2010 Western Region AAAE Poster Session
Great Falls, Montana

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Title	Author	Institution
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9. Students' new media use as a basis for advancing agricultural communications curricula	Bryan K. Ray, Traci L. Naile, K. Jill Rucker	Texas A&M University, Texas A&M University, Oklahoma State University
10. The Importance of Mentoring to Distance Graduate Students	Dr. David L. Doerfert, Alyx M. Shultz	Texas Tech University
11. The Influence of a Professional Development Workshop on Secondary Agriscience Instruction	Heather Jones	Texas Tech University
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13. Youth-Adult Partnerships Get your 50/50	Eric W. Larsen, Carl G. Igo	MSU-Bozeman

Agricultural Mechanics Experience of Texas Agricultural Education Student Teachers

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Agricultural Mechanics Experience of Texas Agricultural Education Student Teachers

Introduction

The use of school agricultural mechanics laboratories, where students employ learning by doing, is an integral part of many agricultural education programs (Sutphin, 1984). However, many teachers have limited agricultural mechanics experience prior to beginning a career in education. With the continuing popularity of agricultural mechanics classes in Texas (Texas Education Agency, 2009), research was conducted to determine the amount and type of agricultural mechanics experience of Texas agricultural education student teachers. Researchers utilized a mailed questionnaire to conduct this descriptive, census study.

Theoretical Framework

Agricultural education laboratories are an essential component of the total secondary agricultural education program (Phipps & Osborne, 1988). The use of school and community laboratories, where students employ "learning by doing" is an integral part of many agricultural education programs (Sutphin, 1984). Hubert, Ullrich, Lindner and Murphy (2003) stated "agricultural education programs offer many unique hands-on opportunities for students to develop both valuable academic and vocational skills" (p. 17). Phipps and Osborne also noted that "the primary objective of agricultural mechanics education is the development of the abilities necessary to perform the mechanical activities to be done in agriculture" (p. 306).

Knowledge and skills associated with agricultural mechanics laboratory management are essential for agricultural educators who intend to provide a safe and efficient laboratory learning environment for agricultural mechanics students (Saucier, Schumacher, Funkenbusch, Terry, & Johnson, 2008). Many studies have revealed that teachers need professional development in the area of agricultural mechanics laboratory management (Johnson, Schumacher, & Stewart, 1990; Schlautman & Silletto, 1992; Fletcher & Miller, 1995; Saucier, Terry, & Schumacher, 2009). Due to the continued need for quality and current professional development education for teachers (Osborne, 2007) and the lack of research regarding the agricultural mechanics professional development needs of Texas agricultural education student teachers, there was a need for this study.

Methodology

The purpose of this research study was to determine the agricultural mechanics experience of Texas agricultural education student teachers.

1. Identify selected demographic characteristics of Texas agricultural education student teachers who will potentially supervise agricultural mechanics laboratories in their chosen career of education.

The population for this study was composed of all Texas agricultural education student teachers in the spring of 2009 ($N = 98$). Teacher educators at each of the state's ten agricultural education programs assisted in the identification of the frame. A census of these teachers was conducted with usable responses received from 57 (58.16%) teachers. This study was extracted

from a larger research project designed to assess the agricultural mechanics laboratory management in-service needs of Texas agricultural education student teachers. The data collection instrument developed by Saucier, Terry, and Schumacher (2009) for a similar study was modified for use with this research. Appropriate methods were used to determine the validity and reliability of the instrument including the use of a panel of experts and a pilot study. Data were collected following Dillman's Tailored Design Method (2007).

Findings

Texas agricultural education student teachers were mostly female (n = 31; 55.40%), identified with being of White ethnicity (n = 50; 89.30%) and their median age was 22 years (M = 24.03; SD = 4.86). On average, Texas teachers completed 9.69 university semester credit hours of agricultural mechanics instruction at the university level. Many of these teachers were agricultural education majors (n = 37; 64.90%) as undergraduate students in college. As a youth, most teachers were FFA members (n = 49, 87.50%) and some were involved in 4-H (n = 22, 38.60%). A third of the respondents (n = 19; 33.30%) also had an agricultural mechanics Supervised Agricultural Experience (S.A.E.) project in high school. Of the eleven, agricultural mechanics courses offered in Texas agricultural education programs; there was an average enrollment of 17 (30.30%) respondents in each course.

Conclusions, Implications, and Recommendations

Agricultural education student teachers in Texas were mostly female, in their early twenties, and identified with being of White ethnicity. These teachers also had earned almost 10 semester credit hours of agricultural mechanics coursework and majored in agricultural education. Many of these teachers were involved in the National FFA Organization and 4-H as a youth. A third of the teachers had an agricultural mechanics S.A.E. project in high school and were enrolled in an agricultural mechanics course.

Implications from this research are very important to the longevity of early career teachers and the overall welfare of their students who work and learn in an agricultural mechanics laboratory. By understanding the knowledge level of these new teachers, adequate and timely professional development opportunities can and should be developed. These in-service education opportunities should focus on skill acquisition, laboratory management, and student safety.

Agricultural education faculty, state agricultural education supervisors and local school administrators should offer in-service education programs for current and future Texas agricultural science teachers who are responsible for managing and instructing students in an agricultural mechanics laboratory. Furthermore, future research should be conducted to determine the need for highly qualified agricultural mechanics teachers in school-based agricultural education programs throughout the United States. Additionally, researchers should identify a nationally recognized list of agricultural mechanics skill competencies for new agricultural education teachers. These competencies should then serve as a "measuring stick" for graduates and could later be used to identify the professional development needs of early career teachers and areas for improvement of teacher education programs across the U.S.

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Poster Type (Research)

Becoming Teachers: Beliefs, Attitudes, and Intent to Teach Agricultural Education

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Becoming Teachers: Beliefs, Attitudes, and Intent to Teach Agricultural Education

Introduction

Recruiting students into agricultural education teacher education programs is a critical component in maintaining and growing secondary agricultural education programs across the country. A national study of the supply and demand for Agricultural Education, Kantrovich (2007) reported that almost half of new teacher education graduates in agricultural education chose careers other than classroom teaching. This becomes problematic as the number of positions are either left unfilled, are closed entirely, or administrators are forced to hire uncertified or alternatively certified teachers (Roberts & Dyer, 2004).The strength of the agricultural education profession hinges on several variables including state and federal legislation, funding, public perception and local administration, but also on the recruitment of graduates into the profession (Kantrovich). For teacher educators to continue to recruit students into their programs, the factors that influence students' decisions to teach secondary agricultural education must be learned.

Theoretical Framework

Fishbein and Ajzen (1975) provide the framework for which to better understand antecedents to behaviors. Furthermore, the Expectancy-Value theory is directly linked to Fishbein and Ajzen's theory with the core belief that behavior is a function of the expectancies an individual has and the value of the goal toward which the individual is working (Watt & Richardson, 2007). The Expectancy-Value theory is the overarching theory in which this study is based upon.

Additionally, the Factors Influencing Teaching-Choice (FIT-Choice®) framework provides a comprehensive model to guide systematic investigation into the question of why people choose teaching (Richardson & Watt, 2006). The FIT-Choice® framework determines the strength of influence for a range of attitude, motivation and intent from individuals choosing teaching as a career, this framework, founded on the Expectancy-Value theory, provides a comprehensive model to guide systematic investigation into the question of why people choose teaching as a career (Richardson & Watt). Understanding students' motivations for choosing a teaching as a career has implications for teacher education, curriculum design, and recruitment.

Methodology

This study utilized a nonexperimental descriptive-correlational research design method to meet the purpose and research objectives of the study. Twenty-six teacher education programs within Arkansas, Illinois, Iowa, Kansas, Kentucky, Missouri, Nebraska, Oklahoma, and Tennessee were initially identified from the American Association for Agricultural Education Directory (2007). Of the 26 teacher education programs within the nine-state area, 19 programs were included in the study. The selection criterion was access to senior-level level agricultural education majors who were to participate in student teaching during the fall of 2008 and was established *a priori*. Because students in these programs tend to be defined cohort groups, arguably, cohorts for subsequent years are likely to represent similar dispositions. Consequently, this study is viewed as a time and place sample.

The data collection instrument was adapted from the FIT-Choice® Scale (Watt & Richardson, 2007). Section one included 40 statements designed to collect data related to students' attitude toward becoming a secondary agricultural education teacher, section two included 15 items to collect data related to students' beliefs about teaching, section three included six statements related to students' intent to teach. Section four included demographic items. To ensure validity of the instrument a panel of experts reviewed it for face, content, and construct validity. Additionally, the instrument was pilot tested prior to distribution to address reliability. Reliability estimates ranged from .50 to .90. Results include a response rate of 93% as 18 of the 19 institutions that initially agreed to participate returned questionnaires for a total of 145 data points (n = 145). Data were analyzed using SPSS® 15.0 for Windows.

