 North Country Fair Drive
Suite D
Champaign, IL 61821
Phone: 217-333-7672
FAX: 217-333-7683
benderm@illinois.edu

Tim Buttles
Department of Agricultural Education
University of Wisconsin - River Falls
410 S. Third St.
River Falls, WI 54022
Phone: 715-425-3555
timothy.j.buttles@uwrf.edu

Recruitment and Retention of Illinois 4-H Special Interest Club Adult Volunteers

Introduction

Special Interest (SPIN) Clubs are a relatively new component within the 4-H organization. These SPIN Clubs are different from the normal community clubs as they meet for a minimum of six sessions, have a defined timeline, focus on a specific topic not typically offered through community 4-H clubs, and help youth master new and exciting lifelong skills. The state of Illinois has proceeded in creating more SPIN Clubs in an effort to increase statewide youth membership. While the primary goal is participation in a 4-H community club, volunteers believe positive initial experiences in a SPIN Club may ultimately lead to community club membership. Between 2009 and 2010, 71 new SPIN Clubs were created in Illinois with an additional 130 SPIN Clubs formed the following year. This initial success was the start of a larger movement; over the past two years, youth membership enrollment in SPIN Clubs has increased from 773 members in 2009-2010 to 1,061 members in 2010-2011. Of these youth members, 50% were new to 4-H. This membership increase occurred while adult volunteers of SPIN Clubs had increased from 132 volunteers during 2009-2010 to 190 adult volunteers one year later. During these two years, 54% of the adult volunteers were new to the organization (M. Weese, personal communication, March 29, 2012).

The following four objectives were designed to address critical knowledge gap regarding Illinois 4-H SPIN Club volunteers: 1) Identify key advantages and disadvantages of being a SPIN Club volunteer, 2) Determine which strategies work best to recruit volunteers for 4-H SPIN Clubs, 3) Identify retention strategies for 4-H SPIN Club volunteers, & 4) Determine how 4-H staff can better serve SPIN Club volunteers. This study addresses the fifth priority area of the National Research Agenda, efficient and effective educational programs (Doerfert, 2011).

Conceptual framework

"Volunteers remain the vital link between program theory and outcome" (Arnold, Dolenc, & Rennekamp, 2009, Conclusion section, para. 1). The quality of a relationship between a 4-H volunteer and member is critical in ensuring that youth skills and competencies are developed throughout the 4-H program (Radhakrishna & Ewing, 2011). Arnold, Dolenc, & Rennekamp recommended systematic evaluation of 4-H volunteers' experience as one of four key elements to increase to potential for 4-H programs to provide Positive Youth Development. This study evaluated the experience of volunteers serving SPIN Clubs to provide suggestions for program improvement.

Methodology

Volunteers serving Illinois 4-H SPIN Clubs during the spring of 2013 were surveyed to evaluate their experiences. The 36 question survey included demographic, scaled, and open-ended questions developed by the researcher. A panel of university faculty and 4-H professionals reviewed the questions for content validity, readability, and appropriateness. An Illinois State 4-H Youth Development Extension Specialist forwarded the invitation email along with directions,

a consent letter for the survey, and whom the survey was targeting to the specific unit county directors and 4-H youth development educators. This methodology was utilized to ensure participants would receive emails from a reputable source (a co-worker) and hopefully improve the participation rate. The county directors and 4-H youth development educators then forwarded the invitation email to their 4-H SPIN Club volunteers. After two weeks, a follow-up reminder about the study was sent to all 4-H SPIN Club volunteers through their unit 4-H educators and county directors. The information was sent to ten different units, including 33 counties and 144 SPIN Club volunteers with 24 volunteers completed the survey (a response rate of 16.6%). The survey was administered and analyzed using Qualtrics. This study was approved by the Institutional Review Boards at the institutions where both authors were employed.

