Poster Selection Process
American Association for Agricultural Education Annual Conference
May 15 - 18, 2012
Asheville, North Carolina

One hundred thirty-nine submissions were received with sixty-seven in the innovative idea category and seventy-two in the research category. The acceptance rate for innovative idea posters was 60% and research posters were 56%.

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

Anderson, Ryan	Iowa State University
Arnold, Shannon	Montana State University
Baker, Marshall	Oklahoma State University
Barrick, Kirby	University of Florida
Blackburn, Joey	Oklahoma State University
Brown, Nick	Oklahoma State University
Christiansen, James	Texas A&M University
Chumbley, Boot	Eastern New Mexico University
Clary, Cynda	New Mexico State University
Coley, Michael	North Carolina State University
Croom, Barry	North Carolina State University
Deeds, Jacque	Mississippi State University
Doerfert, David	Texas Tech
Edgar, Don	University of Arkansas
Edney, Kirk	Texas A&M University
Epler, Cory	Virginia Tech
Epps, Rebekah	University of Kentucky
Ewing, John	Pennsylvania State University
Foor, Ryan	University of Arizona
Gill, Bart	Western Illinois University
Graham, Donna	University of Arkansas
Hains, Bryan	University of Kentucky
Harbstreit, Steve	Kansas State University
Haynes, Chris	University of Wyoming
Hynes, Jim	Sam Houston State University

Irlbeck, Erica	Texas Tech
Jones, David	North Carolina State University
Kaufman, Eric	Virginia Tech
Kieth, Lance	West Texas A&M University
Killingsworth, Justin	Arkansas Tech University
Lawver, Rebecca	Utah State University
Martin, Michael	University of Missouri
Martin, Robert	Iowa State University
McKee, Katherine	Virginia Tech
McKim, Billy	Texas A&M University
Meyers, Courtney	Texas Tech University
Murphrey, Theresa	Texas A&M University
Myers, Brian	University of Florida
Parr, Brian	Auburn University
Pate, Michael	Utah State University
Paulsen, Thomas	Iowa State University
Poore, Jessica	University of Tennessee
Radhakrishna, Rama	Pennsylvania State University
Ramsey, Jon	Oklahoma State University
Rayfield, John	Texas A&M University
Rocca, Steven	California State University, Fresno
Sankey, Laura	Pennsylvania State University
Saucier, Ryan	Texas State University – San Marcos
Smith, Amy	South Dakota State University
Smith, Daniel	Mississippi State University
Spiess, Michael	California State University, Chico
Spindler, Matthew	State University of New York at Oswego
Strickland, Rochelle	University of Georgia
Swan, Ben	California Polytechnic State University
Talbert, Allen	Purdue University
Terry, Rob	Oklahoma State University
Thoron, Andrew	University of Florida
Touchstone, Allison	University of Idaho
Ullrich, Doug	Sam Houston State University
Warner, Wendy	North Carolina State University
Warnick, Brian	Utah State University
Wimmer, Gaea	Texas Tech

A New Perspective on Tomorrow's Leaders: FFA Members' Attitudes on Followership

Introduction

With all the leadership building opportunities the National FFA Organization offers, it is obvious why this group of young individuals have such a renowned reputation for being the leaders of tomorrow. Synonymous with the term leader, an FFA member as an individual is taught to strive for leadership roles and gain the knowledge and experiences to better themselves. It is important for leaders to realize and understand the needs of their followers. This study aligns with the National Research Agenda, priority area six: Vibrant, Resilient, Communities; more specifically, the focus to "encourage youth and adults to become future members and leaders of the community", (Doerfert, 2011, page 10) as it examines attitudes of students involved in the agricultural learning environment. This study will be relevant to the leadership, follower qualities, role of the follower, languages of followership, and courageous conscience aspects of an educational environment devoted to growth of individuals.

Theoretical Framework

The theoretical framework for this study is based on Kelley's idea of followership. Kelley (2008) explains his view on the importance of focusing on the follower rather than the leader, as leaders do not exist in a vacuum. The term "follower" was adopted in the 1980s. Kelley's initial article, "In Praise of Followers," moved followership discussion into the media radar. The article sights several themes in followership literature: the idea that followers and leaders are roles, not people; followers are active; followers and leaders need to share a common purpose; and the existence of a relationship between a leader and followers (Baker, 2007). Followership has been viewed negatively, as an afterthought, first focusing on the leader (Kelley, 2008). The romance of leadership and how followers have been seen as more of an output of leadership rather than an input is one concern when studying followership. Avolio, Walumbwa, and Weber state that, "leadership effectiveness is just as much a product of good followers as it is of good leaders" (2009, p. 435). Des Marais, Yang, and Farzanehkia (2000) associate the idea of leadership and service learning. They note the importance of leadership skills in youth who serve their community. They found that the idea of being a service to others plays a dominant role in teaching youth to become leaders and practice leadership skills (Des Marais, Yang, & Farzanehkia, 2000).

Methodology

This study on followership is part of a larger study directed toward [State] high school FFA members. A purposive sample of 71 high school FFA chapter members was selected. Fraenkel and Wallen (2009) state that purposive sampling is acceptable when a researcher needs a sample matching specifications essential to the study. Due to maturation and more advanced experience within the FFA Organization, only high school FFA members' attitudes toward followership were examined. A researcher designed questionnaire was developed to assess FFA members' perceptions on followership. Using

a four point Likert-type scale (1= strongly disagree, 2= disagree, 3= agree, and 4= strongly agree), FFA members rated their level of agreement with several statements related to followership. The instrument was reviewed by a panel of experts to determine content and face validity. Cronbach's alpha was calculated post hoc on Likert items and was found to be $\alpha = .87$.

Findings

The sample of high school students surveyed consisted of 46.5% male and 53.4% female, ranging in age from 14 to 18 years old. The majority of students surveyed were 17-years-old, (29.6%). Closely followed by the 16-year-old group accounted for 26.8% and the 15-year-olds accounted for 25.4%. The remaining age groups were 12.7% being 18-years-old, and the remainder 5.6% were 14-years-old. Another demographic measured, was students' years involved in the FFA Organization. Results ranged from one to four years of involvement, with students of three years of FFA experience making up over a third of the participants (39.1%). Their levels of agreement with the following statements related to followership are summarized in Table 1.

Table1.
FFA members' perceptions of followership

Items posting highest mean scores	Mean	Std. Deviation
Leaders should keep followers informed when situations change.	3.3099	.64568
Followers can think for themselves.	3.3000	.70915
Followers should speak up at meetings and share information.	3.2958	.72495
Items posting lowest mean scores		
Chapters can succeed without organized followers.	2.0286	.79803
Followers lack the knowledge to lead.	1.7571	.80642
A leader is always right.	1.7183	.67998

N = 71.

Conclusions, Implications and Recommendations

Based on the findings, it can be concluded that the students surveyed felt that followers played a significant role within their organization. This aligns with Kelley's (2008) notion that followers are active and have a purpose in an organization. FFA members agreed most with the statement that, "Leaders should keep followers informed when situations change." They most disagreed with the statement regarding followership that, "A leader is always right."

This data may provide insight to the National FFA Organization and other youth leadership organizations in regard to members' viewpoints of followership. As a leadership organization, the FFA can take the attitudes surveyed and apply the necessary education to enhance the quality leadership skills already being instilled into its members. Agriculture teachers may better understand how students prioritize the members' roles within their FFA chapter. They can also more effectively meet the needs of members in

leadership roles, helping them to realize the importance of followers thus making them better leaders.

Future research efforts should target the phenomenon of followership and its contribution to leadership theory and practice. Investigating these concepts can affect views toward followership roles. Followership theory could be enhanced from knowing the magnitude of importance youth within leadership organizations place on follower roles.

References

Avolio, B. J., Walumbwa, F. O., & Weber, T. J. (2009). Leadership: current theories, research, and future directions. *The Annual Review of Psychology*, *60*(1), 434-436. Retrieved from http://www.annualreviews.org/doi/pdf/10.1146/annurev.psych.60.110707.163621

Baker, S. D. (2007). Followership: the theoretical foundation of a contemporary construct. *Journal of Leadership & Organizational Studies*, *14*(1), 50-60. Retrieved from http://jlo.sagepub.com/content/14/1/50.short

Des Marais, J., Yang, Y., & Farzanehkia, F. (2000). Service-Learning Leadership Development for Youths. *Phi Delta Kappan, 81*(9), 678. Retrieved from EBSCOhost.

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.

Fraenkel, J. R., & Wallen, N. E. (2009). *How to design and evaluate research in education*. (7 ed.). New York, NY: McGraw-Hill Higher Education.

Kelley, R. E. (2008) Rethinking leadership. *The Art of Followership*. San Francisco: Jossey-Bass, Retrieved from <http://media.wiley.com/product_data/excerpt/53/07879966/0787996653.pdf>.

A Survey of Student SAE Project Categories and Types

Lauren Lewis
John Rayfield
Lori Moore
Texas A&M University

Agricultural Leadership, Education, and Communications
Texas A&M University
600 John Kimbrough Boulevard
MS 2116 TAMU
College Station, TX 77840-2116
979-458-7983
Lauren.lewis@agnet.tamu.edu

A Survey of Student SAE Project Categories and Types

Introduction and Need for Research

The purpose of this study was to discover the categories and types of SAE projects students participated in. Although the integrated three-component model of agricultural education (Phipps & Osborne, 1988) depicts equal emphasis on classroom instruction, SAE, and agricultural youth organization participation, SAE programs appear to be the weakest (Croom, 2008). Identified by agricultural educators, one of the factors that may decline student SAE participation is a lack of knowledge of the newer categories of SAEs (Steele, 2007; Wilson & Moore, 2007). There is no data to validate a lack of knowledge of or participation in newer SAE categories as causation in the growing decline of participation by agricultural students in SAE programs. This study aligns with priority area four of the National Research Agenda by examining the role of motivation, self-regulation, metacognition, and reflection in developing meaningful, engaged learning experiences in agricultural education contexts (Doerfert, 2011).

Theoretical Framework

The theoretical framework for SAE is rooted in experiential learning. In 1984, Kolb developed a model of experiential learning which includes four stages: (1) the concrete experience; (2) reflective observation on the concrete experience; (3) abstract conceptualization of the experience; and (4) active experimentation based on comprehension of the experience. Experiential learning in agricultural education adheres to the Kolb (1984) Model of the Experiential Learning Process as demonstrated through the experiences students encounter in and out of the classroom. Through participation in activities such as FFA career development evens and SAEs, students complete the cycle of Kolb's model by entering "active experimentation" and testing the new hypotheses and generalizations created based on their initial agricultural classroom experience.

Methodology

As a portion of a larger study, agricultural students enrolled in 120 secondary agricultural education programs, 30 per state, one state per National FFA region, were surveyed to determine the number of students that participate in SAE, types of SAEs, and the most common categories of SAEs. The study was descriptive in nature and utilized a researcher-designed questionnaire as the method of data collection. Content and face validity of the instrument were determined by an established panel of ten experts prior to a pilot study. Cronbach's Alpha was calculated to be 0.92. Thirty programs were randomly selected from each state's purposively chosen division to participate in the study. Each teacher was asked to administer the questionnaire to students who had completed at least one year of agricultural education instruction in their class with the largest enrollment. At the conclusion of the study, 52 of the 130 randomized programs (43.3% response rate) returned the questionnaire, resulting in 1,038 questionnaires completed by students (N = 1,038). Of the students who responded to the questionnaire

(N = 1,038), 45.6% (n = 473) reported having a SAE project and 53.4% (n = 554) reported not having a SAE.

Results/Findings

Students were asked to describe their SAE project(s). Researchers divided the students' responses based on the five categories of SAE as identified by the National FFA Organization (2012): exploratory, research and experimentation, placement and ownership, entrepreneurship, and improvement. An overwhelming majority of students (70.8%, n = 342) had entrepreneurship SAEs. Eighteen percent of the students surveyed (n = 87) had placement SAEs. Only a small amount of the students had exploratory (5.6%, n = 27), improvement (4.6%, n = 22), and research and experimentation (1.0%, n = 5) SAE projects.

Researchers also categorized the students' responses into SAE types. After calculating frequencies and percentages, it was found that 57.4% (n = 317) of the students' SAEs were livestock projects. Other types of SAE projects by the students surveyed were: small animals (9.1%, n = 50), turf grass management (8.2%, n = 45), agricultural mechanics (4.2%, n = 23), home and community development (4.0%, n = 22), agricultural sales and services (3.8%, n = 21), horticulture and nursery operations (3.6%, n = 20), crop, grain and/or fiber production (3.1%, n = 17), outdoor recreation (2.0%, n = 11), dairy (1.3%, n = 7), agricultural education and communications (0.7%, n = 4), agriscience research (0.7%, n = 4), aquaculture (0.7%, n = 4), wildlife management (0.5%, n = 3), veterinary science (0.4%, n = 2), agricultural processing (0.2%, n = 1), and specialty crops (0.2%, n = 1). Zero students reported having an environmental science or food science SAE project.

Conclusions

As a result of this study, it is apparent that most students with SAEs engage in the entrepreneurship category of projects. Almost a fifth of the students have SAEs considered as placement projects. The exploratory, improvement, and research and experimentation SAE project categories are hardly represented by the responses of the students.

Over half of the SAE projects reported by the students were livestock projects. The remaining percentage of projects were distributed between the following SAE project types: small animals, turf grass management, agricultural mechanics, home and community development, agricultural sales and services, horticulture and nursery operations, crop, grain and/or fiber production, outdoor recreation, dairy, agricultural education and communication, agriscience research, aquaculture, wildlife management, veterinary science, agricultural processing, and specialty crops. There were no students who had an environmental science or food science SAE project.

Implications/Recommendations

Prior research indicated that a decline in student SAE participation could be contributed to a lack of knowledge of the newer categories of SAE. This study sought to discover if students participated in the newer categories of SAE by identifying the categories and types of SAE projects students surveyed reported. It can be concluded from the results of this study that most student SAE projects center on the entrepreneurship or placement categories with a livestock emphasis. A student's lack of knowledge of newer SAE categories could be due to a lack of participation. To increase student SAE participation, agricultural educators should encourage and provide opportunities for exploratory, improvement, and research and experimentation SAEs with various types of projects related to the agricultural industry. Additional training by teacher educators focused on SAE opportunities could increase the knowledge base of current and future agricultural educators, indirectly improving the SAE knowledge students have. Further research should be conducted to identify the correlation between the categories and types of SAEs students participate in and their actual knowledge level of SAE. Also, new and innovative ways to improve SAE curriculum should be pursued by the agricultural education profession.

References

Croom, D. B. (2008). The development of the integrated three-component model of agricultural education. *Journal of Agricultural Education, 49*(1), 110-120.

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

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development.* Upper Saddle River, NJ: Prentice Hall.

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

Phipps, L. J., & Osborne, E. W. (1988). *Handbook on agricultural education in public schools.* Danville, IL: Interstate.

Steele, R. (1997). Analysis of the continuing decline in use of supervised agricultural experience (SAE) in new york state. *Journal of Agricultural Education, 38*(2), 49-58.

Wilson, E. B., & Moore, G. E. (2007). Exploring the paradox of supervised agricultural experience programs in agricultural education. *Journal of Agricultural Education, 48*(4), 82-92. Retrieved from http://www.jae-online.org/attachments/article/150/Wilson_Moore_48_4_82-92.pdf

Research

Diffusion of Social Media among County 4-H Programs in a Southern State

Rebekah D. Bowen
University of Tennessee, Knoxville
2621 Morgan Hall, 202
Knoxville, TN 37996
Phone: 865-974-7372
rbowen6@utk.edu

Dr. Carrie Ann Stephens
University of Tennessee, Knoxville
2621 Morgan Hall, 320
Knoxville, TN 37996
Phone: 865-974-7371
cfritz@utk.edu

Diffusion of Social Media among County 4-H Programs in a Southern State

Introduction

Social media has become an important form of communication to youth, with 74 percent of American teens using social networking sites and 72 percent of 18 to 29 year olds utilizing social media (Lenhart, Purcell, Smith & Zickuhr, 2010). Therefore, it is becoming increasingly important for organizations, such as the Cooperative Extension Service and the 4-H Youth Development Organization to incorporate social media into their communication networks. A recent study, however, showed that 70 percent of profiles, pages and groups that were found to represent 4-H and Extension on MySpace and Facebook were created and managed by 4-H members instead of by 4-H personnel (Rhoades, Thomas & Davis, 2009). In the past few years, the National 4-H Council has officially begun utilizing social media and encouraging its usage on a local, state and national level (National 4-H Council, 2010). This study is focused on the diffusion of social media throughout the county 4-H programs in a Southern state to analyze county use of social media.

Theoretical Framework

Since its inception in the early 1900s, the 4-H Youth Development Organization has been involved in furthering the adoption of new innovations, ranging from improved seed varieties to technologically advanced machinery (Van Horn, Flanagan & Thomson, 1998; Wessel & Wessel, 1982). In 2010, there were over six million students involved in 4-H which still seeks to help rural and urban populations adapt to the rapidly changing needs they face in today's society (National 4-H Council, 2011).

The process through which these types of innovations, as well as any other innovation, are adopted is known as diffusion (Winston, 1995). The theory of diffusion of innovations describes how a new technology is shared and adopted by different groups over a period of time based on a variety of factors (Rogers, 1983). Some of the variables that often affect the adoption of new technologies are social, political, educational, personal and economic factors of the groups or individuals who are expected to adopt the technology (Winston, 1995). While social media is very different than any type of communication medium available when Roger's devised his theory, research has shown that Roger's predictions for adoption and diffusion still hold true for social media (Liebrenz-Himes, Dyer & Shamma, 2009).

Recent research has shown that there is some diffusion of social media in county programs nationwide, including the use of blogging, video sharing (podcasts), virtual worlds (i.e. SecondLife) and other social media services (Ashton, Galloway & Bourdeau, 2010; Case & Hino, 2010; Coates, 2004; Rhoades, Thomas & Davis, 2009; Woods, 2010; Xie & Gu, 2007). While some 4-H programs are utilizing social media in a variety of ways for their programs, little is known about the widespread diffusion of official social media usage by individual county 4-H programs.

Methodology

An online survey was developed to measure the diffusion of social media by developing questions which were designed to meet five key objectives: describe the demographics of 4-H leaders; determine which counties utilize social media; describe what types of social media are utilized by county 4-H leaders; describe how these social media sites are utilized; and describe 4-H leaders perspectives towards social media use.

A nine member expert panel analyzed the survey for face and content validity. A pilot study was then conducted with male (n=4) and female (n=7) program leaders ranging in age from 27 to 63 years old. These program leaders represented each of the three Extension regions in the Southern state. Chronbach's alpha was used to measure survey reliability for all survey sections except for the demographic section and each section showed reliability above the 0.7 standard suggested by Nunnally (1978).

The survey was then distributed via listserv to county 4-H leaders in all counties in a Southern state. A total of 207 people received the survey; however, 11 of these recipients were ineligible to participate in the survey due to their participation in the pilot study. A total of 96 surveys were completed for a survey response rate of 49 percent (n=196). More importantly, surveys were received from 77 of the 95 county programs in the Southern state.

Results and Findings

Researchers found that 84 percent (n=94) of respondents utilized social media for their county 4-H programs, while an additional 14.8 percent (n=94) had considered using social media in the future. Of the 79 respondents who utilized social media for their county, 70.8 percent (n=79) reported that they used social media at least once per week to promote 4-H ideas, beliefs, activities and events to 4-H members. Social networking (i.e. Facebook, Myspace, LinkedIn, Google+, etc) was the most frequently utilized social media service, with 74.4 percent (n=78) of respondents using one or more social networking sites at least once per week.

Social networking and other social media services were utilized in a combination of ways, with approximately 70 percent (n=79) of respondents using social media for direct communication (i.e. Facebook messages, Twitter direct messages, Twitter @ replies, etc.) and in-direct communication (i.e. posting to a 4-H group, sharing information via Twitter or Facebook status updates, etc.) with 4-H members. In addition, over 60 percent (n=79) of respondents utilized social media for direct and in-direct communication with adults 4-H leaders and volunteers and for sharing with general audiences.

Participants indicated that they somewhat disagreed (m=3.76, sd=1.58) that 4-H members are satisfied with their county's usage of social media. Likewise, they somewhat disagreed (m=3.76, sd=3.93) that they were personally very satisfied with their county program's usage of social media.

Conclusions

The results of this study show that a majority of respondents utilize social media on a weekly basis. Only one respondent indicated he or she had not at least considered using social media for their county. Additionally, respondents reported they utilize social media for direct and in-direct communication with 4-H members and adult 4-H leaders and volunteers. They primarily utilize social networks (i.e. Facebook, MySpace or Google+) for their county program, but are also beginning to utilize other types of social media services including photo and video sharing. Additionally, only a small percentage indicated that they were satisfied with their current usage of social media. This shows that there is a widespread desire to utilize social media more effectively to communicate with 4-H members throughout counties in a Southern state.

Implications\Recommendations

The findings of this study support the importance of social media for communicating and engaging with youth populations, as well as the effectiveness of utilizing social media for Extension and 4-H communications. The acceptance of social media by agents creates opportunities for developing more effective training programs through Extension to help county 4-H personnel learn to better engage with their youth members using new social media tools, in addition to Facebook, YouTube, Twitter and other more commonly used sites. The findings also indicate that social media could potentially provide an effective method of communication with other adult and youth groups, such as the National FFA Organization.

References

Ashton, C., Galloway, R. & Bourdeau, V. (2010). Can blogging benefit staff & youth in 4-H camp programs?. *Journal of Extension*, *48*(4). Retrieved from http://www.joe.org/joe /2010august/iw6.php

Case, P. & Hino, J. (2010). A powerful teaching tool: self-produced videos. *Journal of Extension*, 48(1). Retrieved from http://www.joe.org/joe/2010february/tt3.php

Coates, D. (2004). Weblogs as a disruptive technology for extension. *Journal of Extension*, *42*(3). Retrieved from http://www.joe.org/joe/2004june/comm1.php

Lenhart, A., Purcell, K., Smith, A. & Zickuhr, K. (2010). Social media & mobile internet use among teens and young adults. *Pew Internet and American Life project*. Retrieved from http://pewresearch.org/pubs/1484/social-media-mobile-internet-use-teens-millenials-fewer-blog.

Liebrenz-Himes, M. L., Dyer, R. F., & Shamma, H. M. (2009). Diffusion of innovations as illustrated by today's social media explosion: did Rogers know best? In R. A. Hawkins (Ed.), *14th Bienniel Conference on Historical Analysis and Research in Marketing: Vol. 14* (pp. 37-38). Leicester, United Kingdom: CHARM Association.

National 4-H Council (2010). *4-H.org.* Retrieved from www.4-h.org

Nunnally, J. C. (1978). *Psychometric theory (2nd ed.)*. New York, NY: McGraw-Hill.

Rhoades, E., Thomas, J. R. & Davis, A. (2009). Social networking among youth: how is 4-H represented?. *Journal of Extension, 47* (5). Retrieved from http://www.joe.org/joe /2009october/a6.php

Rogers, E. M. (1983). *Diffusion of innovations* (3rd ed.). New York, NY: The Free Press.

Van Horn, B. E., Flanagan , C. A., & Thomson, J. S. (1998). The first fifty years of the 4-h program. *Journal of Extension*, *36*(6). Retrieved from http://www.joe.org/joe/ 1998december/comm2.php

Wessel, T. & Wessel, M. (1982). *4-H: an American idea 1900-1980*. Chevy Chase, MD: National 4-H Council.

Winston, B. (1995). How are media born and developed? In J. Downing, A. Mohammadi & A. Sreberny-Mohammadi (Eds.), *Questioning the media: A critical introduction* (pp. 54-74). Thousand Oaks, CA: SAGE Publications.

Woods, K. (2010). Engaging emerging populations of adults with interactive activities in a 3d virtual learning environment. *Journal of Extension*, *48*(5), Retrieved from http://www.joe.org/joe/2010 october/a3.php

Xie, K., & Gu, M. (2007). Advancing cooperative extension with podcast technology. *Journal of Extension*, *45*(5). Retrieved from http://www.joe.org/joe /2007october/tt2.php

Agricultural Education's Performance in Educating about Science

Adam A. Marx
121 Gentry Hall
Columbia, MO 65211
(937) 726-1814
aamgd4@mail.missouri.edu
adam.a.marx@gmail.com

Dr. Jamie Cano
212 Ag Admin Building
Columbus, Ohio 45210
(614) 292-6321
cano.1@osu.edu

Agricultural Education's Performance in Educating about Science

Introduction

A common way to capture student interest in science is often by reference to examples in the real world (National Research Council, 1988). Teachers of both science and agricultural education from across the country have agreed that agricultural education is an applied science and an appropriate venue to help students understand science (Balschweid & Thompson, 2002; Warnick, Thompson, & Gummer, 2004). Research in agricultural education (Chiasson & Burnett, 2001; Connors & Elliot, 1995; Ricketts, Duncan, & Peake, 2006; Roegge & Russell, 1990) supports the significant impact the integration of science material and science constructs in the agricultural education classroom has on student performance. The purpose of the study was to describe the relationship between passage rate of the science subject portion of the [State Test] and concurrent high school student enrollment in agricultural education courses.

Theoretical Framework

The researchers formed the foundation of this study from previous research within the profession and assumptions of practitioners on the applications of science in agricultural education. "All students need an understanding of basic science concepts. Teaching science through agriculture incorporates more agriculture into the curricula, while more effectively teaching science" (National Research Council, 1988, p. 11). Sparace and Layfield (2003) reported that agricultural teachers were in a strategic position to positively impact the science education of our young citizens. Students are better able to assimilate and practice higher order cognitive skills in agricultural education when biological and physical sciences are infused into the curriculum (Ellibee, 1999). Budke (1991) acknowledged that agriculture provided the ideal setting for demonstrating and applying biological and physical science principles. Furthermore, Kirby (2002) postulated that students enrolled in agriscience programs will be more efficient and effective processors [because of their applied science experience].

Methodology

This correlational study, examined [State Test] test results for high school sophomores (n=295) during the academic years of 2005-2006 and 2006-2007 and their enrollment or non-enrollment in agricultural education courses at two northwestern [State] high schools. Students who were enrolled in agricultural education courses during the sampled years of 2005-2006 and 2006-2007 were separated from their peers who were not enrolled in such courses during that time. A comparison of the overall passage rate of the science portion of the [State Test] in the initial testing period was made between the two subsets.

Findings/Conclusions

Results for the objectives researched revealed that for the schools and students of this study, agricultural education students performed as well or better as a subset on the science portion of the [State Test] as compared to those students who were not enrolled in agricultural education courses. More significantly, in analyzing the resulting passage rate of the 295 students' data included in this study; 111 (37.6%) were agricultural education students and 98 (88.3%) of those students achieved a passing score on the science portion of the [State Test] on their first attempt. Thirteen (11.7%) agricultural education students did not pass the science portion of the [State Test] on their first attempt. There were 184 (62.3%) applicable data sets of students who were not enrolled in agricultural education courses in the selected schools. Of those, 142 (77.2%) students achieved a passing score on the science portion of the [State Test] on their first attempt. Conversely, 42 (22.8%) students within that group did not pass the science portion of the [State Test] on their first attempt.

A Two-Way Chi Square was used to analyze the significance between student enrollment or non-enrollment in agricultural education and the rate at which those students passed the science portion of the [State Test] on their first attempt. An alpha level of 0.05 was set for the Chi Square test. The Two-Way Chi Square test was determined to be significant with a result of .018. The results of the Two-Way Chi Square calculated to 88.3% of agricultural education students passing on their first attempt of the science portion of the [State Test] and 77.2% of non-agricultural education students passing the science portion of the [State Test] on their first attempt. Agricultural education students passed the science portion of the [State Test] at an 11.1% higher rate than non-agricultural education students. Table 1 outlined these findings.

[State Test] Test Performance	**Agricultural Education Enrollment**	
	Yes	**No**
Pass on First Attempt	98—88.3%	142—77.2%
Not Pass on First Attempt	13—11.7%	42—22.8%
Chi-Square Sig.	.018	

Table 1. Independence of agricultural education enrollment and passage of science test

Implications/Recommendations

An understanding of students' performance on a standardized test such as the [State Test], as related to their enrollment in agricultural education courses could help further the expansion of agriculture programs throughout the country. Doing so could further justify the legitimacy of agricultural education programs as a well-rounded academic and student experience. Future studies evaluating a larger population of students should be performed to discover if there are consistent relationships between student enrollment in agricultural education courses and their subsequent performance on standardized science evaluations. Collecting and analyzing existing student data from other schools for future

replicated studies could prove to be rewarding for the profession and must be completed. School systems that offer agricultural education need to embrace the science-based curriculum that is disseminated in their agricultural education classrooms and encourage participation in those programs. Agricultural education programs are a value-added component to our student's education because of the applicatory nature of the material taught, especially science. Departments of Education staff and agricultural education teachers need to continue to align the standards and curriculum of agricultural education with that of the general sciences to ensure the most important benchmarks are reached without compromising the applied nature of the agricultural education classroom.

References

Balschweid, M.A. & Thompson, G.W. (2002). Integrating science in agricultural education: Attitudes of Indiana agricultural science and business teachers. *Journal of Agricultural Education, 43*(2), 1-10. DOI: 10.5032/jae.2002.02001.

Budke, W. E. (1991). Agricultural science – Striving for excellence. *The Agricultural Education Magazine*, 63(7), 4, 11.

Chiasson, T. C. & Burnett, M. F. (2001). The influence of enrollment in agriscience courses on the science achievement of high school students. *Journal of Agricultural Education*, 42(1), 61-71.

Connors, J. J. & Elliot, J. F. (1995). The influence of agriscience and natural resources curriculum on students' science achievement scores. *Journal of Agricultural Education,* 36(3), 57-63.

Ellibee, M. A. (1989). Expanding the focus of agricultural education curriculum. *Proceedings of the Central States Seminar in Agricultural/Agribusiness Education.* 49-53.

Kirby, B. M. (2002). Science in the agricultural education curriculum. *The Agricultural Education Magazine*, 74(5), 4.

National Research Council. (1988). *Understanding Agriculture: New Directions for Education*. National Academy Press. Washington, DC.

Ricketts, J.C., Duncan, D.W., & Peake, J.B. (2006). Science achievement of high school students in complete programs of agriscience education. *Journal of Agricultural Education, 47*(2), 48-55. DOI: 10.5032/JAE.2006.02048.

Roegge, C.A. & Russell, E.B. (1990). Teaching applied biology in secondary agriculture: Effects on student achievement and attitudes. *Journal of Agricultural Education, 31*(1), 27-31. DOI: 10.5032/jae.1991.01027.

Sparace, S. A., & Layfield, K. D. (2003). Embracing the role of science in agriculture. *The Agricultural Education Magazine,* 76(1), 24-25.

Vaughn, P. R. (1993). Teaching agriscience: A few cautions. *The Agricultural Education Magazine,* 66(4), 4.

Warnick, B.K., Thompson, G.W. & Gummer, E.S. (2004). Perceptions of science teachers regarding the integration of science into the agricultural education curriculum. *Journal of Agricultural Education, 45*(1), 62-73.

Agriculture at Eleven:
Visual Rhetoric and News Media Portrayals of Agriculture

Annie R. Specht (graduate student)
Department of Agricultural Leadership, Education & Communications
Texas A&M University
600 John Kimbrough Blvd.
2116 TAMU
College Station, TX 77843-2116
Ph: 979-862-3015
Email: aspecht@ tamu.edu

Dr. Tracy Rutherford
Department of Agricultural Leadership, Education & Communications
Texas A&M University
600 John Kimbrough Blvd.
2116 TAMU
College Station, TX 77843-2116
Ph: 979-458-2744
Email: rutherford@tamu.edu

Amy L. Dromgoole (graduate student)
Department of Agricultural Leadership, Education & Communications
Texas A&M University
600 John Kimbrough Blvd.
2116 TAMU
College Station, TX 77843-2116
Ph: 979-458-4227
Email: amy.dromgoole@tamu.edu

Agriculture at Eleven:
Visual Rhetoric and News Media Portrayals of Agriculture

Introduction

Though America's agriculture industry has been credited with providing a safe, abundant food supply for its constituents, the volume and efficiency of its production methods have raised ethical questions related to the care of livestock. Images of practices such as confinement housing for laying hens and pregnant sows and the slaughter of calves for veal, picked up and distributed by major news networks, have had a huge influence on the way in which Americans view the industry and producers providing their food and fiber (Nocera, 2008; Cima, 2009). These videos, at their core, are textbook examples of visual rhetoric: images that prompt such strong emotional reactions that they are capable of overriding rational thought (Hill, 2004).

Theoretical Framework

Visual rhetoric, or the persuasive use of symbols, expands upon a field traditionally associated with verbal communication: the creation of meaning and construction of arguments (Bulmer & Buchanan-Oliver, 2006). Rhetoric, once linked almost exclusively to words, now encompasses visual artifacts, the symbols that constitute a pervasive, non-discursive language that borrows from traditional methods and is used to persuade (Bulmer & Buchanan-Oliver, 2006; Foss, 2004; Hocks, 2003; Scott, 1994). With the advent of television, visual symbols may be used as "image bites" capable of constructing arguments in much the same way that sound bites operate (Bucy & Grabe, 2007; Schill, 2008). "Image events," or staged opportunities for gathering powerful visual material, are part of Osborn's (1986) concept of "depictive rhetoric…strategic pictures, verbal or nonverbal visualizations that linger in the collective memory of audiences as representative of their subjects" (p. 79; Edwards, 2004).

Purpose and Objectives

Researchers have long studied the rhetorical effects of photojournalism, but little literature exists related to the impact of "image bites" in the context of television news packages. This study addresses the 2011-2015 National Research Agenda Priority 1: Public and Policy Maker Understanding of Agriculture and Natural Resources. The purpose of this study is to describe the impact of televised images on students' perceptions of a broadcast news story about agriculture. The objectives of the study are:

1. For respondents to identify potential story topics story based solely on images; and
2. To describe respondents' affective responses to those images.

Methodology

To accomplish those objectives, students enrolled in two agricultural communications courses at a large southwestern public university were shown a series of still images taken from a broadcast news story (Couric, 2010) about antibiotic use in livestock production. The activity constituted part of a class exercise on visual communication. After viewing these images, the students were asked to identify the subject of the news

story based on what they had seen. They were also asked to explain why they selected that subject. Discussion of the photos was led by the instructor in one class and recorded. Data were collected with both paper and online versions of the same questionnaire, as well as transcribed from audio recordings of class discussion. These responses were grouped into categories to form typologies of possible topics for the news feature and affective responses to the images.

Findings

The survey yielded 91 usable questionnaires. Eighty-nine respondents answered the open-ended question "After viewing the images, what do you believe is the topic of this broadcast feature?" Six categories emerged from a content analysis: *animal cruelty*, *animal housing*, *slaughter*, *factory farming*, *animal care and/or welfare*, and *the swine industry*. Of the 89 responses, 34.8% (n = 31) related to animal cruelty or mistreatment ("mistreatment of animals/neglect"); 20.2% (n = 18) related to animal housing ("The conditions that farming animals live in and the methods used to feed/house them"); 19.1% (n = 17) related to livestock slaughter ("How pigs are slaughtered for food"); 14.6% (n = 13) related to animal care and welfare ("The care of pigs and their well-being"); and 5.6% (n = 5) related to factory farming ("mass production of pork") and the swine industry ("pig farms"), respectively.

Eighty-eight participants described their affective response to the videos. Twenty respondents (22.7%) indicated that they were *indifferent* about the images ("It's the circle of life. We have to eat. I am neutral"). Eighteen respondents (20.5%) described their reactions as *negative* ("I am very against animal abuse"). Fifteen respondents (17.0%) indicated that the images made them *sad or depressed* ("I feel sad for the pigs"), and the same number felt that the images were *necessary* to uncovering abuse and improving animal treatment ("Proper care needs to be enforced immediately"). Twelve respondents (13.6%) believed the images were *biased* ("I feel like that the media has a very biased viewpoint towards the slaughter industry"), while 8 respondents (9.0%) *wanted to learn more* about the subject based on the images ("I am interested in the real treatment of animals in the food industry and I'd like to know more").

Conclusions

Based solely on images taken from the broadcast, no respondents were able to correctly determine that the story's topic was antibiotic use in animal agriculture. To the respondents, the images best corresponded to the subjects of animal abuse or mistreatment, animal housing, slaughter, and factory farming, indicating that the images used in the segment had little connection to the actual topic of the story. More than one-third of respondents reported negative or unhappy feelings toward the agriculture industry after viewing the images, while a significant number believed the images were one-sided or necessitated further inquiry.