Results

Findings indicate that students' beliefs about teaching regard it an "expert career" and one that has a high "social status." Students' had an overall positive attitude about teaching and view the job as a way to make "social contributions," have had "positive teaching and learning experiences," have the "ability" to teach, and enjoy "working with adolescents." Students' on average are satisfied with their choice to become an agriculture teacher. Correlations between the sub-constructs of attitude, beliefs, intent and selected demographics revealed no strong relationships. Stepwise multiple linear regression revealed no variance in students' intent to teach and the selected characteristics of sex, perceived agriculture experience compared to their peers, years enrolled in school-based agricultural education courses, years of FFA membership, participation in SAE, and years of 4-H membership. Eleven percent of students' intent to teach can be explained by the belief sub-constructs of "teacher morale" and "expert career." Additionally, four sub-constructs of attitude including "fallback career," "working with adolescents," "intrinsic career value" and "job security" account for 61% of the variance in students' intent to teach. Finally, 11% of students' intent to teach can be accounted for by the variance in attitude about teaching agriculture education when controlling for beliefs.

Recommendations

As a result of this study, teacher educators should continue to recruit students from typical sources (i.e. existing agricultural education programs) and begin to explore recruiting from "atypical" populations including urban, suburban and rural areas where no agricultural education programs are offered. Teacher educators should also concentrate on enhancing early, positive field experiences. The marketing of teaching agricultural education should include the positive aspects of the job, such as the opportunity to work with adolescents, job security, and as one where teachers are well-respected. Teacher educators should tailor students' programs of study to incorporate technical coursework from areas the students' need more experience in. Additionally, those interested should promote agricultural education as a career that is a match for students if they have a passion for teaching, want to work with adolescents and want a job that offers a steady career path. Finally, future research should continue to seek understanding about the factors that influence students' choice to teach agricultural education.

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Research

Effectiveness of Integrating Video Clips into the Secondary Agricultural Education Curriculum

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Effectiveness of Integrating Video Clips into the Secondary Agricultural Education Curriculum

Introduction/Need for Research

Secondary students today are considered members of the Millennial Generation (born in or after 1982). Members of this generation are quite different from previous generations because Millennials have grown up with media and technology and are naturally technology savvy (Kaiser Family Foundation, 2005). In a learning environment, members of this generation appreciate teamwork, experiential activities, structure, entertainment, and technology (Raines, 2002). When educating the Millennial Generation, McGlynn (2005) said more research is necessary to develop new teaching strategies, to adjust current practices, and to investigate how to effectively use technology to improve learning.

Researchers have studied the use of feature films to teach a number of concepts in a college setting. However, showing an entire feature film takes up a great deal of time and may not be realistic to meet course learning objectives. Roskos-Ewoldsen & Roskos-Ewoldsen (2001) found that using shorter video clips in an undergraduate psychology class helped students understand the concepts, made the concepts covered more realistic, and overall, made the course more enjoyable. However, few studies have examined the pedagogical effectiveness of using video clips (Roskos-Ewoldsen & Roskos-Ewoldsen, 2001).

The *National Research Agenda for Agricultural Education & Communication* (Osborne, n.d.) recognized the need to determine what instructional strategies improve student achievement in school-based agricultural education. The purpose of this study was to examine the effect of integrating video clips in the secondary agricultural education curriculum. The following research objectives were used to address this purpose: 1) To determine subjects' attitudes of integrating video clips into the agricultural education curriculum and 2) To determine subjects' satisfaction when video clips were used compared to when they were not.

Theoretical Framework

This study derived its theoretical framework from Bandura's (1986) social cognitive theory that states that learning can occur enactively or vicariously. Enactive learning involves actual doing and learning from one's own experience. Vicarious learning occurs when the learner does not overtly perform the behavior, but observes the behavior through other sources. Common sources for vicarious learning include observing or listening to individuals, symbolic representations (e.g., cartoon characters), printed materials (e.g. books), and electronic sources (e.g. television, videotape). Vicarious sources of information make learning more possible than if someone had to perform all the behaviors individually (Schunk, 2004). The integration of video clips into educational curriculum therefore provides a source for vicarious learning.

Methods and Procedures

This study used a quasi-experiment counterbalanced design in which all subjects receive the experimental treatment at some time during the experiment. This design is used with intact class groups to reduce any differences that exist between the groups (Ary, Jacobs, & Razavieh, 2002). Subjects were high school students enrolled in two sections of the same course, *Animal Science*, during the spring 2009 semester. Subjects were normally enrolled in these two sections and were

not reassigned for this study. One section had seven students and the other section had 12 for a total of 19 subjects.

The treatment consisted of embedding video clips into two animal science units – horse and swine. The video clips were from a variety of television shows (such as *Dirty Jobs* and *Modern Marvels*) and online clips from YouTube and United Streaming. Each of the units was two-weeks in length and was similar in the nature and difficulty of the concepts. Each unit had the following lessons: industry, history, breeds, feeding, management, housing, tack (equipment), diseases and parasites. The horse unit included anatomy, selection, horsemanship and training while the swine unit included lessons on production systems and marketing.

The class section that was randomly assigned to receive the treatment for the first unit (Group 1) served as the control for the second unit (Group 2) and vice versa. The control group was taught the same content using more traditional methods and no additional video clips. Subjects completed a 15-item satisfaction instrument adapted from Brashears (2004) and Alexander (2007) at the end of each unit. Students who were in the class that received the video clip treatment also completed an instrument adapted from Roskos-Ewoldsen and Roskos-Ewoldsen (2001) to provide their opinions regarding the use of video clips. Finally, a series of demographic questions were asked to determine age, gender, year in school, and GPA.

Findings

Data were analyzed using SPSS 17.0 for Windows. Of the 19 subjects, 12 were male (63.2%) and the average age was 16.58 (SD = 1.07). Eleven of the subjects were sophomores (57.9%), 3 were juniors (15.8%), and 5 were seniors (26.3%). The average GPA was 3.17 (SD = .47).

Attitudes toward the use of video clips were measured using an 8-item Likert-type scale (1=strongly disagree, 5=strongly disagree) with post hoc reliability alpha coefficient of .928. The average score for video satisfaction was 4.05 (SD = .83). A dependent t-test found no significant difference in satisfaction when video clips were used (M = 3.95, SD = .77) and when they were not (M = 3.83, SD = .69), $t(18)$ = .926, p value = .367, r = .71).

Conclusions

Students in the study were generally positive regarding the use of video clips in the two agricultural education curriculum units under investigation and agreed that video clips should be used in the future. However, there was not a significant difference in overall satisfaction between when video clips were used and when they were not.

Implications/Recommendations/Impact on Profession

The results of this study indicate that while students enjoyed the use of video clips in the agricultural education classroom, the use of video clips did not significantly impact overall attitudes of satisfaction regarding the class. It is recommended that the units be used again with larger classes to further examine the effect of integrating video clips on student satisfaction and academic achievement. It would also be beneficial to determine the current prevalence of video clips in school-based agricultural education including teacher's reasons for adoption or barriers to integration.

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Innovative Idea

Enhancing Career Development Event Preparation Utilizing Jing™ Audio/Video Recordings

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Enhancing Career Development Event Preparation
Utilizing Jing™ Audio/Video Recordings

Need For Innovation/Idea

Jing™ is a free, downloadable program available from TechSmith (http://techsmith.com) that allows users to capture a picture or video and narrate what is seen on a computer screen. These short recordings can then be shared over the World Wide Web, through social networking sites or links to recordings can be placed in an email. Recordings can also be saved on a computer and viewed at anytime, without an Internet connection. This new technology has the capacity to engage, captivate, and increase the learning of students involved in FFA Career Development Events (CDE).

The current generation of high school students and FFA members are part of Generation NeXT, which includes students born after 1982. Taylor (2008) stated that these students are "digital natives" and "…technology is a part of most NeXter's identity" (p. 9). With this in mind, the use of Jing™, serves to feed this generations desire to use technology as an integral part of their social and educational lives.

Student participation in FFA Career Development Events (CDE) is an important part of the FFA experience. According to the National FFA Manual (2009), preparing for a CDE is preparing for the future (p.53). Whether an FFA member is presenting livestock judging reasons to a single judge or is reciting the FFA Creed to a room of 500 people, all of the National FFA 24 CDE events require public speaking skills and the process of acquiring these skills can be enhanced with Jing™. Instructor/coach and student preparation for participation is an extensive process that requires teams to dedicate a tremendous amount of time both after school and on the weekends preparing for CDE field days and events. The use of Jing™ can increase and enhance how students prepare and practice for CDE events by expediting the learning process and meeting their technological interests and needs. Besides being free, Jing™ is a very easy program to learn – requiring less than 30 minutes for most students to learn.