Results & Conclusions

The 4-H SPIN Club volunteers who responded to the survey reported similar characteristics to 4-H volunteers reported in previous studies. The majority were female (61%), had been 4-H volunteers for 5 years or less (86%), and came from rural/farm areas (48%) (Nippolt, Pleskac, Schwartz & Swanson, 2012; Radhakrishna & Ewing, 2011). Seventy eight percent of participants had been SPIN Club volunteers for 1 year or less.

The two most commonly cited advantages of being a SPIN Club volunteer were preparing youth for the future and working with youth (*f*=6 for both). The two most frequently listed disadvantages were time (*f*=7) and no disadvantages (*f*=6). Volunteers learned about the SPIN Club opportunities from 4-H coordinators and clubs more than any other method (*f*=11). The fact that "no disadvantages" was listed this often demonstrates the overall positive experience volunteers have with SPIN Clubs.

The participants listed a variety reasons why they remained SPIN Club volunteers. Many focused on the growth and development they see in the participants. Time was the most often cited factor that would discourage volunteers from continuing (f=5). Several recommendations were offered for how 4-H staff could better support SPIN Club volunteers.

Recommendations

This study provided an initial look at the perceptions of Illinois 4-H SPIN Club volunteers. Given the rapid growth of the program and low response rate, continued evaluation of the volunteer experience is needed.

4-H staff should utilize the results of this study when recruiting, training, and supporting SPIN Club volunteers. They should continue to utilize the traditional 4-H communication channels that were successful with these participants, but also look to reach new pools of potential volunteers as suggested. The advantages listed by participants should be featured in recruiting materials. Ideas for resources, training, and support should be reviewed to identify the most feasible options for better supporting volunteers.

References

Arnold, M. E., Dolenc, B. J., & Rennekamp, R. A. (2009). An assessment of 4-H volunteer experience: Implications for building positive youth development capacity. Journal of Extension, Volume 47, Number 5.

Doerfert, D. L. (Ed.) (2011). National research agenda: American Association for Agricultural Education's research priority areas for 2011-2015. Lubbock, TX: Texas Tech University, Department of Agricultural Education and Communications.

Nippolt, P. L., Pleskac, S., Schwartz, V., & Swanson, D. (2012). North Central Region 4-H Volunteers: Documenting Their Contributions and Volunteer Development. Journal of Extension, 50(2).

Radhakrishna, R., & Ewing, J. (2011). Relationships Between 4-H Volunteer Leader Competencies and Skills Youth Learn in 4-H Programs. Journal of Extension, 49(4).

Teacher-perceived Adequacy of Tools and Equipment Available to Teach Agricultural Mechanics

Andrew "OP" McCubbins
Iowa State University
217B Curtiss Hall
Ames, IA 50011
opmcc@iastate.edu

Trent Wells
Demopolis High School
701 U.S. Highway 80 West
Demopolis, AL 36732
ktw0004@iastate.edu

Ryan Anderson
Iowa State University
206E Curtiss Hall
Ames, IA 50011
randrsn@iastate.edu

Thomas H. Paulsen, Ph. D.
Iowa State University
217C Curtiss Hall
Ames, IA 50011
tpaulsen@iastate.edu

Teacher-perceived Adequacy of Tools and Equipment Available to Teach Agricultural Mechanics

Introduction

The adequacy of available instructional materials can be a major concern for education stakeholders and may stem from numerous factors. Such factors could include: 1) lack of funding, 2) outdated materials, and 3) lack of adequate training. The insufficient supply and poor quality of instructional materials afforded to many students can create significant obstacles for pupils as they attempt to meet state-mandated content standards, pass examinations required for grade-to-grade promotion and high school graduation, and qualify for competitive opportunities in college and the workforce (Oaks & Saunders, 2002). With initiatives such as the No Child Left Behind Act of 2001 and ever-changing standards, educators face even more challenges when they have inadequate teaching materials. Doerfert (2011) indicated that agricultural educators, in order to provide high-quality instruction, must have access to adequate resources. Agricultural educators often face many challenges in acquiring the proper tools for superior laboratory instruction (Phipps, Osborne, Dyer, & Ball, 2008). In response to this knowledge, a question has arisen: How do [STATE] agricultural educators perceive the adequacy of the tools and equipment in their agricultural mechanics facilities?