Implications and Recommendations

Because of the growing knowledge gap between agriculturalists and those not involved in the food and fiber industry, attention must be paid to visual representations of agriculture in mass media. Broadcast news outlets often use images that will garner maximum

attention, even when those images do not pertain to the subject at hand, and audiences with little agricultural knowledge may have difficulty determining the credibility or appropriateness of those visuals. Agricultural communicators must attend to popular media coverage of industry news and be willing to engage with journalists and editors to push for fairer depictions of agriculture. Further research into the visual elements of news coverage of agriculture will increase understanding of how those images impact audience's short- and long-term perceptions of the industry.

References

Bucy, E. P., & Grabe, E. (2007). Taking television seriously: A sound and image bite analysis of presidential campaign coverage, 1992-2004. *Journal of Communication, 57*, 652-675.

Bulmer, S., & Buchanan-Oliver, M. (2006). Visual rhetoric and global advertising imagery. *Journal of Marketing Communications, 12*(1), 49-61.

Cima, G. (2009). HSUS calls for more rules after calf abuse allegations. *Journal of the American Veterinary Medical Association, 235*(12), 1394.

Couric, K. (2010, February 10). Animal antibiotic overuse hurting humans? Retrieved from http://www.cbsnews.com/stories/2010/02/09/eveningnews/main6191530.shtml

Edwards, J. L. (2004). Echoes of Camelot: How images construct cultural memory through rhetorical framing. In C. A. Hill and M. Helmers (Eds.) *Defining Visual Rhetorics* (pp. 179-194). Mahwah, NJ: Lawrence Erlbaum.

Foss, S. K. (2004). Framing the study of visual rhetoric: Toward a transformation of rhetorical theory. In C. A. Hill and M. Helmers (Eds.) *Defining Visual Rhetorics* (pp. 303-313). Mahwah, NJ: Lawrence Erlbaum.

Hill, C. A. (2004). The psychology of rhetorical images. In C. A. Hill & M. Helmers (Eds.) *Defining Visual Rhetorics* (pp. 25-39). Mahwah, NJ: Lawrence Erlbaum.

Hocks, M. E. (2003). Understanding visual rhetoric in digital writing environments. *College Composition and Communication, 54*(4), 629-656.

Nocera, J. (2008, March 8). A case of abuse, heightened. *The New York Times*. Retrieved from http://www.nytimes.com

Osborn, M. M. (1986). Rhetorical depiction. In H. W. Simons and A. Aghazarian (Eds.) *Form, Genre, and the Study of Political Discourse* (pp. 79-107). Columbia, SC: University of South Carolina Press.

Schill, D. (2008). Finding a place for visual communication in the study of political communication. Paper presented at the 2008 International Communication Association Annual Convention, Montreal, Canada.

Scott, L. M. (1994). Images in advertising: The need for a theory of visual rhetoric. *The Journal of Consumer Research, 21*(2), 252-273.

An Analysis of Student SAE Recordkeeping Practices

Lauren Lewis
John Rayfield
Lori Moore
Texas A&M University

Agricultural Leadership, Education, and Communications
Texas A&M University
600 John Kimbrough Boulevard
MS 2116 TAMU
College Station, TX 77840-2116
979-458-7983
Lauren.lewis@agnet.tamu.edu

An Analysis of Student SAE Recordkeeping Practices

Introduction and Need for Research

This study examined student recordkeeping practices related to their Supervised Agricultural Experience (SAE) projects. Although the integrated three-component model of agricultural education (Phipps & Osborne, 1988) depicts equal emphasis on classroom instruction, SAE, and agricultural youth organization participation, SAE programs appear to be the weakest (Croom, 2008). Identified by agricultural educators, one of the factors that may decline student SAE participation is complicated recordkeeping (Steele, 2007; Wilson & Moore, 2007). There is no research data to validate complicated recordkeeping as causation in the growing decline of participation by agricultural students in SAE programs. According the American Association for Agricultural Education's National Research Agenda (Doerfert, 2011), this study aligns with priority area four by examining the role of motivation, self-regulation, metacognition, and reflection in developing meaningful, engaged learning experiences in agricultural education contexts.

Theoretical Framework

The theoretical framework for SAE and record keeping is rooted in experiential learning. In 1984, Kolb developed a model of experiential learning which includes four stages: (1) the concrete experience; (2) reflective observation on the concrete experience; (3) abstract conceptualization of the experience; and (4) active experimentation based on comprehension of the experience. Experiential learning in agricultural education adheres to the Kolb (1984) Model of the Experiential Learning Process as demonstrated through the experiences students encounter in and out of the classroom. Through participation in SAEs, record keeping could be viewed as the reflective observation of accounting or farm business management techniques.

Methodology

As a portion of a larger study, agricultural students enrolled in 120 secondary agricultural education programs, 30 per state, one state per National FFA region, were surveyed to describe student use of SAE recordkeeping. The study was descriptive in nature and utilized a researcher-designed questionnaire as the method of data collection. Content and face validity of the instrument were determined by an established panel of experts prior to a pilot study. Cronbach's Alpha was calculated to be 0.92. Thirty programs were randomly selected from each state's purposively chosen division to participate in the study. Teachers were asked to administer the questionnaire to students who had completed at least one year of agricultural education instruction in their class with the largest enrollment. At the conclusion of the study, 52 of the 130 randomized programs (43.3% response rate) returned the questionnaire, resulting in 1,038 questionnaires completed by students (N = 1,038). Of the students who responded, 45.6% (n = 473) reported having a SAE project and 53.4% (n = 554) reported not having a SAE.

Results/Findings

Students with a SAE were asked to identify the type of record book they use for their project (N = 473). Frequencies and percentages were calculated to determine the most common and least common record book types used by students with a SAE. More than half of the students responded that they use a paper-based record book for their SAE project (59.2%, n = 262). Computer-based record books were used by 21.2% of the students (n = 94). Web-based record books were used for SAE projects by 10.8% of the students surveyed (n = 48). Only 8.8% (n = 39) of the students surveyed said they did not use a record book for their SAE project.

Additionally, students with a SAE were also asked to identify how often they update their SAE record book (N = 473). Frequencies and percentages were calculated to determine the most common time frame that students update their SAE record book. One-third of the students reported that they update their record book on a monthly basis (33.7%, n = 148). One fourth of the students reported that they update their record book on a weekly basis (25.1%, n = 110). The number of students who update their record book daily was only 13.2% (n = 58). It was found that 6.8% (n = 30 of students update their record book once a semester and 6.6% (n = 29) only update their record book once a year. Five percent of the students surveyed update their record book once a six-week period (n = 22). Almost one tenth of the students surveyed (9.8%, n = 43) reported that they never update their record book.

Finally, all students in the study were asked whether their record book and SAE were included as a part of their grade in agricultural education courses (N = 899). A large number of students reported that their record book and SAE were not included as a part of their grade in agricultural education courses (43.6%, n = 392). However, over half of the students reported that their record book and SAE were included as a part of their grade in agricultural education courses (56.4%, n = 507).

Conclusions

According to the students in this study, the most common type of record book used for SAE projects across the board is paper-based. The next most common type of record book used by students for SAE projects is computer-based. Web-based record books are currently only used by about 10% of the students surveyed. A small portion of the students reported that they did not use a record book at all for their SAE project It was also found that students most commonly tend to update their record books on a weekly or monthly basis, while other students update their record book daily, once a 6-week period, once a semester, or once a year. Almost 10% of the students surveyed said that they never update their record book. Looking at the assignment of a grade to students' record books and SAE in agricultural education courses, more than half of the students surveyed reported receiving a grade. Approximately 43% of students surveyed, however, do not receive a grade in their agricultural education courses for their record book and SAE.

Implications/Recommendations

One assumption of prior research is that complicated recordkeeping can deter students from participating in SAE programs. With the results of this study, the agricultural education profession has a better glance at student recordkeeping practices. In order to simplify recordkeeping for students, agricultural educators can encourage more use of computer or web-based record books and more frequent updates of records. The use of this technology for recordkeeping can remove obstacles, confusion, and errors often experienced with paper-based record books. Teacher education programs and state staff should begin training current and future teachers in the use of new recordkeeping technology to disseminate to students. It may also prove beneficial for more agricultural educators to include a student's record book and SAE as a part of their grade in agricultural courses to encourage SAE participation.

References

Croom, D. B. (2008). The development of the integrated three-component model of agricultural education. *Journal of Agricultural Education, 49*(1), 110-120.

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

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development.* Upper Saddle River, NJ: Prentice Hall.

Phipps, L. J., & Osborne, E. W. (1988). *Handbook on agricultural education in public schools.* Danville, IL: Interstate.

Steele, R. (1997). Analysis of the continuing decline in use of supervised agricultural experience (SAE) in new york state. *Journal of Agricultural Education, 38*(2), 49-58.

Wilson, E. B., & Moore, G. E. (2007). Exploring the paradox of supervised agricultural experience programs in agricultural education. *Journal of Agricultural Education, 48*(4), 82-92. Retrieved from http://www.jae-online.org/attachments/article/150/Wilson_Moore_48_4_82-92.pdf

Research Poster

An Assessment of the Perceived Needs and Competencies of Florida Agriculture Teachers

Christopher M. Estepp
310 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
(352) 273-2614
cestepp@ufl.edu

Andrew C. Thoron
407 Rolfs Hall
Gainesville, FL 32611
athoron@ufl.edu

T. Grady Roberts
307B Rolfs Hall
Gainesville, FL 32611
groberts@ufl.edu

An Assessment of the Perceived Needs and Competencies of [state] Agriculture Teachers

Introduction/Theoretical Framework

Barrick, Ladewig, and Hedges (1983) posited that secondary teachers of agriculture have a desire for continuing professional development, and that providing this professional development is an important component of the responsibilities of teacher educators. Assessing teachers' needs is a vital step in the process of creating professional development activities (Newman & Johnson, 1994). As a result, teacher educators should provide agriculture teachers an opportunity to communicate their needs, and subsequently deliver professional development training based on the indicated needs.

Roberts and Dyer (2004) stated that research methodology has typically been the most widely used way to determine teachers' professional development needs, and many investigations into the professional development needs of agriculture teachers have been conducted. Previous research has found that writing grants, modifying curricula to keep pace with technology, designing courses to help recruit students (Washburn, King, Garton, & Harbstreit, 2001), teaching with computers, preparation of FFA degree applications, teaching with multimedia equipment, preparation of proficiency awards, and teaching record-keeping (Layfield & Dobbins, 2002) have been areas where agriculture teachers desire professional development. Additional studies found that student motivation, public relations, integrating science into teaching, utilizing advisory councils, creating opportunities for Supervised Agricultural Experience (SAE) programs, supervising SAE programs, completing paperwork for administrators, and classroom management have also been perceived needs of teachers (Garton & Chung, 1996; Joerger, 2002). However, Roberts and Dyer submitted that teachers' professional development needs change over time and must be periodically revisited.

The theory that guided this study was the *Theory of Planned Behavior* (Ajzen, 1985), which states that an individual's perceived behavioral control and attitude toward a behavior will guide that individual's subsequent actions and behaviors. In the context of this study, attitude toward a behavior was represented by secondary agriculture teachers' perceived relevance of specific professional development needs areas, while agriculture teachers' perceived behavioral control was represented by their perceived knowledge of the same professional development needs areas.

Priority area five of the *National Research Agenda* (Doerfert, 2011) stated that research should be conducted that helps develop "efficient and effective agricultural education programs" (p. 10). Therefore, the purpose of this study was to investigate [state] agriculture teachers' perceived needs and competencies pertaining to professional

development, in order to more accurately and effectively plan professional development activities.

Methods

The population for this study consisted of a census of the secondary agriculture teachers in [state]. The current state directory of teachers was used as the sampling frame. The instrument was administered online using Qualtrics, and follow-ups were made through personal contacts at a state-wide conference, which yielded a response rate of 54%.

The survey instrument used in this study was created by the researchers utilizing the Borich (1980) Needs Assessment Model. The Borich model measures participants' perceived knowledge about an item, as well as the participants' perceived relevance of that item. A Mean Weighted Discrepancy Score (MWDS) is calculated for each item, which indicates the participants' level of need. According to Borich, a negative MWDS suggests a low need for training on a particular item, while a positive score indicates participants require training. Furthermore, the closer to zero a MWDS is, the less the magnitude of the need.

To construct the instrument, a search of the literature was conducted to help identify possible professional development need categories. Once the list of need areas was compiled, the researchers narrowed the list down by removing duplicate items and items that were deemed irrelevant for the specific group of teachers. The final instrument contained 79 items that represented the total agriculture program management.

Results

Results of the study revealed that the areas in which agriculture teachers most desired professional development were *managing stress* (MWDS = 4.33, n = 184), followed by *balancing work and personal life* (MWDS = 4.11, n = 183), *preparing students for industry certifications* (MWDS = 3.91, n = 190), *managing time* (MWDS = 3.35, n = 184), *repairing and reconditioning agricultural tools and equipment* (MWDS = 3.25, n = 184), and *teaching problem solving skills* (MWDS = 3.02, n = 193). Another finding was that the items concerning specific technical agricultural content all had low Mean Weighted Discrepancy Scores (MWDS .21 to 1.54), which indicated that teachers perceive a low need for professional development in these areas. However, interestingly, teachers tended to place the lowest relevance on the technical content areas where they possessed the lowest knowledge, while they placed the highest relevance on content areas where they possessed the greatest knowledge.

Recommendations/Implications

While previous studies have found that teachers desire professional development in the areas of technology use, preparing awards and proficiency applications, and classroom related issues, the participants in this study indicated a need for professional development in areas pertaining to *personal issues*. One recommendation from this study is that more

professional development activities focusing on helping teachers manage their career/personal life balance should be explored. Additionally, further research should be conducted to determine what stressors agriculture teachers are experiencing and if this is a pervasive problem in other states.

Another issue raised by this study is that, because teachers indicated low needs in some areas deemed important by teacher educators and others, perhaps teachers have little knowledge, and therefore do not recognize the relevance of these issues. Future inquiries should address the problem of figuring out how to change teachers' perceptions of what needs are relevant for the profession.

References

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckman (Eds.), *Action-control: From cognition to behavior* (pp. 11-39). Heidelberg: Springer.

Barrick, R. K., Ladewig, H. W., & Hedges, L. E. (1983). Development of a systematic approach to identifying technical inservice needs of teachers. *Journal of the American Association of Teacher Educators in Agriculture, 24*(1), 13-19. doi: 10.5032/jaatea.1983.01013

Borich, G. D. (1980). A needs assessment model for conducting follow-up studies. *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.

Garton, B. L., & Chung, N. (1996). The inservice needs of beginning teachers of agriculture as perceived by beginning teachers, teacher educators, and state supervisors. *Journal of Agricultural Education, 37*(3), 52-58. doi: 10.5032/jae.1996.03052

Joerger, R. M. (2002). A comparison of the inservice education needs of two cohorts of beginning Minnesota agricultural education teachers. *Journal of Agricultural Education, 43*(3), 11-24. doi: 10.5032/jae.2002.03011

Layfield, K. D., & Dobbins. (2002). Inservice needs and perceived competencies of South Carolina agricultural educators. *Journal of Agricultural Education, 43*(4), 46-55. doi: 10.5032/jae.2002.04046

Newman, M. E., & Johnson, D. M. (1994). Inservice education needs of teachers of pilot agriscience courses in Mississippi. *Journal of Agricultural Education, 35*(1), 54-60. doi: 10.5032/jae.1994.01054

Roberts, T. G., & Dyer, J. E. (2004). Inservice needs of traditionally and alternatively certified agriculture teachers. *Journal of Agricultural Education, 45*(4), 57-70. doi: 10.5032/jae.2004.04057

Washburn, S. G., King, B. O., Garton, B. L., & Harbstreit, S. R. (2001). A comparison of the professional development needs of Kansas and Missouri teachers of agriculture. *Proceedings of the 28th National Agricultural Education Research Conference,* 396-408.

Research Poster

2012 AAAE Conference

An Investigation of Mathematics Coursework Requirements of Agricultural Teacher Education Programs

Christopher T. Stripling, Graduate Assistant
T. Grady Roberts, Associate Professor
University of Florida

PO Box 110540
Gainesville, FL 32611-0540

352-273-3425
cstripling@ufl.edu
groberts@ufl.edu

An Investigation of Mathematics Coursework Requirements of Agricultural Teacher Education Programs

Introduction/Need for Research

In 1988, the National Research Council recommended that agricultural education should become more than just a vocational discipline, emphasizing the core academic aspects within agriculture. As a result, agriscience has been emphasized in numerous school-based agricultural education programs (Phipps, Osborne, Dyer, & Ball, 2008). With the growing emphasis on core academic connections, the mathematics requirements of agricultural teacher education programs "may need to be increased to meet the demands of interdisciplinary instruction" (Jansen & Thompson, 2008, p. 26). According to the Michigan State University Center for Research in Mathematics and Science Education (2010), preservice teachers in the United States receive weak preparation in mathematics and are ill-prepared to teach a demanding mathematics curriculum. Supporting the Michigan State University Center for Research in Mathematics and Science Education's claims, agricultural education research has shown that preservice agricultural education teachers are not proficient in mathematics (Miller & Gliem, 1996; Stripling & Roberts, 2011). Therefore, this study will further examine this issue by describing the mathematics coursework requirements of agricultural teacher education programs. Additionally, this study will describe the types of mathematics courses completed by preservice teachers.

Theoretical Framework

The theoretical framework for this study was Darling-Hammond and Bransford's (2005) "framework for understanding teaching and learning" (p. 11). In this framework Darling-Hammond and Bransford (2005) proposed three general areas of knowledge teachers should acquire: (a) "knowledge of learners and their development in social context" (p. 11), (b) "knowledge of subject matter and curriculum goals" (p. 11), and (c) "knowledge of teaching" (p. 11). This study focused on the knowledge of subject matter; more specifically, mathematics subject matter knowledge.

Methodology

This inquiry was part of a larger study that investigated the mathematics ability of the nation's preservice agricultural education teachers (Authors, in press). Based on the objectives of the larger study, agricultural teacher education programs were randomly selected until an adequate number of teacher education programs agreed to participate to meet the predetermined needed sample size of 89 preservice teachers. Israel (1992) indicated that a sample size of 89 was needed for a population of 800, a ±10% precision level, and a 95% confidence level. The population size of the nation's preservice agricultural education teachers was determined using Kantrovich's (2007) agricultural education supply and demand study. The random sample consisted of nine teacher education programs and 98 preservice agricultural education teachers, 61 females and 34

males (three preservice teachers did not provide this data). Data for this portion of the study, were collect using two surveys created by the researchers. The first survey required an agricultural teacher educator at the selected teacher education programs to provide their program's minimum mathematics coursework requirements. The second survey required all preservice teachers in the final year of the selected teacher education program to provide the mathematics courses they successfully completed in college. The types of mathematics courses required by the teacher education programs and the types of mathematics courses completed in college by the preservice teachers were categorized into basic, intermediate, and advanced mathematics by a mathematics expert. The mathematics expert categorized algebra, algebra II, college algebra, nature of mathematics, and math appreciation as basic mathematics, trigonometry, pre-calculus, and statistics as intermediate mathematics, and calculus as advanced mathematics.

Results

Sixty-seven percent of the agricultural teacher education programs in this study required basic mathematics coursework, and 33% required intermediate mathematics coursework. The actual types of course completed by the preservice teachers in college differed from the teacher education program minimum requirements. Forty-six percent of the preservice teachers completed a basic mathematics course as their highest mathematics course, 36% completed an intermediate mathematics course as their highest mathematics course, 15% completed an advanced mathematics course as their highest mathematics course, and 3% had not completed a mathematics course since high school. Also, 51% of preservice teachers completed courses at or above the intermediate level.

Conclusions

A majority of the agricultural teacher education programs in this study require basic mathematics as their minimum mathematics requirements, even though National Agriculture, Food and Natural Resources Career Cluster Content Standards (National Council for Agricultural Education, 2009) require agricultural educators to possess intermediate mathematical competencies. Additionally, preservice agriculture teachers are completing higher courses than are required by their teacher education program. Although, some preservice teachers have not completed a mathematics course since high school.

Implications/Recommendations

The results of this study suggest that agricultural teacher education programs may not be providing an adequate mathematics education for their preservice teachers. This conclusion is based on the fact that a majority of the programs in this study require mathematics coursework that is below the requirements of the national secondary agricultural education standards. This may negatively influence mathematics teaching in secondary classrooms and may prevent the agricultural education profession from answering the calls to emphasize core academic subjects. To that end, future research

should investigate the relationship between preservice teachers' mathematics proficiency and the types of mathematics courses completed by preservice teachers in college.

References

Authors. (in press). Preservice agricultural education teachers' mathematics ability. *Journal of Agricultural Education*.

Darling-Hammond, L., & Bransford, J. (2005). *Preparing teachers for a changing world*. San Francisco, CA: Jossey-Bass.

Israel, G. D. (1992). *Determining sample size* (IFAS Report PEOD6). Retrieved from University of Florida, Institute of Food and Agricultural Sciences Extension website: http://edis.ifas.ufl.edu/pd006

Jansen, D. J., & Thompson, G. W. (2008). Pacific northwest agricultural educators' perceived teacher efficacy toward enhancing mathematics. *Proceedings of the 2008 Western Region American Association of Agricultural Educators Research Conference, 27*, 16-28. Retrieved from http://aaaeonline.org/

Kantrovich, A. J. (2007). *A national study of the supply and demand for teachers of agricultural education from 2004-2006*. Retrieved from http://aaaeonline.org/supplyanddemand.php

Michigan State University Center for Research in Mathematics and Science Education. (2010). *Breaking the cycle: An international comparison of U. S. mathematics teacher preparation.* Retrieved from http://www.educ.msu.edu/content/sites/usteds/documents/Breaking-the-Cycle.pdf

Miller, G., & Gliem, J. A. (1996). Preservice agricultural educators' ability to solve agriculturally related mathematics problems. *Journal of Agricultural Education, 37*(1), 15-21. doi: 10.5032/jae.1996.01015

National Council for Agricultural Education. (2009). *National agriculture, food and natural resource career cluster content standards.* Retrieved from http://www.teamaged.org/council/

National Research Council. (1988) *Understanding agriculture: New directions for education*. Washington, DC: National Academy Press.

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

Stripling, C., & Roberts, T. G. (2011). Florida preservice agricultural education teachers' mathematics ability and efficacy. *Proceedings of the Southern Region meeting of*

the American Association for Agricultural Education, 292-307. Retrieved from http://aaaeonline.org/

Birds of a feather: Examining youth personality styles in the Kentucky FFA Association

Submitted to:

National Agricultural Education Research Conference
Asheville, North Carolina

Research Poster

Submitted by:

Andrea Taylor Kirby
University of Kentucky
Department of Agricultural Education
307 Garrigus Building
Lexington, KY
altayl7@uky.edu

Randy J. Adams
University of Kentucky
Department of Agricultural Education
307 Garrigus Building
Lexington, KY
randy.adams@uky.edu

Dr. Stacy K. Vincent
University of Kentucky
Department of Agricultural Education
505 Garrigus Building
Lexington, KY
stacy.vincent@uky.edu

Birds of a feather: Examining youth personality styles in the [STATE] FFA Association

Introduction/Need for Research

Schools, churches, organizations, and corporations consist of a complex and diverse set of personalities. Differences in personalities serve beneficial in the growth and expansion of major corporations (Wheeler, Richey, Tokkman, & Sablynski, 2006). Personality research is not a new concept. Within agricultural education alone, research of personality types has been conducted in extension (Davis, 2006), among administrators (Earnest & McCaslin, 1994), of preservice teachers (Raven, Cano, Garton, & Shelhamer, 1993), and of secondary classroom teachers (Roberts, Harlin, & Briers, 2003).

Maintaining diversity in personality is sometimes difficult when individuals of like organizations or institutions are evaluated. While comparing personality types among a student and teacher population, Barrett (1985) found most collegiate agricultural student personalities gravitated toward certain characteristic types. Using the Myers-Briggs Personality Type Indicator (MBTI), 75% of the 413 students enrolled in the College of Agriculture at the University of Nebraska-Lincoln were extroverts; whereas, 25% were introverts (1985). More recently, MacLellan (2011) found members of a high school band, orchestra, and choir had homogeneous personality types within each group, according to the MBTI. Tatum (1999) found secondary students tend to associate with other students that share the same support system and come from the same community as themselves. In addition, people stay in their comfort zone and associate with those of similar personalities and interests (Tatum, 1999). Together, these findings bring inquiry to students that are not drawn to group dynamics because of content similarities, but because of personalities.

Is there a need for concern in evaluating group personality dynamics? One study explains groups of similar personalities limit the complexity of creativity and higher quality decision making (Robbins, 2001). Schools and youth organizations represent a wide range of personalities. However, in a study of accounting students, those whom excelled in the accounting program shared similar personality characteristics (Kovar, Ott, & Fisher, 2003). Agricultural education promotes and encourages diversity and provides a universal common denominator, agriculture (Talbert & Edwin, 2008). However, if similar personality styles imply requisites for advancing in academia, does a personality need to be similar in order to obtain leadership roles in a youth organization?

Conceptual/Theoretical Framework

This study was guided by the foundations of the homophily theory. According to McPherson, Smith-Lovin, and Cook (2001), “homophily is that principal contact between similar people occurs at a higher rate than among dissimilar people” (p. 416). Homophily can be divided into two distinct categories: status and value. Status homophily encompasses traits shared such as race, ethnicity, sex and age; whereas, value

homophily is described as the values and beliefs a person holds thereby affecting their behavior (McPherson, Smith-Lovin, & Cook, 2001). Through the lens of this theory, the researchers are seeking to determine if homophily exists within the personality types of [STATE]'s leadership in an agricultural education affiliated youth organization.

Methodology

To assess personality styles among youth leadership, regionally elected officers from the [STATE] FFA Association were evaluated (n = 54). The instrument selected was the Keirsey Temperament Sorter II (Keirsey, 1998), also referred to as KTS. Similar to the Myers-Briggs, the KTS examines human behavior by providing the appropriate dichotomies, but differs by categorizing personality types into four temperament groups: artisan, guardian, rational, and idealist. Through previous research the KTS was determined reliable (Keirsey, 1998). A panel of experts (n = 4) examined the questionnaire for face and content validity. This study was conducted in September of 2011 at a leadership conference for FFA members who were currently serving a leadership role at the regional level in [STATE]. The conference provided a convenient cluster sample of the population (N = 76). Through SPSS 19.0, measures of frequencies and percentages were calculated.

Results/Findings

From the analysis, the majority (f = 47; 87%) of [STATE] FFA regional youth officers had an expressive/attentive personality labeled as extroversion. Of the participants, the majority (f = 45; 83%) represented sensing as their observant/introspective character type. Over half of the regional officers (f = 29; 53.7%) fell into the feeling category in the tough-minded/friendly personality. When scheduled/probing was calculated the majority of the respondents (f = 44; 81.5%) were classified as judging rather than perceiving. Collectively, those four factors determined that the majority (f = 36; 66.7%) of [STATE] FFA regional officers held a guardian personality followed by undetermined (f = 11; 20.4%), idealist (f = 4; 7.4%), and artisan (f = 3; 5.6%). The rational personality type was not exhibited within the [STATE] FFA regional youth officers.

Conclusions/Implications/Recommendations

The majority of the participants were extroverts, signifying homophily exist within the regional leadership ranks. The existence of homophily implies a bias exists toward types of students chosen for regional leadership positions. In the regional officer election process, extroverts were chosen far more frequently than introverted students suggesting it is more difficult for introverted students to be elected. In addition, students favored the traits of sensing, feeling, and judging which classified the majority of students as Guardians which is further evidence homophily exists. This leadership style represents a supervisor, inspector, provider, or protector (Keirsey, 1998). Since these characteristics showcase qualities representative of a teacher (Arnon & Reichel, 2007), it is recommended teacher educators in [STATE] place effort in encouraging the regional

youth leaders to explore a career in agricultural education. However, teacher educators in this state should not solely rely on this conference for teacher educators due to the presence of homophily. Another implication from the findings suggests only certain personality characteristics are electable within the regional officer positions. It is recommended teachers be more cognizant to other personality characteristics and encourage students of diverse personalities to obtain a regional leadership position. Overall, these findings conclude the selection of regional student leadership exhibits one personality type more than others. It is recommended the [STATE] FFA Association conduct further research to examine whether homophily exists in other leadership ranks to examine the current election process to ensure all student personalities are being welcomed in the leadership positions.

References

Arnon, S., & Reichel, N. (2007). Who is the ideal teacher? Am I? Similarity and difference in perception of students of education regarding the qualities of a good teacher and of their own qualities as teachers. *Teachers and Teaching, 13*(5), 441-464, doi:10.1080/13540600701561

Barrett, L. (1985). Personality type differences of students and faculty and their effect on student achievement. *Journal of the American Association of Teacher Educators in Agriculture, 26*(3), 48-56. doi:10.5032/jaatea.1985.03048

Davis, G. A. (2006). Learning style and personality style preferences of community development extension educators. *Journal of Agricultural Education, 47*(1), 90-99. doi:10.5032/jae.2006.01090

Earnest, G. W. & McCaslin, N. L., (1994). Extension administrators approach to conflict management: A study of relationships between conflict management styles and personality type. *Journal of Agricultural Education, 35*(3), 18-22. doi:10.5032/jae.1994.03018

Keirsey, D. (1998). The Keirsey temperament sorter II. *Please Understand Me II*. Del Mar, CA: Prometheus Nemesis Book Company.

Kovar, S. E., Ott, R. L., & Fisher, D. G. (2003). Personality preferences of accounting students: a longitudinal case study. *Journal of Accounting Education, 21*(2), 75-94. doi:10.1016/S0748-5751(03)00008-3

MacLellan, C. R. (2011). Differences in Myers-Briggs personality types among high school band, orchestra, and choir members. *Journal of Research in Music Education, 59*(1), 85-100. doi:10.1177/0022429410395579

McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology, 27*, 415-444. Retrieved from http://www.jstor.org/stable/2678628

Raven, M. R., Cano, J., Garton, B. L., & Shelhamer, V. (1993). A comparison of learning styles, teaching styles, and personality styles of preservice Montana and Ohio agriculture teachers. *Journal of Agricultural Education, 34*(1), 1-10. doi:10.5032/jae.1993.01001

Robbins, S. P. (2001). *Organizational behavior*, (9th ed.). Upper Saddle River, NJ: Prentice-Hall.

Roberts, T. G., Harlin, J. F., & Briers, G. E. (2007). The relationship between teaching efficacy and personality type of cooperating teachers. *Journal of Agricultural Education, 48*(4), 55-66. doi:10.5032/jae.2007.04055

Talbert, B. A. & Edwin, J. (2008). Preparation of agricultural education students to work with diverse populations. *Journal of Agricultural Education, 49*(1), 51-60. doi:10.5032/jae.2008.01051

Tatum, B. D. (1999). A definition of terms. *"Why are all the Black Kids Sitting Together in the Cafeteria?"* (pp. 3-17). New York, NY: Basic Books.

Wheeler, A. R., Richey, G. R., Tokkman, M., & Sablynski, C. J. (2006). Retaining employees for service competency: The role of corporate brand identity. *The Journal of Brand Management, 14*(1-2), 96-113.

Research Poster

Community Perceptions of a New Secondary Agriculture Program

Rebecca Bezold
124 Gentry Hall
University of Missouri
573-882-7451
rabkb3@mail.missouri.edu

Rachel Kagay
124 Gentry Hall
University of Missouri
573-882-7451
rachelkagay@mail.missouri.edu

John Tummons
123 Gentry Hall
University of Missouri
573-882-9599
tummonsj@missouri.edu

Introduction/Need for Research

Reinventing Agricultural Education for the Year 2020 outlined a vision where students in all schools have access to high quality Agricultural Education programs (NCAE, 2012). If this is to be realized, Agricultural Education must expand into new communities. However, both school administration and the community must choose to support an agriculture program if it is to be successful. Israel and Hoover (1996) asserted "community involvement and support are cornerstones of a successful agriculture program" (p.1). Student and community development is a dyadic relationship, as both are simultaneously improved through youth community engagement (Hastings, Barrett, Barbuto, & Bell, 2011). Kalme and Dyer (2000) found Iowa principals agreed agricultural education programs were positive influences in the community; however, Boone & Boone (2007) identified teachers faced issues with administrative support, facilities and equipment, community support, and budgets. Why would a community support an agriculture program? Little is known about perceived stakeholder benefits of a new agricultural program. Researchers were guided by the framework of rural school-community partnerships as described by Kilpatrick, Mulford, Falk, & Prescott (2002). This research aligns with the National Research Agenda: Priority 6, examine the aspects of vibrant, resilient communities encouraging youth and adults to become future members and leaders of the community (Doerfert, 2011).

Methodology

This qualitative inquiry utilized a single bounded case study methodology (Stake, 1995) to investigate the unique community context of a new agriculture program in an established rural community. Researchers conducted semi-structured interviews with the teacher and a maximum variation sample of eight additional key stakeholders. Researchers also analyzed newspaper articles, Program of Activities (POA), and calendar of events. The initial central question used to guide data collection was, "What does it mean for a community to have a new secondary agriculture program?" The openness of the initial research question allowed for participants to reveal the emic case issues (Stake, 1995). The issue, or purpose statement, revealed was "How does the introduction of a new agricultural program impact a rural community?"

Data analysis was driven by the participants' responses (Crotty, 1998; Guba & Lincoln, 2005). Researchers recorded, transcribed and individually coded interviews, then peer debriefed and combined codes into broader themes (Stake, 1995). Credibility of the findings was built through data triangulation and member check by the teacher (Guba & Lincoln, 2005). Dependability and confirmability (Ary, Jacobs, & Razavieh, 2002) were facilitated through triangulation, comparing the emerging themes of each researcher, conducting peer reviewing, and maintaining an audit trail of coding. Although findings of this study cannot be generalized beyond the case, transferability was facilitated through the use of thick, rich descriptions.

The agricultural education program studied was located in a small, rural community in a Mid-Western state. The teacher hired to establish this new agriculture program had 20 years of experience. Currently in its fourth year, the FFA chapter received its charter in November 2008. Forty-four high school students are were enrolled in courses and the FFA chapter, representing approximately 45% of total high school

enrollment. Prior to the establishment of the agricultural education program, the only extracurricular student activities available within the district were athletics, National Honors Society, and student government. Agriculture students previously attended the area technical school for coursework, but were only allowed this opportunity the final two years of high school. Funded entirely by community support, the program completed construction on a new agricultural education facility in November 2011.

Results/Findings

Stakeholders identified establishment of the Agricultural Education program strengthened relationships between the school district and community members. The teacher prioritized community service activities for the program through students working with local civic organizations. This collaboration fostered an emotional attachment to the program by citizens and led to financial support for the program. In this cycle of service, the community funded the construction of the new facility at no cost to the school district. In turn, the program continues to support and serve local civic organizations with student labor and community use of the new facilities. Additionally, the program created and re-established connections to the school district among community members who had been previously disconnected. The establishment of the program improved the school district's image among community members.

Community members recognized agricultural education played a unique and necessary role in building better citizens. Community members, administrators, and students viewed citizenship education as a reason for establishing the program and motivation for continued stakeholder contribution; the program has offered new opportunities for students to interact with the community which did not previously exist. Prior to the Agricultural Education program, students in the school district had limited school-directed interaction with community. A majority of graduates eventually return to this small community, and the teacher recognized citizenship education was highly important to community members.

Despite many successes, students, administration, and parents raised concerns over challenges the program now faces. First, administration, school board members, and parents identified the financial burden the agriculture program placed on the school district and community. Thus far, the school district has incurred minimal expense for the program because of aggressive community fundraising efforts. The superintendent expressed concern over funding the program and reducing the financial burden on community supporters. The second challenge identified by stakeholders was a lack of previous experience with agricultural education within the community. Students, parents, and administration recognized some opposition to the program still existed; although a lack of understanding was cited as the primary reason for this opposition.

Conclusions, Implications and Recommendations

This program is successful, to a large extent, because the teacher intentionally prioritized community service and engaged stakeholders head-on. The chapter POA includes multiple community events and city clean-up projects. This finding is consistent with Kilpatrick et al. (2002), that "rural schools build individual and community capacity by facilitating interactions" (p.10). The building serves as a hub of community activity and represents buy-in of all major community organizations and businesses; it even serves as the high school football concession stand, which is the other major school activity. An implication of this finding suggests new program success starts with

administrators and teachers identifying and engaging key community stakeholders. Perhaps teacher educators and state staff should emphasize the importance of community service activities as a way to establish immediate support for new programs.