How It Works

Jing™ has been used over the past year by the author to engage students involved in judging teams, creed recitation, and extemporaneous public speaking. The instructor/coach for each of these activities created a series of narrations using the free Jing™ program. For livestock judging team members, groups of four photos of various types of livestock were placed into one Power Point™ slide and reasons for placement were recorded. To assist FFA Creed speakers, each paragraph of the creed was written out, again using a PowerPoint™ slide. The instructor then narrated each paragraph and created a screen capture recording. Similar methods were used for other judging teams. Links to all recordings were posted on the instructors' website and all judging team members and public speakers were provided instructions on accessing the provided links. Links were available to speakers so that they could listen and read at the same time to facilitate memorization of their presentation or enhance delivery methods and general speaking skills.

Extemporaneous and prepared public speakers utilized the Jing™ program in a reverse manner. Speakers either used the instructors' computer or their own computer at home to record either an extemporaneous presentation or their prepared speech. Extemporaneous speakers recorded their presentation over a screen capture of their topic while prepared speakers recorded over a screen capture of a picture that related to their presentation topic. Instructors and student speakers then listened to the recordings together, pausing at moments in the presentation where changes or improvements could be made. These listening/feedback sessions provided not only opportunities for critique but also the opportunity to commend speakers on exceptionally positive moments in their presentation. Recorded presentations were also used when team members or public speakers met as a group to discuss new links or critique individual recordings as a group.

Results To Date/Implications

Students on judging teams and public speakers were eager to investigate Jing™ recordings provided by the instructor to help jump start their preparation. Speakers and team members have been able to learn their speeches and reason delivery methods more effectively and in less time. As a result, less time is spent on delivery techniques and general public speaking skills during after school practice. After school time, typically set aside for learning the basics of delivery and technique, has now been able to be used for actual live practice. More time can now be dedicated to viewing and critiquing classes of livestock because students have been able to learn tone and power of voice while at home or in the school's computer lab. The implementation of Jing™ for FFA Career Development Event preparation has allowed increased practice time without burdening students and instructors.

Future Plans/Advice To Others

Future plans include using the Jing™ program extensively to provide numerous examples and practice narration recordings. Instructors also have plans to use the Jing™ program to record short subject matter lectures to reinforce information delivered in class. Links to recordings will be posted on a separate page of the instructors' website, which is separate and different from team/contest preparation recordings. Based on instructor experience, when utilizing Jing™, recordings should include simple screen captures that relate to the narration. A localized, student accessible website works best for posting recordings for team member and student use. Instructors involved in teaching at the secondary, college, and university level can use the program in ways that are unique and pertinent to their needs. The first-hand experiences shared reveal that there are immense benefits.

Costs/Resources Needed

Jing™ is a free, downloadable application available on the TechSmith website (http://techsmith.com), however, those seeking more capabilities can spend the minimal cost of upgrading to the Jing™ Plus program. The cost of a computer and a microphone would be additional costs to consider. However, school computer labs should be investigated for potential use to reduce departmental costs. The time requirement to learn to use Jing™ is minimal and time to create recordings varies based on the individual.

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(Innovative Idea)

Enhancing Pre-Service Teaching Advising by Adopting a Skills Inventory

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Enhancing Pre-Service Teaching Advising by Adopting a Skills Inventory

Introduction

The needs of student teachers have been the subject of considerable research in agricultural education (Edwards & Briers, 2001; Johnson, Lindhardt, & Stewart, 1989; Mundt & Connors, 1999; Talbert, Camp, & Heath-Camp, 1994). Fritz & Miller (2003) found student teachers were most concerned about self-adequacy, including subject matter competency. Similarly, Myers, Dyer, and Washburn (2005) suggested most needs and /or issues facing student teachers include classroom instruction. These findings suggest there may need a need to strengthen subject matter competency of pre-service teachers.

The confluence of university courses that lack skills training and the lack of practical agricultural experience of pre-service students have created teacher candidates that lack many of the fundamental skills they are required to teach. Student teachers commonly express they cannot teach a skill because they do not have adequate skills themselves. Additionally, cooperating teachers have indicated student teachers lack necessary skills.

To identify the scope of this problem, a "skills inventory" instrument was developed to assess the skills of the students in a pre-service program. While students come to pre-service programs with a variety of skills, they will undoubtedly gain additional skills while completing courses in the teacher preparation program. A skills inventory assessment may enhance advising of pre-service students and encourage student to seek courses and experiences that will strengthen their skill set before they begin teaching.

How it Works

The instrument was developed from a variety of sources including consultation with practicing secondary teachers, master teachers, post-secondary agricultural educators, and university teacher educators. The breakdown of courses taught at the secondary level was also used to determine the relative importance of each area. Data generated by state FFA officials indicate the greatest percentage of courses offered is in the areas of agriscience (34 %) and agricultural mechanics (29%). Other courses include plant science, including floral and ornamental horticulture (12%), "other" agriculture (10%), animal science (6%), agricultural business management (4%) and forestry/natural resources (1%).

An initial list of over 250 content specific skills was developed and pared to 172 items representing specific skills necessary to teach and supervise agricultural experiences. The selected skills represented the following areas: Agricultural Business/Information Technology; Agricultural Mechanics; Animal Science; Plant Science/Ornamental Horticulture/Floriculture; and Natural Resources. Emphasis was placed in proportion to the courses taught in the state.

A list of agricultural education majors was extracted from the campus data system, which was deemed to be a reliable source. Students were asked to complete an on-line survey instrument which characterized each skill into a scale of No prior knowledge, I have seen it done, I have done it, and I can teach it. An on-line survey instrument was also used to collect data from subject matter faculty to determine the extent of skills introduced in required subject matter competency courses. Faculty were asked the same items with a modified rating scale: I talk about it; I demonstrate it; My students do it. Students are invited by email to complete the online skills

inventory and save their results for advising using the provided print option. Follow ups were made by email and in person by the agricultural faculty to increase the response rate.

Results

The initial survey of 56 students resulted in the completion of 45 instruments (80%). Class level breakdown included: seven freshman, six sophomores, 12 juniors, and 20 seniors. Mean scores were computed for each general area (see Table 1).

Table 1
Mean responses by subject area and class level

	Class Level				
Subject Area	1	2	3	4	All
Agricultural Business/Information Technology	3.0	3.1	3.2	3.3	3.2
Agricultural Mechanics	1.9	2.0	2.6	3.0	2.6
Animal Science	2.8	3.1	3.3	3.3	3.2
Plant Science/Ornamental Horticulture/Floriculture	1.7	2.4	2.8	2.8	2.6
Natural Resources	1.7	2.0	2.0	2.2	2.1
Total	2.2	2.4	2.8	3.0	2.8

Note: Likert Scale (1 = no prior knowledge; 2 = I have seen it; 3 = I have done it; 4 = I can teach it).

It must be noted that these samples are small for statistical analysis and the survey itself does not indicate which courses may have been completed at the time of completing the instrument. Areas of notable weakness were found across class levels in welding, landscape, floral, and natural resources management. Areas of strength for incoming students appear to be in information technology and animal science.

Mandatory advisement is required by the College of Agriculture and the Agricultural Education Department, which provided a venue for individual discussion of the instrument. During advising, the inventory was reviewed and faculty members made recommendations to “fill in the gaps” with directed work and internship courses, other subject matter courses, and summer employment.

Future Plans/Advice to Others

The long term goal of this project is to create a longitudinal study of student skills and to provide students the opportunity to assess their skills as they enter the program, either as freshmen or community college transfers. Students will be asked to complete the assessment as they begin their student teaching experience to evaluate their acquisition of skills while undergraduates. Data should also be used to tailor student teaching assignments to facilitate bridging gaps of necessary skills. Further data should be collected following student teaching to assess gaps in necessary skills prior to completion of student teaching. These data should be used to evaluate course requirements. Ultimately, long term research should provide evidence of increased teacher efficacy through carefully designed curriculum and student teacher placements.

Costs / Resources

The program has no direct cost beyond faculty instrument development and analysis time. The on-line survey is supported by software developed and supported by the College.

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Research Poster Abstract

Exploring an Integrated System Approach to Food Security in Developing Countries: A Grounded Theory Study

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Exploring an Integrated System Approach to Food Security in Developing Countries: A Grounded Theory Study

Introduction

The Food and Agricultural Organization of the United Nations (2008) estimated that the number of hungry people in the world equaled 923 million in 2007, an increase of more than 80 million since 1990. Evans (1998) forecasted that by 2020, 82% of the world population will live in developing countries. The paradox of starvation in underdeveloped nations amidst abundant food in developed countries is evident. Food security and sustainability remain among the major challenges facing institutions serving agricultural development in developing countries.

Agriculture with its modern technologies and policies, exemplified through the Green Revolution, has not provided a sustainable solution to food security. For example, Africa largely missed out on the Green Revolution (Gates, 2009). All the while, world forces of population growth, environmental degradation, migration-immigration, technology, and global terrorism created system chaos. As system problems demand systems solutions, this research proposes that food security can better be addressed through an integrated system approach that recognizes the individual yet interactive roles of food production, agricultural research and technology, education and training, transparency, and policy.