Objective

The objective of this study was to describe the adequacy of available tools of high school agricultural mechanics laboratories as perceived by agricultural educators.

Methodology

The target population of this descriptive study was in-service secondary agricultural educators who are currently teaching agriculture in [STATE] (N = 242). A researcher-modified, paper-based questionnaire containing three sections consisting of 54 skills, teacher demographics, and program demographics was distributed to each instructor (n = 130) who attended the [STATE] agricultural education teachers conference. Usable instruments were collected from respondents (n = 101) for a 77.7% response rate. Face validity was established by individuals with expertise in instrument development and agricultural mechanics. Post-hoc reliability calculations resulted in reliability coefficients for importance (α = .97) and competency (α = .98). These coefficients were regarded as "excellent" by George and Mallery (2003, p. 231). Researchers used the Borich (1980) needs assessment model to quantify teacher's perceived ability to teach, and the teachers' perception of the necessity to teach concepts within agricultural mechanics.

Results

Data from Table 1 described agricultural educators' perceived most adequate supply of tools to teach agricultural mechanics. The highest tool supply adequacy levels were found in the areas of welding safety, shielded metal arc welding (SMAW), construction and shop safety, wood working power tools, wood working hand tools, and bill of materials.

Table 1

Agricultural Educators' Perceived Most Adequate Supply of Tools to Teach Mechanics Skills (n = 101)

		No Need	Some	Moderate	Strong	Very Strong
	n	*f*(%)	*f*(%)	*f*(%)	*f*(%)	*f*(%)
Welding Safety	93	7(7.5)	8(8.6)	22(23.7)	29(31.2)	27(29.0)
SMAW Welding (ARC)	94	7(7.4)	16(17.0)	23(24.5)	25(26.6)	23(24.5)
Construction & Shop Safety	89	11(12.4)	7(7.9)	18(20.2)	34(38.2)	19(21.3)
Wood Working Power Tools	89	8(8.9)	11(12.4)	22(24.7)	31(34.8)	17(19.1)
Wood Working Hand Tools	90	8(8.9)	13(14.4)	23(25.6)	30(33.3)	16(17.8)
Bill of Materials	88	12(13.6)	10(11.4)	21(23.9)	33(37.5)	12(13.6)

Data from Table 2 below described agricultural educators' perceived least adequate supply of tools to teach agricultural mechanics. The lowest tool supply adequacy levels were found in the areas of profile leveling, fencing, differential leveling, cleaning motors, and tractor selection.

Table 2

Agricultural Educators' Perceived Least Adequate Supply of Tools to Teach Mechanics Skills (n = 101)

		No Need	Some	Moderate	Strong	Very Strong
	n	*f*(%)	*f*(%)	*f*(%)	*f*(%)	*f*(%)
Profile Leveling	75	40(53.3)	18(24.0)	11(14.7)	5(6.7)	1(1.3)
Fencing	80	42(52.5)	16(20.0)	15(18.8)	6(7.5)	1(1.3)
Differential Leveling	76	39(51.3)	19(25.0)	10(13.2)	7(9.2)	1(1.3)
Cleaning Motors	78	37(47.4)	18(23.1)	15(19.2)	7(9.0)	1(1.3)
Tractor Selection	79	35(44.3)	21(26.6)	16(20.3)	7(8.9)	0(0.0)

Conclusions & Discussion

These data indicate that secondary agricultural educators in [STATE] were most prepared, in terms of tool supply adequacy, to teach welding-related content. However, there existed several topics that, due to a reported lack of available tools, agricultural educators in [STATE] may not be prepared to teach. These findings are quite troubling, as there is great demand for high-skill, high-wage workers to fill positions within the American economy (Doerfert, 2011). Additionally, agricultural technology is in a constant state of change and teachers must be prepared to properly educate students in this dynamic, ever-changing field (Doerfert, 2011). If programs lack many of the tools of the trade, how can optimum education occur in the wide range of mechanics-based career areas (i.e., agriculture)? What is more, what effects could the lack of adequate tool supplies have on agricultural education program quality?