Program perception is important for success, and marketing in this new program was key to community buy-in. Despite dedicated supporters, some resistance to the new program within the community remains. A discrepancy exists between reported resistance among the instructor and stakeholders; the instructor believes little resistance exists following the building project, but stakeholders report more pockets of disapproval. An implication of this conclusion is teachers should recognize they may have "blind spots" in assessing community support. In a small town with limited resources, the teacher should seek opportunities to engage in mutually beneficial cooperative activities with community organizations to further educate the community.

References

Ary, D., Jacobs, L. C., Razavieh, A., & Sorensen, C. (2006). *Introduction to research in education (7th edition)*. Belmont, CA: Thomson Higher Education.

Boone, H.N., & Boone, D.A. (2007). Problems faced by high school Agricultural Education teachers. *Journal of Agricultural Education, 48*(2), 36-45. doi: 10.5032/jae.2007.02036

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. New York, NY: Sage.

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.

Guba, E., & Lincoln, Y. S. (2005). Paradigmatic controversies, contradictions, and emerging confluences. In N.K. Denzin & Y.S. Lincoln (Eds.), *The sage handbook of qualitative research* (pp. 191-215). Thousand Oaks, CA: Sage Publications.

Hastings, L.J., Barrett, L.A., Barbuto (Jr.), J.E., & Bell, L.C. (2011). Developing a paradigm model for youth leadership development and community engagement: a grounded theory. *Journal of Agricultural Education, 52*(1), 19-29. doi: 10.5032/jae.2011.0109

Israel, G.D., & Hoover, T.S. (1996). Expanding opportunities for FFA chapter recognition: a model for community needs assessment. *Journal of Agricultural Education, 37*(3), 1-8. doi: 10.5032/jae.1996.03001

Kalme, N., & Dyer, J.E. (2000). Perceptions of Iowa secondary school principals toward Agricultural Education. *Journal of Agricultural Education, 41*(4), 116-125. doi: 10.5032/jae.2000.04116

Kilpatrick, S., Johns, S., Mulford, I.F., & Prescott, L. (2002) More than an education: leadership for rural school-community partnerships. (RIRDC Publication No. 02/055). Retrieved from Rural Industries Research and Development Corporation: http://pandora.nla.gov.au/pan/36440/20030717-0000/www.rirdc.gov.au/reports/HCC/02-055.pdf

National Council for Agricultural Education (2000). *Reinventing Agricultural Education for the Year 2020.* Retrieved from http://www.teamaged.org/council/images/stories/pdf/plan2020.pdf

Stake, R. E. (1995). *The art of the case study*. Thousand Oaks, CA: Sage Publications.

Poster Type: Research

Cooperating Teachers' Perceptions of the Commitment Level and Competencies of Student Teachers

Laura Lemons
Texas Tech University
Box 42131
Lubbock, TX 79404
806.742-2816
laura.lemons@ttu.edu

Gaea Wimmer
Texas Tech University
Box 42131
Lubbock, TX 79404
806.742-2816
gaea.wimmer@ttu.edu

Todd Brashears
Texas Tech University
Box 42131
Lubbock, TX 79404
806.742-2816
todd.brashears@ttu.edu

Cooperating Teachers' Perceptions of the Commitment Level and Competencies of Student Teachers

Introduction

The student teaching semester is very important in determining the success of the student and impacts their decision to enter the profession (Deeds, Flowers, & Arrington, 1991; Grimmett & Ratlaff, 1986; Norris, Larke, & Briers, 1990; Schumacher & Johnson, 1990; Schuman, 1969). Efforts have been made to improve the student teaching semester and the interaction between student teachers and cooperating teachers (Bacharach, Heck, & Dahlberg, 2010; Hamman, Olivarez Jr., Lesley, Button, Chan, Griffith, & Elliot, 2010). One way the interaction may be improved is through implementation of the Situational Leadership Model (Hersey & Blanchard, 1969) in training and practice. The model suggests that leaders must identify the development level of their followers and modify their leadership style to meet the related needs.

The *Research Agenda for Agricultural Education & Communications* recognizes this need with the research priority area of "defining the characteristics of effective agricultural education programs and teachers" (Doerfert, 2011, p. 10). The purpose of this research was to determine cooperating teachers' perceptions of their previous student teachers' level of commitment and the essential competencies needed by student teachers. The following questions guided the research: 1) How do you determine a student teacher's level of commitment? and
2) What competencies should student teachers have when they enter their student teaching experience?

Conceptual Framework

The Situational Leadership Model developed by Hersey & Blanchard (1969) states that the leader should modify their leadership style to meet the developmental needs of their followers. The follower's developmental level varies based on their commitment and competence on specific tasks (Northouse, 2010). As followers become more confident, motivated, and knowledgeable on particular tasks they are able to move from D1 (low development) to D4 (high development). The leader must be able to assess the developmental level of the follower in order to match their leadership style to the follower. Moreover, an instrument is needed to allow cooperating teachers to more accurately assess student teachers' development level on specific tasks, rather than overall competency, so that leadership style may be matched to developmental needs on a task-specific basis.

Methodology

The population for this study was a purposive sample of agriscience teachers identified as potential cooperating teachers for the 2011-2012 school year. A list of 33 agricultural education teachers within 100 miles of the university were selected and sent an invitation to attend. Thirteen agricultural education teachers attended the workshop and participated in the focus group session.

Focus group interviews allow for a discussion on a certain topic among a group of selected people (Glesne, 2011). They "allow for group interaction and greater insight" (Krueger, 1994, p. 3) on certain topics and thoughts. Krueger states, "focus groups can improve the planning and design of new programs" (1994, p. 3). Two primary questions were posed, with probing questions asked during the discussion period. Teachers were first asked, "How do you determine a student teacher's level of commitment?" Secondly, teachers were asked, "What competencies should student teachers have when they enter their student teaching experience?" Responses to each of the questions were captured and used to compile a list of commitment indicators and needed competencies.

Findings/Conclusions

The focus group participants consisted of 13 teachers who attended a Cooperating Teacher Workshop sponsored by {State} University. All of the participants were male (100%) and the majority (76.9%) had five years or more of teaching experience. Ten (76.9%) of the participants had served as a cooperating teacher at least once prior to attending the workshop.

When cooperating teachers were asked the question, "How do you determine the commitment level of your student teacher?" the discussion revealed a list of 10 key identifiers. They are: Take initiative/advantage of all opportunities, arriving early/punctual, willing to stay late, are not apprehensive, willing to learn/take on challenge (want to go, do, and learn), have identified goals, want to teach after graduation, general first impressions, non-verbal reactions (especially to new experiences), go out of their way to be there and do a good job.

The discussion regarding the question, "What competencies should student teachers have when entering the high school classroom?" resulted in agreement on 12 competencies. Those included: People skills (faculty, administration, parents, students, community), knowledge of the difference between being a teacher and being a friend to the students, adaptability /flexibility, classroom management, accepting of available facilities, mindset of a teacher/professionalism, maturity, knowledge of how to promote program, lesson plans and planning (content and structure), an understanding of timing and the student engagement associated (50 min or 90 min), grasp on instructional methods besides lecture and general FFA knowledge.

There were two competencies that were identified as having either a negative impact or no impact on the student teacher's ability to perform. The first was, "overconfidence" in connection to student teachers thinking they are experts on a certain subject, but are unable to teach it effectively. Teachers recommended that the cooperating teacher be patient when explaining new skills to the student teacher. Better training is needed to enable student teachers to transfer their knowledge to the high school students. "Knowledge of livestock selection and showing" was a competency that the teachers did not feel was necessary for student teachers, which was surprising due to the regional area that was represented.

Implications/Recommendations

There are several recommendations that arose from this focus group. First, researchers should continue to ask cooperating teachers about the competencies and commitment levels of their student teachers. Also, cooperating teachers want to know how to better work with student teachers and workshops should be developed to meet this need. Finally, an instrument to assess the developmental level of student teachers should be developed and pilot tested from the information that was gathered from this focus group. This instrument may help diagnose what developmental level the student teacher is in for each competency, therefore providing cooperating teachers more information on how to meet the developmental needs of their student teacher.

References

Bacharach, N., Heck, T.W., Dahlberg, K. (2010). Changing the face of student teaching through coteaching. *Action in Teacher Education, 32*(1), 3-14.

Deeds, J. P., Flowers, J., & Arrington, L. R. (1991). Cooperating teacher attitudes and opinions regarding agricultural education student teaching expectations and policies. *Journal of Agricultural Education, 32*(2), 2- 9. **doi:10.5032/jae.1991.02002**

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.

Glesne, C. (2011). Becoming qualitative researchers: An introduction. Boston, MA: Pearson Education, Inc.

Grimmett, P.P. & Ratzlaff, H.C. (1986). Expectations for the cooperative teaching role. *Journal of Teacher Education, 37*(6), 25-30. doi:10.1177/002248718603700607

Hamman, D., Olivarez Jr., A., Lesley, M., Button, K., Chan, Y., Griffith, R., & Elliot, S. (2006). Pedagogical influence of interaction with cooperating teachers on the efficacy beliefs of student teachers. *The Teacher Educator, 42*(1), 15-29.

Hersey, P., & Blanchard, K.H. (1969). *Management of organizational behavior: Utilizing human resources*. Englewood Cliffs, NJ: Prentice Hall.

Kantrovich, A. J. (2007). *A national study of the supply and demand for teachers of agricultural education from 2004-2006*. American Association of Agricultural Educators.

Krueger, R. A.(1994). *Focus groups: A practical guide for applied research* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Norris, R. J., Larke, A. Jr., & Briers, G. E. (1990). Selection of student teaching centers and cooperating teachers in agriculture and expectations of teacher educators regarding these components of a teacher education program: A national study. *Journal of Agricultural Education, 31*(1), 58-63. doi:10.5032/jae.1990.01058

Northouse, P.G. (2010) *Leadership: Theory and practice.* Thousand Oaks, CA: Sage Publications, Inc.

Schumacher, L. G., & Johnson, D. M. (1990). Time series analysis of agricultural education student teachers' perceptions of agricultural mechanics lab management competencies. *Journal of Agricultural Education, 31*(4), 2-8. doi: 10.5032/jae.1990.04002

Schumann, H.B. (1969, January). The cooperating teacher's role in student teaching. *The Agricultural Education Magazine, 41*(7), 156.

County Extension Agents' Methods of Communicating 4-H and Extension Programs in Arkansas

Mark Russell, Bob Reynolds, Noah Washburn, and Boot Chumbley
University of Arkansas, University of Arkansas, University of Arkansas, and Eastern New Mexico University

Author Contact Information:

Email: mrrussell@uaex.edu, breynolds@uaex.edu, nwashburn@uaex.edu, boot.chumbley@enmu.edu

Phone: 501-671-2190

Mailing Address:
University of Arkansas – Division of Agriculture
2301 South University Avenue
Little Rock, AR 72204-4949

County Extension Agents' Methods of Communicating 4-H and Extension Programs in the State of Arkansas

Introduction/Need for Research

As extension personnel respond to budget cuts and declining funding sources, many examine communication strategies for assistance with the growth and development of programs. Previous research has indicated a sound communication and marketing plan can assist with various issues such as attracting leaders, volunteers and clientele, increasing client satisfaction, and executing programs which carry out Extension's mission (Chappell, 1994). There are numerous benefits of having a well defined communication and marketing plan for a state wide extension 4-H program. In fact, Hammond (2004) defines the following reasons for marketing Extension: 1) Political--To enhance the sources of funding and support, 2) Internal benefits--Creating high performing teams and attracting good staff, and 3) Survival--competing for clientele who have other resources at their disposal. The need for this particular research was identified by the American Association for Agricultural Education (AAAE) within the National Research Agenda, Priority 5: Efficient and Effective Agricultural Education Programs (Doerfert, 2011).

To that end, the emerging objective to serve as the basis for this study – What are the current communication strategies for county extension agents in Arkansas? With the rise of that particular question, a need for a strategic communication and marketing plan was identified within the University of Arkansas – Division of Agriculture during an annual review of all extension programs in Arkansas. With no complete and designed statewide marketing plan in Arkansas, leadership within the Cooperative Extension Service (CES) deemed it imperative that a faculty task force be established to lead the project. To add to the importance of creating a statewide communication and marketing plan, the entire plan developed by the task force was to be presented at a 4-H in-service training, in an effort to increase county agents' knowledge of the latest methods available to them when communicating their programs. To prepare for the in-service training, the task force determined the current communication strategies of county extension agents by way of an online survey. Based on the results of the survey, the task force planned the curriculum to be taught during the in-service training accordingly. Thus, the results of the survey presented are the make-up of this particular research.

Theoretical Framework

The theoretical framework for this study was derived from "Marketing Cooperative Extension at the Local Level" conducted by Hammond (2004). Hammond suggests a mixture of marketing tools and methods such as public relations, communication, and networking to broadly increase visibility and understanding of the value of Cooperative Extension, particularly at the local level. Further, Hammond (2004) makes the case that marketing is the responsibility of all staff members, not just the County Director or staff, and provides ideas for volunteer and clientele involvement.

Methodology

Faculty in the 4-H, Communications, and Animal Science departments developed an online survey asking the county extension agents of their communication methods of their county programs. The agents received notification via email of the online survey through zoomerang. The county extension agents were given 1 week to complete the

survey and were sent reminders four days and one day prior to the survey being closed to participants.

Results

Researchers were able to gather 76 responses to the online survey conducted. Further, individuals participating in this study were all county extension agents with *any* 4-H responsibility in their respective job description. Results indicate that many county extension agents are using social media as a platform for communicating and marketing their programs to participants and volunteers (66% of respondents). When asked how social media has been used, the highest response was *To communicate with current 4-H'ers* (92%), followed by *To communicate with 4-H volunteers* (86%) and *To promote 4-H events/activities with current 4-H'ers* (86%). *To market the 4-H program* achieved 62% of agent responses.

The specific social media method used most was found to be facebook (94%), followed by twitter and blogs (4%) each. When asked what other types of communication strategies the county extension agents are using, *Email* (93.4%) was the highest, followed by *Text messaging* (44.7%), *Podcasts* (6.6%) and *Other* (27.6%). The agents were also asked to rank a list of media methods as to which were the most effective (1=most effective, 8=least effective). The agents listed the most effective media methods (average rating in parentheses): *Word of mouth* (3.62), followed by *Social media* (3.62), *Newsletters* (3.76), *Email* (4.01), *Newspaper* (4.27), *Text* (4.85), *Websites – Other than social media* (5.42), and *Podcasts* (6.31).

Agents were also asked to select the partnerships in which they pursue regarding other youth organizations. The highest selected organization identified was *FFA* (77.6%), followed by *School Activities/Sports* (21.7%), *Boys and Girls Club* (19.7%), *Girl Scouts* (14.5%), *Boy Scouts* (7.9%), and *Sports Associations – not school sports* (7.9%).

Conclusions/Implications

Results of this trial lead researchers to adapt communication and marketing tools to the method of which county 4-H agents are accustomed to using the most, as well as providing a platform in which state faculty within both the 4-H department and communications department can use as a starting point in assisting the county agents in marketing and communicating their programs. More specifically, with the data collected from the county extension agents, State 4-H faculty will be in a better position to design a marketing scheme for each county that coincides with the state's goals and fits the state of Arkansas. The ultimate objective in communicating programs is to allow for greater growth and awareness of 4-H programs in the state. Further, with facebook being the overwhelming method of communicating programs to participants, the University of Arkansas – Division of Agriculture should develop a policy guide that directs employees on the proper use of social media as well as proper education on all communication strategies employed by county extension agents.

Future research should examine the driving forces behind agent use of social media and decisions to use certain methods, while not using others. Moreover, researchers should also examine the partnerships that county extension agents use and the success rates of those partnerships when it comes to growing and communicating county programs.

References

Chappell, V.G. (1994). Marketing planning for extension systems. *Journal of Extension Education, 32* (2). Retrieved from http://www.joe.org/joe/1994august/a5.php.

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.

Hammond, S.V. (2004). Guidebook for marketing cooperative extension. *Journal of Extension Education, 42* (2). Retrieved from http://www.joe.org/joe/2004april/tt5.php.

Does Estimated Family Financial Contribution Correlate with SAT/ACT Scores of Texas FFA Scholarship Recipients?

Casey Page
Research Assistant
pagec@shsu.edu

Dr. Sheyenne Krysher
ANS Project Manager
krysher@shsu.edu

Dr. L. A. Wolfskill
Assistant Professor
wolfskill@shsu.edu

Dr. Dwayne Pavelock
Associate Professor
agr_dxp@shsu.edu

Dr. Doug Ullrich
Professor
dullrich@shsu.edu

Dr. Michael Lau
laumichaelh@gmail.com

Sam Houston State University
Department of Agricultural and Industrial Sciences
PO Box 2088
Huntsville, Texas 77341
936.294.4708

Does Estimated Family Financial Contribution Correlate with SAT/ACT Scores of Texas FFA Scholarship Recipients?

Introduction/Need for Research

For years, professional educators and psychologists have searched for a link between a student's family income and his or her college admissions exam score. Millions of people in the U.S. take post-secondary admissions tests such as the SAT, ACT, GRE, LSAT, MCAT, and GMAT each year (Sackett, Kuncel, Arneson, Cooper, and Waters, 2009). "A common assertion among test critics is that test scores used for high-stakes decisions (e.g., college admission) measure nothing more than socioeconomic status (SES)," (Sackett et al., 2009, p. 1). These same test scores are also often used to make decisions about the awarding of scholarships, graduate assistantships, and other academic-based awards or privileges. The primary objective of this study was to determine whether a family's estimated family contribution (EFC) has a positive relationship with the student's score(s) on the SAT and/or ACT.

Theoretical Framework

Boxer, Goldstein, DeLorenzo, Savoy, and Mercado (2010) studied "the predictive role of socioeconomic status and academic achievement in the academic aspiration-expectation discrepancy" (p. 611). Previous research has shown that academic levels vary according to parents' respective socioeconomic status (Moller, Stearns, Potochnick, and Southworth, 2011). This research sought to find a link between socioeconomic status and a student's academic achievements as shown on standardized test scores. One could look to find a correlation between students' EFC and his or her test scores. Students with more resources at their disposal are thought to perform better because educational resources should be more readily available to them (Okpala, Okpala, and Smith, 2001). In addition, one would expect to see a positive relationship between EFC and SAT/ACT scores. Prior research has indicated that students who have more resources available to them tend to do better on standardized tests as, "a portion of students' high school achievement scores is determined by students' ability and family background, and characteristics that exist before they enter high school," (Moller et al., 2011, p. 672).

Methodology

The data set was provided by the Texas FFA Association. Information in the data set included: class rank, class size, ACT score, SAT score, un-weighted GPA, EFC, ethnicity, and gender of 246 high school seniors that were chosen for Texas FFA Association scholarships in 2011. This information was used to score an application in the most objective way possible. Class rank was measured by a student's GPA versus other classmates; class size indicated the number of students in a given applicant's class; ACT scores are on a composite scale of 1 to 36, and SAT scores are based on a composite score of 600 to 2400. The un-weighted GPA reflects the student's overall performance in classes on a scale from one to four. The Estimated Family Contribution was derived from the student's Free Application for Federal Student Aid (FAFSA). This data was coded using the national FAFSA scoring standards on Pell grant eligibility. A student with a score of 0 to 100 is full Pell eligible, 101 to 5273 is partial Pell eligible, 5274 to 21976 is ineligible for Pell but eligible for a need-based loan, and scores of

21977 and up are unsubsidized and PLUS (Parent Loan for Undergraduate Students) loan eligible only. EFC was coded as a nominal variable used to classify need level. ACT and SAT were scale variables, as they represent actual scores on standardized tests and there was an actual testing scale used to interpret performance.

Results and Findings

The initial descriptive statistics showed no significant changes in test scores between EFC groups for the ACT and SAT. After running an ANOVA and post-hoc tests there were two significant changes between groups having taken the SAT. The Tukey post hoc test showed a significant difference ($p = .041$) between the Need Base Loan/No Pell group and the Full Pell Eligible group. LSD showed a significant difference ($p = .008$) between the Full Pell Eligible group and the Need Base Loan/No Pell group. For these two groups, researchers rejected the hypothesis that EFC and SAT scores are correlated. This finding agreed with other research findings that, "socioeconomic status (SES) has an artificial and irrelevant effect on test scores" (Sackett et al., 2009, p. 1).

Conclusions

Based on the statistics, there is very little to no correlation between Estimated Family Contribution and a student's score on the ACT or SAT. "If SES inflates both test scores and grades of high-SES students and deflates both test scores and grades of low-SES students, then a test that is, in fact, completely invalid as a predictor of academic performance will appear valid as a result of the common effects of SES on both test and grades" (Sackett et al., 2009, p. 1). Only two groups of SAT test takers showed a significant difference in test scores: the Full Pell Eligible and the Need Base Loan/No Pell groups. The average score overall from group to group was very similar, ranging from 24.79 to 26.39 for the ACT, and 1656.76 to 1770.50 for the SAT. In short, the lower income students performed better on the ACT than middle- and high-income students. Higher income students performed better on the SAT than low- and middle-income students. Overall, one can conclude from this research that student achievement is not correlated with Estimated Family Contribution.

Implications and Recommendations

This study has shown that for Texas FFA scholarship recipients, a student's level of financial support for college, as measured by the FAFSA Expected Family Contribution, is not correlated with ACT and SAT measures, commonly used or interpreted as predictors of success in post-secondary educational programs. From this, one can imply that low-income students are just as likely to perform well on college entrance exams as students from higher income families if they are actively involved in Agricultural Education.

It is recommended that research such as this be repeated each year. Furthermore, the standards for awarding Texas FFA scholarships may need to be reevaluated as wealthy students are receiving scholarships and do not have the financial need.

References

Boxer, P., Goldstein, S., DeLorenzo, T., Savoy, S., & Mercado, I. (2011). Educational aspiration-expectation discrepancies: Relation to socioeconomic and academic risk-related factors. *Journal of Adolescence, 34*, 609-617. doi:10.1016/j.adolescence.2010.10.002

Moller, S., Stearns, E., Potochnick, S. R., & Southworth, S. (2011). Student achievement and college selectivity: How changes in achievement during high school affect the selectivity of college attended. *Youth and Society, 43*(2), 656-680. doi: 10.1177/0044118X10365629

Okpala, C. O., Okpala, A. O., & Smith, F. E. (2001). Parental involvement, instructional expenditures, family socioeconomic status, and student achievement. *Journal of Education, 95*(2), 110-115.

Sackett, P. R., Kuncel, N. R., Arneson, J. J., Cooper, S. R., & Waters, S. D. (2009). Does socioeconomic status explain the relationship between admissions test and post-secondary academic performance? *Psychological Bulletin, 135*(1), 1-22. doi: 10.1037/a0013978

Effective Teaching Behaviors Demonstrated by College Instructors

Rebecca A. Bezold
University of Missouri

Jon C. Simonsen
University of Missouri

Rebecca A. Bezold
124 Gentry Hall
Columbia, MO 65211
(859-240-5996)
rabkb3@missouri.edu

Effective Teaching Behaviors Demonstrated by College Instructors

Introduction

The level of excellence in college and university teaching is now a worldwide concern. Based upon that concern, universities are paying increased attention to the quality of the pedagogy practiced in classrooms and assessing how effectively professors are teaching (Ovando, 1989). With this reinvented focus on excellence in teaching at the university level, it is increasingly important that effective and credible measures of teaching effectiveness be developed and used to make informed teaching decisions. Student ratings of teaching are the dominant mechanism employed to evaluate teaching in the university setting (Feldman, 1976; 1977). After nearly seven decades of research on the use of student evaluations of teaching effectiveness, it can safely be stated that the majority of researchers believe that student ratings are a valid, reliable, and worthwhile means of evaluating teaching (Centra, 1993; Marsh, 1987; Marsh & Dunkin, 1992; McKeachie, 1990; Watchel, 1998). This study adds to the knowledge base surrounding the effectiveness of teaching by college instructors and aligns with the National Research Agenda: Priority 4, meaningful, engaged learning in all environments.

Conceptual Framework

Darling-Hammond purports the seven teaching behaviors for powerful learning that should be demonstrated in the classroom to ensure quality instruction and learning occurs (Darling-Hammond, 2008). To adhere to these effective teaching behaviors, teachers need to be purposeful in their creation of the learning environment. They should also consider being more explicit in explaining and making students aware of why certain events are occurring in the classroom. Many times students may not comprehend why teachers are utilizing certain behaviors or learning tasks in their classes. In order to be able to create a meaningful learning environment, teachers must become more diligent in making students aware of the effective behaviors that are displayed in the classroom. In summarizing the research between teacher practices and student achievement, Brophy and Good (1986), concluded that active teaching in which teachers emphasize academic instruction leads to higher achievement levels.

Methodology

The design used for this study was descriptive survey research that explores and describes student perceptions of effective teaching in the classroom. A researcher designed questionnaire was used for data collection in this study. The instrument was reviewed by a panel of experts for validity, was pilot tested (N=39), and reliabilities of the constructs were found to be reliable. The questionnaire was distributed by the researcher in a mid-level agricultural communications course (N=103). The questionnaire consisted of two sections containing 56 total items which were designed to assess Darling-Hammond's Teaching Behaviors for Powerful Learning (2008). The subjects were asked on a five-point Liker-type scale to rate the items on the level of importance the teaching behavior has on their learning and the frequency that they encountered the teaching behaviors. The items were then summated to calculate construct values.

Results

Research objective one sought to determine what teaching behaviors the students perceived were most important to them. Table 1 describes those teaching behaviors in regards to student learning. *Provides clear standards and constant feedback* (M=4.24; SD=.594) was found to have the highest level of importance to the respondents.

Table 1
Importance of the Teaching Behavior to Student Learning

Effective Teaching Behaviors	*M*	*SD*
Provides clear standards and constants feedback	4.24	.594
Scaffolding the learning process	4.16	.485
Connections to students' prior knowledge	3.97	.581
Encouraging strategic and metacognitive thinking	3.92	.713
Creating ambitious and meaningful tasks	3.90	.630
Engaging students in active learning	3.81	.702
Assessing student learning continuously	3.79	.622

Note. 1= *Not Important*, 2= *Slightly Important*, 3= *Fairly Important*, 4= *Important*, 5= *Very Important*

Research objective two identified what teaching behaviors are being demonstrated by college instructors in classes in which students felt they learned a lot. Table 2 indicates the means and standards deviations of how often the effective teaching behaviors were encountered. *Scaffolding the learning process* (M=4.08; SD=.632) was determined to be the most frequently demonstrated effective teaching behavior by college instructors as perceived by the respondents.

Table 2
Teaching behaviors demonstrated by college instructors

Effective Teaching Behaviors	*M*	*SD*
Scaffolding the learning process	4.08	.632
Provides clear standards and feedback	3.88	.785
Connections to students' prior knowledge	3.84	.692
Engaging students in active learning	3.69	.792
Creating ambitious and meaningful tasks	3.68	.806
Assessing student learning continuously	3.68	.814
Encouraging strategic and metacognitive thinking	3.45	.870

Note. 1=*Not at All,* 2=*Only a Few Times,* 3=*Several Times,* 4=*Every Couple of Weeks,* 5=*On a Weekly Basis*

Conclusions and Recommendations

Student confirmed that all the teaching behaviors purported by Darling-Hammond are important to their learning process. Scaffolding and constant feedback were deemed as the most important teaching behaviors as perceived by the respondents. Students find it very important that instructors pose questions and review the information to further their understanding of the content being taught. It is also of high importance that the

instructors provide clear procedures for the course and give continual feedback on assignments. Consequently, students perceived that scaffolding and constant feedback are taking place in the classes where they are learning a lot. College instructors should continue to demonstrate the effective teaching behaviors. However, students responded that encouraging strategic and metacognitive thinking is important but they do not perceive it being demonstrated to the extent of the other behaviors. This may constitute that college instructors need to be more explicit to students when incorporating strategic and metacognitive thinking to aid in learning effectiveness.

References

Centra, J. A. (1977) Student ratings of instruction and their relationship to student learning, *American Educational Research Journal. 14,* 17-24.

Feldman, K. (1976). The superior college teacher from the student's view. *Research in Higher Education 5*(3), 243-288.

Feldman, K. (1977). Consistency and variability among college students in rating their teachers and courses: A review and analysis. *Research in Higher Education 6*(3), 223-274.

Marsh, H. W. & Dunkin, M. J. (1992) Students' evaluations of university teaching: A multidimensional perspective. In: J. C. SMART (Ed.) Higher Education: Handbook of Theory and Research, Vol. 8, pp. 143-233 (New York, Agathon Press).

Marsh, H. W. (1987) Students' evaluation of university teaching: Research findings, methodological issues, and directions for future research. *International Journal of Educational Research, 11*, 253-388.

McKeachie, W. J. (1990) Research on college teaching: The historical background. *Journal of Educational Psychology, 82*, 189-200.

Ovando, M.N. (1989). *An effective faculty development program: It can be done.* Paper presented at the annual conference of the National Council of States on Inservice Education, San Antonio, Texas.

Wachtel, Howard K. (1998). Student evaluation of college teaching effectiveness: A brief review. *Assessment and Evaluation in Higher Education 23*(2).

Research

Entrepreneurship Education: What are the Secondary Agriculture Teachers Doing and What do They Need

Awoke Dollisso

229 Curtiss Hall

College of Agriculture and Life Sciences

Iowa State University of Science and Technology

Ames, IA – 50011

Phone: (515) 294-0898

Email: dollisso@iastate.edu

Vikram Swaroop Chandra Koundinya

220 Curtiss Hall

College of Agriculture and Life Sciences

Iowa State University of Science and Technology

Ames, IA – 50011

Phone: (515) 338-0132

Email: vikram@iastate.edu

Entrepreneurship Education: What are the Secondary Agriculture Teachers Doing and What do They Need

Introduction

Entrepreneurship education has expanded over the past 20 years (Kauffman Foundation, 2007). Entrepreneurship education is important as it provides students with knowledge and skills required for launching successful entrepreneurial ventures (Cho, 1998 as cited by Lee, Chang, & Lim, 2005). Recognizing the importance of entrepreneurship education, secondary and postsecondary educational institutions are integrating entrepreneurship into their courses (Dollisso, 2010). The significance of entrepreneurship education has been identified in agricultural education curriculum also (Miller & Miller, 2000). Entrepreneurship skills are very important for many agriculture careers (e.g., horticulture, floriculture, food science, dairy science, and others), and secondary agriculture teachers are uniquely positioned to teach entrepreneurship concepts to students who are in the formative years of their careers.

Despite recognizing the importance of entrepreneurship education, the extent to which entrepreneurship concepts are integrated into agricultural education programs is variable. Dollisso (2010) found that only a third of secondary agriculture teachers who believed that entrepreneurship should be integrated into agricultural education curriculum were actually doing so. There could be many reasons including a lack of entrepreneurship knowledge on the part of teachers. A national study conducted by Lee & Associates (1994) revealed that secondary agriculture teachers are not comfortable with their entrepreneurship knowledge indicating a need for professional development. This study analyzed secondary agriculture teachers' extent of entrepreneurship education, sources of their entrepreneurship knowledge, use of classroom entrepreneurship projects, and entrepreneurship education professional development needs.

Theoretical Framework

Agricultural Education is delivered through three major components: classroom/laboratory instruction which constitutes contextual learning, Supervised Agricultural Experience (SAE) program which constitutes work-based and experiential learning, and student leadership organizations such as National FFA Organization (National FFA Organization, 2011). Students are given opportunities to learn and hone their entrepreneurship skills through SAEs (Talbert, Vaughn, & Croom, 2005). Entrepreneurship projects are one of the traditional projects in SAE programs (Wilson & Moore, 2007). This study focused on secondary agriculture teachers' entrepreneurship knowledge and explored the entrepreneurship classroom projects they were using.

Methodology

A descriptive survey design was employed and the data were collected using a researcher-developed questionnaire. A panel of experts consisting of agriculture faculty with business backgrounds validated the questionnaire for face and content validity. The total population for this study was 246 secondary agriculture teachers in a Midwestern state but only 151 were accessible. Eighty-six responded by the end of four follow-ups yielding a response rate of 57% to the accessible population and 35% to the total population. Non-response error was statistically addressed by comparing early (first 50% of the respondents) and late respondents (the last 50% of the respondents). No

statistically significant differences were found between the two groups at 0.05 level of significance. Agriculture teachers' extent of entrepreneurship education, sources of entrepreneurship knowledge, and use of classroom entrepreneurship projects were measured on a list of items from which the teachers had to choose that which was applicable to them, and the entrepreneurship education professional development needs were measured for nine chosen entrepreneurship topics using a 10-point Likert-type scale that ranged from 1 (*most needed*) to 10 (*least needed*). All nine were stand-alone topics and did not represent any construct together. Therefore, this was not a summated rating scale. All collected data were more factual rather than perceptual, so no statistical reliability computations were deemed necessary.

Results and Discussion

Seventy-five percent of teachers were male with 55% having a bachelor's degree. They were in the age range of 21 to 61 years with a mean of 41 years. Their teaching experience ranged from 0.8 to 36 years with a mean of 16 years. A majority (59%) of teachers had taken one college business course and 65% had taken one economics course. Only 5% had a minor in agribusiness, 1% had a minor in economics, and 3% had a double major in business. None had a double major in economics. Family business experience was the source of entrepreneurship knowledge for 64% of teachers, closely followed by self-education through reading and other means (60%).

Agricultural sales was the most common entrepreneurship project (61%) used in the classroom, followed by greenhouse projects with vegetables (57%), agricultural services (46%), crop production (46%), and landscape services (44%). Agricultural energy systems was the least common entrepreneurship project (3%). A majority (57%) of teachers indicated they would be interested in participating in entrepreneurship-related professional development programs. Teachers rated business incubation and growth, business plan development, business resourcing, opportunity analysis, and innovation as their top five entrepreneurship education professional development need areas.

Conclusions, Recommendations and Implications

Secondary agriculture teachers who participated in this study had a range of entrepreneurship knowledge, gained through formal education and self-experience, and were interested in learning more about entrepreneurship through professional development. These teachers most likely took required undergraduate courses such as macro- or microeconomics or business. So their academic exposure and knowledge to latest concepts in entrepreneurship may be limited. This has implications for designing professional development programs. Further, it is also not clear what the emphasis of classroom projects was. Were teachers using these projects to teach production agriculture, science concepts, entrepreneurship, or all of these? This needs to be explored in future research. This baseline study shines some light on agriculture teachers' entrepreneurship education, sources of knowledge, classroom activities, and professional development needs. However, a deeper and broader understanding of entrepreneurship education in secondary agricultural education is needed. Future research should seek to answer the following questions, among others: To what extent do agriculture teachers

teach entrepreneurship concepts? What curriculum materials are they using? What challenges and opportunities do agriculture teachers face in teaching entrepreneurship?

References

Dollisso, A. D. (2010). Integrating agricultural entrepreneurship into high school agriculture curriculum. *Journal of Agricultural Education*, *51*(3), 125-133. doi: 10.5032/jae.2010.03125

Kauffman Foundation (2007). *A panel on entrepreneurship curriculum in higher education*. Retrieved from http://www.kauffman.org/uploadedfiles/entrep_high_ed_report.pdf

Lee & Associates (1994). *Entrepreneurship education for agriculture. Phase "O" planning project report*. Performance Report. Volume I: Findings and supportive information. Starkville, MS.

Lee, S. M., Chang, D., & Lim, S. (2005). Impact of entrepreneurship education: A comparative study of the U.S. and Korea. *International Entrepreneurship and Management Journal*, *1*, 27-43.

Miller, G., & Miller, W. (2000). A telecommunications network for distance learning: If it's built, will agriculture teachers use it? *Journal of Agricultural Education*, *41*(1), 79-87. doi: 10.5032/jae.2000.01079

National FFA Organization (2012). *Supervised Agricultural Experience*. Retrieved from https://www.ffa.org/About/WhoWeAre/SAE/Pages/default.aspx#

Talbert, B. A., Vaughn, R., & Croom, D. B. (2005). *Foundations of agricultural education* (2nd ed.). Danville, IL: Professional Educators Publications, Inc.