The research also recognizes that the actual and potential target audience for agricultural education has expanded through the process of globalization. In accordance with the National Research Agenda (Osborne, n.d.) for agricultural education in international settings, an integrated system approach to food security was developed to expand the educational focus in addressing various needs of stakeholders in that system.

Theoretical framework

Strauss and Corbin (1998) wrote that when a researcher hopes or intends to generate a theory formed inductively from data collected during a study rather than using a theory to frame the study, the researcher is conducting a grounded theory study. This research project began with data collected through one-on-one interviews, focus group discussions, and participant observations—all aimed at answering a question about best practices and approaches to preventing hunger and improving human living conditions. A theory of an integrated system approach to food security emerged from the data analysis and interpretation.

Methodology

The one-on-one interviews were conducted with ten different experts who have extensive work experience in international agricultural development. Each interviewee represented an institution serving international agricultural development, which included the Food and Agriculture Organization of the United Nations, the Gates Foundation, the Norman Borlaug Institute for International Agriculture at Texas A&M University, Food for the Hungry, and the U.S. Department of State. The focus groups were conducted as roundtable discussions between the researchers and the two advising professors. The researchers then conducted literature reviews of individual themes that had emerged. To move toward generating a grounded theory, the

researchers used the *constant comparative method* as part of the interactive and ongoing process of analyzing the data and developing the theory (Glaser, 1992).

Findings

Data from the one-on-one interviews, focus groups, and participant observations yielded five individual themes—food production, research and technology, education and training, transparency, and policy. Results of the literature review, bounded and limited by the five themes that emerged, pointed the researchers toward an encompassing theme of an integrated system approach to food security. The individual system components demonstrate that food security concerns not only individual farmers and the ecological paradigm, but also the fabric of agricultural and rural communities, institutions, and governments at the local, regional, national, and global levels. The interconnectedness among these components can be perceived through a hierarchy of agricultural systems. The components of food production, agricultural research and technology, and education and training address food security directly at the lower three levels—farming, cropping, and soil systems. These components contribute primarily to ecological sustainability and agricultural productivity. On the other hand, corruption and policy issues affect food security more directly at the upper three levels—regional, national, and global systems. These components enable or hinder economic viability, access, and social equity of food production and distribution. As a whole, all of the individual components interact to inform and support one another for the long-term goals of food security and agricultural sustainability.

Conclusions

Food security and sustainable agriculture achieved through an integrated system approach will remain an evolving and adapting process. The core elements of sustainability consist of ecological soundness, food productivity, economic viability, and social equity (Raman, 2006). The system components interact and balance uniquely depending on specific local, national, regional, and global contexts. Although countries and organizations worldwide may share criteria for sustainability, we should expect to see a variety of integrated approaches to sustainability along with their changes over time. Each country or region with its own stage of growth and its unique ecological, socioeconomic, and political conditions may have its own methods of balancing the system components. Countries in different times and conditions need different approaches to food security. A one-size-fits-all policy, or advice implying such a policy, will likely retard rather than advance agricultural development.

Implications, Impacts, and Recommendations

This integrated system approach has implications for university research, teaching, and extension functions in the U.S. and for foreign institutions performing those functions. The research contributed to identifying the core knowledge and understandings required for participatory, interdisciplinary, and institutional collaboration in the agri-food and natural resource system—locally, regionally, nationally, and globally. The researchers recommend that further research continue in the development of a framework for an integrated system approach to food security. To reinforce and expand the framework, we recommend that future researchers explore the inclusion of additional life system components such as health and economics.

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Innovative Poster

Food for Thought Curriculum: An Innovative, Collaborative Agricultural Literacy Project

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Food for Thought Curriculum: An Innovative, Collaborative Agricultural Literacy Project

Introduction

American agriculture feeds and clothes the world, yet many consumers are unaware of where their food comes from and the impact of agriculture on their daily lives (National Research Council, 1988). The agricultural literacy movement has devoted considerable effort to increase the visibility of agriculture in schools through enhancement of K-12 curriculum. However, many of the efforts have met resistance due to the increased focus on standardization and state testing. The Food for Thought curriculum was designed to address this concern and is aligned with state educational standards.

A pressing issue in American education is the need for increased reading instruction in schools. The National Institute for Literacy states that there are five components of reading; phonemic awareness, phonics, fluency, vocabulary and comprehension (National Institute for Literacy, 2009). Content area reading strategies can enhance reading instruction and enable students to attain a higher degree of literacy (Park & Osborne, 2006). The aim of the Food for Thought curriculum is to promote content area reading in science, social studies, and agricultural sciences.

Innovation

A need exists for an economical, effective and dynamic curriculum. One that is portable, easy to use, and available to everyone. Recently, the [college] along with the Departments of [name] developed an innovative curriculum design and delivery model. The Food for Thought curriculum is intended to be an open, adaptive and collaborative system where teachers in any subject can promote reading, improve agricultural literacy and increase the science, social studies, and language arts skills of all students.

The Food for Thought curriculum is available without cost and is directly linked to individual articles contained in the [state]'s Agricultural Progress magazine. The [state]'s Agricultural Progress magazine is disseminated throughout [state] to over 10,000 subscribers. Through an innovative design, teachers from throughout the state are supplied copies of the publication and then are able to access lesson plans directly linked to each article. The curriculum is a set of 20 individual lessons designed to provide teachers with creative, learner-centered teaching activities to improve fluency, vocabulary, comprehension, and the understanding of agriculture. The lessons are designed to be integrated into existing school-based curriculum and target middle and high school students. The uniqueness of having 20 individual lessons, directly connected to colorful and insightful magazine articles, provides teachers the freedom to integrate relevant and compelling agricultural content into their existing curriculum.

Program Design

The Food for Thought curriculum was designed in conjunction with the Fall 2009 issue of [state]'s Agricultural Progress magazine. Concurrent with the distribution of the magazine, teachers within the state were notified of the available curriculum and sent a link to the Food for Thought curriculum. This initial offering was intended as a pilot project to provide input as to the usability and sustainability of the Food for Thought curriculum. The intent of the creators was to determine future development based on feedback from the initial audiences.

In terms of curricular design, the materials were developed primarily through the dedicated efforts of a student enrolled in agricultural education and a faculty member within the department of [name]. Support for both the technical and graphic aspects of the project was provided through a joint collaboration between the departments of [name] and [name]. Collaboration was a critical element in the creation of this curriculum and constitutes a key aspect of program design.

Results

The special issue of [state]'s Agricultural Progress magazine has been distributed to over 10,000 individuals and several thousand additional copies were allocated for distribution to schools. The online lessons and related articles were also promoted through the Agriculture in the Classroom Foundation. The creators of the curriculum are monitoring dissemination of materials through online click-counts and eliciting feedback from target audiences through e-mail, telephone calls and face-to-face contact. The Food for Thought curriculum has received positive feedback from teachers. Formal data will be collected in order to further develop the curriculum for a wider audience.

Future plans

The creators are optimistic regarding the continued use of the Food for Thought curriculum and the integration of agricultural content within area schools. One of the benefits of this project is the open availability of both the curriculum and an electronic version of the [state] Agricultural Progress magazine. Once the awareness increases, educators external to the state and region will have open access to informative and well-developed agricultural lessons. The continued focus on innovative ways to facilitate open access curriculum and the dissemination of research-based agricultural information provide the keys for continued success of both agricultural education and the land grant system.

Costs

The costs of this project were minimal due to existing infrastructure and active collaboration. The primary expense was the wages of the project development team. The creators estimate that the agricultural education student spent approximately 200 hours with 40 hours of support from the magazine editor. Production of the curriculum in an electronic format eliminated any printing and mailing costs.

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Identifying Graduate Students' Areas of Concern

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Identifying Graduate Students' Areas of Concern

Introduction/Need for Research

The transition to graduate school can be very stressful for students, whether they are entering directly from an undergraduate program or from the workforce. Tokuno (2008) said the common belief that graduate students do not need additional support because they have already successfully completed an undergraduate program is incorrect. Providing assistance with the transition to graduate school may help improve the retention of graduate students and help them graduate on time. Ferrer deValero (2001) said an orientation course or seminars should be offered to help explain the intricacies of graduate school including paper writing and publishing, applying for grants, and learning how research is conducted.

The *National Research Agenda in Agricultural Education and Communications* (Osborne, n.d.) addressed the need for additional research to improve the success of students enrolled in agricultural and life sciences programs. The purpose of this study was to identify graduate students common areas of concerns regarding various aspects of their graduate school experience. Once these topics are identified, additional opportunities can be provided to decrease anxiety and improve student performance.

Theoretical Framework

Self-efficacy is "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p.3). This concept is of particular importance to education because people with higher levels of self-efficacy perform better at whatever the task may be. Schunk (2001) said self-efficacy can influence behaviors such as persistence, skill acquisition, effort expenditure, and choice of tasks.