References

Borich, G. D. (1980). A needs assessment model for conducting follow-up studies. *The Journal of Teacher Education, 31*(3), 39-42.

Doerfert, D. L. (Ed.) (2011). *National research agenda: American Association for Agricultural Education's research priority areas for 2011-2015*. Lubbock, TX: Texas Tech University, Department of Agricultural Education and Communications.

George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update* (4th ed.). Boston, MA: Allyn & Bacon.

Oakes, J., & Saunders, M. (2002, October). *Access to textbooks, instructional materials, equipment, and technology: Inadequacy and inequality in California's public schools.* Retrieved from http://escholarship.org/uc/item/4ht4z71v

Phipps, L. J., Osborne, E. W., Dyer, J. E., & Ball, A. (2008). *Handbook on Agricultural Education in Public Schools* (6th ed.). Clifton Park, NY: Thomson Delmar Learning.

Research Poster

The Needs of Students Enrolled in an Intensive Leadership Scholars Program

Adam A. Marx
Justin Sharpless
Jon C. Simonsen
University of Missouri

Aaron McKim
John Velez
Oregon State University

124 Gentry Hall
Columbia, Missouri 65211
(573) 884-4444
aamarx@missouri.edu

The Needs of Students Enrolled in an Intensive Leadership Scholars Program

Introduction and Theoretical Framework

Developing high quality leaders is one of the many roles that higher education plays in society (Astin, Astin, & Associates, 2000). Based on this responsibility, many college campuses are increasing the number of leadership courses and opportunities they provide to students (Riggio, Ciulla, & Sorenson, 2003; Schwartz, Axtman, & Freeman, 1998). Every leadership education program is unique (Brungardt, Greenleaf, Brungardt, & Arensdorf, 2006) but is designed to meet the needs of the students, campus, and of society.

In an effort to meet this need in the College of Agriculture, Food, and Natural Resources at [UNIVERSITY], the Department of Agricultural Education and Leadership teamed up with [NAME] Memorial Foundation to provide opportunities to undergraduates across the College. The [NAME] Foundation has supported the development of future leaders in the agricultural industry and beyond. Through the [NAME] Leadership Scholars Program, deserving students are selected annually to become part of a year-long leadership development experience that will challenge them to lead while on campus but also in their future career fields. Students are provided with a tremendous opportunity for growth and a responsibility to be productive citizens in the future. The [NAME] Leadership Scholars Program focuses on developing the whole student through leadership education coursework, field based mentorship, and impactful change.

Each new academic year brings a new group of scholars into the program. The program is tailored to the individuals' characteristics and perceived personal leadership development needs. In order to design effective and impactful educational programing in leadership, identification of the importance of leadership qualities is fundamentally important to whether or not students will actually learn, process, and implement material (Eccles, 2005). Eccles, in the Expectancy-Value theory, highlighted the key nature of attainment value (importance) as a foundational component of whether individuals will be motivated to engage in a task. In light of the role of attainment value (importance) has on student development, the authors sought to assess students' perceived importance in addition to their perceived competence in multiple leadership constructs. The present study addressed priority area six of the American Association for Agricultural Education's National Research Agenda as the authors sought to examine and develop effective leaders for the progress of vibrant and resilient communities (Doerfert, 2011).