Wilson, E. B., & Moore, G. E. (2007). Exploring the paradox of Supervised Agricultural Experience programs in agricultural education. *Journal of Agricultural Education*, *48*(4), 82-92. doi: 10.5032/jae.2007.04082

Estimated Lifetime Financial Impacts of Extended Employment on Beginning Secondary Agricultural Education Professionals

Matt Shultz
Iowa State University
223A Curtiss Hall
319-231-2906
mjshultz@iastate.edu

Jay Morgan
Murray State University
333 Wells Hall
270-809-3027
jmorgan@murraystate.edu

Kimberly Bellah
Murray State University
206 South Applied Science
270-809-6924
kbellah@murraystate.edu

Alyx Shultz
Murray State University
101 Equine Instructional Facility
270-809-6925
ashultz@murraystate.edu

Estimated Lifetime Financial Impacts of Extended Employment on Beginning Secondary Agricultural Education Professionals

Introduction

Complex roles and program responsibilities contribute to the generally accepted notion that agriculture teachers have greater workloads and work longer hours than many other teachers (Torres, Ulmer, & Aschenbrener, 2007). Recognizing this unique need, the state of [State] has mandated that all agricultural educators in the state receive instructional contracts for 12-months ([State] Legislature, 2010). Much research exists regarding the importance of agricultural education extended contracts in the United States with respect to job satisfaction (Bennett, Iverson, Rohs, Langone, & Edwards, 2002; Cano & Miller, 1992), supervised agricultural experience program quality (Dyer & Williams, 1997), FFA involvement (Jewell, 1987; Portillo & White, 2002), and the attraction and attainment of quality agricultural instructors to the profession (Myers, Breja, & Dyer, 2004). However, little research has been published on the financial impact of extended contracts on the agricultural educator. The purpose of this study was to estimate the personal financial implications of mandated 12-month employment contracts on [State] agricultural educators beginning a career in 2009-2010. The following objectives were developed to guide this study: 1) Assess the average career salary benefit to an agricultural educator employed on a 12-, 11-, 10-, or 9-month employment contract, and 2) Assess the teacher retirement system annuity benefit to both a female and male agricultural educator retiring from teaching with a 12-, 11-, 10-, or 9-month employment contract.

Framework

In addition to the documented need for extended contracts in agricultural education, extended contracts may also serve to improve recruitment, retention, and job satisfaction of existing agricultural educators. Cano and Miller (1992) found that salary was considered to be a "dissatisfier" among agricultural teachers. Similarly, in a study of teacher shortage areas, Pogodzinski (2000) determined that higher salaries appear to attract better prepared and higher quality teachers. Like other high demand fields, applied science presents a challenge to teacher retention as the salaries of alternative occupations within the field are higher on average than those opportunities for general educators (Murnane & Olsen, 1990). The increased salaries resulting from extended employment contracts serve to partially offset that disadvantage.

Methodology

This descriptive study relied on quantitative, non-experimental methods of data collection. The population of this study consisted of the 138 school districts within [State] that employed agricultural educators during the 2009-2010 academic year. A purposive, stratified sampling method was used. Three schools, one urban, one suburban, and one rural, were chosen from each of the eleven FFA regions in the state. Thirty-three school districts were included in the resulting sample. Leedy and Ormrod (2005) suggested that such a purposive sampling method is acceptable when researchers wish to identify a sample typical of the population for a specific purpose. Salary schedules were collected for each school district in the sample based on district files submitted to the [State] Department of Education for the 2009-2010 academic year. Salary history data for the

most recent twenty-year period were used to predict the most likely rate of future annual salary increases. Potential retiree benefits were calculated using data from the teacher's retirement system of [State]. Life expectancy data published in 2011 by the United States' Center for Disease Control were used to determine average length of retirement benefits. The different life expectancies account for the estimation differences between genders.

Researchers used the 33 selected salary schedules to develop a statewide average salary schedule for the 2009-2010 academic year. The average annual salary increase for [State] school districts for the past 20 years was calculated and used to estimate future average salary schedules with 2009-2010 data as baseline values as well as the first year of employment. Consumer price index values were used to calculate average constant inflation for the past 20 years, which served to estimate future annual retirement benefits. Researchers used data available for average years of service, retirement age, rate of promotional advancement, and life expectancy to create a profile of the characteristics of the average career educator in [State]. This profile was then used as a basis for estimating the average career salary and retirement benefits of a [State] agricultural educator beginning a career in 2009-2010. Researchers defined 9-month contract as 187 days ([State] Legislature, 2010), with 10-, 11- and 12-month contracts constituting an additional 18, 37, and 55 days respectively.

Results

Table 1 summarizes the estimated value of extended employment contracts throughout the average [state] agricultural educator's career.

Table 1

Total Estimated Career Salary and Post-Retirement Benefits by Gender for Extended Contract Career Educators in [State][1]

	9 Month		10 Month		11 Month		12 Month	
	Male	Female	Male	Female	Male	Female	Male	Female
Career pay	2,447	2,447	2,683	2,683	2,932	2,932	3,167	3,167
Retirement benefits	2,408	3,253	2,640	3,566	2,885	3,896	3,013	4,069
Total pay	4,856	5,701	5,324	6,250	5,817	6,829	6,181	7,237
Extended contract value			468	549	961	1,128	1,325	1,536

Note. [1]All values expressed in thousands of United States Dollars.

Conclusions & Implications

Over the course of an average career and subsequent retirement, educators who began teaching in [State] in 2009-2010 will earn an estimated additional $1.3 million to $1.5 million as a result of extended employment contracts. Given this magnitude of benefits, agricultural educators in [State] should continue to advocate for mandated 12-month employment contracts. Moreover, professional agricultural education

organizations in [State] should use the findings of this study to reinforce the necessity for members to communicate the need for extended employment contracts. Post-secondary agricultural educators should use the findings of this study to assist in the recruitment and retention of quality agricultural education students by contrasting the financial advantages of teaching agriculture with those of other fields. Agricultural educators, respective professional organizations, and other agricultural education stakeholders in states without mandated contract provisions should consider lobbying for the implementation of mandated 12-month employment contracts using [State's] system as a model. Secondary educators should also continue to record, clarify, and justify responsibilities and duties performed during extended contract days.

References

Bennett, P. N., Iverson, M. J., Rohs, F. R., Langone, C. A., & Edwards, M. C. (2002, February). *Job satisfaction of agriculture teachers in Georgia and selected variables indicating their risk of leaving the teaching profession*. Paper presented at the Southern Agricultural Education Research Conference, Orlando, FL.

Cano, J., & Miller, G. (1992). A gender analysis of job satisfaction, job satisfier factors, and job dissatisfier factors of agriculture education teachers. *Journal of Agricultural Education*, *33*(3), 40-46.

Dyer, J.E. & Williams, D. L. (1997). Supervision of supervised agricultural experience programs: A synthesis of research. *Journal of Agricultural Education*, *38*(4), 59-67.

Jewell, L. R. (1987). Differences between length of employment contracts of vocational agriculture teachers and their level of involvement with FFA activities. *Journal of Agriculture Education*, *28*(1), 58-64.

Leedy, P.D., & Ormrod, J.E. (2005). *Practical research: Planning and design—8th ed.* Upper Saddle River, NJ: Pearson Education.

Murnane, R.J. & Olsen, R. J. (1990). The effects of salaries and opportunity costs on length of stay in teaching: Evidence from North Carolina. *The Journal of Human Resources,* 25 (1), 106-124.

Myers, B. E., Breja, L. M., & Dyer, J. E. (2004). Solutions to recruitment issues of high school agricultural education programs. *Journal of Agricultural Education, 45*(4), 12-21.

Portillo, M.T., White, J.D. (2002, December). *An assessment of program factors influencing California FFA proficiency award participation.* Paper presented at the 29th National Agricultural Education Research Conference, Las Vegas, NV.

[State] Legislature, [State] Revised Statutes. (2010). *157.360 Base funding level -- Adjustment -- Enforcement of maximum class sizes -- Allotment of program funds -- Recalculation of allocated funds -- Lengthening of school days.* [URL data omitted for blind review submission to preserve the integrity of the process. Data will be inserted upon final review process]

Torres, R.M., Ulmer, J., & Aschenbrener, M. (2007, May). *Distribution of time usage among agriculture education teachers: A comparison of workloads.* Paper presented at the AAAE Research Conference, Minneapolis, MN.

Poster Type: Research

Evaluating Interns:
An Analysis of Supervisors' Satisfaction with Agricultural Communications Interns

Jessica Fry, Graduate Student
Department of Agricultural Education and Communications
Texas Tech University
Box 42131, Lubbock TX 79404-2131
Phone (806) 742-2816
Fax (806) 742-2880
jessica.fry@ttu.edu

Erica Irlbeck, Assistant Professor
Department of Agricultural Education and Communications
Texas Tech University
Box 42131, Lubbock TX 79404-2131
Phone (806) 742-2816
Fax (806) 742-2880
erica.irlbeck@ttu.edu

Introduction

Practical experience continues to be a key attribute that any entry-level professional can offer a prospective employer. Internships provide one of the best ways for recent college graduates to set themselves apart from the competition (Gault, Redington, & Schlager, 2000). Internships give college students the real-world experience they need to succeed in the job search. Rozgus (2007) argued that an internship should have a goal, challenging work, and a mentor or supervisor to train and guide the intern. In the end, the intern should have employment contacts and newly-learned professional skills that go beyond what is learned in the collegiate classroom (Irlbeck & Shultz, 2009). According to the American Council on Education, nine out of ten four-year colleges offer some sort of structured work experience related to a student's major or career interest (Tooley, 1997).

Akers (2000) stated that agricultural communications programs should frequently review curriculum so that students receive the highest quality of education possible in preparation for the communications industry. Internships are a part of [Department's] agricultural communications curriculum and are regularly scrutinized along with the rest of the curriculum. The purpose of this study was to determine if agricultural communications interns at [University] were meeting expectations of their internship supervisors. In addition, the researchers sought to identify the areas for improvement for the program's students/potential interns. Two research questions guided this study:

1. Which workplace characteristics are satisfactory and which need improvement according to the interns' supervisors?
2. What themes emerged from the additional comment section of the instrument?

Methodology

This was a replication of Irlbeck's and Shultz's (2009) study. A performance evaluation was developed by the agricultural communications faculty at [University] so that supervisors could rate their intern(s). At the completion of the student's internship, his or her supervisor completed a questionnaire that provided quantitative data in addition to open-ended questions. The first section of the instrument asked the supervisor to rate the intern's workplace characteristics on a four-point Likert-type scale with one being low and four being high. The workplace characteristics that were measured included both communications and professional skills. (All rated skills are included in Figure 1). The second section of the instrument included five open-ended questions that asked the internship supervisor to summarize the intern's strengths and weaknesses and offer pointers for future employment. Internship evaluations from Summer 2009 to the Summer 2011 semesters were evaluated for this study (N= 74). Students and faculty reviewed their evaluations together to discuss methods of improvement. Data were analyzed using Microsoft Excel 2007.

Findings

According to the data, "interaction with people outside the organization" and "ability to work in harmony with others" were the highest rated workplace characteristics. The least satisfactory characteristic was "maturity." Figure 1 demonstrates the mean scores of workplace characteristics. The grand mean of workplace characteristics was 3.79 (SD =

.07). When asked to summarize the intern's strong points, the recurring themes in the comments stated the interns were creative, willing to learn, well-spoken, eager to learn and work, dependable, organized, and had a strong work ethic. Comments in the "areas of improvement" section indicate a need for taking notes while receiving instructions, attention to detail, communicating with supervisor, punctuality, and proof reading. Several supervisors mentioned they would like to have more contact with the students' professors during their internship.

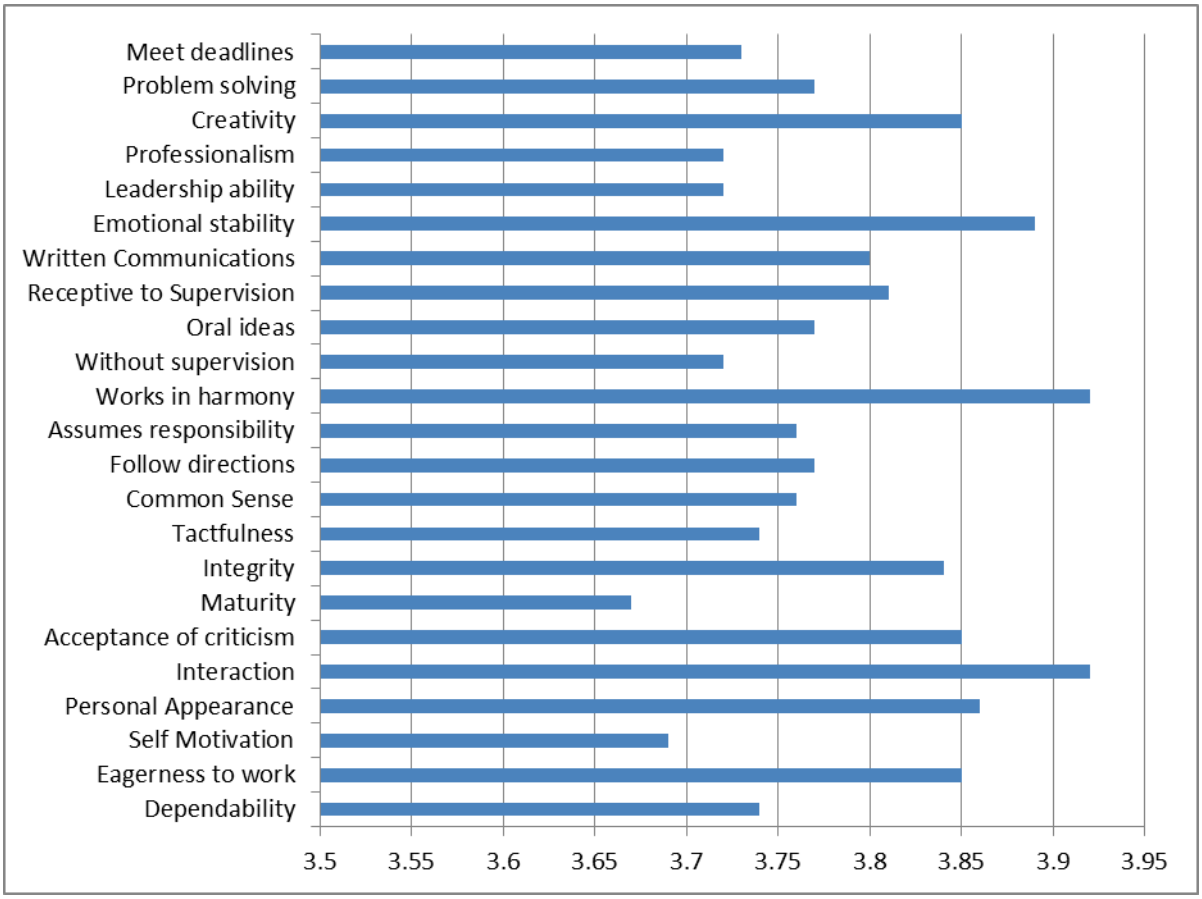

Figure 1. Mean scores of all workplace characteristics

Conclusions

Generally, employers are satisfied with their intern's performance; however, there is room for improvement. Communication with supervisors, punctuality, writing, and proof reading are all issues that need to be addressed with the students. Following the recommendations of the Irlbeck and Shultz (2009) study, the department implemented internship orientation to address some of the department's interns' weaknesses. The grand mean improved by .12 points. Improvement was observed in most areas. Although written communication tends to score lower than other skills, an imprvement of .28 points was observed from the 2009 study.

Recommendations

Based on the data, professionalism, leadership, working without supervision, maturity, and self- motivation need improvement. Although these are difficult qualities to teach, they can be addressed in the internship orientation. In addition, the faculty plan to be more diligent about contacting supervisors during the students' internships so that improvements can be made before the completion of an internship so that the students receive a more valuable learning experience.

References

Akers, C.W. (2000). High school agricultural communications competencies: A national Delphi study. *Unpublished manuscript.* Lubbock, TX: Texas Tech University.

Gault, J., Redington, J., & Schlager, T. (2000). Undergraduate Business Internships and Career Success: Are They Related? *Journal of Marketing Education,* 22(April): 45-53.

Irlbeck, E., & Oshel-Shultz, A. (2009). Improving Interns: An Investigation of Supervisors' Satisfaction Levels of College Interns. *Poster presented at the annual meeting of the American Association for Agricultural Education, Louisville, KY.*

Rozguz, A (2007). Integrating Interns. *Public Works, 138*(4). 36-39.

Tooley, J.A. (1997). Working for credit: how to make the most out of a semester-long internship. *U.S. News & World Report.* 17(November): 76-78.

Research

Exploring the perceived effectiveness of experiential learning techniques within [state] 4-H clubs as reported by Extension educators and volunteer leaders

Robyn Bechtel
The Pennsylvania State University
009 Ferguson Building
University Park, PA 16802
814-863-7463
reb5059@psu.edu

John C. Ewing
The Pennsylvania State University
215 Ferguson Building
University Park, PA 16802
814-863-7463
jce122@psu.edu

Exploring the perceived effectiveness of experiential learning techniques within [state] 4-H clubs as reported by Extension educators and volunteer leaders

Introduction/Theoretical Framework

The 4-H motto of *Learning by Doing* reflects the long history of the organization's dedication to hands-on learning. Over the years, the National 4-H Organization has developed an experiential learning model that divides the five-step experiential learning cycle of Pfeiffer and Jones into three phases (Enfield, Schmitt-McQuitty, & Smith, 2007). These phases are commonly known as *Do*, *Reflect*, *Apply* within the 4-H curriculum (Enfield, 2001). The experience involves the activity in question and is responsible for the "Do" phase (Carlson & Maxa, 1998; Enfield, 2001). The share and process steps together build the "Reflect" segment. Generalize and apply work together to develop the phase of "Apply". National 4-H adopted the five-step, three-phase model into the curriculum because the council believed that creatively engaging youth and allowing them to reflect on experiences, provided for optimal learning opportunities (Enfield, 2001). Not only is experiential learning built into 4-H project curriculums, but is also part of adult volunteer training materials (Martz, Mincemoyer, & McNeely, 2009).

The experiential learning model is used in 4-H because it is relatable, supports different learning styles, encourages discovery of knowledge, and helps draw conclusions (University of Arkansas, n.d). Besides the skills directly related to the cycle, it also encourages teamwork, communication and self-directed learning (Enfield, 2001; University of Arkansas, n.d). Through the use of experiential learning, youth are put in control of their education by experiencing the material first hand and given the opportunity to find the how their discoveries relate to what they already know (Arnold, Warner, & Osborne, 2006). The North Carolina State University published a 4-H curriculum document *Heads-on, Hands-on: The power of experiential learning* (2003), which was to be used when training volunteers that shared techniques to use when utilizing the 4-H model of experiential learning with youth. This booklet presented teaching methods and specific questions that could be used to increase the effectiveness of experiential learning. Approximately five years ago, [state] 4-H staff offered training in experiential learning and its value, but the state staff is now unsure how many current educators and volunteers participated in this training.

Methods

The overall purpose of the current research study was to help the [state] 4-H staff gain a better understanding of the current use, effectiveness and understanding of experiential learning by 4-H volunteer leaders. The specific objective of this research poster was to determine the effectiveness of multiple experiential learning techniques as perceived by Extension educators and volunteer leaders. Data was collected through the utilization of a modified version of the Dillman Total Design Survey Method (Dillman, 2000).

As part of a larger study looking at experiential learning within [state] 4-H, a survey instrument was developed and a field and pilot study were conducted. The survey was sent to the sample population via Surveymonkey. A census of 76 [state] Extension educators was taken. To select the 346 [state] 4-H volunteer leaders, a stratified random

sample based on the four state extension regions was taken from the e-data enrollment system. To understand the perceived effectiveness of experiential learning techniques, a Likert-type item was used. Non-response was controlled by comparing early to late respondents as reported by Miller and Smith (1983). Comparisons indicated no significant difference in early to late respondents.

Results/Findings

A total of 52 usable Extension educator and 92 volunteer leader surveys were collected for an overall response rate of 34.1%. Respondents were not required to complete all questions on the survey so there is some variation in the n value. Frequencies and percentages were calculated for the seven item Likert-type question. Respondents could choose *Very Ineffective*, *Ineffective*, *Effective*, *Very Effective*, or *Don't Know* to complete the question statements. To further compare the Extension educators and volunteer leaders' responses about perceived effectiveness of experiential learning, and independent t-test was used. A mean score was calculated for each respondent who completed the question. If an individual responded *Don't Know*, the response was reported as missing. The survey items asked are listed below:

- Experiential learning is a(n) _____ way to educate youth.
- Experiences are a(n) _____ strategy to use with youth.
- Field trips are _____ in enhancing youth learning.
- Asking youth to share their observations is a(n) _____ way to understand content.
- Helping youth find connections between a current experience and future situations is a(n) _____ means of learning.
- Questioning youth about what is occurring/experiencing is a(n) _____ process.
- Provide multiple scenarios to practice a new skill is a(n) _____ learning strategy.

In terms of effectiveness, Extension educators believe that experiential learning is a *Very Effective* way to educate youth while volunteer leaders were not as confident in the value of these techniques. The majority of Extension educators indicated that all seven items in the question were *Very Effective* ways to educate youth. The volunteer leaders were more evenly split between *Effective* or *Very Effective* for most questions.

When looking at the calculated mean scores for both groups, Extension educators had the higher value at 3.60, indicating a stronger *Effective* score than the volunteer leaders at mean score of 3.45. After completing the independent t-test for these two groups, the difference was approaching significance at .087.

Conclusions/Implications/Recommendations

The Extension educators and volunteer leaders who responded to this survey perceive that experiential learning is an *Effectiv*e or *Very Effective* way to educate youth. The mean composite score for Extension educators was higher which may be attributed to advanced knowledge and training within experiential learning. In order to advance the

volunteer leaders to the same level of understanding as Extension educators, further training or information sessions should be pursued. In a 2007 survey by Diem (2009), 80% of 4-H volunteer leader survey respondents indicated experiential learning was an essential subject in preparing the to be the best volunteer leader. The [state] 4-H staff should also observe 4-H clubs to ensure that the process of experiential learning is being used correctly to maximize its effectiveness.

References:

Arnold, S., Warner, W. J., & Osborne, E. W. (2006). Experiential learning in secondary agricultural education classrooms. Journal of Southern Agricultural Education Research, 56 (1) 30 – 39.

Carlson, S., & Maxa, S. (1998). Pedagogy applied to nonformal education. *The Center*, 48 – 53.

Diem, K. (2009) Preparing youth development professionals to be successful: How do the needs of extension/4-H compare to those of other organizations? *Journal of Extension, 47* (1). Retrieved from http://www.joe.org/joe/2009february/pdf/JOE_v47_1rb1.pdf

Dillman, D. (2000). *Mail and internet surveys. The tailored design method* (2nd ed.). New York, NY: John Wiley & Sons, Inc.

Enfield, R. P. (2001). Head, heart, hands, and health: "Experience and Education" by Dewey's Criteria? *2001 AERA Conference*

Enfield, R. P., Schmitt-McQuitty, L. S., & Smith, M. H. (2007). The development and evaluation of experiential learning workshops for 4-H volunteers. *Journal of Extension, 45* (1). Retrieved from http://www.joe.org/joe/2007february/a2.php

Martz, J., Mincemoyer, C., & McNeely, N. N. (2009). *Essential elements of 4-H youth development programs.* Retrieved from http://www.4-h.org/resource-library/professional-development-learning/national-learning-priorities/essential-elements.html

Miller, L., Smith, K. (1983). Handling nonresponse issues. *Journal of Extension, 21* (5), 45-50. Retrieved from http://www.joe.org/joe/1983september/83-5-a7.pdf

North Carolina State University. (2003). Heads-on, hands on: The power of experiential learning.
North Carolina Cooperative Extension.

University of Arkansas, Division of Agriculture. (n.d.). *4-H volunteer leaders' series: Experiential learning in 4-H project experiences.* Little Rock, Arkansas: Zurcher, T. D.

Research

Extension's Online Presence: Are Land-Grant Universities Promoting the Tripartite Mission?

Alexandra Hill
Montana State University
229 Linfield Hall
Bozeman MT 59717
(406) 994-5778
Alexandra.hill@montana.edu
Nikki Bailey
Montana State University
229 Linfield Hall
Bozeman MT 59717
(406) 994-5778
Nikki.bailey@montana.edu
Dr. Shannon Arnold
Montana State University
230 Linfield Hall
Bozeman MT 59717
(406) 994-6663
shannon.arnold@montana.edu
Dr. Courtney Meyers
Texas Tech University
Lubbock, TX
(806) 742-2816
Courtney.meyers@ttu.edu

Extension's Online Presence: Are Land Grant Universities Promoting the Tripartite Mission?

Introduction

Land grant universities were established with a tripartite mission: to educate, to conduct research, and to disseminate information to the public through the Cooperative Extension Service (CES) (USDA, 2011b). This mission has endured since the Smith-Lever Act was passed in 1914, but in many states, the CES is struggling to continue its services due to budget cuts and changing priorities within the legislative system (Verea-Hammond, 2004). Extension personnel are working to keep the CES relevant and research based, but part of the problem may lie in a general lack of public knowledge and presence of Extension, particularly in the online environment (Abrams, Meyers, Irani, & Baker, 2010; Seger, 2011; Rader, 2011). A recent article indicated that only 25% of Ohio residents were familiar with the CES (Loibi, Diekmann, & Batte, 2010). A similar poll conducted with 402 Alaskan residents indicated that while 73% of the sample population had heard of the CES, that number dropped to only 16% among respondents ages 18-29 years old (Dittman Research & Communications Corporation, 2010). Diem, Hino, Martin, and Meisenbach (2011) found Extension professionals in Oregon were interested in using technologies to expand audiences, but reported doing so was a barrier to work responsibilities. One national initiative to improve public communication of the CES was the development of eXtension in 2008, an educational and informational website aimed at connecting university resources and experts to the community (eXtension, 2012).

Conceptual Framework and Literature Review

Extension personnel acknowledge that the CES must do more to market itself and its programs (Rader, 2011). Research has highlighted the need to promote improved awareness and knowledge of Extension to the public (Abrams, et al., 2010; Debord, 2007; Kalambokidis, 2011; Varea-Hammond, 2004). The DAGMAR marketing model proposed by Colley (1961), which outlines four stages of customer product acceptance, was used as a framework for this study. The stages are defined as: 1) Awareness (the customer must be aware the product exists); 2) Comprehension (understanding the utility of the product or service); 3) Conviction (brand preference); and 4) Action (selecting the product or service). The DAGMAR model focuses on building a customer base through communication rather than working backwards from numerical goals such as sales or number of participants (Colley, 1961; Jones, 1994).

Methods

The purpose of this study was to evaluate the online presence and technological adoptions of Extension on university, college of agriculture, and state Extension websites. The objectives were to: (1) identify the presence of Extension on university and college of agriculture websites, and (2) identify the technologies that state Extension websites used for promotion. The population consisted of the 108 land-grant universities as defined by the USDA. The sample included 51 land-grants excluding 1890s, 1994s, and schools outside of the United States (USDA, 2011a). University and college websites were evaluated based on the following criteria: if they contained a direct link to Extension on the primary page (dropdown menus under titles such as "outreach" were

accepted), the number of clicks required to reach the Extension website, and if the website highlighted, featured, or described Extension and/or the tripartite mission. State Extension websites were assessed on the use of technologies featured on the homepage including, but not limited to, social media, photos, videos, a slide show, or eXtension. Three researchers used a coding workbook to compile the data. Ten websites were coded simultaneously and compared between researchers to ensure inter-rater reliability (Ary, Jacobs, Razavieh, & Sorensen, 2006). Means and frequencies were calculated using Excel.

Results

Of the university websites evaluated, 51% (n = 26) had a direct link to Extension on their main website. On average, a user had to click 1.42 times to reach an Extension site, but 20% (n = 13) of the universities had no obvious link on the homepage (such as through an "outreach," "extended university," or "public service" tab). Ten percent (n = 5) of the universities highlighted Extension through pictures, advertisements, or program spotlights; 29% (n = 15) provided some type of definition or explanation of the tripartite mission and/or CES. On average, college of agriculture websites required 1.25 clicks to reach an Extension website, but seven of those websites had no obvious link or access to Extension. Twenty-nine percent (n = 15) of college websites had an Extension highlight and 39% (n = 20) provided some type of definition or explanation of the tripartite mission and/or CES. Of the state Extension websites evaluated, 75% (n = 38) used Facebook, 61% (n = 31) used Twitter, 32% (n = 16) had a livefeed, 45% (n = 23) had a YouTube page, and 37% (n = 19) utilized some other form of social media (such as a blog, Flickr, Vimeo, or LinkedIn). Thirty-three percent (n = 17) had some type of video on their main webpage, 78% (n = 40) had a picture related to an Extension activity, 43% (n = 22) had a rolling slide show, and 45% (n = 23) offered an eXtension link.

Conclusions

Although Extension is a major part of the mission of every land grant university, only half of the main university websites have a direct link to Extension services, and fewer than 30% provided an explanation of the tripartite mission and/or the CES. Most university websites showcased education and research on their main page, but only 10% highlighted Extension services. Colley's (1961) DAGMAR model demonstrated the need for awareness and comprehension of a service; however, the majority of university websites evaluated did not meet those goals. College of agriculture websites had generally better results, but 14% (n = 7) made no mention of the CES. The majority of state Extension websites had adopted some sort of social media to promote its services, but only 45% had a link to eXtension, a disappointing number compared with the 75% adoption rate envisioned by eXtension leaders (Harder & Lindner, 2008).

Recommendations and Implications

As the founding body of the CES, land-grant universities should be doing more to promote Extension to the general public, particularly those with no knowledge of its services. Land grant university websites are well established and heavily trafficked, making them an obvious choice for expanding the online presence of Extension. In many cases, understanding Extension's outreach goal through its corresponding university website would have been virtually impossible. Universities should work to ensure Extension links are deliberately placed and obvious to consumers who may or may not know about the types of outreach the land-grant system provides. Most websites already

have a system in place to promote the land-grant mission, such as a scrolling slide show. Extension should be marketed as part of that mission through pictures and descriptions. While most of the state Extension websites were easily navigable and well-maintained, 20% did not have descriptive pictures, slide shows to add visual interest, or video links. Given Extension's struggle to stay technologically current (Diem et al., 2011), the under-utilization of eXtension links was disappointing. On a positive note, a large majority did utilize some sort of social media, a step in the right direction to keep Extension relevant across age groups. Regardless of the marketing model adopted by the CES, the message is clear: universities, colleges, and the CES need to expand Extension's Internet presence.

References

Abrams, K., Meyers, C., Irani, T., & Baker, L. (2010). Branding the land grant university: Stakeholders' awareness and perceptions of the tripartite mission. *Journal of Extension, 48*(6). Retrieved from: http://www.joe.org/joe/2010december/a9.php

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

Colley, R. H. (1961). *Defining advertising goals for measured advertising results.* New York: Association of National Advertisers.

Debord, K. (2007). How integrated extension programming helps market cooperative extension: The North Carolina recommendation. *Journal of Extension, 45*(5). Retrieved from: http://www.joe.org/joe/2007october/comm1.php

Diem, K., Hino, J., Martin, D., & Meisenbach, T. (2011). Is Extension ready to adopt techonology for delivering programs and reaching new audiences? *Journal of Extension, 49*(6). Retrieved from: http://www.joe.org/joe/2011december/a1.php

Dittman Research & Communications Corporation. (2010). *Public awareness, opinion, and perceptions of UAF cooperative extension service*. Retrieved from: http://www.uaf.edu/files/ces/about/strategic/Dittman-poll.pdf

eXtension, (2012). *eXtension more mind reach*. Retrieved from: http://about.extension.org/

Hardner, A., & Lindner, J. R. (2008). An assessment of county extension agents' adoption of eXtension. *Journal of Extension, 46*(3). Retrieved from: http://www.joe.org/joe/2008june/rb1.php

Jones, D. (1994) Setting promotional goals: A communications' relationship model. *Journal of Consumer Marketing, 11*(1), 38-49. Retrieved from: http://www.emeraldinsight.com/journals.htm?articleid=856179

Kalambokidis, L. (2011). Spreading the word about extension's public value. *Journal of Extension, 49*(2). Retrieved from: http://www.joe.org/joe/2011april/pdf/JOE_v49_2a1.pdf

Loibi, C., Diekmann, F., & Batte, M. (2010). Does the general public know the extension service? A survey of Ohio residents. *Journal of Extension, 48*(2). Retrieved from: http://www.joe.org/joe/2010april/pdf/JOE_v48_2rb3.pdf

Rader, H. (2011). Extension is unpopular – on the internet. *Journal of Extension, 49*(6). Retrieved from: http://www.joe.org/joe/2011december/comm1.php

Seger, J. (2011). The new digital [st]age: Barriers to the adoption and adaptation new technologies to deliver extension programming and how to address them. *Journal of Extension, 49*(1). Retrieved from: http://www.joe.org/joe/2011february/a1.php

United States Department of Agriculture. (2011a). 1862 *land grant universities and colleges.* Retrieved from: http://www.csrees.usda.gov/qlinks/partners/1862_map.pdf

United States Department of Agriculture. (2011b). Abraham Lincoln and agriculture – Morrill land grant college act. *History, Art, and Biography.* Retrieved from: http://riley.nal.usda.gov/nal_display/index.php?info_center=8&tax_level=4&tax_subject=3&topic_id=1030&level3_id=6723&level4_id=11088

Varea-Hammond, S. (2004). Guidebook for marketing cooperative extension. *Journal of Extension, 42*(2). Retrieved from: http://www.joe.org/joe/2004april/tt5.php

From Couch to Classroom: Exploring College Students' Television Uses and Gratifications

Haley Porter
Texas Tech University
Box 42131
Lubbock, TX 79409-2131
(806) 742-2816
Fax: (806) 742-2880
haley.porter@ttu.edu

Gaea Wimmer
Texas Tech University
Box 42131
Lubbock, TX 79409-2131
(806) 742-2816
Fax: (806) 742-2880
gaea.wimmer@ttu.edu

Courtney A. Meyers
Texas Tech University
Box 42131
Lubbock, TX 79409-2131
(806) 742-2816
Fax: (806) 742-2880
courtney.meyers@ttu.edu

From Couch to Classroom: Exploring College Students' Television Uses and Gratifications

Introduction/Need for Research

Previous studies have examined the use of entertainment media to teach complex concepts in leadership courses (McMahon & Bramhall, 2004; Berk, 2009; Meyers & Rudd, 2006). According to McMahon and Bramhall (2004), "media have the ability to make complex concepts visible and make them come alive – a necessary but rare ingredient in successful leadership development efforts," (p. 61). Berk (2009) said TV, movies, YouTube, and mtvU in college courses can tap students' multiple intelligences and learning styles in order to increase academic success. Meyers and Rudd (2006) evaluated the use of incorporating examples from *The Office* television show into an undergraduate agricultural leadership course to encourage students to identify poor leadership practices. The results indicated that the examples shown from *The Office* allowed students to effectively apply leadership concepts learned in the course (Meyers & Rudd, 2006).

The *American Association for Agricultural Education's Research Priority Areas for 2011 2015* lists the priority area of "design, development, and assessment of meaningful learning environments" (Doerfert, 2011, p. 9). The purpose of this research was to investigate the reasons students in leadership classes view television programs, particularly one program that is shown in the course. This information will help integrate relevant programs into the agricultural leadership classroom in order to strengthen the connection between content and real life experiences.

Conceptual/Theoretical Framework

The theoretical framework for this study is based on uses and gratifications theory (Katz, Blumler, & Gurevitch, 1974). The uses and gratifications theory posits that media users make decisions based on their recognized needs and receive gratifications from the media exposure. The theory is based on three basic concepts: 1) media users are goal-oriented, 2) media users are active in their selection and use, and 3) media users are aware of their needs and choose media that will address those needs (i.e. gratifications) (Katz et al., 1974). Needs can be related to an individual's need to understand, to have an emotional connection, to boost one's confidence, to improve contact with friends and family, and/or to escape or relieve stress (Stone, Singletary, & Richmond, 1999). Gratifications sought from television viewership, in particular, include entertainment, diversion, interpersonal communication, information, and parasocial interaction (Lin, 1993).

Methodology

The population for the study was 39 students in two agricultural leadership courses (Agricultural Leadership Principles and Personal Leadership Development in Agriculture Sciences and Natural Resources) at a southwestern university. Data collection took place at the beginning of the semester in both classes. Students completed an instrument pertaining to demographics and attitudes toward viewing *The Office*, as well as a section on Initial Viewing Motivation, which is an instrument

used to examine uses and gratifications (Rubin, 2009). In concurrence with the university's Institutional Review Board policies, students could decide whether or not they wanted to participate in the study. Students' responses were then collected and analyzed, using SPSS 18.0 software.

Results/Findings

Thirty-nine students participated in the study. The majority of the students were born in 1989 ($N = 9$), 1990 ($N = 9$), and 1991 ($N = 8$), with those three years making up 66% of the population. The class was almost evenly divided between male ($N = 19$) and female ($N = 20$) students. Most students were classified as seniors ($N = 17$), followed by juniors ($N = 11$), then sophomores ($N = 10$), and only one freshman. Thirteen students were agricultural leadership majors, followed by agricultural economics/business or similar ($N = 10$), then agricultural communications ($N = 9$), agricultural education ($N = 1$), and all other majors ($N = 6$).