Methodology

The population for this study included all graduate students on assistantship in the Agricultural Education & Communications Department at a southwest university. The researcher-developed survey instrument was distributed during a required orientation session before the Fall 2009 semester. The instrument had 41 questions that addressed a variety of tasks and/ or responsibilities graduate students often encounter during their time in graduate school. The instrument was divided into six sections: 1) Ins and Outs of Grad School, 2) Writing for an Academic Audience, 3) Locating and Reporting Research, 4) Presenting Research, 5) Evaluating Research, and 6) Computer Skills. Questions within each of these sections asked students to rank how confident they were performing certain tasks on a five-point Likert-type scale (*1=not confident at all* to *5=extremely confident*). A panel of experts was used to establish face and content validity of the instrument. Post-hoc analysis using Cronbach's alpha found the reliability of the individual constructs ranged from 0.77 to 0.98. Additional questions were asked to identify where assistance on the topics could be provided. Finally, several demographic questions were asked. Data were analyzed using SPSS 17.0 for Windows™.

Results/Findings

Of the 21 students who completed the instrument, 13 (61.9%) were master's students while the remaining 8 (38.1%) were working on a doctoral degree. Only six students (28.6%) were in their first semester at the university and nine (42.9%) had already completed the introductory research

methods class taught in the department. Table 1 provides the six topics that received the lowest mean confidence scores while the highest mean confidence scores are displayed in Table 2.

Table 1. *Topics that received the lowest mean confidence scores*

Topic	N	Mean	SD
Identify where your research fits in the *National Research Agenda for Agricultural Education and Communication*	21	2.81	1.40
Use SPSS to analyze research data	20	2.90	1.48
Design a research poster	20	3.00	1.34
Effectively present a research paper at a research conference	20	3.05	1.54
Write a research poster narrative	20	3.10	1.29
Explain the procedure for the Institutional Review Board [University]	20	3.10	1.55

Table 2. *Topics that received the highest mean confidence scores*

Topic	N	Mean	SD
Use Microsoft Word to format tables	20	4.35	0.75
Develop a research presentation using Microsoft PowerPoint	20	4.35	0.88
Use Microsoft Word to format your writing (hanging indents, block quotes, etc.)	20	4.35	0.93
Name professional associations you should join as a graduate student	21	4.24	0.94
Use the physical library to find supporting research	21	4.14	1.15
Use electronic databases to find supporting research	21	4.05	1.16

The majority of students (n = 19, 90.5%) said they wanted additional training to address the mentioned topics. The most commonly preferred ways to receive additional training or support was in a specific course, such as a graduate seminar, (n = 13, 61.9%) followed by brown bag sessions (n = 9, 42.9%).

Conclusions

Students in this study indicated a number of areas where additional training or support is needed. The main concerns dealt with presenting research and the ins and outs of graduate school. Students were more confident in their ability to use computer programs such as Microsoft Word and PowerPoint. Students indicated that additional training or support should be provided in brown bag sessions and courses centered on a topic of interest (i.e. poster development and design).

Implications/Recommendations/Impact on Profession

As Tokuno (2008) said, graduate students need additional support to be successful and academic units should develop strategies to address areas of concern. Further research is needed with a larger sample of graduate students in agricultural education and communications to determine if the concerns identified in this study are shared with others. Additional professional development opportunities could then be developed at a local, regional or national level to address these concerns in order to help graduate students succeed in their graduate program.

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Poster Type – Innovative Idea

Implementing a Collegiate FFA Degree System: Increasing student engagement and ownership in a Collegiate FFA chapter

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Implementing a Collegiate FFA Degree System:
Increasing student engagement and ownership in a Collegiate FFA chapter

Introduction/Need for the Innovation

Post-secondary education provides students with multiple opportunities for success through extracurricular activities and in the classroom. However, students often have difficulty choosing which activities they will devote their time to in order to balance school, work and extracurricular activities. Collegiate FFA (CFFA) members face the same problems of balancing multiple commitments. There is little extrinsic benefit offered for the participation in CFFA that parallels the high school experience (participation in Career Development Events, State Leadership Conferences, etc). The lack of opportunity for recognition can lead to a loss of motivation and enthusiasm towards participating in CFFA activities. The purpose of CFFA is:

> …developing career and leadership skills for future professions, building civic minded leaders, serving our communities, assisting active FFA members in local, state and national levels, to prepare better FFA Advisors, promote scholarship, social experiences, and to serve as a bridge between active FFA membership and the world of a career in the agricultural industry. (National FFA Organization, 2005, p. 2)

Increasing student interest and participation is vital if the organization is to remain functional. Therefore, students must be motivated to become part of a "community" in the same way they were members of their high school FFA chapters. Some form of recognition is essential to building a high level of ownership in the organization; "People engage in activities to maintain their identities and their interpersonal relations within the community" (Woolfolk Hoy & Hoy, 2009, p. 150). Because many of the CFFA members are agricultural education majors, some form of recognition could also assist in the retention and involvement of students in the Department of Agricultural and Extension Education.

To improve the level of participation in the University of Idaho CFFA Chapter, the membership and advisors developed a "Degree System" similar to the system used by the National FFA Organization to encourage and reward participation from members. The National FFA Organization's degree system helps FFA members develop their life skills through a progression of experiences while they are FFA members. The University of Idaho CFFA "Degree System" also seeks to reward student involvement in the organization and develop skills essential for future agriculture teachers.

How it Works

This "Degree System" has three levels of recognition, inspired by the National FFA Organization's Opening Ceremonies, ". . . without labor, neither knowledge nor wisdom can accomplish much" (2009, p. 26). Each degree requires increased involvement from members in the following areas: community service, fundraising, professional development, membership, social/activities involvement, and recruitment. Students complete a written application for each degree detailing their level of involvement. The applications are reviewed by the advisors and officers to ensure that students meet the minimum criteria. Awards are presented to recipients at the annual banquet. A photo is taken of the degree recipients and displayed by the department on the "Degree Wall".

- **Labor Degree** – available to members in their first semester on campus. Students must be dues paying members that attended at least three regularly scheduled meetings. This degree also requires that the applicant participate in at least one activity in each area. Recipients receive a pair of Collegiate FFA work gloves.
- **Knowledge Degree** – available to members in their second year, or those that have received their Labor Degree. Students must be a dues paying member with at least a 2.75 GPA. This degree also requires that the applicant help plan and execute activities rather than simply requiring participation. Recipients receive a FFA business card holder.
- **Wisdom Degree** – available to upperclassmen who currently hold the Knowledge Degree. Students must have been continuous dues paying member since joining with a 3.00 GPA. This degree also requires guidance of committee work, service as a chapter officer or committee chairman, and other participation in the form of planning and implementing activities. Recipients receive an Owl themed, personalized plaque.

Results to Date/Implications

The "Degree System" is a useful tool in motivating the 26 current CFFA members to be active in the organization. The "Degree System" gives members a tangible measure of their success and offers them recognition. Although the "Degree System" is only three years old, and is still improving, 14 members have received the Labor Degree, two have received the Knowledge Degree, and one has received the Wisdom Degree. CFFA has earned the College of Agriculture and Life Sciences' "Club of the Year" twice since the "Degree System" inception.

Future Plans/Advice to Others

For advisors and members wishing to implement their own CFFA "Degree System", we recommend selecting a committee to develop the system; awards, minimum requirements, etc. Once the system is developed by the committee, it should be brought before the membership to be edited and approved. It would be helpful for a beginning CFFA chapter to obtain sponsorship for the awards for the first few years. The key to the "Degree System" is the recognition of members. Students' accomplishments should be publicized by the chapter and the agricultural education department. The CFFA plans to continue with the "Degree System" as it is a valuable tool in the recruitment, retention and motivation of the CFFA members.

Costs/Resources Needed

The main cost of implementing this "Degree System" is for awards. The awards for the Labor and Knowledge Degrees are purchased from the National FFA Gold Catalog. The plaques for the Wisdom Degree are made by the Industrial Technical Education program at the University of Idaho with their laser engraver. The onetime cost for the "Degree Wall" plaques was $85. The annual costs include: $7.50 per pair of FFA work gloves (Labor Degree); $10 per FFA business card holder (Knowledge Degree); and $20 per engraved owl plaque (Wisdom Degree). The indirect costs for the "Degree System" are minimal, mostly involving advisor and student time.

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Poster Type: Research

Important and Implemented Quality Indicators of Supervised Agricultural Experience Programs: Perceptions of Stakeholders

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Important and Implemented Quality Indicators of Supervised Agricultural Experience Programs: Perceptions of Stakeholders

Introduction

One of three tenants of school-based agricultural education, Supervised Agricultural Experience (SAE) programs are "practical agricultural activities of educational value conducted by students outside of the regular class or laboratory instructional time for which systematic instruction and supervision are provided by the teacher, parent, employer and others" (National Council for Agricultural Education, 2007, p. 64). The value of SAE programs is that it allows students of varying abilities, aspirations, and backgrounds to enhance their participation and understanding of agriculture (Hughes & Barrick, 1993), to improve desirable work habits and to develop student responsibility (Stewart & Birkenholtz, 1991).