Methods

The Borich (1980) needs assessment model was used for the analysis of leadership needs in this study. Each respondent identified both the importance of a task and their perceived competence in the task. The discrepancy between the importance and their competence creates a mean weighted discrepancy score (MWDS). Each task was then ranked based on the MWDS. Larger MWDS indicates a higher level of need. A leadership self-assessment instrument (Ayers, 2010) was adapted and modified to assess 13 leadership constructs clustered within the four key domains of personal (PLD), interpersonal (ILD), group & organizational (GOLD), and community (CLD) development. This 87 question instrument (using a 5 point Likert-type scale) was pilot tested and revealed Cronbach reliabilities on the four domains ranging from $\alpha = .89$-

.96. Thus, the instrument was deemed acceptable and was administered at the beginning of the yearlong [Name] Leadership Scholars Program to the 15 participants.

Results

Results of this assessment provide key insight into the areas where students feel strong and the areas of significant need (Table 1).

Table 1
MWDS on Thirteen Leadership Constructs

Construct (Domain)	MWDS
Manages Conflict (ILD)	5.98
Awareness of Self (PLD)	4.94
Understands Community (CLD)	4.85
Manages Projects (GOLD)	4.30
Sustains Leadership (PLD)	4.19
Committed to Serving (CLD)	4.15
Practices Citizenship (CLD)	4.10
Develops Teams (GOLD)	3.96
Leads Change (GOLD)	3.57
Values Diversity (ILD)	3.56
Understands Leadership (PLD)	3.43
Enhances Communication (ILD)	3.40
Ethical Behavior (PLD)	2.92

Discussion

Students reported their largest MWDS at the beginning of the program was in the Managing Conflict construct. This suggests while participants find conflict management important, they are less confident in their actual abilities to manage conflict. In contrast, there is much less discrepancy between student's perceived abilities to act ethically and the importance they place on ethics in leadership. In an effort to tailor the leadership program to the scholars, this needs assessment allowed the leadership educators to select curricular materials and practical experiences to raise competence in and recognition of importance for each developmental leadership construct. For example, a group service-learning project was planned in which the scholars would be required to work as a group in the planning and implementation of the project. Potential conflicts arose and the scholars had to manage the conflict. This was a process that was allowed to evolve and was reflected upon by the scholars. Additionally, an individual growth plan project was planned in an attempt to increase self-awareness. A future recommendation is to continue to use the instrument at the beginning of the program and to complete an end-of-course needs assessment to determine shifts in the MWDS for each construct.

References

Astin, A. W., Astin, H. S., & Associates. (2000). *Leadership reconsidered: Engaging higher education in social change.* Battle Creek, MI: W. K. Kellogg Foundation.

Ayres, J. (2010). Leadership Development Self-Assessment: Developed by Dr. Janet Ayres, Department of Agricultural Economics, Purdue University, for Purdue's Leadership Development Certificate Program. Unpublished instrument.

Borich, G. D. (1980). A needs assessment model for conducting follow-up studies. *Journal of Teacher Education, 31*(3), 39-42. doi: 10.1177100224871800310311

Brungardt, C. L., Greenleaf, J., Brungardt, C. J., & Arensdorf, J. (2006). Majoring in leadership: A review of undergraduate leadership degree programs. *Journal of Leadership Education, 5*(1), 4-25.

Doerfert, D. L. (2011). *National research agenda: American Association for Agricultural Education's research priority areas for 2011-2015.* Lubbock, TX: Texas Tech University, Department of Agricultural Education and Communications.

Eccles, J. S. (2005). Subjective task value and the Eccles et al. model of achievement-related choices. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 105-121). New York: Guilford Press.

Riggio, R. E., Ciulla, J., & Sorenson, G. (2003). Leadership education at the undergraduate level: A liberal arts approach to leadership development. In S. E. Murphy & R. E. Riggio (Eds.), *The future of leadership development* (pp. 223-236). Mahwah, NJ: Lawrence-Erlbaum.

Schwartz, M. K., Axtman, K. M., & Freeman, F. H. (1998). *Leadership education: A source book of courses and programs* (7th ed.). Greensboro, NC: Center for Creative Leadership.