Pertaining to students' viewing frequency of *The Office*, six students had never seen an episode of *The Office*, five students had seen just one episode, 19 had watched a couple episodes, two students watch all the new episodes, and seven watch the show every time it is on, including new episodes and reruns. Students were asked about their perceived feelings toward viewing *The Office* using a semantic differential scale, with 1 and 5 indicating strong feelings, 2 and 4 indicating weaker feelings, and 3 indicating undecided. The highest mean reported was for those students who found the show enjoyable ($M = 4.34$) and the lowest mean reported was for those students who found the show relevant ($M = 3.80$).

The Initial Viewing Motivation instrument has nine constructs and each construct is comprised of three questions so the maximum value for each construct is 15. Scores are based on a Likert-type scale with 1 = *strongly disagree* and 5 = *strongly agree*. Students were most motivated to use television as a way to entertain ($M = 11.87$, $SD = 2.03$), to pass time ($M = 11.54$, $SD = 2.08$), and to relax ($M = 10.95$, $SD = 2.31$). Students were least motivated to use TV for companionship ($M = 7.85$, $SD = 2.62$), and information ($M = 8.74$, $SD = 2.65$).

Conclusions/Recommendations

Students enjoy watching television because it is a way for them to pass time and be entertained. Students want to be entertained when they are in the classroom (Berk, 2009) so teachers should find ways to educate while engaging the students in an innovative manner. Students overall enjoy watching *The Office* for its entertainment value. More research should be done to determine if watching television programs to illustrate leadership concepts helps students understand and apply the concepts in a more concrete manner. Also, other television programs should be explored for their integration and use in leadership courses.

References

Berk, R.A. (2009).Multimedia teaching with video clips: TV, movies, YouTube, and mtvU in the college classroom. *International Journal of Technology in Teaching and Learning*, *5*(1), 1-21.

Bramhall, R., and McMahon, T.R. (2004). Using entertainment media to inform student affairs teaching and practice related to leadership. *New Direction for Student Services*, *108*, 61-70.

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.

Katz, E., Blumler, J., & Gurevitch, M. (1974). Utilization of mass communication by the individual. In J. G. Blumler & E. Katz (Eds.) *The uses of mass communications: Current perspectives on gratifications research* (pp. 19-32). Beverly Hills, CA: Sage.

Lin, C. (1993). Modeling the gratification-seeking process of television viewing. *Human Communication Research, 20*(2), 224-244.

Meyers, C.A., & Rudd, R. (2006, July). *Leading by (bad) example: Leadership lessons from* The Office. Refereed poster session presented at the Association of Leadership Educators Conference, Big Sky, MT.

Rubin, Alan M. (1983). Television uses and gratifications: The interactions of viewing patterns and motivations. *Journal of Broadcasting, 27*(1), 37-51.

Stone, G., Singletary, M., & Richmond, V. P. (1999). *Clarifying communication theories: A hands-on approach.* Ames: Iowa State University Press.

Gauging Perceptions of Public Policy in Agricultural and Natural Resources

Quisto Settle
qsettle@ufl.edu

Tracy Irani
irani@ufl.edu

Alexa Lamm
alamm@ufl.edu

Hannah Carter
hscarter@ufl.edu

Rachel Divine
racheldivine@ufl.edu

PO Box 110540
Gainesville, Florida 32611-0540
(352) 273-3425

Gauging Perceptions of Public Policy in Agricultural and Natural Resources

Introduction & Conceptual Framework

The public is increasingly concerned with policy issues affecting agriculture and natural resources (Baker, 2011), even though only 2% of the population is directly involved with production agriculture (Doerfert, 2011) and the public's lack of agricultural literacy is a continuing concern (Powell & Agnew, 2011). While there is research assessing public opinions and knowledge of agriculture (Goodwin, Chiarelli, & Irani, 2011; Powell & Agnew, 2011), research regarding public opinion of policy issues facing agriculture is lacking. Specifically, opinion leaders are important because of their influence on the opinions of other members of their communities through their central location in the community's communication structure (Rogers, 2003). This research assessed the general public's opinions of policy issues considered important by opinion leaders and addresses Research Priority 1: Public and Policy Maker Understanding of Agriculture and Natural Resources (Doerfert, 2011).

Public opinion research has shown a dearth of political knowledge among the general public (Donsbach & Traugott, 2008). The public gains its knowledge incidentally through media exposure or intentionally through attention to political coverage in general or attention to specific issues. People will attach importance to issues that affect them directly, relate to their fundamental values, or issues that affect groups the individual identifies with. The politically knowledgeable make decision more easily and effectively. They are also less likely to be persuaded by persuasive messages. For individuals to make the effort to seek out information, they must believe the issues are important. While knowledge or motivation can affect behavior, behavior is more likely to be affected when both knowledge and motivation are present.

Methods

To determine the issues to address in the survey, opinion leaders in [state] were surveyed. The opinion leaders were operationally defined as members of [state agriculture and natural resources leadership program]. The opinion leaders were asked what issues facing the agriculture and natural resources sector they believed were most important. From these broader issues, policy issues relevant to agriculture and natural resources in [state] were selected. The final policy issues were the enforcement of numeric nutrient criteria to assess water quality, government subsidies to support biofuel production, the transfer of school lunch programs from the department of education to the department of agriculture, and requiring E-Verify to ensure workers are legal residents. The target population for the survey was [state] residents. The sampling frame consisted of 279 members of an online panel that was representative of the state's general population, which was obtained through a third-party survey research center. For each topic, participants were provided a description of the issue, asked their awareness of the issue, how important the issue was on a 5-point scale, and their degree of opposition or support of the issue on a 5-point scale. The participants were also asked for their general perceptions of agriculture in [state]. The survey was distributed online through the third-party survey research center in September 2011.

Results

Results of the survey indicated that participants were generally unaware of the public policy issues, with the exception of the government providing subsidies for biofuels (Table 1). The issues were rated as being slightly important by the participants. The participants were most willing to support the use of E-Verify and requiring numeric nutrient criteria to assess water quality, while they were slightly willing to support government subsidies for ethanol production and transferring control of school lunch programs from the department of education to the department of agriculture. As for the opinions of agriculture in the state, the participants held slightly favorable views (Table 2).

Table 1
Summary of participants' awareness, perceived importance, and support of issues.

	Awareness (%)[a]	Importance[b]	Support/Oppose[c]
Biofuels	63.0	3.68	3.39
E-Verify	37.6	4.16	4.02
School Lunch Transfer	36.8	3.63	3.46
Numeric Nutrient Criteria	24.7	3.88	3.70

[a]Percent of participants who reported being aware of the issue.
[b]Mean for responses coded as 1 = Unimportant, 2 = Slightly Unimportant, 3 = Neutral, 4 = Slightly Important, and 5 = Important.
[c]Mean for responses coded as 1 = Oppose, 2 = Slightly Oppose, 3 = Neutral, 4 = Slightly Support, and 5 = Support.

Conclusions & Recommendations

The participants were generally unaware of the issues, indicating a disconnect between the general public and the important issues facing the agriculture and natural resources industry, as indicated by opinion leaders. This lack of awareness is consistent with past research showing a lack of agricultural and political knowledge for the general public (Donsbach & Traugott, 2008; Powell & Agnew, 2011). Though participants were generally unaware of the issues, participants considered the issues important. The immigration and water quality issues were the most important to participants and the most likely to be supported. The participants' perceptions of the issues as important is similar to the opinion leaders' perceptions issues, which is in line with past opinion leader literature (Rogers, 2003). The results are also in line with literature stating the public is concerned with agriculture and natural resources (Baker, 2011). For the public to take actions to support the agriculture and natural resources industry, motivation is present, as indicated by the public's perception of the issues' importance, but knowledge is lacking, as indicated by the public's lack of awareness of the issues facing agriculture and natural resources (Donsbach & Traugott, 2008).

For practitioners, efforts should continue to improve agricultural knowledge, particularly in regard to policy issues. These results indicate the public in [state] considers the issues facing agriculture and natural resources important, but they will be more likely to act with an increase in knowledge, which was not the case in this study (Donsbach & Traugott, 2008). For future research, the process for issues selection should be altered. In this survey, opinion leaders selected a broad topic (e.g., regulation), while the final survey needed to refer to specific policy issues (e.g., numeric nutrient criteria).

Opinion leaders should select specific policy issues to more directly address policy issues considered important. The next recommendation is to expand the research to a national scope. While it is important to understand the perceptions in individual states, many policy issues have national implications. To accomplish this, an accessible group of opinion leaders nationwide should be used, which could occur by utilizing similar leadership program participants in multiple states. Accessing a nationally representative sample can be occur by using the same third-party survey research center by expanding the scope of the panel.

References

Baker, L. M. (2011). *The agenda-setting effects of new media on the policy agenda: A quantitative content analysis of the blogosphere agenda, online elite media agenda, specialized public opinion agenda, interest group agenda, and the policy agenda* (Doctoral dissertation). Retrieved from ProQuest. (Document ID No. 2425088511)

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.

Donsbach, W., & Traugott, M. W. (Eds.). (2008). *The SAGE handbook of public opinion research*. Thousand Oaks, CA: SAGE Publications, Inc.

Goodwin, J. N., Chiarelli, C., & Irani, T. (in press). Is perception reality? Improving agricultural messages by discovering how consumers perceive messages. *Journal of Applied Communications*.

Powell, D. V., & Agnew, D. M. (2011). Assessing agricultural literacy elements of project food land and people in K-5 using the food and fiber systems literacy standards. *Journal of Agricultural Education, 52*(1), 155-170. doi:10.5032/jae.2011.01155

Rogers, E.M. (2003). *Diffusion of Innovations* (5th ed.). New York, NY: Free Press.

Good for the goose, good for the gander; an exploration of difficult concepts for students and teachers in agricultural education.

Savannah Faye Robin
Graduate Research Assistant, Agricultural Education
University of Kentucky
304 Garrigus Building
Lexington, KY 40545-0215
Phone: 859-257-7578
E-mail: savannah.robin@uky.edu

Bryan J. Hains
Assistant Professor, Agricultural Education
Department of Community and Leadership Development
University of Kentucky
507 Garrigus Building
Lexington, KY 40546-0215
(859) 257-7578
Fax: (859) 257-1164
E-mail: bryan.hains@uky.edu

Bethany P. Pratt
Graduate Research Assistant, Agriculture Education
University of Kentucky
307 Garrigus Building
Lexington, KY 40546-0215
(859) 257-7578
E-mail: bethany.pratt@uky.edu

Introduction/Need for research

Agriculture teachers are often expected to be highly qualified in multiple content areas (Harlin, Roberts, Dooley & Murphrey, 2007). In addition to agricultural content areas, educators are also expected to enhance core-content areas such as science, technology, engineering and math (STEM) (Thompson & Balschweid, 2000). This increased demand directly impacts both in-service and pre-service teachers. One of the largest impacts is the task of preparing teachers to be highly qualified in a diversity of content.

The concept of educators being "highly qualified" in disciplinary content has been a concern for many teacher educators, administrators and United States policymakers as early as 2002 (Harlin, Roberts, Dooley & Murphrey, 2007; Hill, Rowan & Ball, 2005). This concern is justified in that mere content proficiency is not enough (Barnett, 1991). Teachers must be able to facilitate/present content in a way that is applicable to student base knowledge (Barnett, 1991).

However, the crossroads between content knowledge and content pedagogy that infuses core content areas has been a challenge for agricultural education instructors (Harlin, Roberts, Dooley & Murphrey, 2007; O'Brien, Stewart & Moje, 2011; Davis, Petish & Smithey, 2006). Therefore, it is imperative that researchers examine these crossroads within agricultural education (Harlin, Roberts, Dooley & Murphrey, 2007). It is the purpose of this study to determine if a relationship exists between difficult concepts for students to understand (as perceived by their agriculture teacher) and concepts difficult for agriculture educators to teach.

Conceptual or theoretical framework Theory

Social learning theory was used to evaluate teacher attitudes and behaviors towards teaching perceived difficult concepts and students' success with those same concepts (Michener, DeLamater, Schwartz, 1986). According to Bandura (1977), classroom environment reinforces student modeling. This environment can be influenced by a third person, such as the educator, and their perspective on the subject. For example, if a teacher suggests that the class lesson will be "boring" the student may model that behavior. This may be displayed by their engagement or lack thereof in learning the concepts.

Research Context

Participants in this study consisted of 40 secondary agriculture teachers in one southern state. These agriculture teachers were attendees and participants in an educator's workshop that focused on engaging students in the classroom beyond traditional lecture.

Research Questions:

- What are the most difficult concepts for students to understand (as perceived by their agriculture teacher)?
- What are the most difficult concepts for teachers to teach?

- Is there a relationship between the perception of difficult concepts for students and the concepts educators perceive as difficult to teach?

Methodology

Participants were presented with two open-ended questions at the beginning of the workshop including, "what concepts are most difficult for students to understand" and "what concepts were most difficult to teach". No question prompts or conversations were generated prior to responding to the questions. The collected responses were anonymous. The researchers initially used in-vivo coding in order to identify both categories of difficult concepts (Saldaña, 2009). Second cycle coding was completed in order to identify themes and categorize the information (Saldaña, 2009).The findings are presented in two categories, "Difficult student content" and "Difficult content instruction". In addition, frequencies were calculated to record the number of times each theme was present.

Results/Findings

Results from this study were categorized based on the questions administered to the participants.

Note: The number at the end of the content description represents the frequency of response

Difficult Student Content	**Difficult Content Instruction**
Content 1.Math (Ag Math, record keeping, fertilizer calculations, rations, basic math)-29 2.Science (genetics, plant science, cellular structure, soil science)-9 3.Personal Responsibility (following directions, importance of career and college)-6 4.Reading/Writing (case studies, writing and reading)- 3	**Content** 1.Math-(Ag Math, record keeping, fertilizer calculations, rations)-12 2.Science- (plant science, physical reactions, soil science, environmental, equine, science experiments, genetics) -7 3. Personal responsibility-(ownership in the learning process, accountability, financial responsibility, keeping cell phones off.)-3 4. Reading/Writing- 2
Pedagogy 1.Application (to agriculture and real-life situations, careers, math)-11 2.Inquiry Based Learning/Self-directed learning-4 3.Problem Solving/Critical Thinking-3 4.Reading /Writing- (reading to comprehend-case studies, writing to explain)- 3	**Pedagogy** 1. Inquiry based learning/ self-directed learning- 3 2. Reading/writing- 2 3. Creative thinking- 1
Quotes "I hear, 'I am in ag class, I'm not here to do math.'" "They have a hard time understanding the higher order thinking problems involving	**Quotes** "Plant science- I find it boring" "Something I am not interested in- science experiments" "Thinking in the big picture, start one thing

multiple skill sets" "Concepts that require thinking and inquiry-based and student thought. They need to be spoon-fed."	leads to something else eventually getting to the larger goal"

Table 1 "Comparison of student/teacher difficulties in content and pedagogy, 2011"

Conclusions/Implications/recommendations/impact on profession

The results of the research show there are a number of connections between difficult concepts for students to understand and difficult concepts for educators to teach. Although, there was no given prompt to identify content and pedagogy difficulties, teachers perceived problems in both areas. In content difficulties math was identified as the most difficult for students to understand as well as instructors to teach. Other core-content areas such as science, reading and writing were also repeatedly identified as difficult areas for both teachers and students. Although the content areas clearly align, teachers perceived pedagogy problems as students having difficulty applying the concepts to real-life experiences. Teachers also perceived that students struggle with inquiry based and self- directed learning as well. However, the teachers also identified inquiry based and self-directed learning as the most difficult teaching method to utilize. Therefore, it is crucial to ensure that agriculture educators are prepared to enter the secondary education classroom with the skills and abilities they need to be highly-effective teachers. It is recommended that undergraduate agriculture education coursework provide an in-depth understanding of how core-content courses such as science, math, reading & writing fit into agriculture curriculum. It is also recommended that pedagogy courses focus on building competence in the instructional methods of inquiry-based and self-directed learning. For agriculture teachers that are actively teaching, it is recommended they participate in professional development focusing on these instructional areas. Better or continuing preparation of agriculture educators could help teachers successfully deliver these difficult content areas in a way that improves student comprehension.

References

Ball, D. L., Thames, M. H., & Phelps, G. (2008). Content knowledge for teaching; what makes it special? *Journal of Teacher Education*, 59 (5), 389-407.

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.

Barnett, C. (1991). Building a case-based curriculum to enhance pedagogical content knowledge of mathematics teachers. *Journal of Teacher Education* 42 (4) 263-272.

Davis, E.A., Petish, D. & Smithey, J. (2006). Challenges new science teachers face. *Review of Educational Research* 76 (4) 607-651.

Harlin, J.F. Roberts, T.G., Dooley, K.E., & Murphrey, T.P. (2007) Knowledge, skills and abilities for agricultural science teachers: A focus group approach. *Journal of Agricultural Education*. 48 (1) 86-96.

Hill, H.C., Rowan, B. & Ball, D.L. (2005). Effects of Teachers' Mathematical Knowledge for Teaching on Student Achievement. *American Educational Research Journal* 42 (2) 371-406.

Michener, A.H, DeLamater, J.D. & Schwartz, S.H. (1986) *Social Psychology.* Orlando, FL: Harcourt Brace Jovanovich.

National Academy of Education (NAEd). (2009). Teacher Quality Education Policy White Paper. Washington, DC: Author.

O'Brien, D.G., Stewart, R. A. & Moje, E. B. (2011). Why content literacy is difficulty to infuse into secondary school curriculum, pedagogy, and school culture. *Reading Research Quarterly* 30 (3) 442-463.

Saldana, J. (2009). *The coding manual for qualitative researchers.* Thousand Oaks, CA: SAGE Publications Inc.

Thompson, G.W. & Balshweid, M.M. (2000). Integrating science into agriculture programs: implications for addressing state standards and teacher preparation programs. *Journal of Agricultural Education* 41 (2) 73-80.

Identifying Sources of Self-efficacy in Introductory Plant Science Courses

Lisa Keefe
Purdue University
Agricultural Administration Building, Room 221
615 W State Street
West Lafayette, IN 47907-2053
765-496-1152
lkeefe@purdue.edu

Neil Knobloch, PhD
Purdue University
Agricultural Administration Building, Room 225
615 W State Street
West Lafayette, IN 47907-2053
765-496-1152
nknobloch@purdue.edu

Identifying Sources of Self-efficacy in Introductory Plant Science Courses

Introduction/Need for research

Students struggle in introductory science classes for many reasons including few opportunities for engaging with material due to large enrollment, and a tendency of professors to make introductory classes "weed-out" classes (Mervis, 2010). Self-efficacy is well known to be a good predictor of academic achievement and it is constructed from several sources of self-efficacy; the most important being mastery experience (Usher & Pajares, 2008). In order to help them succeed, a learning enhancement computer module is being developed for introductory plant science courses at [State University].

The purpose of this study is to develop sources of self-efficacy items for an instrument to examine outcomes of this experimental learning enhancement tool for college introductory plant science courses. It is important to determine the impact of this module on student self-efficacy outcomes because many undergraduate science education reform results are not reported widely enough to promote uniform adoption of new teaching practices (Derting & Ebert-May, 2010).

Although self-efficacy has been studied in general science (Thomas, 2008), chemistry (Uzuntiryaki & Çapa Aydın, 2009) and even biology (Baldwin, Ebert-May, & Burns, 1999), these current instruments are not specific enough to measure plant science sources of self-efficacy. This study was guided by the research question: What sources of self-efficacy do students base their study of biological and plant science success or failure on?

Theoretical framework

Self-efficacy beliefs, according to social cognitive theory, determine; what choices people make, how much effort and persistence to allocate, the level of perseverance with difficult tasks and the amount of anxiety people experience when engaging in a task (Bandura, 1997). This is why self-efficacy makes such an excellent predictor of academic achievement (Usher & Pajares, 2008).

As a precursor to self-efficacy, Bandura describes four sources of self-efficacy: mastery experience, vicarious experience, verbal and social persuasions and emotional and physiological states (1997). The most powerful of these four sources is mastery experience because according to Usher and Pajares, self-efficacy beliefs are most subject to change while students are in the process of learning a new skill (2008).

Methodology

A self-report, cognitive thought-listing method was used in this study. This method was first used by Lent, Brown et al. (1996). More recently it has been effectively used by Hutchison, Follman, Sumpter and Bodner et al. (2006). These approaches use phenomenography as a theoretical framework. Phenomenography seeks to find a collective human experience of phenomena as experienced by a specific population and within a specific time and context (Åkerlind, 2005). The theory assumes that there is variability in how people experience their world with no ultimate one essence to experiences.

In the Fall 2011 semester, students (n=110) in two introductory courses Horticulture 101 and Agronomy 105 were given a pilot version of the self-efficacy instrument currently in development at the end of the last class and before the final exam. Included with the self-efficacy items were two open ended questions adapted from

Hutchison examining factors influencing self-efficacy in first-year engineering students (2006).

Students were asked to "Rate your confidence in your ability to both: achieve success in another life science class" and "Receive good grades on exams in this course". Following these items, students were asked to "Think about the reasons you considered when answering the question above. Describe briefly all of the reasons on which you based your confidence rating to this particular question. Include everything that comes to mind in the spaces provided". Last, students were asked to rank their reasons with 1 being most important up to 10 being least important.

Rankings of 1 or 2 were considered first priority and ranking after that was considered a second priority. Responses were open coded with no pre-set reference. Themes were then collapsed and peer debriefing with an audit trail were used to establish dependability (Denzin & Lincoln, 2003). Due to the small study population, factors that were mentioned by at least 12% of the respondents are reported.

Results/Findings

About 74% of the students responded to the open response prompts. When asked about the reasons for confidence in getting a good final grade on the course exam, eight themes were most common. These themes were: studying, conceptual understanding, previous exam performance, interest in the content and course, class attendance, participation in assignments, and perceived skill of the teachers. Of the eight themes, previous exam performance, studying, conceptual understanding and perceptions of the teachers were ranked as a first priority for 75% or more of the responses.

Students gave slightly different reasons for being successful in another life science class. The most common themes were: previous experience or background knowledge, conceptual understanding, study habits, life sciences classes are a major requirement, having ability (or lack of) in science, interest in science, using grades as a scale and homework completion were the most frequently mentioned. More than 75% of the students ranked; background knowledge, conceptual understanding, study habits, lack of science ability and exam performance as a first priority. Furthermore, lack of science ability and exam performance were ranked as a first priority in 100% of the students that cited those themes.

Conclusions

These results are very similar to what Hutchison, Follman, Sumpter and Bodner (2006) found with introductory engineering students. Categories such as conceptual understanding, completing homework and grades correspond with Bandura's (1997) mastery experiences. Reasons such as the perceived skill of the teacher fit with vicarious experiences. More than the four original sources of self-efficacy could exist but we need more studies to define them (Usher & Pajares, 2008)

For example, perceiving a lack of science ability does not easily fit within the four sources of self-efficacy and warrants further investigation. Other factors less mentioned such as; listening to peers about how easy or difficult study of biology is, viewing life sciences as easier than biology and being overwhelmed by the amount of information would also be better illustrated with a larger sample size.

Implications and Recommendations

Places of higher education are taking education reform seriously, but these reform efforts will not be successful if the student outcomes of new practices cannot be

measured effectively (Derting & Ebert-May, 2010). Using the target audience as a resource for creating questionnaires is not only effective, but also reveals the process of student reasoning that occurs in building self-efficacy beliefs (Hutchison, Follman, Sumpter & Bodner, 2006). Using this information to create ready to use self-efficacy and sources of self-efficacy instruments will help administrators quickly determine the impact that new teaching strategies have on achievement outcomes, thus giving support for lasting practice changes.

References

Åkerlind, G. S. (2005). Variation and commonality in phenomenographic research methods. *Higher Education Research & Development, 24*(4), 321-334. doi: 10.1080/07294360500284672

Baldwin, J. A., Ebert-May, D., & Burns, D. J. (1999). The development of a college biology self-efficacy instrument for nonmajors. *Science Education, 83*(4), 397-408. doi: 10.1002/(sici)1098-237x(199907)83:4<397::aid-sce1>3.0.co;2-#

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Denzin, N. K., & Lincoln, Y. S. (2003). The Discipline and Practice of Qualitative Research. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Landscape of Qualitative Research: Theories and Issues* (pp. 1-46). Thousand Oaks: Sage Publications.

Derting, T. L., & Ebert-May, D. (2010). Learner-Centered Inquiry in Undergraduate Biology: Positive Relationships with Long-Term Student Achievement. *CBE-Life Sciences Education, 9*(4), 462-472. doi: 10.1187/cbe.10-02-0011

Hutchison, M. A., Follman, D. K., Sumpter, M., & Bodner, G. M. (2006). Factors influencing the self-efficacy beliefs of first-year engineering students. *Journal of Engineering Education*, 39-47.

Mervis, J. (2010). Better Intro Courses Seen as Key to Reducing Attrition of STEM Majors. *Science, 330*(6002), 306. doi: 10.1126/science.330.6002.306

Thomas, G. D. S. (2008). Development of an Instrument Designed to Investigate Elements of Science Students' Metacognition, Self-Efficacy and Learning Processes: The SEMLI-S. [Article]. *International Journal of Science Education, 30*(13), 1701-1724. doi: 10.1080/09500690701482493

Usher, E. L., & Pajares, F. (2008). Sources of Self-Efficacy in School: Critical Review of the Literature and Future Directions. *Review of Educational Research, 78*(4), 751-796. doi: 10.3102/0034654308321456

Uzuntiryaki, E., & Çapa Aydın, Y. (2009). Development and Validation of Chemistry Self-Efficacy Scale for College Students. *Research in Science Education, 39*(4), 539-551. doi: 10.1007/s11165-008-9093-x

Research Poster Paper

International acculturation: The good, the bad, and the ugly

Jonathan A. Tubbs
Agricultural Education
Department of Community and Leadership Development
University of Kentucky
304 Garrigus Building
Lexington, KY 40546-0215
(859) 257-7578
Fax: (859) 257-1164
jonathan.tubbs@uky.edu

Savannah F. Robin
Agricultural Education
Department of Community and Leadership Development
University of Kentucky
304 Garrigus Building
Lexington, KY 40546-0215
(859) 257-7578
Fax: (859) 257-1164
savannah.robin@uky.edu

Bryan J. Hains
Agricultural Education
Department of Community and Leadership Development
University of Kentucky
507 Garrigus Building
Lexington, KY 40546-0215
(859) 257-7578
Fax: (859) 257-1164
bryan.hains@uky.edu

International acculturation: The good, the bad, and the ugly

Introduction/Need for Research

Universities across the country are stressing the importance of international education (Connell, 2003; Jenkins & Skelly, 2004; Larsen, 2004). Cultural skills and understanding attained through international experiences are critical as graduates compete in a global society (Association of American Colleges and Universities, 2008; Samaan, 2005). Post-secondary institutions have implemented international experiences which have shown to enhance students' cross-cultural skills and global understanding (Kitsantas, 2004). Results also indicate international immersion as an effective way for students to acquire cultural understanding (Brooks, Frick, & Bruening, 2006; Jenkins, 2002; Wilson, 1993). Although international immersion seems to benefit most, student responses to foreign environments can vary. Students who are exposed to new cultures often have visceral reactions (King & Young, 1994) that can range from negative to positive with extreme variance from case to case (Van Der Meid, 2003).

Theoretical Framework

Appraisal theory was used to evaluate student responses toward international immersion. Scherer, Schorr, and Johnstone (2001) describe appraisal theory as involving exposure to novel stimuli. Stimuli are appraised based on internal beliefs and cultural norms. If stimuli are perceived as aligning with beliefs, neutral or positive emotions are evoked. However, if stimuli challenge beliefs, negative emotions can be evoked. Reactions are often different to same stimulus, accessing a continuum of emotions. Scherer et al. (2001) note that after initial appraisal individuals identify coping mechanisms for each situation. In this course, students revealed thoughts (reactions) to different situations (stimuli) through journal reflection.

Research Context

Participants included two professors, one graduate student and three undergraduate students in agricultural education. In the course, students worked with two Scottish agricultural island communities, evaluating the influence of agricultural groups within the rural communities. Students were divided into two groups and immersed in their community for 22 days.

Research Questions:

1. What objects/events do participating students view as novel stimuli when immersed in an international setting?
2. How do students appraise/react toward identified stimuli within an international setting?

Methodology

Students maintained journals throughout the international experience and were collected at the end of the course. Journals were analyzed to identify student stimulus appraisal and correlating reactions. Data analysis included first round holistic coding then second round axial coding (Saldaña, 2009) using the primary tenets appraisal theory.

Data were substantiated through inter-rater reliability and by confirming qualitative themes with each participant.

Results/Findings

Coding resulted in thematic stimuli categories, each creating various emotional responses from students. Results are presented with these thematic categories along with identified student appraisal/reaction. Student evidence is presented in the form of student quotes.

Table 1

Student Reactions to Thematic Stimuli

Thematic stimuli	**Appraisal/Reaction**	**Student evidence**
International travel	Frustration, fear, agitation, anxiety, excitement**,** elation	*"The days cannot pass quickly enough for me. Part of me is still regretting taking this trip."* *"I hate London!! I want to come home."*
Culinary differences	Annoyance, disgust**,** enthrallment, amazement	*"I had pigeon (dove) for an appetizer (delicious), venison as a main course (AMAZING) and cheesecake for dessert."*
Societal norms	Apprehension, dismay, homesickness, amazement	*"It has truly amazed me how similar cultures and mentalities are across the world, but we always say cultures are different because we never break the surface."* *"He wouldn't hardly look at me…because I was female. I guess that was frustrating…because times have changed and I expect equal respect."*
International infrastructure	Aggravation, optimism, irritation, isolation, joy	*"While this place is beautiful, I am already tired of it and I feel trapped."* *"We love the Isle of Bute so much we wanted to see it from a raw perspective on bicycles."*
Language barriers	Eagerness, optimism, exasperation, annoyance	*"He's an older man you sometimes can't understand because his accent is so thick."* *"The conversation was phenomenal and we were able to put our knowledge to the test."*

Conclusions/Implications/Recommendations

All students experienced visceral responses toward their experience. However, the stimuli for which they attributed the response differed from individual to individual. Additionally, the intensity and length of emotional response varied. Students who professed prior international experience generally coped with negatively appraised stimuli quicker than the student with no international exposure. Moreover, results indicate group dynamics greatly influenced student appraisal toward international novel stimuli. One group struggled with intrapersonal relationships, heightening the emotional intensity of appraised stimuli. Students were given time for reflection when returning from their experience. Post-reflection analysis indicated students viewed their international experience positively, stating it helped them develop both personally and professionally. However, data analysis revealed that during the experience students generally expressed negative emotions toward self-identified stimuli.

It is critical that teacher educators in agricultural education understand the developmental process of students as they participate in international education programs. If this process is overlooked, students can often perceive their experience as negative, limiting their cultural development (King & Young, 1994). It is recommended that this process be evaluated further in multiple international contexts. It is also suggested that students preflect about their development prior to their international experience. Students may be able to better cope with negatively appraised stimuli better if they are metacognitive about their experience.

References

Association of American Colleges and Universities (AAC&U). (2008). Executive summary of college learning for the new global century. Washington, DC: Author

Brooks, S. E., Frick, M., & Bruening, T. H. (2006). How are land grant institutions internationalizing undergraduate agricultural studies? Journal of International Agriculture and Extension Education, 13(3), 91-102.

Connell, C. (2003). The stories behind the numbers: Internationalizing the campus. *Inter*n*ational educator*, 12(3), 12-21

Jenkins, K. (2002). International education in an altered world. *Priorities*, (19), 1-18.

Jenkins, K., & Skelly, J. (2004). Education abroad is not enough. *International Educator*, 13(1),6 – 12.

King, L. J., & Young, J. A. (1994). Study abroad: Education for the 21st century. *American Association of Teachers of German*, *27*(1), 77-87. Retrieved from http://www.jstor.org/stable/3531477

Kitsantas, A. (2004). Study abroad: The role of college students' goals on the development of cross-cultural skills and global understanding. *College Student Journal* (38)3, 441-452.

Larsen, D. C. (2004). The future of international education: What will it take? *International Education.* 34(1), 51-56.

Samaan, J. S. (2005). Internationalizing a community college: A journal of organizational change. Ph.D. dissertation, University of Hawaii at Manoa, United States. Retrieved May 30, 2009, from Dissertations & Theses: Full Text database. (Publication No. AAT 31983777).

Scherer, K. R., Schorr, A., & Johnstone, T. (2001). *Appraisal process in emotion: Theory, methods, research.* New York, NY: Oxford University Press.

Van Der Meid, J. S. (2003). Asian americans: Factors influencing the decision to study abroad. *Frontiers: The Interdisciplinary Journal of Study Abroad* , *9*, Retrieved from http://www.frontiersjournal.com/issues/vol9/vol9-04_vandermeid.pdf

Wilson, A. H. (1993). Conversation partners: Helping students gain a global perspective through cross-cultural experiences. *Theory into Practice*, *32*(1), 21-26.

Learning About School IPM Effectiveness Through Stakeholder-Based Evaluation

Nicholas R. Brown
Oklahoma State University
458 Agricultural Hall
Stillwater, OK 74078
405-744-2972
nick.brown@okstate.edu

Marshall A. Baker
Oklahoma State University
459 Agricultural Hall
Stillwater, OK 74078
405-744-2972
bakerma@okstate.edu

Kathleen D. Kelsey
Oklahoma State University
466 Agriculture Hall
Stillwater, OK 74078
405-744-8137
kathleen.kelsey@okstate.edu

Learning About School IPM Effectiveness Through Stakeholder-Based Evaluation

Introduction

Research has indicated there are negative impacts associated with pesticide use in schools (Kogan, 1998; Goldman, 1995). Integrated pest management (IPM) offers safer methods for pest control (Lame, 2005). However, the state of [STATE] has no enacted mandates regarding the use of IPM techniques forcing schools to utilize safer pest management practices (Blind Reference, personal communication, September 12, 2011). The implied dissonance of this situation has led to the perceived need of the program of interest in this evaluation – School IPM Program in [STATE].

Two primary goals guided the School IPM Program: (1) create an IPM resource packet that included background information about IPM, the need for IPM in schools, and current IPM practices and strategies, and (2) visit each participating school and deliver a professional IPM educational presentation, conduct a preliminary facility inspection, and provide a personal pest control consultation session to faculty and administrators. Ultimately, the mission of the program was to introduce the concept of IPM to school decision makers who were expected to implement IPM techniques in their school districts, resulting in reduced exposure to pesticides among school students, staff, and faculty. The objectives of the School IPM program were as follows: (1) encourage a school culture that includes IPM techniques rather than using expensive and dangerous pest control chemicals, (2) create IPM awareness in six [STATE] public school districts, and (3) educate school personnel about appropriate IPM techniques. (Blind Reference, personal communication, September 12, 2011)

After the program was implemented in 2009, the project director wanted feedback on the effectiveness of his efforts. He sought out evaluation services to help support decision making about future programming. The evaluation team focused evaluation efforts on answering three central questions: (a) what current perception typologies existed regarding pest management in school settings?, (b) were stakeholders who participated in the IPM School Program knowledgeable of IPM techniques?, and (c) what IPM strategies were adopted as a result of the participating in the pilot program?

Theoretical Framework

Rogers' (2003) diffusion of innovation theory guided the evaluation. Rogers (2003) outlined five stages in the diffusion process: (a) knowledge, (b) persuasion, (c) decision, (d) implementation, and (e) confirmation. The five stages of the diffusion process were utilized to analyze findings and formulate recommendations.

Methodology

Three schools were identified and requested to participate in the evaluation, two of the schools participated in the IPM School Program and one did not. Two major methods of evaluation were utilized to answer the evaluation questions. First, a qualitative case study as described by Creswell (2007) consisting of interviews with stakeholders, pictures of school pest management strategies, and document analysis provided a deeper and richer understanding of the impact of the IPM School Program.

Q-methodology, outlined by Brown (1980) was used to answer the first evaluation question centered on the perception typologies that exist regarding pest management in school settings. Participants were asked to complete the sort and also talk aloud as they

sort. This talk aloud was recorded in the same manner as the interviews to aid in the various views related to IPM in schools.

Findings

In response to the first evaluation question, it was found that three major perception typologies existed. The first typology was named *Concerned Supporter of IPM*, and was built on four major concepts: (a) a lack of trust in relation to chemical controls of pest, (b) concern for the environment and the health of students, (c) a belief that IPM strategies are effective, and (d) a desire to learn more about IPM. The second typology, *Responsible Pragmatists,* was defined by individuals who were focused on the immediate needs of schools, recognized the dangers associated with chemical pest control, relied on and trusted that professionals would administer chemicals safely and effectively. Finally, the last perception was referred to as *The Power of Education* and highlighted two opposite views that exposed the important role that knowledge of IPM can play in changing the culture of pest management in schools.