A scarcity of educational resources for supervision, a changing clientele (students) and personnel (teachers and administrators) in secondary agricultural education programs and concerns regarding the future of agriculture have impacted SAE programs (Enns, 2008). Given the decline in SAE programs (Steele, 1997) determining if current quality indicators of SAE programs are still important and implemented is critical to future success.

Theoretical Framework

Quality indicators of SAE programs have been defined many times including in the National Quality Program Standards (National Council for Agricultural Education, 2007). Research has refined quality indicators around planning and supervision (Swortzel, 1996; Dyer & Williams, 1997) , recordkeeping and implementation (Jenkins & Kitchel, 2009) and providing parameters for size, scope and linkage to career goals and agricultural education curriculum (National Council for Agricultural Education, n.d.; Colorado Community College System, 2003). SAE programs and their quality indicators necessitate in-service training for teachers (Joerger, 2002; Ricketts, Duncan, Peake & Uesseler, 2005). Perhaps this explains why educators fail to utilize SAE programs and their quality indicators as intended (Dyer & Osborne, 1995).

Method

The purpose of this study is was to determine whether quality indicators previously reported in SAE research are currently important and/or implemented in agricultural education programs. Data was collected utilizing a researcher-developed survey with SAE data part of a larger study of agricultural education sustainability. Nominal categories were listed as possible responses to each of the quality indicators of SAE: "Important and Implemented," "Important, Not Implemented," "Not Important, Implemented," or "Not Important, Not Implemented." To ensure questionnaire would yield trustworthy data, content and face validity were determined by a panel of individuals with expertise in survey development and agricultural education programs. The Cronbach's Alpha for SAE and Experiential Learning survey is .854, indicating a reliable measure of internal consistency.

Data was collected through an internet survey provider and through mailed response surveys. Procedures employed to insure appropriate response (and prevent non-response error)

were: pre-notice letter, cover letter with survey, follow up email reminder, second follow up email reminder and final post card reminder following Dillmans' recommendations (2000).

Results/Findings

The response rate for administrators was 64.6%, advisory committee members was 41.7% and for agriculture teachers was 82.5%. Data was re-coded to be Important or Not Important or Implemented or Not Implemented after an initial analysis for all respondents (N=225). Frequency counts and percentages were compared for each quality indicator.

Over 75 percent of respondents (all stakeholder groups combined) felt all 17 quality indicators of SAE were important. Three quality indicators, "SAE's last over 6 months," "Adequate evidence of SAE visits is maintained," and "SAE is integrated into the curriculum" were viewed as important by over 90 percent of the respondents. The lowest frequency responses were from quality indicators of "The instructor conducts three visits to students SAE yearly" and "Students enrolling in Ag Ed are visited before the first school year." On average, 10 percent of the respondents did not respond to a given quality indicator as either "Important" or "Not Important."

The percent of respondents which believed quality indicators were implemented showed far greater variability. The SAE quality indicator that was perceived to be implemented most (84.4 percent) was "SAE and work-based learning is integrated into the curriculum." while 51.6 percent of the respondents perceived the quality indicator of "The instructor conducts three visits to students SAE yearly" was not implemented.

The greatest difference in percentages of stakeholders who believed SAE characteristic was important to those implemented were the quality indicators of "The instructor conducts three visits to students SAE yearly," "Students enrolling in Ag Ed are visited before the first school year" and "SAE's last over 6 months," "Adequate evidence of SAE visits is maintained," and "All students have a viable SAE program."

Implications and Recommendations

This study on SAE programs confirms that the quality indicators presented were important to stakeholders in agricultural education. Any changes in SAE and their identifying quality indicators should consider historical indicators considered valuable. Dichotomous to this is that fewer stakeholders felt the quality indicators were being implemented. While SAE and quality indicators that have historically defined SAE are still valued, the ability to implement is becoming more challenging.

Professional development opportunities on creative SAE programs and supervision activities may improve the implementation of certain quality indicators. Given the percentage of non-responses, it is hypothesized that this could be due to lack of knowledge and understanding on behalf of stakeholders. It is suggested that professional development on marketing and promoting communication to stakeholders on the activities surrounding SAEs take place.

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Innovative Idea

Improving 4-H & Military Partnerships through Operation Military Kids

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Introduction

Today in the United States, youth are facing new challenges of teen pregnancy, drug use, alcohol, and tobacco daily. Youth may be labeled as "at-risk" due to a lack of skills in working with others, understanding self, communicating, making decisions, and leadership (Boyd, Briers, & Herring, 1992). Youth who are not involved in any after school programs are more likely to be at-risk for delinquent behavior, academic failure, and family challenges (Montana 4-H Research Summary, 2003; Benson, 1997). While Curtin, Ingels, Wu, and Heuer (2002) reported that students who are involved in extracurricular activities (defined as an educational activity not falling within the scope of regular curriculum) are more likely to earn a high school diploma.

These challenges can be especially difficult for youth whose parents are involved in the military. In recent years, the increased need for deployment of National Guard and Reserve units has placed new stress on military families. Research suggests that these families do not have the same support network as active duty families living on military bases (Kraft & Lyons, 2009). This situation places these youth at a higher risk for delinquent behaviors if they are not involved in activities within their communities.

4-H programs provide the learning opportunities, relationships, and support to help youth acquire the life skills necessary to meet the challenges of adolescence and adulthood. The 4-H youth development model is based on experiential education opportunities that help youth become competent, caring, confident, connected, and contributing citizens of character (National 4-H Headquarters, 2002). As military families experience the difficulties surrounding lengthy and frequent deployments, 4-H provides predictable programming and a safe, nurturing environment for military youth. This is especially important for youth whose parents are serving in the National Guard and Reserve and live in communities with little or no military presence (Montana 4-H Research Summary, 2003). Through grant funding, Operation Military Kids (OMK), in partnership with 4-H, provides programs designed to reduce stress of military youth dealing with the effects of deployment (National 4-H Headquarters, 2002). During the summer of 2009, Lewis & Clark County in Montana received grants to form a military 4-H club partnership, as well as host an OMK day camp, to meet the educational and social needs of military youth.

Program

The OMK program was conducted as a two-day long camp for military youth ages 9-13. Each day, the fifteen youth and teen leaders participated in different workshops delivered by 4-H and military volunteers. Youth were split into small groups and 4-H teen members served as group leaders to help facilitate the learning process. The leader's role was to engage the participants, organize icebreakers and educational games, and help facilitate discussion and journal entries. Participants were asked to journal the activities they liked, disliked, wanted to further explore or repeat, and what they learned after each workshop. These entries were utilized to plan future workshops, develop potential new clubs, or improve participation in existing clubs.

The program consisted of an archery workshop, a GPS scavenger hunt, military culture activities, 4-H Project Bingo, ice-cream making, and leadership challenge activities. Youth were also able to sample Meals Ready to Eat, or MRE's, and participated in a day long videography and film-

making workshop using the OMK Mobile Technology labs. Each team filmed, created, and edited a short video which was viewed by parents and guests at the conclusion of the camp. A final survey evaluation was conducted to assess participants' change in knowledge, skills, and attitudes about 4-H and interest in forming an organized military youth club.

Results and Implications

Research shows that 4-H members are more likely to develop self-confidence, social competence, and practical skills; to take on community leadership roles; and to feel more accepted and listened to by adults (Astroth & Haynes, 2002). The overall goal of the OMK program was to involve military youth in 4-H and ultimately start a club focused on military families. Unfortunately, participation was not high enough to get a new club started, but the five participants who were not already 4-H members enrolled in clubs at the start of the new year.

The evaluation revealed that youth gained a greater understanding of 4-H and the benefits of membership. Parents were also provided with information on what 4-H membership entails and how to become involved. Findings showed that youth increased skills in the areas of filmmaking and archery. Youth also reported that cooperation, social interaction and self confidence were increased as a result of the camp. With growing concerns of youth at-risk in military families, it is important to engage them in productive activities (4-H Military Partnerships, 2009). By targeting this audience, 4-H enrollment has the potential to increase and extend its influence to new, diverse audiences. All county agents should strive to work with their state OMK teams to provide this type of programming to reach military youth and families.

Future Plans

With the success that this OMK program has seen in just the first year, there are plans to continue and expand this particular effort by adding more programs and specific one-day workshops in more complex areas such as Lego robotics and photography. Additional youth development organizations in the community and military events will be utilized for recruitment purposes. The Montana 4-H program also plans to improve marketing and programming efforts to reach military youth and families year-round instead of just during the summer. With the increased visibility and networks created through the program, there is a growing demand for more involvement, partnerships, and 4-H members from this audience.

Costs and Resources Needed

Through the OMK summer camp grant, $250 per day was available for programming activities. There was also an allotment for $3 per day per participant for meals. By utilizing 4-H and military volunteers as presenters and using office resources, costs were significantly reduced. Mobile Technology Labs, associated with the State 4H office, were used for videography workshops and to create camp t-shirts, while existing materials from Challenge Kits, archery, crafts, and military culture were utilized. Meals Ready to Eat, MRE's were brought in by 4-H staff members for the youth to explore.