Toward Improved Geographic Mobility Among Agricultural Education Students

Amy R. Smith, Ph.D.
University of Minnesota
146C Ruttan, 1994 Buford Avenue
St. Paul, MN 55108
612-624-6590
arsmith@umn.edu

Rebecca G. Lawver, Ph.D.
Utah State University
1498 North 800 East, 2300 Old Main Hill
Logan, UT 84321
435-797-1254
rebecca.lawver@usu.edu

Daniel D. Foster, Ph.D.
The Pennsylvania State University
211 Ferguson Building
University Park, PA 16801
814-863-0192
foster@psu.edu

Toward Improved Geographic Mobility Among Agricultural Education Students

Introduction

Across the United States, there is a recognized shortage of agricultural education teachers (Kantrovich, 2010; Thompson, 2012). Although this issue is not new to the profession, it must be addressed if we are to adequately sustain and expand school-based agricultural education. Initiatives such as the National Teach Ag Campaign and 2013 Ag Ed Summit have stimulated conversations regarding barriers and challenges for those involved in secondary agricultural education. Anecdotally, it is believed that graduates may be "geographically limiting" their search for teaching positions though little empirical evidence exists to support or explain if that is indeed the case. Much of the research on teacher attrition and mobility focuses on why teachers stay, move or leave (Marvel J., Lyter, D. M., Peltola, P., Strizek, G. A., Morton, B. A., & Rowland, R., 2007), in most cases focusing on those already *in* the profession (Coggshall & Sexton, 2008; Russell & Ruppert, 2001). There is little research on how graduates, in agricultural education or educational disciplines, choose one job over another or on what factors influence their job search and geographic mobility.

Conceptual/Theoretical Framework

Standards for effective practice, with regard to teachers and teacher preparation, exist in several forms. While these standards often provide time-honored, "tried and true" guidelines for the profession, we must also be cognizant of the evolving needs of our students. Greenhill and Petroff suggest, "The nature of teaching is changing. …many programs are becoming more entrepreneurial, recognizing new opportunities and making changes required to respond to the needs of 21st century learners" (2010, p.5). The Framework for 21st century teaching and learning outlines "knowledge, specific skills, expertise and literacies" (Greenhill & Petroff, 2010, p.8) which all graduates need. Within the context of agricultural education, responding to the changing "nature of teaching" challenges us to explore opportunities to enhance our graduates' overall preparation and simultaneously address supply and demand issues.

Methodology

This project is the first segment of a multi-stage study designed to explore the impact of an 8-day domestic study abroad experience on undergraduate students' understanding of agricultural education, cultural competence, and geographic mobility. Participating students visited six school-based agricultural education programs in [out of state], purposefully selected to provide for varied observations and experiences (single teacher/multiple teacher, urban/suburban/rural, comprehensive program/thematic focus).

Specifically, this segment sought to collect baseline information regarding students' beliefs, prior experiences and goals/motivation for participation using a researcher-developed questionnaire. The questionnaire, distributed using Qualtrics, consisted of ten Likert-type items, three open-ended items, and five demographic items. An invitation and subsequent reminders were sent via email. A 100% response rate was achieved. Post hoc reliability was calculated, yielding a Cronbach's alpha of .68. Given the small number of items included in the instrument (Cortina, 1993) and limited number of participants, findings are appropriate to share as exploratory research (Kline, 1999). However, no inferences should be made beyond this population.

Results/Findings

Thirteen students (one freshman, two sophomores, six juniors, three seniors, and one recent graduate) participated in the domestic study abroad; 85% (*f* = 11) were female, while 15% (*f* = 2) were male. All students reported a cumulative GPA above 2.50; nine students (69%) reported a GPA over 3.00. Six students (46%) had no prior study abroad experience, yet three students (23%) reported having participated in three to five previous study abroad experiences.