Evaluation question two asked if stakeholders who participated in the IPM School Program were knowledgeable of IPM techniques. The evaluators found that administrators, staff, and instructors at participating school districts possessed a general but limited knowledge of various IPM techniques. Conversely, staff members and instructors at the non-participating school were ignorant of IPM techniques and terminology.

Evaluation question three pertained to IPM strategies that were currently being implemented in the schools that participated in the IPM School Program. This question is answered simply – one of the schools currently uses IPM techniques and the other does not. A staff member in the school that utilizes IPM explained that he has been interested in IPM for several years and he was very excited to participate in the OSU program. The superintendent of the school that chose not to adopt IPM indicated that he never took the program seriously because he thought he was doing [STATE] University a favor by agreeing to participate.

Evaluative Judgments

As a result of this evaluation, it was concluded that the IPM School Program increased IPM I.Q. but did not permeate behaviors of school stakeholders. The diffusion of this innovation failed during the decision stage of Rogers' (2003) model. Furthermore, resources devoted to objectives beyond that of simple education were ineffective and little behavior change will occur without state legislation mandating IPM in schools.

Recommendations

Based on the three judgments stated above, it is recommended that:

- Future IPM educational efforts should be focused on the risks associated with chemical control.
- Administrators should be a focus of IPM educational efforts.
- Schools that are interested in IPM strategies should be identified, invested in, and supported as opinion leaders.
- IPM professional development seminars should be hosted throughout the state.

References

Brown, S. R. (1980). *Political subjectivity: Applications of Q-methodology in political science.* London, UK: Yale University Press.

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches.* Thousand Oaks, CA: Sage.

Goldman, L. R. (1995). Environmental risks facing children and recommendations for response. *Environ Health Perspect,* 103(6), 13-18.

Kogan, M. (1998). Integrated pest management: Historical perspectives and contemporary developments. *Annual Review Entomology, 43,* 243-270.

Lame, M.L. (2005). A worm in the teacher's apple: protecting America's school children from pests and pesticides. Bloomington, IN: Authorhouse.

Rogers, E. M. (2003). *Diffusion of innovations.* New York: Free Press.

Research Poster

2012 AAAE Conference

Mathematics Efficacy: An Investigation of Cooperating Teachers and Their Student Teaching Interns

Christopher T. Stripling, Graduate Assistant
T. Grady Roberts, Associate Professor
University of Florida

PO Box 110540
Gainesville, FL 32611-0540

352-273-3425
cstripling@ufl.edu
groberts@ufl.edu

Mathematics Efficacy: An Investigation of Cooperating Teachers and Their Student Teaching Interns

Introduction/Need for Research

Numerous calls have been made for agricultural education to support core academic subject matter, including mathematics. To do so, agricultural education teachers must be prepared for this task. This implies that preservice teacher education will play an important role in answering the aforementioned calls. According to Cruickshank (1984), there are five explanatory variables in preservice teacher education: (a) teacher educators (education professors and cooperating teachers), (b) teacher education students, (c) context of teacher education, (d) content or curriculum of teacher education, and (e) instruction and organization in teacher education. This study will focus on two of Cruickshank's explanatory variables: (a) cooperating teachers and (b) student teaching interns (teacher education students).

Roberts (2006) stated that cooperating teachers have tremendous influence on the learning experiences of their student teaching interns. Thus to answer the above-mentioned calls, cooperating teachers should be proficient in incorporating core academic subjects into the agricultural education curricula. Correspondingly, Roberts and Dyer (2004) reported that effective agriculture teachers incorporated core subjects into the agriculture program. Furthermore, Tschannen-Moran and Woolfolk Hoy (2001) stated teaching effectiveness could be indicated by a teacher's efficacy beliefs. Therefore, this study will seek to examine potential for effectiveness by describing the personal mathematics efficacy, mathematics teaching efficacy, and personal teaching efficacy of the [University]'s agricultural education cooperating teachers. In addition, this study will compare the mathematics efficacy of the cooperating teachers and their student teaching interns.

Theoretical Framework

Bandura's (1986) social cognitive theory was used to frame this study. According to social cognitive theory, behavior is influenced bidirectionally by environmental and personal factors. In the context of this investigation, behavior is the teaching of contextualized mathematics, the environment is the [University]'s agricultural teacher education program, and the personal factors of interest are personal mathematics efficacy, mathematics teaching efficacy, and personal teaching efficacy of cooperating teachers and their student teaching interns.

Methodology

This exploratory study utilized a one shot case study (Campbell & Stanley, 1963) to describe the personal mathematics efficacy, mathematics teaching efficacy, and personal teaching efficacy of [University]'s agricultural education cooperating teachers and their student teaching interns. The sample consisted of 12 cooperating teachers, 4 males and 8 females, and 12 student teaching interns, 2 males and 10 females. Data were

collected using Jansen's (2007) *Mathematics Enhancement Teaching Efficacy Instrument* at the beginning of the student teaching experience in the Spring of 2011. The aforementioned instrument measures three constructs: (a) personal mathematics efficacy (r = .84; 1 = Not at all confident to 4 = Very confident), (b) mathematics teaching efficacy (r = .88; 1 = Strongly disagree to 5 = Strongly agree), and (c) personal teaching efficacy (r = .91; 1 = Nothing to 9 = A Great Deal).

Results

The data indicated that the cooperating teachers in this study were confident in their personal mathematics efficacy (M = 3.72, SD = .50), and they perceived themselves as having "Quite a Bit" of influence in affecting student learning (personal teaching efficacy, M = 7.47, SD = .93). In addition, the cooperating teachers were moderately efficacious in their mathematics teaching efficacy (M = 3.69, SD = .33). Similarly, the student teaching interns were confident in their personal mathematics efficacy (M = 3.31, SD = .72) and perceived themselves as having "Quite a Bit" of influence in affecting student learning (personal teaching efficacy, M = 7.31, SD = .78). However, the student teaching interns were uncertain of their ability to teach mathematics (mathematics teaching efficacy, M = 3.15, SD = .76). Additionally, an analysis of the cooperating teacher/student teaching intern pairs revealed that 83.3% of the cooperating teachers scored higher than their student teaching intern on personal mathematics efficacy and only 66.7% of the cooperating teachers scored higher than their student teaching intern on mathematics teaching efficacy and personal teaching efficacy.

Conclusions

The overall mean scores of the cooperating teachers were slightly higher than the student teaching interns for all three constructs: (a) personal mathematics efficacy, (b) mathematics teaching efficacy, and (c) personal teaching efficacy. However, the cooperating teacher/student teaching intern pairs revealed that not all of the cooperating teachers scored higher than their student teaching intern on all of the above mention constructs.

Implications/Recommendations

[University] teacher educators should be encouraged that the cooperating teachers and the student teaching interns in this study were efficacious in their mathematics ability and personal teaching efficacy. According to Bandura (1986), personal factors influence behavior and the environment. Therefore, theoretically, being efficacious in personal mathematics efficacy and personal teaching efficacy should positively impact the teaching of contextualized mathematics in the agricultural education curricula and the environment of the agricultural teacher education program. On the other hand, the mathematics teaching efficacy of the cooperating teachers and their interns may be of concern, since the data indicated that the cooperating teachers were moderately efficacious and the teaching interns were uncertain of their mathematics ability. Theoretically, this should negatively impact the teaching of contextualized mathematics

and the agricultural teacher education program. More precisely, cooperating teachers that are only moderately efficacious and/or scored lower than their student teaching intern may negatively influence their teaching intern's attitudes and competence in teaching contextualized mathematics. Thus, future research should seek to improve the mathematics teaching efficacy of [University]'s cooperating teachers and their student teaching interns and seek to quantify the impact of cooperating teachers' mathematics efficacy and mathematics teaching efficacy on student teaching interns' mathematics efficacy and mathematics teaching efficacy.

References

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research.* Boston, MA: Houghton Mifflin.

Cruickshank, D. R. (1984). Toward a model to guide inquiry in preservice teacher education. *Journal of Teacher Education, 35*(6), 43-48. doi: 10.1177/002248718403500610

Jansen, D. J. (2007). *Validation of an instrument for mathematics teaching efficacy of Pacific Northwest agricultural educators* (Doctoral dissertation). Retrieved from http://ir.library.oregonstate.edu/jspui/handle/1957/7689

Roberts, T. G. (2006). Developing a model of cooperating teacher effectiveness. *Journal of Agricultural Education, 47*(3), 1-13. doi: 10.5032/jae.2006.03001

Roberts, T. G., & Dyer, J. E. (2004). Characteristics of effective agriculture teachers. *Journal of Agricultural Education, 45*(4), 82-95. doi: 10.5032/jae.2004.04082

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education, 17*, 783-805.

Meeting the Professional Development Needs of New Mexico School-based Agricultural Educators: A Focus on Management of the Agricultural Mechanics Laboratory

P. Ryan Saucier
Texas State University
601 University Drive
San Marcos, TX 78666
(512) 245-2130
ryansaucier@txstate.edu

Billy R. McKim
Texas A&M University
2116 TAMU
College Station, TX 77843-2116
(979) 845-0794
brmckim@tamu.edu

Kristin Stair
New Mexico State University
P.O. Box 30003 MSC 3501
Las Cruces, NM 88003-8003
(575) 646-5960
ksstair@nmsu.edu

Carlos Rosencrans
New Mexico State University
P.O. Box 30003 MSC 3501
Las Cruces, NM 88003-8003
(575) 646-5960
crosencr@nmsu.edu

Meeting the Professional Development Needs of [STATE] School-based Agricultural Educators: A Focus on Management of the Agricultural Mechanics Laboratory

Introduction

According to Phipps, Osborne, Dyer, and Ball (2008), agricultural education laboratories are an essential component of the total secondary agricultural education program and allow students to actively engage in scientific inquiry and application (Osborne & Dyer, 2000). Administrators rely on the knowledge and expertise of agriculture teachers to provide high-quality instruction in a safe environment for school age students (Dyer & Andreasen, 1999; Gliem & Miller, 1993; McKim & Saucier, 2011b). Furthermore, parents demand that their children receive safe and proper instruction with adequate supervision from qualified individuals (Dyer & Andreasen, 1999). Therefore, safety is the single most important consideration when teaching in a laboratory environment (Dyer & Andreasen, 1999) and is the primary responsibility of the teacher (Gliem & Miller, 1993). Hence, knowledge and skills associated with agricultural mechanics education are essential for agricultural educators who intend to provide a safe and efficient laboratory learning environment for agricultural mechanics students (Saucier, Terry, & Schumacher, 2009).

Agricultural mechanics courses continue to be a popular school-based agricultural education course offered in [STATE] ([STATE PERSONNEL], personal communication, December 12, 2011.) Furthermore, the *National Research Agenda, Research Priority Area 3* suggests that professionals in the agriculture industry (i.e. school-based teachers), "be well prepared for discovery science, teaching and learning, STEM integration, and application of innovation for…academic settings (Doerfert, 2011, p. 19). With the continuing popularity of these classes and the need for teachers to possess knowledge and skills related to the management of these courses/laboratories, research was conducted to determine the professional development needs of teachers who manage an agricultural mechanics laboratory.

Conceptual/ Theoretical Framework

To guide this non-experimental, quantitative study, the researchers utilized Bandura's (1997) theory of self-efficacy along with Borich's (1980) needs assessment model to determine teachers professional development needs. Bandura (1997) defined self-efficacy as the "beliefs in one's capabilities to organize and execute the course of action required to produce given attainments" (p. 3). Additionally, self-efficacy influences a person's choices, actions, the amount of effort they give, how long they persevere when faced with obstacles, their resilience, their thought patterns and emotional reactions, and the level of achievement they ultimately attain (Bandura, 1986). By understanding the way a teacher feels about completing an activity, or their self-efficacy level, professional development opportunities can be developed to address these inadequacies.

Purpose and Research Questions

The purpose of this research was to identify the laboratory management professional development needs of [STATE] school-based agricultural educators who manage and teach within an agricultural mechanics laboratory management. This study was guided by the following research question: What are the agricultural mechanics laboratory management professional development needs of [STATE] school-based agricultural educators?

Methodology

[STATE] agricultural educators who teach courses within and manage an agricultural mechanics laboratory in the 2011-2012 academic school year ($N = 75$) served as the population for this study. A random sample size of 63 teachers was determined to be appropriate to represent the population (Krejcie & Morgan, 1970) and were selected using a random number generator. To collect data, the researchers used both a web-based and paper instrument that contained 33 competencies and eight constructs developed by McKim & Saucier (2011a), who reported the instrument to be statistically valid through factor analysis, with acceptable reliability estimates (Cronbach's $\alpha > .80$). In this two section instrument, respondents were asked to respond to two scales: *Importance* and *Ability* for 33 competencies, using a five-point summated rating scale. Additionally, respondents provided demographic data in section two of the instrument.

Data collection was guided by Dillman's Tailored Design Method (2007). After five points of contact (Dillman, 2007), 44 responses (69.84%) were received. Non-response error was a relevant concern; therefore, procedures for handling nonrespondents were followed as outlined as *Method 2* in Lindner, Murphy, and Biers (2001). Days to respond was used as the independent variable in regression equations, where the primary variables of interest were regressed on the variable days to respond, which yielded no significant results ($p = .141$). Thus, external validity did not threaten the generalizability of the findings of this study to the target population (Lindner et al.). Data were analyzed using SPSS version 20.0 and a Microsoft Excel ® based mean weighted discrepancy (MWDS) calculator, created by McKim and Saucier (2011c), to determine the professional develop needs of the respondents.

Results

Respondents indicated that the agricultural mechanics laboratory management competencies that were needed the most for professional development (based on highest MWDS) included: safely disposing of hazardous materials, estimating time required for students to complete projects/activities, and safely handling hazardous materials. The least needed professional development competencies (based on lowest MWDS) included: conducting an agricultural mechanics public relations program, planning an agricultural mechanics public relations program, and installing stationary power equipment.

Conclusions, Implications, and Recommendations

Teachers indicated that they had professional development needs across all eight constructs and for all 33 agricultural mechanics laboratory management competencies. However, the most needed competencies were in the area of laboratory safety and student laboratory instruction. Based on the results of the study, implicative questions arise concerning the preparation of new teachers and the continuing education of existing teachers within the state. The teacher preparation curriculum in [STATE] should be scrutinized to ensure that the appropriate emphasis is placed on agricultural mechanics laboratory management during preservice teacher preparation and that pre-service and existing teachers are guided to embrace self-directed learning (Knowles, Holton III, & Swanson, 2005), so teachers understand that it is their obligation to remediate or expand their knowledge when needs are identified.

References

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, N.J.: Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*, New York: W.H. Freeman.

Borich, G. D. (1980). A needs assessment model for conducting follow-up studies. *The Journal of Teacher Education, 31*(3), 39-42. doi: 10.1177/002248718003100310

Dillman, D. A. (2007). *Mail & Internet Surveys: The Tailored Design Method* (2nd ed.). Hoboken, NJ: John Wiley & Sons, Inc.

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.

Dyer, J. E., & Andreasen, R. J. (1999). Safety issues in agricultural education laboratories: A synthesis of research. *Journal of Agricultural Education, 40*(2), 46-52. doi: 10.5032/jae.1999.02046

Gliem, J. A., & Miller, G. (1993). Administrators' attitudes, policies, and procedures regarding safety in vocational education laboratories. *Journal of Agricultural Education, 34*(4), 1-7. doi: 10.5032/jae.1993.04001

Knowles, M. S., Holton III, E. F., & Swanson, R. A. (2005). *The Adult Learner*. San Diego, CA: Elsevier.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30,* 607-610.

Lindner, J. R., Murphy, T. H., & Briers, G. E. (2001). Handling nonresponse in social science research. *Journal of Agricultural Education, 42*(4), 43-52. doi: 10.5032/jae.2001.04043

McKim, B. R., & Saucier, P. R. (2011a, May). A multi-state factor-analytic and psychometric meta-analysis of agricultural mechanics laboratory management competencies. *Paper presented at the 2011 American Association for Agricultural Education Conference*, Coeur d'Alene, ID.

McKim, B. R., & Saucier, P. R. (2011b). Agricultural mechanics laboratory management professional development needs of Wyoming secondary agriculture teachers. *Journal of Agricultural Education*, *52*(3), doi: 10.5032/jae.2011.03075

McKim, B. R., & Saucier, P. R. (2011c). An Excel-based mean weighted discrepancy score calculator. *Journal of Extension, 49*(1).

Osborne, E. W., & Dyer, J. E. (2000). Attitudes of Illinois agriscience students and their parents toward agriculture and agricultural education programs. *Journal of Agricultural Education, 41*(3), 50-59. doi: 10.5032/jae.2000.03050

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

Saucier, P. R., Terry, Jr. R, & Schumacher, L. G. (2009). Laboratory management in-service needs of Missouri agriculture educators. *Paper presented at the 2009 Southern Region of the American Association for Agriculture Education Conference,* USA, 176-192.

Research

Motivating Factors Affecting the Interest of Faculty in International Agricultural Development Activities

Ronaldo L. Magtoto and Robert A. Martin

201 Curtiss Hall

College of Agriculture and Life Sciences

Iowa State University of Science and Technology

Ames, IA 50011

Phone: (515) 294-3398

Email address: rmagtoto@iastate.edu

Motivating Factors Affecting the Interest of Faculty in International Agricultural Development Activities

Introduction/Need for Research

Developing countries have been the dominant focus for technical assistance programs for agriculture and countryside development. Agriculture is, by far, the largest component of the United States Development Assistance Program in assisted Third World countries. U.S. land grant universities are institutions uniquely suited to provide technical agricultural information and services in agricultural research and extension programs needed by developing countries (http://www.iastate.edu/about/). The purpose of this study was to identify the motivational factors affecting the faculty interest in international development activities. Specifically, it aimed to: a) develop profile of personal characteristics possessed by the faculty members; and, b) determine the sources of their motivation for involvement in international development activities.

The results provided useful information to help maximize the contribution the faculty can make to themselves, to their university, and to developing countries. It is also useful in policy formulation and strategic planning. In the profession, the data and information generated can be used in directing agricultural leadership in using strategies to motivate faculty members to get involved in international development activities. The purpose of this poster is to share the relevant information that affect the interest of faculty in international development work.

Conceptual/Theoretical Framework

The humanistic theory of motivation is a strong theoretical framework in this study. Humanistic perspective on motivation argues that behavior arises directly from underlying source of motivation. The theory believes that it is possible to assess the origin of motivational factors which influence behavior (Arkes and Gaske, 1977). People are motivated to make choices based on the assessment of what behavior will satisfy their needs. Attaining a full potential is the goal of humanistic theory as motivation is a function of one's personality structure. Personal profile characteristics, along with values, experiences, and social environment, affect individual motivation through cognitive process. Each act of behavior is determined by a personality trait and these traits are shaped and modified by culture, reality and experience.

Methodology

This was a descriptive study that used questionnaires to survey the faculty members. Closed- and open- ended questions formed Section I (Personal Data) of the instrument. A bipolar adjective scale was used for Section II (Personal Characteristic Profile) and a Scoring Likert scales was used for Section III (Origin of Motivation). The demographic items in the instrument included sex, age, education, farm background, percentage of assigned duties in research, extension, teaching and administration, academic rank tenure status, departmental affiliation, years employed by the university, time worked in a developing nation, number and length of developing country assignments, employers, and how the developing country experience is used in faculty development work. Both descriptive and inferential analyses were used. The descriptive procedure included frequencies, percentages, means and standard deviations. The inferential procedure included a T-test for comparison between the data collected. One-way analysis of variance tests were used to find the differences between the different

levels found in the independent variables (country of birth, department affiliation and academic rank). The alpha level was set at 0.05.The software program Statistical Package for Social Sciences (SPSS) was used in the computer analysis of the data.

Results/Findings

The faculty members rated themselves on 25 personal characteristics that are considered important for people involved in international development activities. The highest rating of 1.81 was given to the *respectful* characteristic while the *people-oriented* characteristic had the lowest rating of 3.72. Twenty-three of the personal characteristics were within the 3.5 range indicating an above average close identification of the respondents to the desired personal characteristics. Only the *cosmopolitan* and *people-oriented* characteristics were slightly below the average which somehow showed that the respondents were midway to being *provincial* and *task-oriented* individuals. As with earlier studies, *a desire to provide humanitarian service* is on top of the 23 sources of original motivation for involvement in international development activities. The innate peculiarity to help fellowmen in developing countries may come into play in this aspect. *A curiosity to see other parts of the world* is understandably connected to *a desire to gain broader view and greater appreciation of other people, cultures and countries,* and perhaps, to *the interest in knowing the problems of developing countries*. Only few respondents had prior military service and employment abroad. They did not consider income as a source of motivation in participating in international development activities. The ANOVA on the original sources of motivation by country of birth showed statistical differences on: *because it is interesting and important work; a desire to provide humanitarian service to people in developing countries; curiosity to see other parts of the world; an interest in developing country problems; and, viewed as means to add to my income.* The ANOVA on the original sources of motivation by department affiliation showed significant differences on *extensive travel abroad* and *viewed as means to add to my income.* The ANOVA on the original sources of motivation by academic rank showed no significant differences on all the mean scores.

Conclusion

Based on the results of the survey, it can be deduced that the respondents provided higher and greater importance on the positive than the negative personal characteristics. The mean composite scores of the personal characteristics profile were not different when compared with the country of birth, the department affiliation, and the academic ranks of the respondents. On the original sources of motivation, U.S.-born respondents were motivated on: *the importance of international work*; *humanitarian service; curiosity in seeing other parts of the world*; and, *interest on the problems of developing countries*. Non-U.S. born respondents looked at income as a motivation in participation in international development work. The faculty members from the different departments varied in their view of added income as a motivating factor in participating in international development activities. The faculty members regardless of rank did not have different perceptions on the various sources of motivation. The younger and older faculty members had similar motivation for their participation in international development activities.

Implications/Recommendations/Impact on Profession

Understanding the motivating factors that influence the interests of faculty is important. Agricultural leadership calls for efficient human resources management. Funding and international participation opportunities can be made available. Further survey to include items on how to stimulate and sustain the participation of faculty members in international development activities can be done. As perception and interest change vis-à-vis the university policies on globalization and internationalization, a periodic assessment on the level of interest by way of a survey or other forms of inquiry can prove to be useful in strategic planning at the college level.

References

Akpan, M.J. (1994). *Perceptions and activities of agriculture education teachers in United States institutions of higher education regarding internationalization of the agricultural education curriculum*. Unpublished Dissertation. Iowa State University, Ames, IA.

Arkes, H.R. & Garske, J.P. (1977). *Psychological theories of motivation*. Brooks/Cole Publishing Company, Monterey, CA.

Blackburn, R. T. & Lawrence, J.H. (1995). *Faculty at Work: Motivation, Expectation, Satisfaction*. The John Hopkins University Press, Baltimore, Maryland.

Brinkerhoff, D. W. & Brinkerhoff, J.M. (2005). *Working for Change: Making a Career in International Public Service*. Kumarian Press, Inc., Bloomfield, CT.

Byrnes, F. C. (1965). Americans in technical assistance. A study of attitudes and responses to their role abroad. *Praeger Special Studies in International Economics and Development*, New York.

DiGiorgi, U. & Fant, M.B. (1984). *A passion for the possible*. Ceres 17(4): 27-34.

Jones, Stepen P. 1985. *An assessment of motivational factors affecting college of agriculture faculty involvement in international development activities*. Unpublished Dissertation. Iowa State University, Ames, IA.

Harder, A., Wingenbach, G.J. & Rosser, M. (2007). Developing International Research Partnerships. *Journal of International Agricultural and Extension Education* (JIAEE) Vol. 14(3), 77-84.

King, D. R. (1991). *Perception regarding the infusion of global perspective into thecurriculum as identified by the faculty of the College of Agriculture at Iowa StateUniversity*. Unpublished Dissertation. Iowa State University, Ames, IA.

Lindzey, G. (1958). Assessment of Human Motives. Syracuse University. *Conference on the Assessment of Human Motives*, New York.

Mohamed, I. E. (1994). *Extension education in Africa, Asia and Latin America: perception by extension educators and international graduate students of extension education in the United States.* Unpublished Dissertation. Iowa State University, Ames, IA.

Theall, M. (1999). *Motivation from Within: Approaches for Encouraging Faculty and Students to Excel*. Josey-Bass Publishers, San Francisco, CA.

Udin, V. A. (1998). *Assessment of the United States Information Agency sponsored university Affiliation Project between Iowa State University and the National Agriculture University of Ukraine Using the Concerns-based Adoption Model*. Unpublished Dissertation. Iowa State University, Ames, IA.

Research Poster

Perceptions of School-Based Agriculture Teachers Regarding The Purpose and Current Outcome of SBAE Curriculum

Kristina Haug
124 Gentry Hall
Columbia, MO 65211
360-747-0172
kh852@mail.missouri.edu

Dr. Anna Henry
127 Gentry Hall
Columbia, MO 65211
573-884-9797
henryan@missouri.edu

Perceptions of School-Based Agriculture Teachers Regarding The Purpose and Current Outcome of SBAE Curriculum

Introduction & Conceptual Framework

The purpose of this study was to identify if a discrepancy exists between agriculture teachers' perceptions of the purpose and current outcomes of the school-based agricultural education (SBAE) curriculum. Development of curriculum is a result of several internal and external forces, causing agriculture curriculum within schools to evolve from a vocational-based focus to a science-based, academically integrated model (Hillison, 1996). This pattern has shifted agricultural education course offerings over the past twenty years (Case & Cloud, 2007; Conroy, 2000).

The conceptual framework for this study was adapted from Rojewski's (2002) work in career and technical education focusing upon five specific areas; curriculum, instruction and delivery, student assessment, student populations and program evaluation. Research indicates student learning, motivation and achievement are integral components that are influenced through reforms, legislation and educational initiatives (Bransford, Brown & Cocking, 2000; Cano, 1993; Cano & Martinez, 1991; Dyer & Osborne, 1996; Garton, Spain, Lamberson & Spiers, 1999; McCormick & Whittington, 2000; Roberts & Dyers, 2005). The evolving nature of SBAE curriculum within the classroom has created the necessity to understand what areas of agricultural education are most valuable to students, recognize what students are gaining as outcomes, and provide direction to create curriculum models that address the learning needs of today's youth.

Purpose & Objectives

The purpose of this study was to identify if a discrepancy exists between agriculture teachers' perceptions regarding the purpose and current outcome of school-based agricultural education (SBAE) curriculum. Objectives of the study are; 1. Describe the perceptions of agriculture teachers regarding the purpose of SBAE curriculum, 2. Describe the perceptions of agriculture teachers regarding the current outcomes of SBAE curriculum, 3. Determine if discrepancies exist between the perceptions of agriculture teachers regarding the purpose and current outcome of SBAE curriculum.

Methods

The researcher design was descriptive-correlational and used an online questionnaire, The Purpose and Current Outcome of SBAE Curriculum Instrument, (Ary, Jacobs, Razavieh and Sorensen, 2006), targeting subgroups of agriculture teachers (n=12,701). Face and content validity of the instrument was established by a panel of experts and a pilot test was used to estimate reliability. Trochim's (2006) test-retest model was utilized and Spearman's Rho correlation was calculated, providing coefficient of stability scores ranging from .80 - .98. Three hundred, seventy-three agriculture teachers were randomly sampled from a list of NAAE members provided by the National FFA Organization. The final response rate was 83% (n=310).Mean scores and standard deviation for both the purpose and outcomes were calculated. To determine if discrepancies existed between the purpose and the outcomes, the mean weighted

discrepancy score was calculated by subtracting the outcome score from the purpose score. This score was multiplied by the mean importance rating, then divided by the number of observations for that purpose. Each MWDS was then ranked from 1-17, with one having the highest discrepancy value. This study is a part of a larger study regarding teachers', teacher educators', and state agricultural education professionals' perceptions on the purpose and current outcomes of SBAE curriculum.

Findings

Agriculture teachers rated seventeen competencies on a likert scale of 1-5, to illustrate what their perceptions regarding what the SBAE curriculum should be addressing (purpose) and what they perceived the SBAE curriculum are addressing (current outcomes). Each competency mean for purpose and outcomes was compared to determine the curriculum areas that should require the most attention in the classroom. Average means were calculated indicating 14 of 17 competencies were agreed upon as purposes, with uncertainty regarding preparing students for technical schools, teaching traditional production agriculture and providing industry certification licensing. Meanwhile, only seven outcomes were agreed upon; teach leadership skills, develop life skills, develop interpersonal communication skills, teach agricultural literacy, teach personal development, integrate academic skills in the context of agriculture, and teach occupational skills. Mean weighted discrepancy scores revealed the largest values for: 1. Increase awareness of global agriculture, 2. Develop higher order thinking skills, and 3. Develop life skills.

Figure 1: Agriculture Teachers' Perceptions Regarding the Purpose, Outcomes and Discrepancies of SBAE Curriculum (N=310)

Competencies	Purpose			Outcomes			Discrepancy	
	M	SD	Range	M	SD	Range	MWDS	Rank
Teach leadership skills	4.70	.49	2.00-5.00	4.20	.85	2.00-5.00	2.36	9
Develop life skills	4.65	.49	2.00-5.00	4.07	.94	1.00-5.00	2.73	3
Develop interpersonal	4.6	55	2.00-	4.0	91	1.00-	2.57	6
Teach agricultural literacy	4.6	59	1.00-	4.0	94	1.00-	2.35	10
Develop higher-order thinking	4.6	52	3.00-	3.9	98	1.00-	3.38	2
Teach personal development	4.6	58	2.00-	4.0	96	1.00-	2.63	5
Integrate academic skills in the	4.5	66	1.00-	4.0	86	2.00-	2.23	11
Teach non-traditional	4.5	58	2.00-	3.9	92	1.00-	2.43	8
Encourage wise management	4.4	59	2.00-	3.9	86	1.00-	2.42	7
Increase awareness of global	4.4	63	2.00-	3.7	1.00	1.00-	3.39	1
Teach occupational skills	4.4	71	1.00-	4.0	85	1.00-	1.81	13
Prepare students for careers in	4.4	69	2.00-	3.8	99	1.00-	2.65	4
Prepare students for	4.3	69	2.00-	3.8	86	1.00-	1.87	12
Cultivate student	4.1	75	2.00-	3.7	94	1.00-	1.52	14
Prepare students for technical	3.9	87	1.00-	3.7	90	1.00-	0.80	16
Teach traditional production	3.8	89	2.00-	3.8	97	1.00-	-0.05	17
Provide industry	3.1	1.14	1.00-	2.8	1.04	1.00-	1.09	15

Note: Scale: 1=definitely disagree, 2=disagree, 3=uncertain,4=agree, 5=definitely agree

Conclusions/Implications/Recommendations

It was concluded that agriculture teachers agreed on the majority of competencies as purposes for the SBAE curriculum but fewer agreed upon outcomes than purposes. This indicates a mismatch in what we perceive we should be and what we think we are doing through the SBAE curriculum. This implies we either haven't fully thought about and agreed upon what we want to be or we are trying to be too many things and not delivering. Furthermore, increased awareness of global agriculture and developing higher order thinking skills are two misaligned competencies within SBAE curriculum, implying no uniform set of purposes exists across the nation. It is recommended that agriculture teachers need to establish a unified, realistic set of purposes to guide SBAE curriculum.

References

Ary, D., Jacobs, L. C., Razavieh, A., and Sorensen, C., (2007). *Introduction to research in education* (7th ed.). Belmont, CA: Wadsworth/Thompson Learning.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (2000). *How people learn: Brain, mind, experience, and school* (Expanded ed.). Washington, DC: National Academy Press.

Cano, J. (1993). An assessment of the level of cognitive performance and critical thinking ability of selected agricultural education students. *Journal of Agricultural Education, 34*(2), 25-30.

Cano, J., & Martinez, C. (1991). The relationship between cognitive performance and critical thinking abilities among selected agricultural education students. *Journal of Agricultural Education, 32*(1), 24-29.

Case, L. D. & Cloud, A.(2007). Agricultural education: Meeting needs of yesterday, today and tomorrow. *Journal of Agricultural Education, 37* (4), 21-23.

Conroy, C. A. (2000). Reinventing career education and recruitment in agricultural education for the 21st century. *Journal of Agricultural Education, 41*(4), 73-84.

Dyer, J. & Osborne, E (1996). Effects of teaching approach on achievement of agricultural education students with varying learning styles. *Journal of Agricultural Education, 37*(3), 43-51.

Garton, B. L., Spain, J. M., Lamberson, W. R., & Spiers, D. E. (1999). Learning styles, teaching performance and student achievement: A relational study. *Journal of Agricultural Education, 40*(3), 11-20.

Hillison, J. (1996). The origins of agriscience: Where did all that scientific agriculture come from? *Journal of Agricultural Education*, *3*(4), 9-14.

McCormick, D. F., & Whittington, M. S. (2000). Assessing academic challenges for their contribution to cognitive development. *Journal of Agricultural Education, 41*(3), 114-122.

Roberts, T. G. & Dyer, J. E. (2005). The influence of learning styles on student attitudes and achievement when an illustrated web lecture is used in an online learning environment. *Journal of Agricultural Education 46*(2), 1-11.

Rojewski, J. W. (2002). Preparing the workforce of tomorrow: A conceptual framework for career and technical education. *Journal of Vocational Education Research, 24*(1), 7-36.

Trochim W. M. K., (2006). *Types of reliability*. Retrieved on January 23, 2009 from http://www.socialresearchmethods.net/kb/reltypes.php.

Research Poster

Perceptions of Teacher Educators Regarding The Purpose and Current Outcome of SBAE Curriculum

Kristina Haug
124 Gentry Hall
Columbia, MO 65211
360-747-0172
kh852@mail.missouri.edu

Dr. Anna Henry
127 Gentry Hall
Columbia, MO 65211
573-884-9797
henryan@missouri.edu

Perceptions of Teacher Educators Regarding The Purpose and Current Outcome of SBAE Curriculum

Introduction & Conceptual Framework

The purpose of this study was to identify if a discrepancy exists between teacher educators' perceptions of the purpose and current outcomes of the school-based agricultural education (SBAE) curriculum. Agriculture curriculum within schools has evolved from a vocational-based focus to a science-based, academically integrated model (Hillison, 1996) due to several internal and external factors, creating a shift in the types of courses offered to students over the past twenty years (Case & Cloud, 2007; Conroy, 2000).

Rojewski's (2002) work in career and technical education provided the conceptual framework for this study, focusing upon five specific areas; curriculum, instruction and delivery, student assessment, student populations and program evaluation. Student learning, motivation and achievement are integral components that are influenced by reforms, legislation and educational initiatives (Bransford, Brown & Cocking, 2000; Cano, 1993; Cano & Martinez, 1991; Dyer & Osborne, 1996; Garton, Spain, Lamberson & Spiers, 1999; McCormick & Whittington, 2000; Roberts & Dyers, 2005). As SBAE curriculum has evolved within the classroom, the necessity has arisen to understand what agricultural education areas are most valuable to students, recognize what students are gaining as outcomes, and provide direction to create curriculum models that address the learning needs of today's youth.

Purpose & Objectives

The purpose of this study was to identify if a discrepancy exists between teacher educators' perceptions regarding the purpose and current outcome of school-based agricultural education (SBAE) curriculum. The specific objectives for the study were; 1. describe the perceptions of teacher educators regarding the purpose of SBAE curriculum; 2. describe the perceptions of teacher educators regarding the current outcomes of SBAE curriculum; and 3. determine if discrepancies exist between the perceptions of teacher educators regarding the purpose and current outcome of SBAE curriculum.

Methods

The research design was descriptive-correlational, utilizing an online questionnaire, The Purpose and Current Outcome of SBAE Curriculum Instrument (Ary, Jacobs, Razavieh and Sorensen, 2006). Teacher educators (n=218) subgroups were targeted, with face and content validity of the instrument established by a panel of experts. A pilot test was used to estimate reliability along with Trochim's (2006) test-retest model. Spearman's Rho correlation was calculated, providing ranges of coefficient of stability scores from .80 - .98. One hundred forty teacher educators were randomly sampled from a list of Teacher Educators provided by the National FFA Organization. The final response rate was 89% (n=124). Purpose and outcomes Means and standard

deviations were calculated. To determine if discrepancies existed between the purpose and the outcomes, the mean weighted discrepancy score (MWDS) was calculated by subtracting the outcome score from the purpose score. This score was multiplied by the mean importance rating, and then divided by the number of observations for that purpose. Each MWDS was then ranked from 1-17, with one having the highest discrepancy value. This study is a part of a larger study regarding teachers', teacher educators', and state agricultural education professionals' perceptions on the purpose and current outcomes of SBAE curriculum.