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Innovative Idea

Improving Teaching Through Community Service Learning

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Improving Teaching Through Community Service Learning

Introduction/Need for Innovation

Backed by President Barack Obama, the United States government is making a plea to its citizens to volunteer in their communities (Gray, 2009). To advance this initiative, a "United We Serve" website (www.serve.gov) is being created that guides ordinary citizens though the process of how to participate in community service. Schools across the nation are implementing this idea by integrating service learning into courses to improve connections with communities (Hoover & Webster, 2004). Service learning can be used as an instructional method that helps students develop civic and social responsibilities while also provides experiential learning (Anderson, 1998). Educators are using service learning projects more frequently to support educational instruction and build students' career skills (Tucker et al., 1998). These experiential activities help to connect the academic theories taught in classrooms to real world experiences (Zlotkowski, 1998). Montana State University's (MSU) agricultural education students used this idea to not only implement an educational program about agriculture for the youth members at Bozeman's Community Boys and Girls Club in Fall 2009, but to take responsibility and plan it.

How it Works

All students were enrolled in a non-formal teaching methods course. Fifteen percent of the course grade involved the development and implementation of an educational needs-based program for a community organization. Students brainstormed various organizations to collaborate with for the program, and weighed advantages and disadvantages of each, such as age of participants, scheduling, facilities and available resources. A final group decision was made to create a program for Bozeman's Boys and Girls Club. The instructor contacted the Club to determine interest, finalize dates, identify program content, and verify participation. The decision was made to create a hands-on program focused on improving agricultural literacy for youth ages 5-12 years old. The goal of the program was to increase participants' awareness, understanding, and knowledge of food production and processing. Specific objectives were that youth will: (1) Identify and label all food ingredients from each station, (2) Describe the agricultural commodities used in making a pizza, and (3) State the importance of production agriculture to real life.

Agricultural Education students then began developing a four-hour program with class time devoted to its design each week. The title of the program- "Where Does Your Food Come From?" focused on the education of agricultural products on a pizza. Each student was responsible for creating a twenty-minute lesson about a particular pizza ingredient: dough, sauce, cheese, meat, and vegetables. In order to practice various teaching methods, multiple interactive activities were included at each station: (1) *Pizza Dough*: Brainstormed foods made from wheat, ground wheat into flour, made dough, and discussed the process of baking; (2) *Tomato Sauce*: Played a guessing game of foods that originate from tomatoes, identified the ingredients in pizza sauce, hand-crushed tomatoes to create a sauce, and discussed labeling procedures; (3) *Cheese*: Arranged picture cards to identify stages of the cheese making process, colored cow masks, and

discussed cheese production; (4) *Meat*: Played a game that identified various meat products and matched them with the corresponding animal and discussed meat processing; and (5) *Vegetables*: Learned about the elements that plants need to grow, categorized various vegetables, planted basil and dill seeds, and demonstrated photosynthesis. Each station concluded with a food product related to the agricultural ingredient for the youth to eat.

As an interest approach, students chose to read an agricultural related book and act out a skit using the different characters. Youth participants were divided into groups using animal name tags that corresponded to each station. Two educational games were planned in the middle of the program to break up the time period. Participants made their own English muffin pizza with an ingredient from each station as an application activity. After lunch, students conducted a final session which included an overview of how each food ingredient related to the food pyramid and life choices. An informal evaluation was conducted by asking youth questions about the information learned. Each participant was allowed to use a puppet to answer questions and extrinsic motivators, such as frisbees, were used to encourage participation in the discussion.

Results to Date/Implications

Sixteen youth participated in the program. The service learning project provided hands-on experiences for both students and youth. The non-formal atmosphere provided an interactive learning environment for students to practice teaching skills, while youth expanded their knowledge of agriculture. MSU's News Service attended a portion of the program and wrote a feature story about the project featured on the university website. The local newspaper also placed the story on the front page of the community news section.

Future Plans/Advice to Others

Due to the news coverage of this program, several organizations have contacted the instructor asking to participate in a similar program. Educators should consider the benefits of service learning projects and strive to connect student learning with community involvement. Service learning projects can have profound effects on students such as improved self-concept, positive attitudes, motivation to learn, and increased community engagement; however, they need to be directly involved in the planning process, feel challenged, have responsibilities, and be given decision making capabilities about the project itself (Morgan & Streb, 2001).

Cost/Resources

The selection of an organization to work with for a service learning project is important in order to have a positive learning experience. This specific program had the resources of the Boys and Girls Club at its disposal. All cooking equipment, tables, crayons, scissors, and other basic supplies were readily available without cost. Students pooled their personal resources to include a wheat grinder, Crockpot, soil, and seeds for the program. Food items and poster boards were the only incurred costs at $90 which were paid through student lab fees. Youth participants paid the regular fee to the Boys and Girls Club for daycare, but did not pay extra for participation in the program. This accessible audience eliminated the costs of marketing and advertisement.

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Poster Type: Research

Improving Undergraduate Curriculum: What do our Alumni Think?

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Improving Undergraduate Curriculum: What do our Alumni Think?

Introduction/Need

As with other media professions, agricultural communications is a swiftly changing field. As the nature of the profession changes, so must the programs designed to educate students about it change. When considering what should be updated about a program, alumni from that program who are currently pursuing careers in the field may have some of the best insights. Thus, this study utilized a focus group composed of alumni from the agricultural education and communications department of a southern university in order to obtain relevant data.

Conceptual Framework

As stated, agricultural communications programs should frequently review and update their curriculum in order to ensure that their programs are providing the best possible education and career preparation for their students (Akers, 2000). Previous research (Sprecker & Rudd, 1998; Sitton, Cartmell, & Sargent, 2005; Telg & Irani, 2005; Doerfert & Miller, 2006; Corner & Cole, 2008a; Corner & Cole, 2008b; Irlbeck & Akers, 2009) suggests that recent college graduates need to improve in several areas, such as writing, critical thinking, work place etiquette, time management, photography, and Web design. However, while this information is useful, it was conducted on a nationwide level and individual facets of these findings may not apply to each individual university. Thus, a focus group of alumni from the specified department was determined to have the most validity when considering their particular case.

Methodology

The purpose of this study was to collect data about the agricultural communications program at a southern university. The objectives were to use this data to improve further curriculum and to address any other concerns the alumni had about the program and their degrees in general.

This qualitative research study utilized a focus group method with a moderator to collect data. Five focus group members were chosen from alumni of the department. These alumni were chosen from those whom the department had been keeping in touch with and who currently had careers in the field. These members were selected because they had accomplished the end goal of the department's program, which is obtaining a career in the field. This also allowed focus group subjects to offer insight on how to modify the curriculum to better prepare students for careers in the industry.

Questions developed by the researchers were selected in order to cover most aspects of the program, including asking whether the focus group members found certain aspects of their education helpful or unhelpful in their careers. This was expanded upon with questions about specific classes and suggestions on classes or topics that could be added, and questions about internships. Finally questions were asked that covered what trends and career knowledge should be taught, with a final question to bring the discussion to a close—"what do you know now that you wished you knew then?"

Findings

The focus group subjects were fairly unified on many topics that were discussed during the actual focus group. Using an analysis aided by NVivo software, each subject's comments were coded and analyzed. Individual mentions of particular topics were counted among all the

comments given by the members of the focus group. The most important topic to the subjects was career preparation and the focus of course curriculum, followed by the necessity of design-oriented classes, learning to use various kinds of technology and software, and concerns over the attitudes displayed by new graduates or interns. Other topics were discussed and were important to the attendees, but did not receive as many overall mentions. Some of these other important topics were internships, media campaign classes, the importance of portfolios, and the importance of writing.

The findings indicated that the subjects were pleased with the level of advisement received and were, overall, somewhat pleased with how their education had prepared them for their careers. However, they expressed concern over how their educational experiences had not gone into depth on some areas that would have been helpful in their careers (and, in most cases, the subjects ended up independently studying those areas after graduation). They expressed concern over the internship process and how it was possible to obtain credit without completing an internship that actually applied to the major or helped prepare students for the workforce. In addition, they expressed concern over the attitudes of those entering the workforce and of interns that they had made contact with during their careers, indicating that the program should provide more information to prepare students for the daily details of their possible future careers and coach them in proper attitudes.

Conclusions

The information gathered from the study suggests that, although the alumni felt that some aspects of their education had been very successful, such as the knowledge of design programs and theories, they felt that their educational experiences had been lacking in practical knowledge that they could have used in their future careers. In addition, the alumni suggested a heavier emphasis on internships to help prepare future students for careers and the opportunity to build a portfolio and have that portfolio critiqued before graduating.

Recommendations

The recommendations from this study suggest that more courses that allow for career preparation and fundamental knowledge should be implemented, or existing courses should have their curriculum modified in order to provide more usable information to the students enrolled in them. The suggestions, coming from those currently employed in the industry, offer real advice on what could be done to better prepare the students currently in the program for a future in similar careers.