Over 75% of students (*f* = 10) *agreed* or *strongly agreed* with the statement, "I consider myself to be culturally competent." Twelve students (92%) *agreed* or *strongly agreed* with the statement, "I embrace differences among those with whom I interact." Four students (31%*)* strongly *agreed* that they were comfortable communicating with individuals from a cultural background different than their own*;* seven students (54%) *agreed.* Eight students either *agreed* (38%*)* or *strongly agreed* (23%) that they had "considered how or why the perspectives of individuals living in various regions of the U.S. may differ on global issues such as agricultural production, trade, or the environment." When asked whether they feel confident in their understanding of U.S. agriculture and the implications for agricultural education in various regions of the U.S., 6 students *strongly agreed*, and 4 *agreed*. Just over one-third of students (*f* = *5)* indicated strong agreement with this statement: "Given my current knowledge and skills, I would feel comfortable teaching agriculture outside (state)."

Four items asked students to reflect upon the past 30 days. Ten students (77%) *agreed* or *strongly agreed* with the statement, "I have read an article, watched a TV show, or spoke to someone about geographic or cultural issues." Similarly, nine students (69%) *agreed* or *strongly agreed* that they had "consciously withheld judgment regarding a controversial event until learning more facts." Four students (31%) *strongly agreed* that they had "thought about the differences between myself and individuals from other regions of the United States." Two students *strongly agreed* with the statement, "I have thought about the similarities between myself and individuals from other regions of the United States."

Conclusions/Implications/Recommendations

A majority of the students who participated in the domestic study abroad perceive themselves as culturally competent, have had/taken opportunities to reflect about themselves and others, and are confident in their ability to understand agriculture/agricultural education across the U.S. Although it is unclear as to whether or not this is due to prior study abroad experience, coursework, or preparation for this experience, such perspectives among future agricultural teachers is encouraging. The findings suggest that these students were indeed developing the 21st century skills needed to research and explore [out of state] and developing knowledge about the culture and agriculture in [out of state]. This supports Greenhill and Petroff's (2010) assertions. Further, over half of the students felt that they would be able to teach outside of (state) given their current knowledge and skills. While teacher preparation programs hope to retain graduates within their respective states, having graduates who are comfortable with the idea of teaching elsewhere may help reduce the teacher supply issues across the country.

This particular study will be expanded to include additional qualitative and quantitative components to further explore the impact of the experience and identify changes, if any, in student beliefs and perceptions. Continued and expanded research along the lines of barriers to the profession and geographic mobility of teachers is encouraged as well.

References

Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology, 78,* 98 - 104.

Coggshall, J. G. & Sexton, S. K. (2008). Teachers on the move: A look at teacher interstate mobility policy and practice. Retrieved from: http://www.gtlcenter.org/sites/default/files/docs/NASDTECReportTeachersOnTheMove.pdf

Greenhill, V. & Petroff, S. (2010). 21st century knowledge and skills in educator preparation. Retrieved from: http://www.p21.org/storage/documents/aacte_p21_whitepaper2010.pdf

Kantrovich, A. J. (2010). *A national study of the supply and demand for teachers of agricultural education from 2006 -2009.* Morehead, KY: Morehead State University.

Kline, P. (1999). *The handbook of psychological testing* (2nd ed.). London: Routledge.

Marvel, J., Lyter, D. M., Peltola, P., Strizek, G., A., Morton, B. A., & Rowland, R. (2007). Teacher Attrition and Mobility: Results from the 2004-05 Teacher follow-up survey. U.S. Department of Education, Institute of Education Sciences. Retrieved from: http://www.eric.ed.gov/PDFS/ED495344.pdf

Russell, A. B. & Ruppert, S. S. (2001). Compendium of resources on teacher mobility. Retreived from: http://www.nga.org/files/live/sites/NGA/files/pdf/COMPENDIUM.pdf.

Thompson, Ellen (2012). *National Teach AG! Profile of Supply and Demand.* National Association of Agricultural Educators. Retrieved from: http://communities.naae.org/community/mpa/teachag