Findings

Teacher educators rated seventeen competencies on a Likert-type scale of 1-5, to illustrate their perceptions indicating what the SBAE curriculum should be addressing (purpose) and what they perceived the SBAE curriculum was addressing (current outcomes). Each competency mean for purpose and outcomes was compared to determine the curriculum areas that might have a misalignment between perceived purpose and outcomes. Teacher educators agreed that 14 of 17 competencies were purposes for SBAE curriculum (Table 1), with uncertainty regarding teaching traditional production agriculture, preparing students for technical schools, and providing industry certification licensing. Teacher educators only agreed upon two current outcomes for SBAE curriculum including: teaching traditional production agriculture and teaching leadership skills. Mean weighted discrepancy scores revealed the largest discrepancy values between: developing higher-order thinking skills, increasing awareness of global agriculture and integrating academic skills in the context of agriculture.

Table 1: Teacher Educator Perceptions Regarding the Purpose, Outcomes and Discrepancies of SBAE Curriculum (N=124)

Competencies	Purpose		Outcomes		Discrepancy	
	M	SD	M	SD	MWDS	Rank
Teach traditional production agriculture	3.72	.89	4.17	.74	-2.74	16
Teach leadership skills	4.55	.63	4.06	.78	0.19	13
Increase awareness of global	4.36	.64	2.85	1.00	4.20	2
Teach occupational skills	4.17	.95	3.82	.77	-0.15	15
Develop interpersonal	4.64	.54	3.80	.77	1.62	6
Teach personal development	4.55	.59	3.80	.85	1.12	10
Develop life skills	4.61	.59	3.75	.84	1.59	8
Teach agricultural literacy	4.60	.65	3.75	.85	1.60	7
Cultivate student	4.17	.66	3.70	.90	0.24	12
Teach non-traditional	4.46	.60	3.67	.87	1.36	11
Prepare students for	4.23	.72	3.48	.85	1.46	9
Prepare students for technical	3.76	.99	3.51	.87	-0.50	16
Prepare students for careers in	4.36	.76	3.39	1.02	2.07	5
Integrate academic skills in the	4.58	.66	3.35	.95	3.10	3
Encourage wise management	4.39	.56	3.24	.99	2.80	4
Develop higher-order thinking	4.65	.58	3.15	.95	4.40	1
Provide industry	2.72	1.09	2.49	.97	-0.13	14

Note: Scale: 1=definitely disagree, 2=disagree, 3=uncertain,4=agree, 5=definitely agree

Conclusions/Implications/Recommendations

It was concluded that teacher educators agreed on the majority of competencies as purposes for the SBAE curriculum yet agreed upon fewer items as outcomes for SBAE curriculum. This implies a disparity in teacher educator perceptions between “what

should be taught" and "what is being taught" regarding the SBAE curriculum. The finding could suggest that agricultural education professionals either haven't fully thought about or agreed upon a curriculum or are trying to serve too many purposes within the curriculum. It was further concluded that developing higher-order thinking skills, increasing awareness of global agriculture and integrating academic skills in the context of agriculture are three misaligned competencies within SBAE curriculum, requiring further exploration to determine their value. It is recommended that teacher educators work with practicing and pre-service agriculture teachers to establish a unified, realistic set of purposes to guide SBAE curriculum.

References

Ary, D., Jacobs, L. C., Razavieh, A., and Sorensen, C., (2007). *Introduction to research in education* (7th ed.). Belmont, CA: Wadsworth/Thompson Learning.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (2000). *How people learn: Brain, mind, experience, and school* (Expanded ed.). Washington, DC: National Academy Press.

Cano, J. (1993). An assessment of the level of cognitive performance and critical thinking ability of selected agricultural education students. *Journal of Agricultural Education, 34*(2), 25-30.

Cano, J., & Martinez, C. (1991). The relationship between cognitive performance and critical thinking abilities among selected agricultural education students. *Journal of Agricultural Education, 32*(1), 24-29.

Case, L. D. & Cloud, A.(2007). Agricultural education: Meeting needs of yesterday, today and tomorrow. *Journal of Agricultural Education, 37* (4), 21-23.

Conroy, C. A. (2000). Reinventing career education and recruitment in agricultural education for the 21st century. *Journal of Agricultural Education, 41*(4), 73-84.

Dyer, J. & Osborne, E (1996). Effects of teaching approach on achievement of agricultural education students with varying learning styles. *Journal of Agricultural Education, 37*(3), 43-51.

Garton, B. L., Spain, J. M., Lamberson, W. R., & Spiers, D. E. (1999). Learning styles, teaching performance and student achievement: A relational study. *Journal of Agricultural Education, 40*(3), 11-20.

Hillison, J. (1996). The origins of agriscience: Where did all that scientific agriculture come from? *Journal of Agricultural Education*, *3*(4), 9-14.

McCormick, D. F., & Whittington, M. S. (2000). Assessing academic challenges for their contribution to cognitive development. *Journal of Agricultural Education, 41*(3), 114-122.

Roberts, T. G. & Dyer, J. E. (2005). The influence of learning styles on student attitudes and achievement when an illustrated web lecture is used in an online learning environment. *Journal of Agricultural Education 46*(2), 1-11.

Rojewski, J. W. (2002). Preparing the workforce of tomorrow: A conceptual framework for career and technical education. *Journal of Vocational Education Research, 24*(1), 7-36.

Trochim W. M. K., (2006). *Types of reliability*. Retrieved on January 23, 2009 from http://www.socialresearchmethods.net/kb/reltypes.php.

Research Poster

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

Avery Culbertson, Graduate Assistant
averylculbertson@ufl.edu

Dr. Hannah Carter, Assistant Professor
hscarter@ufl.edu

Joy N. Goodwin, Graduate Assistant
goodwin.4@ufl.edu

University of Florida
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 273-2567

Introduction/Need for Research

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

In agricultural leadership programs, adult leaders study issues facing their industries and prepare themselves for leadership roles (Diem & Nikola, 2005). To develop these leaders, programs have been established in 39 states, provinces and countries around the world (Lindquist, 2010) and use a variety of teaching methods (Strickland & Carter, 2007) to develop leadership abilities and raise issue awareness and understanding. The purpose of this study was to assess the use of photo journaling as a tool of reflection within an agricultural leadership program located in the southern United States. Roberts's (2006) experiential learning model provides agricultural leadership programs with model for the facilitation of leadership training that can be applied to various learning environments (Strickland, 2010). Since assessing the effectiveness of adult educational programs to encourage positive community change is part of the National Research Agenda for Agricultural Education 2011-2015 (Doerfort, 2011), a study of reflection as part of the learning process in leadership programs can provide valuable data, a description of the needs of program participants, and a direction for future research.

Theoretical Framework

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

Integrating reflection in leadership development programs allows individuals the opportunity to evaluate the significant outcomes of their experiences and gain an understanding of how to perceive and interpret their observations (Densten & Gray, 2001). Reflection can also provide potential leaders "insights into how to frame problems differently, to look at situations from multiple perspectives or to better understand followers" (p. 120).

Methodology

This study was qualitative in nature. Participants (n = 30) in the study were participants in the [Leadership Program] and represented multiple agriculture and natural

resource occupations. The study was implemented during a travel leadership seminar in Washington DC and the southwest region of the United States. During the seminar, individuals were instructed to take photographs of their experiences. Participants selected one photograph and provided a written reflection about that picture. Analysis was conducted on the written reflections using Glaser's constant comparative method (Glaser, 1965) to determine emergent themes drawn from the journals.

Results

Participants were asked to select a photograph that stimulated their thought and allowed them to provide a rich reflection. Three main themes emerged from the participants' reflections: *group unity, learning from history to secure the future, and preparing to speak for agriculture*.

The importance of *group unity* was discussed as coming together as an industry and leadership class. One participant stated "we need to work together on these issues as an agriculture industry without state borders." Another participant reflected on group unity among their leadership class and stated "the relationships we foster along with way in addressing these issues are not interim."

Learning from history to secure the future was the second theme that emerged. Responses focused on historical figures and how our country has learned from the past. One observation in this category included "we have, as a nation and society gone through great conflict, internally and externally, and we have emerged and made great progress, and generally have moved in a direction that has brought a better life for our citizens." Many of these themes were evoked as participants selected photographs of historic buildings and monuments and reflected on the traits of historic leaders such as "a true leader doesn't have the plan or strategy as a means of a solution to a problem; he or she must set the example with character."

Another theme that emerged in the reflections was *preparing to speak for agriculture*. Responses focused on the responsibility to represent the industry. Responses included "we need to increase our presence in [state capitol] and in DC so that we are more effective in getting the truth across to our legislature." Responses also spoke to the preparation of individuals to lead such as "Who better knows the industry than those who live it? We just need to get out there and tell it."

Conclusions and Recommendations

It was evident within the emergent themes that the selected photographs influenced participants' feelings, values, memories, aspirations and ideas (White et al., 2009). A learner's experiences, occupation, community or voluntary roles, and their personal interests and needs can influence learning outcomes (Newton, 1977). The locations on the travel seminar gave opportunity for participants to think and reflect about our country, its leadership, and issues. The reflections that were written and the generalizations that are formed from the reflections are influenced and based on pre-existing knowledge (Roberts, 2006). By building on the preexisting knowledge through moving participants through the cycles of experiential learning, we build more into the knowledge base so they can create deeper conceptualizations and generalizations (Roberts, 2006). Photo journaling can contribute and encourage this exercise in order to

build stronger, more knowledgeable leaders for their respective communities and state, and the agricultural industry as a whole.

Other leadership programs can use photo journaling to facilitate reflective activities for their programs. In addition to contributing to the experiential learning process, photo journaling can provide program directors an additional tool to assess program outcomes.

References

Bessell, A. G., Deese, W. B., & Medina, A. L. (2007). Photolanguage: How a picture can inspire a thousand words. *American Journal of Evaluation, 28*(4), 558-569. doi: 10.1177/1098214007306372

Densten, I. L., & Gray, J. H. (2001). Leadership development and reflection: What is the connection? *The International Journal of Educational Management, 1* (3), 119-124. Retrieved from http://www.emerald-library.com/ft

Diem, K. G., & Nikola, M. P., (2005). Evaluating the impact of a community agricultural leadership development program. *Journal of Extension, 43*(6). Retrieved from http://www.joe.org

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.

Glaser, B. (1965). The constant comparative method of qualitative analysis. *Social Problems, 12* (4), 436-445.

Harper, D. (2002). Talking about pictures: A case for photo elicitation. *Visual Studies, 17*(1), 13-26. doi: 10.1080/14725860220137345

Lindquist, J. (2010). *Kansas Agricultural and Rural Leadership Program.* Retrieved from www.iapal.net

Newton, E. (1977). Andragogy: Understanding the adult as a learner. *Journal of Reading, 2,* 361-363.

Roberts, T. G. (2006). A philosophical examination of experiential learning theory for agricultural educators. *Journal of Agricultural Education, 74*(1), 17-29. doi: 10.5032/jae.2006.01017

Strickland, L. R. (2011). *Predicting leadership behaviors of agricultural leadership development programs* (Doctoral Dissertation). Retrieved from University of Florida Library Catalog. (http://purl.fcla.edu/fcla/etd/UFE0042390).

Strickland, L. R., & Carter, H. S. (2007). [Survey of International Programs for Agricultural Leadership]. Unpublished raw data.

White, R., Sasser, D., Bogren, R., & Morgan, J. (2009). Photos can inspire a thousand words: Photolanguage as a qualitative evaluation method. *Journal of Extension, 47*(3), 1-5. Retrieved from http://www.joe.org

Poster Type (Research)

Evaluation of a Comprehensive Department: What do Alumni Think?

Michael L. Pate	Rebecca Lawver	Brian Warnick	Lindsey Shirley	Bruce Miller
Agricultural Systems Technology	Agricultural Education	Agricultural Education	Family & Consumer Sciences Education	Agricultural Systems Technology

Utah State University

Agricultural Systems Technology and Education
1498 North 800 East
Logan, UT 84322-2300
(435) 797-2230
michael.pate@usu.edu

Evaluation of a Comprehensive Department: What do Alumni Think?

Introduction

Maintaining viable departmental structures can be challenging when degree programs are narrowly focused and have relatively low enrollments as compared to the more general degrees within comprehensive universities. However, since the year 2000, Utah State University's School of Applied Sciences, Technology and Education (ASTE) has focused upon integrating curriculum across degree programs by expanding faculty ties to several academic programs in order to sustain smaller more focused majors. The department currently offers degree programs in agricultural education, agricultural systems technology, family and consumer sciences education, technology and engineering education, agricultural communications and journalism, agricultural machinery, and aviation technology.

Conceptual Framework

The department has taken the stance of Oliver, Marwell and Teixeira (1985) with regard to developing 'critical mass' with the idea that a small segment of a given population is able to provide a relatively large contribution to the organization through embracing heterogeneity. The design, development, and assessment of meaningful learning environments, which produce positive learner outcomes, are essential to properly educating the citizens of the 21st century (Doerfert, 2011). A well-prepared supply of agriculture professionals is vital to our global economy. Focus should be spent developing strategies and tactics to prepare new professionals who are knowledgeable, competent, and who possess good communication and interpersonal skills (Doerfort, 2011).

Purpose and Objectives

The purpose of this study was to assess alumni perceptions of employability skills preparation in the ASTE department at Utah State University.

The following research objectives were developed for this study:

1. Describe selected demographics of ASTE alumni.
2. Describe the perceived importance of employability competencies by alumni of ASTE.
3. Describe perceived competence of employability competencies by alumni of ASTE.

Methodology

The population for this study included School of Applied Science, Technology and Education alumni who graduated from 2004 to 2010 with a valid email address listed with the Utah State University alumni association. A total of 231 alumni were contacted to complete the survey online via Qualtrics. After five points of contact, a response rate of 32% was obtained. Following recommendations by Linder, Murphy and Briers (2010), all nonrespondents were contacted by mail to complete the survey. An additional 30 individuals who were contacted completed the survey. This yielded an acceptable sample of 104 individuals bringing the response rate to 45%. Independent *t*-test, alpha level of .05 set *a priori*, revealed that no significant differences existed between respondents and

nonrespondents. A 36-item questionnaire was adapted from Robinson and Garton (2008). The instrument was reviewed and was determined to be content and face valid by a panel of four experts including two college administrators and two faculty members. To establish the instrument's reliability, it was disseminated to 59 ASTE alumni who graduated from 2000 to 2002 with a valid email address listed with the USU alumni association who were not included in the sample; this resulted in a Cronbach's alpha of .94. Data were analyzed using PASW® version 18.0. The Borich (1980) needs assessment model was used to identify where departmental improvement needs exist by calculating mean weighted discrepancy scores (MWDS) based on alumni input. The versatility of the Borich (1980) model allows for a discrepancy score to be calculated by comparing the participants' behaviors with the goals of the program.

Results / Findings

The alumni in ranged in age from 23 – 65 years with an average of 32 years (SD = 7.85). The majority of alumni (77%) were currently employed with 44% of alumni accepting their current position prior to graduation. A majority (58%) of alumni accepted their current position a year after graduation. The majority (63%) of alumni indicated their current position was "very related" to their major/program of study. Most alumni (91%) gave the [department] a performance grade of "B" or better on preparing individuals for employment.

Seen in Table 1, job skill competencies in need of improvement were ranked from high to low using the $\bar{x}_{MWDS}$. "Conflict resolution" was the construct in most need of improvement ($\bar{x}_{MWDS}$ = 1.64); followed by "communicating ideas to others" ($\bar{x}_{MWDS}$ = 1.51); and "responding positively to constructive criticism" ($\bar{x}_{MWDS}$ = 1.51). "Recognizing the effects of decisions made" ($\bar{x}_{MWDS}$ = 0.93) and "setting priorities" ($\bar{x}_{MWDS}$ = 0.90) were the competencies least in need of improvement.

Table 1
Alumni Perceptions of Employability Competencies (n = 104)

			Importance		Competence	
Rank	Competency	MWDS	*M*	*SD*	*M*	*SD*
1	Conflict Resolution	1.64	3.57	0.63	3.09	0.75
2	Communicating ideas to others	1.51	3.75	0.47	3.36	0.67
3	Responding positively to constructive criticism	1.51	3.61	0.50	3.19	0.66
4	Adapting to situations of change	1.36	3.69	0.50	3.32	0.66
5	Time Management	1.44	3.67	0.51	3.28	0.60
6	Solving Problems	1.16	3.72	0.49	3.52	0.58
7	Recognizing alternative routes in meeting objectives	1.12	3.56	0.57	3.24	0.67
8	Recognizing the effects of decisions made	0.93	3.55	0.55	3.31	0.71
9	Setting Priorities	0.90	3.63	0.56	3.41	0.61

Note: For importance scale 1= no importance, 2= minor importance, 3= moderate importance, 4= major importance. For competence scale 1= no competence, 2= minor competence, 3= moderate competence, 4= major competence.

Conclusions/Impact

It is vital for School of Applied Sciences, Technology and Education faculty to evaluate the effectiveness of their intended mission of their programs. This study provides the faculty with specific areas in which to improve. As program design focuses on preparing students who are knowledgeable, competent, and who possess good communication and interpersonal skills (Doerfort, 2011), it is essential that perceptions of those who have completed the program and are currently working be explored. The nine components identified through the Borich model analysis can be implemented into all programs in a comprehensive department, as the results were not specific to any one discipline. Results suggest that comprehensive departments benefit from using the diverse talents and abilities of faculty from various program emphases while obtaining critical mass described by Oliver, Marwell and Teixeira (1985).

References

Borich, G. D. (1980). A Needs Assessment Model for Conducting Follow-Up Studies. *Journal of Teacher Education,* 31(3), 39-42. doi:10.1177/002248718003100310

LaMay, C.L. (2001). "Justin Smith Morill and the politics and legacy of the land-grant college acts." In L.K. Grossman and N.N. Minnow (eds), *A Digital Gift to the Nation: Fulfilling the Promise of the Digital and Internet Age* (pp. 73-95). New York: The Century Foundation Press.

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

Oliver, P. Marwell, G. & Teixeira, R. (1985). A theory of critical mass. I. Interdependence, Group heterogeneity, and the production of collective action. *American Journal of Sociology*. 91(3),522-553. Retrieved from http://www.jstor.org/

Student Competency Levels Entering Introductory Post-Secondary Agricultural Mechanics Courses

Dillon Campo
Undergraduate Student
Iowa State University
dcampo@iastate.edu

Matt Shultz
Graduate Student
Iowa State University
223A Curtiss Hall
319-231-2906
mjshultz@iastate.edu

Ryan Anderson
Assistant Professor
Iowa State University
217A Curtiss Hall
515-294-4139
randrsn@iastate.edu

Student Competency Levels Entering Introductory Post-Secondary Agricultural Mechanics Courses

Introduction

In post-secondary agricultural programs across the nation, classes are not composed solely of lectures and notes, but also incorporate hands-on, real world student experience (Rivera, 2005). These experiences create exceptional opportunities for skill and competency development, but also present unique instructional challenges. Brumm, Mickelson, Steward, and Kaletia-Forbes (2006) suggested that once the competencies and skills are determined for each individual class, faculty should designate key assignments in each class which allow students to demonstrate competencies learned. The purpose of this study was to determine the skills of students entering basic agricultural mechanics courses. The objective of the study was to determine the initial skills of students in the areas of electricity, metal work, precision agriculture, and small engines.

Conceptual Framework

Competency-based learning involves redefining program, classroom, and experimental education objectives as competencies or skills; and focusing coursework on developing these competencies and skills (Brumm et al. 2006). A competency is a combination of skills, abilities, and knowledge needed to perform a specific task (U.S. Department of Education, 2001). A pyramid structure can depict the interrelationships between competencies. The first rung of the pyramid consists of traits and characteristics of incoming students that constitute the foundation for learning. The second rung consists of skills, abilities, and knowledge. Competencies resulting from integrative learning experiences compose the third rung. The top rung comprises demonstrations which are the result of competency application (Voorhees, 2001).

Methodology

The population consisted of students enrolled in nine sections of selected agricultural mechanics courses at two universities from the Fall of 2008 to Fall of 2011 ($N = 236$). Of these students, 230 usable instruments were collected for a response rate of 97.5%. The instrument was developed by faculty in agricultural systems technology. Survey questions were based on the basic skills that students should possess in the following four areas of agricultural mechanics: electricity, metal work, precision agriculture, and small engines. These four areas were identified for assessment because they composed the majority of the course content. The questionnaire was presented to a panel of experts consisting of agricultural education and agricultural systems technology faculty members to establish face and content validity. The reliability coefficient (Cronbach's Alpha) was 0.868. The competency levels were based on a five-point Likert scale where 0 = no experience, 1 = observed, 2 = performed with assistance, 3 = performed without assistance, and 4 = performed routinely. Surveys were administered on the first day of each course to assess the skills of incoming students.

Results

Basic demographic results indicated slightly more females (56.5%) enrolled in the course than males (43.5%). Respondents represented 10 different agricultural majors,

with agribusiness (35.2%) being the most common. Content area results are summarized in table 1.

Table 1.

Average Response Frequency by Content Area[1]

Area	No. of Skills Assessed	(0) No Experience		(1) Observed		(2) With Assistance		(3) With Supervision		(4) Perform Routinely	
		f	(%)	*f*	(%)	*f*	(%)	*f*	(%)	*f*	(%)
Electricity	11	112	(48.7)	41	(17.8)	32	(13.9)	26	(11.3)	20	(8.7)
Metal Working	5	114	(49.6)	40	(17.4)	35	(15.2)	23	(10.0)	18	(7.8)
Precision Agriculture	9	133	(57.8)	33	(14.3)	34	(14.8)	21	(9.1)	10	(4.3)
Small Engines	8	89	(38.7)	37	(16.1)	37	(16.1)	28	(12.2)	39	(17.0)

Note. [1]Response frequencies from each of 33 individual skills averaged within each of the four selected content areas.

For the purposes of this study, researchers defined familiarity as the performance of a skill, either with or without supervision. Of the 11 selected skills related to electricity, the use of wire strippers (68.3%) and installation of a light (49.1%) had the highest level of performance familiarity, while use of the National Electric Code (16.5%) and installation of a four-way switch (16.9%) had the lowest ratings. Assessment of the five selected skills in metal working showed respondents to be most familiar with running a single flat bead using the shielded metal arc welding process (40.9%) and cutting with an oxy-fuel torch (39.6%), and least familiar with use of a plasma cutter (27.8%) and running a single flat bead using the metal inert gas welding process (28.7%). The nine skills measured within precision agriculture yielded the highest familiarity responses for use of a handheld GPS unit (50.4%) and use of an odometer (39.1%), while the lowest familiarity levels were reported in the use of survey equipment (15.6%) and differential leveling (18.7%). Analysis of the eight small engine skills showed that changing oil (68.2%) and installing an air filter (57.4%) had the highest levels of familiarity, while use of a blade balancer (20.4%) and use of a thickness gauge (30.0%) had the lowest familiarity levels.

Conclusions/Implications

The majority of respondents appear to be entering post-secondary agricultural mechanics courses at the lowest rung of the competency pyramid. This suggestion is similar to findings of Rice, LaVergne, and Gartin (2011) who concluded that students are leaving high school with little knowledge of mechanical competencies. Following the assertions of Brumm et al. (2006), key assignments should be developed which address the competencies and skills found to be lowest in familiarity. These assignments should provide the base knowledge and skills to move incoming students into the second rung of the pyramid. Conversely, instructors should also develop integrated learning experiences

for those skills with which students were found to be more familiar. The objective of these learning experiences should be to advance learners to the third and fourth rungs of the pyramid.

Agricultural mechanics courses at all levels struggle with balancing the multitude of content options with limited contact hours. By differentiating skills which require basic skill development from those which can be advanced to application and integration, instructors can maximize their impact on agricultural mechanics students. Multiple agricultural mechanics course options which differentiate between skill development and application should also be explored. Further research should address the sources of variation among respondents, including exposure to secondary level courses, demographic characteristics, and respondents' agricultural backgrounds; and should also consider measuring more than these four competency areas.

References

Brumm, T. J., Mickelson, S. K., Stewart, B. L., & Kaleita-Forbes, A. L. (2006). Competency-based outcomes assessment for agricultural engineering programs. *International Journal of Engineering Education, 22*(1), 1-10.

Rice, J., LaVergne, D., & Gartin, S. (2011). *Assessing the agricultural mechanic competencies of former high school agricultural education students.* Poster presented at the 2011 north-central region research conference of the American Association for Agricultural Education, University Park, PA. Retrieved from http://www.aaaeonline.org/uploads/ allconferences/10-4-2011_383_2011_NC_AAAE_Poster_Proceedings.pdf

Rivera, J. (2005, July). Designing assessments: Where does alignment fit in?. *The Agricultural Education Magazine, 78*(1), 15-16.

United States Department of Education, Center for Education Statistics. (2001). *Defining and Assessing Learning: Exploring Competency-based Initiatives*. Retrieved from http://nces.ed.gov/pubs2002/2002159.pdf

Voorhees, R. A. (2001). Competency-based learning models: A necessary future. *New directions for institutional research 110*(5), 5-13.

Research Poster

Student Perceptions of Science: An Investigation of Agriscience Classrooms

Andrew C. Thoron, Assistant Professor
athoron@ufl.edu
Eric D. Rubenstein, Graduate Assistant
erubenstein@ufl.edu

University of Florida
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 294–1992

Student Perceptions of Science: An Investigation of Agriscience Classrooms

Introduction/Need for Research

Science education has conducted many studies in the past decade to determine student perceptions of science. Teachers are able to meet the pedagogical needs of learners through an increased understanding of their learners' perceptions about science (Beghetto, 2007). Thoron and Myers (2010) indicated that agriculture teachers identify a connection between agricultural education and science education. Examination of agriscience student perceptions about science while in an agricultural education program can help determine pedagogical needs of agriscience learners. Waight and Abd-El-Khalick (2007) found that when a teacher used inquiry-based instruction (IBI) student group discourse increased. Therefore, increased student discourse allows for knowledge gain based on the zone of proximal development (Vygotsky, 1978).

Thoron (2010) found that there was a negligible relationship between student demographics and overall content knowledge scores on achievement instruments. Thoron concluded that teaching methodology affected content knowledge scores and further reported students taught through IBI scored higher on content knowledge exams, scientific reasoning, and developed higher argumentation skills. Further knowledge is warranted to find if teaching methods affect student perceptions of science in the agriscience classroom. The purpose of this study was to determine if instructional methodology alters agriscience students' perceptions about science.

Methodology

This research was part of a larger 12-week study examining the effects of the subject-matter approach and IBI. The population of the study was students of ten National Agriscience Teacher Ambassador Academy participants (N=305). Intact groups were randomly selected to receive either IBI (treatment) or the subject matter approach to learning (control). At the end of the instructional period, the Science Attitude Inventory was administered to both the treatment (n=170) and control (n=135) groups. The Science Attitude Inventory is a researcher-developed instrument adapted from the Mathematics Attitude Inventory created by the Minnesota Research and Evaluation Project Team (1972). The adapted instrument reported a Cronbach's alpha of .89 deeming the instrument reliable. The instrument consisted of 48 scale questions examining the students' perceptions of science. The data was entered and ran through SPSS version 19.0.

Results/Findings

The objective of the study was to determine if significant differences existed between the treatment and control groups based on the type of instruction participants received. There was a significant difference (p<.05) reported between the treatment and control groups in 15 of the 48 statements (Table 1). In order to conserve space, only statements that were found to have significant differences were reported in the abstract.

Conclusions

The type of instruction plays a role in determining the student's perception of science. Students reported having a positive perception of science content when enrolled in a course that incorporates IBI teaching methods. In addition, IBI students reported an importance for incorporating science concepts throughout their daily lives. Students in subject matter classes feel disconnected from science content and have a less positive perception of science content. Therefore, subject matter students perceived that science

did not play as important role in their understanding the world nor is science as useful for their needs. Differences were also found between the treatment groups regarding the level of assistance needed in completing science coursework. IBI students indicated less of a need for support from instructors when completing science work. Conversely, students enrolled in courses using a subject matter approach felt a higher level of disinterest and frustration with science curriculum and indicated they received more individualized instruction. Moreover, science concepts incorporated into the agriculture curriculum were found to be more interesting to students that were taught through IBI.

Implications/Recommendations/Impact on Profession

Students taught through IBI had better perceptions and believed science played a more integral role in their lives when compared to students taught through the subject-matter approach. It is recommended that IBI be utilized in the agriscience classroom to aid in building student perceptions about science. Students taught through IBI believed the instructor provided less overall individualized instruction. The implication of this finding hints that a shift in the role of the teacher during IBI instruction (facilitation role) vs. a more traditional approach to teaching (holder of knowledge) was noticed by students and was more difficult for the students to adapt. The profession should continue to study the effects of IBI on student perceptions and achievement. Thoron (2010) reported students achieved at higher levels on assessments and this study indicated students have better perceptions about science as a result of IBI. The profession should strongly consider incorporating more IBI into the curricula through preservice and professional development.

Table 1

One-way Anova for Science Attitude (N = 305)

	Treatment (n = 170)		Control (n = 135)			
Statement	*M*	*SD*	*M*	*SD*	*F*	*p*
Science is helpful in understanding today's world	3.40	.84	2.72	.84	12.14	.00
I enjoy talking to other people about science	3.13	.83	1.96	.84	17.72	.00
I am good at working science problems	3.58	.69	2.48	.92	14.32	.00
Working with formulas upsets me	1.88	.64	2.50	.65	12.82	.00
Most of the ideas in science aren't very useful	1.98	.82	2.64	1.04	18.70	.00
If I don't see how to work a science problem right away, I never get it	1.29	.78	2.49	.95	12.36	.00
No matter how hard I try, I cannot understand science	1.70	.58	2.12	.83	16.80	.01
I would rather be given the right answer to a science problem then to work it out myself	2.07	.90	2.72	.89	12.68	.01
My agriscience teacher is willing to give us individual help	3.37	.64	3.64	.64	8.40	.01
I have a good feeling toward science	2.80	.80	2.44	.87	13.40	.01
My agriscience teacher makes science interesting	3.49	.77	3.00	.87	9.24	.02
Science is of great importance to a country's development	3.29	.74	2.80	.87	12.23	.02
Science is useful for the problems of everyday life	3.17	.73	2.76	.78	12.16	.03
Working science problems is fun	3.38	.81	2.08	.91	10.10	.03
You can get along perfectly well in everyday life	2.02	.80	2.52	.97	10.92	.03

References

Beghetto, R. A. (2007). Factors associated with middle and secondary students' perceived science competence. *Journal of Research in Science Teaching, 44*(6), 800-814. doi: 10.1002/tea.20166

Minnesota Research and Evaluation Project Team. (1972). *Mathematics Attitude Inventory.* Minneapolis: University of Minnesota.

Thoron, A. C. (2010). *Effects of inquiry-based agriscience instruction on student argumentation skills, scientific reasoning, and student achievement.* (Doctoral dissertation). Retrieved from UF Online Dissertations.

Thoron, A. C., & Myers, B. E. (2010). Perceptions of preservice teachers toward integrating science into school-based agricultural education curriculum. *Journal of Agricultural Education, 51*(2), 70-80. doi: 10.5032/jae.2010.02070

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Waight, N., & Abd-El-Khalick,F. (2007). The impact of technology on the enactment of "inquiry" in a technology enthusiast's sixth grade science classroom. *Journal of Research in Science Teaching, 44*(1), 154-182. doi: 10.1002/tea.20158

RESEARCH

Student Perceptions of Agricultural Advocacy – A Mixed Methods Study

Mr. Chaney Mosley
Virginia Tech
2270 Litton Reaves Hall
Blacksburg, VA 24061
540-231-6836
cmosley@vt.edu

Ms. Keyana Ellis
Virginia Tech
2270 Litton Reaves Hall
Blacksburg, VA 24061
540-231-6836
keyellis@vt.edu

Dr. Eric Kaufman
Virginia Tech
2270 Litton Reaves Hall
Blacksburg, VA 24061
540-231-6258
ekaufman@vt.edu

Student Perceptions of Agricultural Advocacy – A Mixed Methods Study

Introduction/Need for research

Production agriculture is a controversial subject (Fraser, 2001). Fraser (2001) suggests that disagreements about the ethics involved with production agriculture often manifest in the form of emotionally charged claims that neither fully nor accurately represent the agriculture industry. Agriculturists must learn to recognize and use advocacy and persuasive techniques in response to inaccurate statements. Advocacy involves "pleading a cause, or encouraging someone to support, speak, or write in favor of a particular behavior or action" (Johnson & Mappin, 2005, p. 2). As new online social networking sites and technology intensive media emerge, opportunities to increase the possible audience for agricultural advocacy are expanded (Hon, 2006). While activists increase efforts to displace modern production agriculture, a sense of urgency is created for the future workforce of the agricultural industry to develop the skills needed for effective advocacy. However, opportunities to engage undergraduate students in learning advocacy skills are both limited and underdeveloped. The need for research concerning advocacy is broad. First, the 2011-2015 National Research Agenda identifies public and policy maker understanding of agriculture and natural resources as the top priority research area for those employed in food and agricultural systems (Doerfert, 2011). Second, as the industry and skills needed to work in the industry evolve, the agricultural workforce must develop advocacy skills to remain globally competitive (Department of Agriculture, Fisheries, and Forestry [DAFF], 2009). Third, agricultural educators should be familiar with student perceptions of advocacy in order to develop advocacy based curriculum. Finally, though the need for research is evident, a search for articles with advocacy as the primary subject in the Journal of Agricultural Education and other agricultural discipline journals yielded zero results. The purpose of this study was to explore student perceptions of agricultural advocacy. The researchers aimed to determine whether or not students pursuing a degree in agriculture held the same attitudes toward animal agriculture, and assess student definitions of advocacy, student perceptions of effective advocacy skills, and student opinions of the importance of advocacy in agricultural careers.

Theoretical Framework

This study was grounded in Festinger's (1957) cognitive dissonance theory. According to Festinger (1957), people desire consistency among individual concepts including attitudes, behaviors, beliefs, values, and opinions. Cognitive dissonance theory suggests that dissonance occurs when information is presented that contradicts with one's held concepts, thus motivating an individual to action. Action can take the form of additional inquiry, or can cause individuals to formulate an appropriate response to justify their existing worldview. Thus, bias, opposition, and analyses in cognitive dissonance presents an opportunity for learning (Gorski, 2009). In this study, cognitive dissonance was introduced to provoke student to reflection on advocacy.

Methodology

Participants were undergraduate students (n = 15) enrolled in an oral communications course for agriculture majors. The mixed methods approach was a sequential exploratory study with a quantitative→qualitative two-strand design of inquiry (Teddlie & Tashakkori, 2009). First, the Animal Attitudes Scale (AAS) (Herzog, Betchart, & Pittman, 1991) was administered to determine attitudes toward animal rights and animal welfare. The AAS, assesses individual differences in attitudes toward the treatment of animals through a 20-item Likert-type instrument; Cronbach's alpha = 0.93. Student scores were assessed on the AAS to determine whether they held attitudes consistent with animal rights or animal welfare. Based on the results, students were then assigned to one of two groups - animal rights (n = 8) or animal welfare (n = 7) for the purpose of viewing a short video that advocated for issues opposite the viewpoint of the student. For example, students whose scores on the AAS indicated attitudes in line with animal rights watched a video advocating for animal welfare through persuasive methods. Students in the animal welfare group watched a video advocating for animal rights in the same manner. After watching the video, students provided written responses to 11 open ended questions regarding agricultural advocacy. According to Bogdan and Biklen (2003), participants may express opinions more freely with open-ended questions than interviews, deeming this method of data collection fitting. Qualitative data were analyzed using constant comparative analysis, while inter-rater reliability was established because the researchers coded responses separately, thus increasing confidence in the emergent themes (Bernard & Ryan, 2010).

Results/Findings

Using the results from the AAS, an independent-samples t-test was conducted to compare attitudes toward the treatment of animals in those who support animal rights and those who support animal welfare. There was a significant difference in the scores for the animal rights group (M = 50.38, SD = 8.62) and the animal welfare group (M = 73.43, SD = 8.30); $t(13) = 5.26$, $p = 0.0002$. Based on the qualitative data analysis regarding student perceptions of agricultural advocacy, two primary themes emerged: (1) Awareness of advocacy - (a) definitions of advocacy, (b) limited knowledge/preparation in coursework, (c) need for combining persuasive techniques; and (2) Value of advocacy - (a) strengthened argument, critical thinking and literacy skills and (b) importance of advocacy skills in professional futures.

Conclusions

By introducing cognitive dissonance through advocacy materials from differing viewpoints, students were empowered to experience advocacy in action and reflect on effective advocacy skills. Results indicated differences regarding student attitudes towards animal practices; not all undergraduate agriculture students have similar attitudes about animal agriculture. Variance regarding student definitions of advocacy suggests that instruction of advocacy at the undergraduate level is limited and underlines misunderstandings about proper components, influence, and use of advocacy in agriculture. Participants suggest the need to combine emotion, personal stories, as well as images as effective advocacy techniques for this age group. Finally, students agree that advocacy skills in the agriculture industry will be necessary as a future agricultural professional; however, students do not feel prepared to advocate effectively.

Implications/Recommendations/Impact on Profession

Implications of this study are important to agricultural education. Enhanced curriculum development is necessary to engage students in critical thinking, literacy, and advocacy skill development; emphasis should be placed on both traditional and modern technological models of advocacy. Further investigation with a larger audience is recommended to expand the findings of the current study. As agricultural educators aim to equip students with advocacy skills, care should be taken to not impose certain views, but to enhance individual perspectives. With increased focus on teaching advocacy, agricultural educators must become more engaged in issues and help the public and policy makers understand the full gamut of agriculture.

References

Bernard, H. R. & Ryan, G. (2010). *Analyzing qualitative data – Systematic approaches*. Washington, D.C.: Sage.

Bogdan, R., & Biklen, S. (2003). *Qualitative research for education: An introduction to theory and methods*. Boston: Allyn and Bacon.

Department of Agriculture, Fisheries, and Forestry. (2009). *Workforce, training and skills issues in agriculture.* Retrieved from www.daff.gov.au/__data/assets/pdf_file/0011/ 1530020/work-train-skills.pdf

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.

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.

Fraser, D. (2001). The "new perception" of animal agriculture: legless cows, featherless chickens, and a need for genuine analysis. *Journal of Animal Science, 79*, 634-641.

Gorski, P. C. (2009). *Cognitive dissonance: A critical tool in social justice teaching*. Fairfax, VA: EdChange. Retrieved from http://www.edchange.net/publications/cognitive-dissonance.pdf

Herzog, H. A., Betchart, N. S., & Pittman, R. (1991). Gender, sex role identity and attitudes toward animals. *Anthrozoos*. 4, 184-191.

Hon, L. (2006). Negotiating relationships with activist publics. In K. Fitzpatrick & C. Bronstein (Eds.), *Ethics in public relations – Responsible advocacy* (pp. 53-69). Thousand Oaks, CA: Sage Publications, Inc.

Johnson, E, & Mappin, M. (2005). *Environmental education and advocacy - Changing perspectives of ecology and education.* New York: Cambridge University Press.

Public International Law and Policy Group, & Baker & McKenzie International. (2007). *The international negotiations handbook: Success through preparation, strategy, and planning.* Retrieved from http://www.bakermckenzie.com/files/Uploads/Documents/ Supporting%20 Your%20Business/Featured%20Services/bk_internationalnegotiations handbook_dec07.pdf

Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences.* Thousand Oaks, CA: SAGE Publications Ltd.

Research poster abstract

Students' Perceptions of Agriscience when Taught Through Inquiry-based Instruction

Andrew C. Thoron, Assistant Professor
athoron@ufl.edu
Sarah E. Burleson, Graduate Assistant
seburl88@ufl.edu

University of Florida
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 294–1992

Students' Perceptions of Agriscience when Taught Through Inquiry-based Instruction

Introduction/need for research

Students' motivation to achieve in science is directly related to their attitudes toward science (Sandoval & Harven, 2011). Attitudes toward science are developed over time, from an accumulation of science classroom experiences, and can be influenced by actions of the teacher, the instructional approach, and the manner in which activities are conducted (Wee, Fast, Shepardson, Harbor, & Boone, 2004). If students do not have a favorable attitude toward science, they may not be motivated to learn science. Thus, it is important to utilize instructional techniques that will help students learn, and be motivated to learn science.

Inquiry-based instruction (IBI) aids students to gain a deeper conceptual understanding and develop scientific reasoning skills (Sandoval & Harven, 2011). Students' develop these skills by making observations, posing questions, utilizing existing knowledge and analyzing data in order to draw conclusions (NRC, 1996). Past research regarding IBI has shown that IBI improves students' attitudes and perceptions toward science learning experiences (Wee et al., 2004). Studies indicated that students' who have participated in inquiry instruction appreciate the ability to understand data in order to draw conclusions and support their ideas (Sandoval & Harven, 2011). Although there is sufficient research concerning students' perceptions of inquiry in the science classroom, there is little research concerning students' perceptions of IBI in agriculture.

Theoretical Framework

The theoretical framework used to guide this research is rooted in the constructivist theory which consists of two basic ideas. First, constructivist theory suggests that the learner must construct knowledge (Bringuier, 1980). Secondly, the teacher cannot supply the knowledge for the learner, but rather the teacher provides the context in which students will learn (Bringuier, 1980). This is applied through the use of inquiry instruction in which the teacher provides the context of the investigation, where students are encouraged to gather data and utilize existing knowledge to draw conclusions.

Methodology

This study used a descriptive survey research design that contained twenty-one questions based on a summated rating scale (strongly disagree, disagree, uncertain, agree, strongly agree). The instrument used in this study was a researcher-developed instrument that was examined for face validity by a panel of experts at [university] . The instrument was deemed appropriate. Internal consistency was established through a pilot-test and reported a Cronbach's alpha of 0.83.

The population for this study consisted of students from seven National Agriscience Teacher Ambassador Academy (NATAA) participants (N=170). Students were taught IBI through a 12 week study, at the end of the instructional period the survey instrument was administered.

Results/findings

A majority (71.8%) of the students agreed or strongly agreed that "agriscience is useful for solving everyday problems". Furthermore, (88.2%) agreed or strongly agreed that

"agriculture is of great importance to a country's development". Nearly two-thirds (60%) disagreed or strongly disagreed that "you can get along perfectly well in everyday life without agriculture". Nearly two-thirds (60.2%) of the students indicated they "would like to have a career in agriculture" and over half (51.9%) noted that most people should study some agriculture (Table1).

A majority (52.3%) of the students reported they would like to take more courses that used IBI, and nearly half (44.2%) of the respondents noted they preferred learning through IBI over other instructional methods.

Table 1
Students' Attitudes about Agriscience (N = 170)

Statement	SD %	D %	U %	A %	SA %
Agriscience is useful for solving everyday problems.	8.2	11.8	8.2	51.8	20
I preferred learning through inquiry over other ways I have been taught in the past.	8.2	15.9	31.7	32.4	11.8
I would like to take more courses that use inquiry-based instruction	15.9	15.9	15.9	44.1	8.2
Agriscience is my favorite class.	8.2	0	24.1	47.7	20
Learning through inquiry was confusing.	15.9	35.9	20	28.2	0
When I think of agriculture, I don't think of science.	15.9	35.9	0	40	8.2
I enjoy working in groups.	8.2	3.6	0	48.2	40
I like using the computer to complete assignments.	0	11.8	8.2	32.3	47.7
You can get along perfectly well in everyday life without agriculture.	24.1	25.9	20	20	0
I feel at ease in the Agriscience classroom.	0	20	8.2	35.9	35.9
When I hear the word agriculture, I have a feeling of dislike.	52.4	23.5	8.2	11.8	4.1
I would like to have a career in agriculture.	8.2	15.8	05.8	40	20.2
Most people should study some agriculture.	8.2	24.1	15.8	47.7	4.2
I like learning new things.	3.5	8.2	8.2	40.1	40
You won't be popular is you like agriculture.	72.4	8.2	7.6	11.8	0
I enjoy doing lab activities in class.	8.2	11.8	0	40	40
I enjoy talk to other people about agriculture.	2.4	8.2	17	40	32.4
Working in groups helps me learn more.	2.4	8.2	17	32.4	40
I have a real desire to learn agriculture.	8.2	8.2	7.7	35.9	40
There is no science taught in my agriculture class.	71.8	24.1	2.4	1.7	0
Agriculture is of great importance to a country's development.	0	0	11.8	36.4	51.8

Note. SD = strongly disagree, D = disagree, U = uncertain, A = agree, SA = strongly agree

Conclusions/Implications/Recommendations

Students responded positively toward agriscience regarding the importance to the country, solving problems used every day, and the need for agriculture in their daily lives. Furthermore, agriscience students preferred to learn through IBI and are willing to take more classes that utilize IBI in the curriculum. Over half of the respondents that

participated in this study indicated they would like a career in agriculture. Though this study is limited to describing only students of NATAA teachers, evidence supports that IBI can build students' agriculture perceptions and the evidence could provide insight into ways IBI can address the need to develop more science-driven students into an agricultural career.

References

Bringuier, J. C. (1980). *Conversations with Jean Piaget.* Chicago, IL: The University of Chicago Press.

National Research Council (NRC). 1996. *National science education standards*. Washington, DC: National Academy Press.

Sandoval, W. A., & Harven, A. M. (2011). Urban middle school students' perceptions of the value and difficulty of inquiry. *Journal of Science Education and Technology, 20,* 95-109. doi:10.1007/s10956-010-9237-4

Wee, B., Fast, J., Shepardson, D., Harbor, J., & Boone, W. (2004). Students' perceptions of environmental-based inquiry experiences. *School Science and Mathematics, 104,* 112-118. doi:10.1111/j.1949-8594.2004.tb17991.x

Research

The Status of State Curriculum Standards and Curriculum Decision Making

Joy Marshall[1], Michael Coley[2], Sara Brierton[3], and Elizabeth Wilson[4]

Box 7607
North Carolina State University
Raleigh, N.C. 27695
Telephone – 919-515-9441
FAX – 919-515-9060
Email: bwilson@ncsu.edu

Department of Agricultural and Extension Education
North Carolina State University

---

[1] Graduate Student, North Carolina State University
[2] Graduate Student, North Carolina State University
[3] Graduate Student, North Carolina State University
[4] Associate Professor, North Carolina State University

The Status of State Curriculum Standards and Curriculum Decision Making

Introduction/Need for Research

"Schools must assume the responsibility to develop, plan, and implement curriculum that meet the needs of both students and society" (Finch, 1999). Finch placed the responsibility solely on the school; however, as society becomes more complex, and budgets get tighter the responsibility for curriculum development, planning, and implementation is impacted by many more factors. In the past, agricultural education teachers taught concepts and subjects based upon the needs of the communities in which they taught. With the major push for standardized evaluation and testing, more and more teachers must use a pre-determined curriculum, one that may not truly reflect all the educational needs of the community.

Increased accountability is also greatly affecting education. The passage of numerous pieces of legislation has prompted teachers to feel pressure that all students perform at a certain level. The four major principles of "No Child Left Behind" are: accountability, research-based reforms, parental options, and flexibility (United States Department of Education, 2003). Teachers are held accountable for producing results comparable to other areas across the nation. Research-based reforms refer to those methods that are guaranteed to produce certain results. If a school does not meet the standards, parents have the option to select another school. Flexibility does relinquish a modicum of control back to local schools to make some curriculum choices. The primary focus of the bill, however, is that all teachers regardless of curriculum are responsible for ensuring that their students score well on a *standardized* test.

The purpose of this study was to determine the types of curriculum (state-wide, district, county, etc.) being used in high school agricultural education programs in the United States. It is also beneficial to know who selects the curriculum that is implemented in the classrooms. The information gained from this research study will allow curriculum developers to examine trends occurring in curriculum development within Agricultural Education.

Conceptual/ Theoretical Framework

Curriculum developers need to understand trends related to adopted standards and practices. Priority one of the "Six National Research Priorities" refers to the "Public and Policy Maker Understanding of Agriculture and Natural Resources" (Doerfert, 2011, p. 6). Within this policy there is discussion of how researchers need to "increase their understanding of related message and curriculum development, delivery, method preferences and effectiveness, and the extent of change in audience knowledge, attitudes, perceptions, and behaviors after experiencing an educational program or consuming related information and messages" (p. 6). With the shift of curriculum development moving to a national curriculum, developers need to understand what curricula and procedures states are currently using. Only after establishing the connections and relationships between what is being used nation-wide will curriculum developers be able to successfully advance a national curriculum that will be effective to such a diverse audience. The question that arises is who, ultimately, is responsible for developing curriculum that will meet the needs of agricultural students across a country, which has previously taken pride in curricula flexible enough to meet the needs of the community.

Methodology

An instrument was developed by the researchers and reviewed by a panel of experts in curriculum development and piloted through e-mail to five faculty in agricultural education teaching at the university level in five different states. Changes were made to the instrument as suggested by these reviewers. The instrument was distributed to Agricultural Education State Supervisors at the National FFA Convention State Supervisor meeting on October 17, 2011. Twenty four state supervisors from twenty four different states completed the instrument for a forty-eight percent response rate.

Results/Findings

Approximately ninety two percent of the respondents replied that their state has adopted state standards teachers use to guide their lessons. Fifty percent of those surveyed indicated that their state provided some type of teaching materials to their teachers and seventy percent of states have a state supported website which allows teachers to share resources and materials. Two thirds of the state supervisors perceived that academic integration is very important and that inquiry learning and experimentation is important. Surprisingly four percent thought that inquiry learning and experimentation were not important. Thirty-three percent of the state supervisors indicated textbooks must first be adopted at the state level, while twenty-one percent stated textbooks are first adopted at the local school system. Approximately thirty percent allow teachers to use their own discretion when adopting textbooks.

Conclusions

Almost all states now have state curriculum standards and half of the states are providing instructional materials to help teachers meet these standards. However there is not a similar textbook adoption policy standard occurring at the state level. Many state supervisors made note of certain national curriculum products that are being used in their states to provide teachers with the content needed to meet state standards. A majority of states are also encouraging teachers to share resources and materials to meet content standards in their classrooms. Additionally, the trend of the academic integration of STEM through inquiry and experimentation is currently perceived by state supervisors as an important component of curriculum standards and products.

Implications/Recommendations/Impacts

The trend of state accountability/curriculum standards continues to grow; however, most states are still allowing teachers the flexibility to adopt curriculum materials that align with state standards and are best suited for their communities. Universities should continue to instruct teachers on the basics of the curriculum development process instead of teaching them how to be facilitators of a curriculum product in order for them to be effective teachers in their communities. Curriculum developers should also continue to develop curriculum that integrates STEM and 21st Century Skills.

References

Finch, C. R. & Crunkilton, J.R. (1999). *Curriculum development in vocational and technical education,* Needham Heights, MA: Allyn & Bacon.

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.

United State Department of Education. (2003). *No Child Left Behind.* Washington, D.C. Retrieved from http://www. nclb.org

The Use of Theory in Agricultural Education: A Review of JAE Articles 2007-2011

G. Curtis Langley
University of Missouri
Department of Agricultural Education
Columbia, MO 65211
gclxwc@mail.mizzou.edu

Erica B. Thieman
University of Missouri
Department of Agricultural Education
Columbia, MO 65211
erica.thieman@mizzou.edu

Michael J. Martin
University of Missouri
Department of Agricultural Education
Columbia, MO 65211
mjmgg7@mail.mizzou.edu

Kristin A. Kovar
University of Missouri
Department of Agricultural Education
Columbia, MO 65211
kakfhc@mail.mizzou.edu

Tracy Kitchel
University of Missouri
Department of Agricultural Education
Columbia, MO 65211
kitcheltj@missouri.edu

The Use of Theory in Agricultural Education: A Review of JAE Articles 2007-2011

Introduction and Theoretical Framework

Theory is an important part of the research process; researchers have a variety of ideas on how theory can and should be used in conducting and writing about research. Theories and models help specialists focus on what is changeable and the most suitable area or targets for change (Trifiletti, Gielen, Sleet, & Hopkins, 2005). Researchers should demonstrate a need for the work they are doing and agricultural education is no exception; thus theories and conceptual models are used to provide the rationale for many studies. Camp (2001) cited Kerlinger (1979) describing theory as the explanation of reality; stating that without theory, the research would lack context. Quantitative research is often done in the quest to measure components of or test a theory. Creswell (2009) wrote that quantitative research involves an inquiry into a social or human problem based on testing a theory, and determine if the predictive generalizations of the theory hold true.

Simply described, theory is "one's understanding of how something works" (Shoemaker, Tankard Jr., & Lasorsa, 2004, p. 6). In more complex research terms, a theory is "an interrelated set of constructs (or variables) formed into propositions, or hypotheses, that specify the relationship among variables (typically in terms of magnitude or direction)" (Creswell, 2009, p. 51). Theories and models can be used to guide a researcher in the quest for reasons *why*, they can help point out *what*, and they provide insight into *how* programs and policies are shaped. Trifiletti et al. (2005) report that theories can be useful in planning, implementing, and evaluating as well as help researchers go beyond basic unchangeable risk factors. For this study, a review of the theories or models that were used in the field of injury prevention by Trifiletti et al. (2005) was applied to contemporary articles published in the *Journal of Agricultural Education.* After a review of literature from multiple disciplines, the use of theory in research writing was determined to fit into four categories for the purposes of the current study: Development/Design of a Program, Measurement of Components of a Theory, Testing of a Theory, or Other (meaning that the use did not fit the previous three categories).

Methods

"Trustworthy accounts that accumulate past research are a necessary condition for orderly knowledge building," (Cooper, 2010, p. 1). Quantitative research methods were used to fulfill the purpose of describing frequencies related to the use of theory in articles within the *Journal of Agricultural Education* (JAE). Only articles using quantitative methodology were considered for this study because of the difference in schema for use of theory among qualitative, quantitative and mixed methods research (Creswell, 2009). The researchers coded the articles into categories utilizing the framework of Trifiletti et al. (2005): 1) Program Development/Design, 2) Measurement of Components/Variables, 3) Testing of a Theory, and 4) Other. To establish reliability, an extensive discussion ensued to define each code as applicable to agricultural education research five articles

were then coded by four researchers to develop a more concise coding scheme. An inter-reliability rate of 80.53% was established among the four researchers after coding all articles using exclusively quantitative methodology from two issues of the JAE. The majority of the discrepancies were related to one coder's interpretation of the coding scheme that was rectified after the two-issue inter-rater reliability check. Each researcher was then assigned a complete year of JAE articles to code. The most recent five years of JAE articles were selected to provide an overview of how theory is being utilized in contemporary research within agricultural education. Data were analyzed and reported by frequencies and percents.

Findings

The researchers analyzed a total of 164 articles over a five-year period starting with the first issue from the JAE in 2007. The area categorized as *program design* yielded 1.22%, proving the least common use of theory across all 5 years. *The tested* category yielded 11.59%, coming up as the second least common use of theory as a whole. *Other* yielded 28.05%, also of note is that all instances of usage that did not fit into one of three clearly defined categories utilized theory for rationale of the study. The most common use of theory across all five years and as a whole was *measurement,* yielding 59.15%, of the articles. Table 1 displays the usage of theory disaggregated by year.

Table 1
Use of Theory in JAE Quantitative Articles from 2007-2011

	2007		2008		2009		2010		2011	
Use category	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
Program Design	1	3.23	0	0.0	0	0.0	1	2.78	0	0.00
Measurement	23	74.19	24	58.54	18	52.94	20	55.56	12	54.55
Tested	4	12.90	3	7.32	4	11.86	3	8.33	5	22.73
Other	3	9.68	14	34.15	12	35.29	12	33.33	5	22.73
Total Articles	31	100	41	100	34	100	36	100	22	100

Implications

An important limitation to this study is that the researchers did not analyze *proper* use of theory; there was not a judgment made at that level. Through this five-year review quantitative JAE articles, it is evident that theory is widely and commonly used in agricultural education research. Patterns emerged related to use category of theory, indicating that the culture of agricultural education promotes the dissection of larger theories and concepts in order to examine and measure various components. When one measures variables, this implies a descriptive nature or intention to our work in agricultural education. Does this use of theory match with purpose of these studies? Also, the increased prevalence of the "other" use category, in which all researchers were using theory or concepts to provide a rationale for a study is an interesting development. Authors in the field of theory did not describe the use of theory to rationalize a line of inquiry. Is the use of theory to rationalize a study a valid use? The researchers anecdotally observed that authors are often not very clear in conveying how particular

theories were utilized in a study, regardless of how descriptive of a definition of the theory was provided.

References

Camp, W. G. (2001). Formulating and evaluating theoretical frameworks for career and technical education research. *Journal of Vocational Education Research, 26*(1), 4-25.

Cooper, H. M. (2010). *Research synthesis and meta-analysis: a step-by-step approach* (4th ed.). Los Angeles, CA: SAGE Publications, Inc.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: SAGE Publications, Inc.

Kerlinger, F. N. (1979). *Behavioral research : a conceptual approach*. New York: Holt, Rinehart, and Winston.

Shoemaker, P. J., Tankard Jr., J. W., & Lasorsa, D. L. (2004). *How to build social science theories*. Thousand Oaks, CA: Sage Publications, Inc.

Trifiletti, L. B., Gielen, A. C., Sleet, D. A., & Hopkins, K. (2005). Behavioral and social sciences theories and models: Are they used in unintentional injury prevention research? *Health Education Research, 20*(3), 298-307. doi: 10.1093/her/cyg126

Using Involvement Theory to examine the relationship between extracurricular participation and leadership development of undergraduate students.

Elizabeth Foreman
Doctoral candidate
Iowa State University
33 Curtiss Hall
Iowa State University
Ames, IA 50011
(515) 294-4548
bforeman@iastate.edu

Michael S. Retallick
Assistant Professor
Iowa State University
206 Curtiss Hall
Iowa State University
Ames, IA 50011
(515) 294-4810
msr@iastate.edu

Using Involvement Theory to examine the relationship between extracurricular participation and leadership development of undergraduate students.

Abstract

Traditional-age undergraduate college students who were classified as seniors in the College of Agriculture and Life Sciences at [Midwestern State University] (*N*=969) were sampled to examine the undergraduate students' relationship between extracurricular involvement and leadership outcomes. Data related to the quantitative (i.e., how much time a student spends on an activity) and qualitative aspects (i.e., how focused the student is on the activity) of involvement in extracurricular clubs and organizations was collected. Leadership, as an outcome, was measured using the individual values scale of the Socially Responsible Leadership Scale (SRLS-R2). The findings indicated that the number of clubs in which a student participated and serving as an officer was associated with higher leadership scores. However, the amount of time in which a student participated was not related to increased leadership outcomes. A threshold of involvement was identified that suggests when the quantitative measures of involvement (i.e., number of clubs and leadership positions) exceed a desirable limit, the quality of the involvement is less and therefore the positive outcomes are reduced.

Introduction

Many institutions of higher education include leadership development in their mission statements (Astin & Astin, 2000; Boatman, 1999). The Council for the Advancement of Standards in Higher Education (CAS) identified leadership development as one of 16 student learning and development outcomes and suggested that leadership can be intentionally learned (CAS, 2006). Researchers, as well as practitioners, use involvement theory (Astin, 1993) as a theoretical framework for student involvement. Astin (1993) defined involvement as an investment of physical and psychological energy that occurs along a continuum and has both quantitative (i.e., how much time a student spends on an activity) and qualitative aspects (i.e., how focused the student is on the activity).

Background

A model developed by Terenzini and Reason (2005) explaining first year experiences, was adapted for the purposes of this study. The model had three components and included pre-collegiate, college experiences and leadership development. The pre-collegiate construct for this study included socio-demographics that have been linked to leadership development (Phinney, 1990; Kimbrough, 1998; and Kezar & Moriarty, 2000). The college experiences construct included extracurricular experiences that previous literature suggested contribute to leadership outcomes (Birkenholz & Schumacher, 1994; Ewing, Bruce, & Ricketts, 2009; Layfield, Radhakrishna, & Andresen, 2000; vonStein & Ball, 2008). Examples of extracurriculular experiences included major related clubs and organizations, college and university-based organizations, faith-based organizations, and competitive teams. Finally, leadership was used as the outcome construct of the model. While many different theoretical frameworks

have been used to study leadership, the individual values scale of the Social Change Model (HERI, 1996) was used to measure leadership outcomes for this study.

Problem Statement and Purpose of the Study

Astin (1984) suggested research is needed to not only identify the extra-curricular activities in which a student participates, but also the time and energy a student devotes to each activity and to examine the relationship between quality and quantity of involvement. Additionally, Astin (1984) recommended that research be conducted to determine if there is a desirable limit of involvement in which additional involvement doesn't produce desirable results and may become detrimental. The purpose of this study was to examine the relationship between undergraduate students' extracurricular club and organization involvement and leadership outcomes.

Methods

Traditional-age undergraduate college students who were classified as seniors in the College of Agriculture and Life Sciences at [Midwestern State University] were surveyed (N=969), using a web-based questionnaire. Dillman's (2007) five-step data collection approach was used, resulting in 270 responses (27%), 199 of which were complete and usable (20.5%). A panel of professionals was consulted to establish validity. In addition, the instrument was field tested with students similar to those in the population. Reliability of the SRLS-R2 individual values scale was .88.

An involvement scale was developed that combined level of involvement with the number of clubs in which a student was involved was developed and used as a dependent variable. In addition, the number of clubs in which a student participates, the number of hours in which a student participates in extracurricular activities, and serving as an officer were used as independent variables. Inferential statistics were utilized to examine the relationships between each of the independent variables and the dependent variable (i.e., leadership development).

Results

The number of extracurricular clubs and organizations that students reported being involved in ranged from 0 to 11 (M = 3.41, SD = 2.44). The number of clubs in which a student participated was associated with increased individual leadership values (F (3, 173) = 5.83, p = .001). In addition, the student's involvement index score was related to individual leadership outcomes (F (3, 170) = 5.24, p = .002). This study suggested that there is a threshold of involvement for both the number of clubs or organizations in which a student is involved as well as the involvement index where increased involvement is no longer associated with increased leadership outcomes and is actually associated with lower levels of involvement. The threshold for the optimum number of clubs or organizations is 3-4 clubs or organizations. In addition, students who served as a club officer scored statistically higher on the individual values leadership scale (t (161.04) = -2.67, p = .008). The amount of time in which a student participates in a club or organization did not have a statistically significant relationship with the individual values leadership scale F (3, 173) = 1.58, p = .197.

Conclusions/recommendations

Extracurricular involvement has a strong relationship with leadership development and should be included in institution's plans to reach leadership outcomes. Faculty and staff should work to create meaningful opportunities for students and encourage their participation. The findings of this study revealed that serving as an officer had a significant relationship with increased leadership development. However, the number of hours spent participating in extracurricular clubs and organizations did not, suggesting that the quality of the involvement may be more important than the quantity of involvement. And, in fact, there is a threshold that suggests that when the quantitative measures of involvement exceed the desirable limit, the quality of the involvement is decreased and therefore the positive outcomes are reduced. Knowing this, faculty and staff can encourage students to become active in 3-4 organizations to optimize individual leadership outcomes.

References

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25,* 297–308.

Astin, A. W. (1996). Involvement in learning revisited: Lessons we have learned. *Journal of College Student Development, 37,* 123–134.

Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 40,* 518-529.

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

Birkenholz, R. J., & Schumacher, L. G. (1994). Leadership skills of college of agriculture graduates. *Journal of Agricultural Education, 35*(4), 1–8.

Boatman, S. A. (1999). The leadership audit: A process to enhance the development of student leadership. *NASPA Journal, 37,* 325-336.

Council for the Advancement of Standards in Higher Education. (2006). *CAS professional standards for higher education* (6th ed.). Washington, DC: Author.

Higher Education Research Institute (1996). *A social change model of leadership development* (3rd ed. Los Angelos: Higher Education Research Institute.

Kezar, A. & Moriaty, D. (2000). Expanding our understanding of student leadership development: A study exploring gender and ethnic identity. *Journal of College Student Development, 41,* 55-69.

Kimbrough, W. M. (1998). The impact of membership in black greek-letter organizations on black students' involvement in collegiate activities and their development of leadership skills. *Journal of Negro Education, 67*(2), 96-105.

Layfield, K. D., Radhakrishna, R. B., & Andreasen, R. J. (2000). Self-perceived leadership skills of students in leadership programs in agriculture courses. *Journal of Southern Agriculture Research, 50* (1), 62–68.

Pascarella, E., & Terenzini, P. T. (1991). *How college affects students.* San Francisco, CA: Jossey-Bass.

Phinney, J. S. (1990). Ethnic identity in adolescents and adults: Review of research. *Psychological Bulletin, 108,* 499-514.

Rubin, R. S., Bommer, W. H. & Baldwin, T. T. (2002). Using extra-curricular activity as an indicator of interpersonal skill: Prudent evaluation or recruiting malpractice? *Human Resource Management, 41,* 441-454.

Terenzini, P. T. & Reason, R. D. (2005, November). Parsing the first year of college: A conceptual framework for studying college impacts. Paper presented at the meeting of the Association for the Study of Higher Education, Philadelphia, PA.

Von Stein, M. F., & Ball, A. L. (2008). Examining undergraduate student involvement in collegiate student organizations in colleges of agriculture. Paper presented at the north central region conference of American Association for Agricultural Education. 95–110.

Research Poster

Utilization of Advisory Councils in Pennsylvania Secondary Agricultural Education

Mr. Douglas Masser
Undergraduate Research Associate

Dr. Daniel Foster
Assistant Professor

The Pennsylvania State University

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

Utilization of Advisory Councils in <State> Secondary Agricultural Education

Introduction/Need for Research

Two foundational texts of agricultural education program planning, *Foundations of Agricultural Education* and *Handbook on Agricultural Education in Public Schools* both espouse the critical need of functional advisory committee for secondary agricultural education programs. Talbert, Vaughn, Croom, and Lee (2007) stated, "One of the most important characteristics of a local agricultural education program is the interaction between the program and the community served by the school" (p. 122). Phipps, Osborne, Dyer, and Ball (2008) state that advisory committees should have direct impact on program planning and design. This aligns with mandates put forth in the Education Amendments of 1977 and reinforced in the Carl D. Perkins Vocational Education Acts of 1984, 1988 and 2007 that local vocational programs were to establish an advisory council, one that would involve input from the community members and stakeholders alike in the vocational educational programs (Barbour, 2010). Despite the legislation that exists around advisory councils, research indicates that organizing and implementing effective use of an advisory council into agriculture programs is a concern shared by a majority of neophyte agriculture educators (Myers, Dyer, & Washburn, 2005); however, the concern doesn't exist solely in beginning teachers. Research also indicates that this is a common concern among agricultural educators in general, with current teachers also expressing concern that community support and involvement presents them with a continued challenge in their programs (Boone & Boone, 2007). Previous researchers (Barbour, 2010, Whately & Supin, 1987) have recommended further study investigation in advisory councils, specifically the reasons behind the causes of some programs currently not utilizing advisory councils. The National Agricultural Education Research agenda describes Priority 5 as aiming to "define the characteristics of effective agricultural education programs and teachers and the means to correctly access the current state of these characteristics" (Doerfort, 2011), thus with limited previous research conducted on the status and implementation of advisory councils in <state> and the reoccurring theme of inadequacy in utilizing them, <state>'s agricultural education system could benefit from research in this area.

Theoretical Foundation

The theoretical foundation of the study is Caffarella's (2002) Interactive Model of Program Planning. The Interactive Model is similar to other models (Knowles, 1980; Cervero & Wilson, 1996, & Sork, 2000), but is distinct in four ways: by design, it is interactive and comprehensive, people and place are acknowledged as important in the planning process, difference among cultures are taken into account in the planning and practitioners find the model useful as a practical tool. The focus of the descriptive study was on the engagement of stakeholders in programmatic decision making.

Methodology

The purpose of this descriptive research study was to describe the utilization of advisory boards in <state> secondary agricultural education programs. The following research objectives guided the study: (1) Describe the implementation of advisory boards in

<state> agricultural education programs, and (2) Describe barriers to implementing advisory boards in <state> agricultural education programs.

Dillman's tailored design method served as the basis for this research (Dillman, Smyth, & Christian, 2009). The frame for the study was obtained from the <state> agriculture teacher directory. The frame resulted in a population of 241 individual teachers, thus a census was taken. 178 respondents yielded a response rate of 74%. Non-response error was controlled for with a comparison of early to late respondents with late being defined operationally as the later 50% as recommended by Linder, Murphy and Briers (2001). No threat to external validity was found. On online survey tool was used for data collection. The instrument was developed and adapted from a previous research study (Barbour 2010) and consisted of nominal and Likert-scale questions. A panel of experts in agricultural education including a representative from the pilot test state reviewed the instrument and made recommendations for validity. Human subjects from <University> provide Institutional Review Board approval (IRB Protocol # 38385). A pilot test was conducted was conducted on a similar population of agriscience educators in a different state resulting in 62 respondents where all items were found to be dependable and reliable.

Results/Findings

For objective one, 89.9% of agriscience educators surveyed (n=160) said that they do have an advisory council. Advisory councils were reported to have an average of 12 members (10 voting) meeting twice a year. Only 25.9%of teachers reported having tem lengths for their members. The decision points having the highest four ranking of influence was the items identifying the equipment, tools, and supplies needed for the program, acting as a communication link between the general public, reviewing courses of study for content relevance and accuracy, and evaluating the agricultural program. Of the programs with advisory boards, 20.3% reported having a program of work. For objective two, 10.1% that indicated that they do not have an advisory council. 23.5% of these respondents identified that advisory councils are not essential to my program. The option was provided to write in reasons as well. A common(n=5) write in concept that they had no need for one because they were not an <state> Department of Education approved program, making them ineligible for state and local funds distributed for compliance.

Conclusions

The study confirms findings from previous studies in different states with a vast majority of programs saying that they have an advisory committee of some fashion (Barbour, 2010; Dormody, Seevers, & Classen 1996). Further investigation is needed on how exactly how those community resources are being utilized by the educators. The absence of a program of work in those who do have a council and the negative connotation that advisory councils serve only as a step for compliance and hold no sense of value causes concern. Research shows that effective teachers utilize advisory councils as a mode of community support so their importance must be articulated to the state's agricultural educators so they can capitalize on these benefits (Roberts & Dyer, 2004).

Implications/Recommendations

Further study and investigation of how the advisory boards are managed to accomplish objectives or goals of the program are recommended with nearly 80% declaring that no program of work existed for the advisory board. In addition, investigation of policies allowing agricultural education and the student organization, FFA, to participate in non-state approved program should be conducted. For practitioners, form and method of professional development and sharing how w best practices can be shared are needed.

References

Barbour, J. C. (2010). Characteristics and influence of advisory committees on program planning in Texas secondary agricultural programs. Unpublished Masters Thesis. Texas Tech University.

Boone, H. N., & Boone, D. A. (2007). Problems faced by high school agricultural education teachers. *Journal of Agricultural Education, 48(2), 36-45.* doi: 10.5032/jae.2007.02036

Caffarella, R. S. (2002). *Planning Programs for Adult Learners: A practical guide for educators, trainers and Staff Developers, second edition*. San Franciso: Jossey-Bass

Cervero, R. M., & Wilson, A. L. (Eds.) (1996). *What really matters in program planning.* New direction for Adult and Continuing Education, no. 69. San Franciso: Jossey Bass.

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

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.

Dormody, T. J., Seevers, B. S., Clason, D. L. (1996). Teacher perceptions of the goals achieved by adult organizations in agricultural education. *Journal of Agricultural Education, 37(1).* doi: 10.5032/jae.1996.01031.

Knowles, M. S. (1980). *The modern practice of adult education.* New York: Cambridge University Press.

Linder, J. R., Murphy, T. H., & Briers, G. E. (2001). Handling non-response in social science research. *Journal of Agricultural Education, 37(1).* doi: 10.5032/jae.1996.01031.

Myers, B. E., Dyer, J. E., & Washburn, S. G. (2005). Problems Facing Beginning Agriculture Teachers. *Journal of Agricultural Education, 46(2), 47-55.* doi: 10.5032/jae.2005.03047

Phipps, L. J., Edward, E. W., Dyer, J. E., Ball, A. (2008). Using Advisory Councils and Support. *Handbook on Agricultural Education in Public Schools* (81-93). Clifton Park, NY: Thompson Delmar Learning

Roberts, T. G., & Dyer, J. E. (2004). Characteristics of Effective Agriculture Teachers. *Journal of Agricultural Education, 42(4), 43-53.* doi: 10.5032/jae.2001.4043

Sork, T. J. (2000). Planning educational programs. In A. L. Wilson & E. R. Hayes (Eds.), *Handbook of adult and continuing education*. San Francisco: Jossey-Bass.

Talbert, B.A., Vaughn, R., Croom, D.B., Lee, J.S. (2007). Advisory and Citizen Groups. (2nd Eds.), *Foundations of Agricultural Education* (121-140). Danville, IL: Professional Educators Publications.

Whaley, D. C., Sutphin, H. D. (1987). The status and influence of agricultural advisory committees in California. *Journal of the American Association of Teacher Educators in Agriculture,* 28(3), 37-42, doi: 10.5032/jaatea.1987.03037