For future research, a follow-up study is recommended with another set of alumni to see if the situation has improved from the one described by the focus group subjects. As the job market changes, it is important to study how well the program is working to produce graduates who are marketable.

While this study provides useful suggestions to agricultural communications programs, as this study used a very narrow sample from a particular university, it is suggested other universities conduct their own studies with alumni before taking the results into account. The findings from this study cannot be directly applied to other programs.

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Integrating Teaching With Technology

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Integrating Teaching with Technology

Introduction/Need for Innovation

As new technology is being used in the daily lives of college students, campuses must discover new approaches to keep up with the demands of its learners. George (2000) stated, "Technology can play a vital role in helping students meet higher standards and perform at increased levels by promoting alternative, innovative approaches to teaching and learning" (p. 57). Many instructors are adapting instructional delivery to ensure course content fits students' learning styles. Alston and Warren (2007) specifically stated the importance of using more web-enhanced instruction and technology assignments in agricultural education courses to better prepare future agricultural leaders. A new multimedia resource, the Burns Technology Center Studio 1080 (BTC Studio) at Montana State University allows students to use technologies to build digital exhibits via a collaborative web-based system. This system helps students to develop communication and technology skills by using specialized software to create touch-screen exhibits featuring video, images, text, slide shows and animations (Montana State University, 2009). This resource has been integrated into an agricultural communications course to educate students on how to apply communication skills into a digital storytelling and educational context.

How it Works/Program Phases

The goal of the agricultural communications course was to utilize multimedia technologies to develop an educational capstone project. Students created an online content module using an integration of technologies and presented it using the interactive, touch-screen system. This multimedia collaborative research project was 50% of the course grade. The final exhibit had to effectively educate the audience in a chosen topic area of agriculture.

Throughout the semester, students were required to complete a variety of assignments that developed communication skills and also directly related to their final project. Assignments were focused on developing educational materials, communications skills, and technical competencies to be integrated into the exhibit. Project assignments included: (1) Write a detailed proposal of your research project, (2) Create a storyboard for a multimedia exhibit, (3) Conduct an informative interview with professionals/experts on your research topic, (4) Create a photo portfolio for use in the exhibit, (5) Shoot and edit videos to create an inclusive two-minute video to be used in the exhibit, (5) Develop a comprehensive 24-screen educational, research-based exhibit using the web-based BTC Studio software, and (6) Present your BTC Studio exhibit to the class and public.

Each student group created a digital exhibit based on primary and secondary research conducted during the semester. The module also had to include at least two of the following components: a map, graphics, music/audio clip, an interactive quiz, or a slideshow of pictures. Course content focused on developing students' basic competencies in the areas of public relations, technical writing, research skills, video production, photography, storyboarding, scriptwriting, and graphic design. Assignments encouraged students to utilize various communication methods and techniques to build the exhibit.

Results/Implications

The goal of the course was not only to engage students in learning a variety of technical skills, but also to provide them with the opportunity to use rich media technologies to showcase

capstone projects. Development of a research-based agricultural exhibit required students to conduct research, design educational content, utilize multimedia software, integrate technologies, and build digital exhibits. Use of this integrated teaching approach inspired students to apply digital media, research, and agricultural communication skills, both written and oral, in a new way. The capstone project was graded on the professional quality of each media asset produced, as well as on the overall presentation and how well the module communicated and publicized the agricultural information. Peers, the instructor, and BTC Studio directors evaluated the final module. As a result, students learned how to integrate technologies to showcase communications work. Students also gained networking contacts in the agricultural field and a better understanding of careers in agricultural communications from the research conducted.

Students in two agricultural communications courses have created ten exhibits for the BTC Studio. Example topics include, "Beef Production-Pasture to Plate", "Noxious Weeds of Montana", "A Course about Horses", "An Overview of Extension", and "The History of Agriculture in Montana". A post-evaluation questionnaire revealed positive feedback. Students reported that they learned to work with new software programs such as Photoshop, iMovie, iPhoto, Google Picasa, PowerPoint, a scrapbook program, Microsoft Paint, Microsoft Works, Windows Movie Maker, and Audacity. Specific communication and technology skills learned included photo editing, interviewing, video production, audio recording, design principles, graphics creation, summarizing and organizing information, storyboarding, file conversions, and creative ways to communicate information.

Future Plans/Advice to Others

The agricultural communication class intends to continue this project with the BTC Studio. Other courses and universities alike should strive to incorporate unique and innovative multimedia technologies in order to meet student needs. The U.S. Department of Education (2009) reported an increasing amount of evidence related to the beneficial opportunities of using technology to improve education. Educators can easily integrate photography, videography, and audio recording into standard writing assignments, giving students a more technologically creative approach to course work. Instruction can be done in formal or non-formal educational settings, which can reach out to community members and be used as a communication link between schools and communities. A common software program, such as PowerPoint, could become interactive by adding a video clip with audio from Windows Movie Maker, challenging students to integrate technologies in a new way and create modern presentations.

Costs/Resources

The Agricultural Education program was privileged to have an innovative multimedia system to utilize as part of a course. The equipment used in the course was digital cameras, video cameras, and audio recorders provided by the students and the department. The BTC Studio was created through grant funding, and there are other grants and resources available to help purchase equipment to assist with innovative projects. Universities and departments may even have equipment available for check out. There are also several low-to-no cost software programs to develop multimedia activities to supplement coursework. General access to computers and digital equipment with the right software can add a multimedia component to any course.

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Making Learning Meaningful for the Millennials: Podcasting with a Purpose in Agricultural Education

Innovative Idea Session

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Making Learning Meaningful for the Millennials: Podcasting with a Purpose in Agricultural Education

Introduction and Background

Change is inevitable. Not only in our personal lives do we experience change, but our Nation and local communities are constantly undergoing revision for the common good. Requiring stronger accountability in our Nations' schools was initiated with the No Child Left Behind (NCLB) legislation of 2001. NCLB increased qualification requirements for teachers as well as criteria for measuring program effectiveness (Reeves, 2003). On the eve of his election President-elect Barack Obama challenged the Nation when he stated that, "Today we begin in earnest the work of making sure that the world we leave our children is just a little bit better than the one we inhabit today" (Phillips, 2008).

As we face the challenges that come with a new generation of learners, we must reconsider pedagogy and identify practices and tools that are relevant for today's millennial generation (McAlister, 2009). Technological advances foreign to previous generations of learners are commonplace among today's "computer savvy" generation. An increased use of social networking sites (2009) such as Facebook and Twitter coupled with the millennials' ready acceptance of MP3 technology found in Apple's IPOD is evidence of this generation's preference for electronic communications. Consistent and intensive use of this technology has essentially "hardwired" the millennial's brains differently as a result of this technology (Taylor, 2006). So, it is important that teachers embrace technologies used commonly by millennial students to educate them more effectively (Williams, 2008).

In a study by Murphy and Terry Jr. (1998), it was concluded that electronic technologies would improve the way we teach agricultural education, allowing for increased communication between students as well as students and teachers. Additionally, it was concluded by Murphrey, Miller, and Roberts (2009b) that, technologies popularized by millennials, such as the IPOD, are capable of increasing student learning. Understanding that "teachers often teach as they are taught" (Murphrey, Miller, & Roberts, 2009a, p. 98), it is essential that pre-service teachers of agricultural education be exposed to these new technologies as instructional tools to add to their "teaching toolbox."

How It Works

In the course AGED 4113, Laboratory Instruction in Agricultural Education, pre-service teachers were introduced to the concept of audio podcasting, using free audacity software and iPod/MP3 technologies. The introduction of this technology was to encourage pre-service teachers to incorporate these technologies in lessons, as well as their preparation of students for Career Development Events (CDE) and other FFA activities. Students were provided a detailed demonstration and training, which included general usage of the iPod/MP3 and the free audacity software. Thereafter, student teachers were charged with developing an audio podcast of the FFA Creed for CDE preparation to use during their field-based student teaching experience. The student teachers were also encouraged to continue to develop other podcasts during their 12-week student teaching experience.

Results to Date

To date, 27 pre-service teachers received instruction on the podcasting technologies, found Internet examples of audio podcasts and created their own audio podcast of the FFA Creed for use in CDE preparation during student teaching. The reactions of pre-service teachers regarding the podcasting were positive. Pre-service teachers also identified several areas of benefit regarding podcasting technology. These areas included

- Lessons for use by the instructor
- Lessons for instructional use during an instructor's absence
- Preparation of CDE teams
- Preparing students for public speaking events
- Local SAE tours to expose students to a variety of SAEs

Future Plans and Cost/Resources Needed

AGED faculty at [***] will continue to prepare pre-service teachers for the remainder of the Spring 2010 student teaching semester. AGED faculty will also incorporate the use of video podcasting into the already existing audio podcasting activities to enhance pre-service teachers' understanding and use of podcasting generally. In the future, a focus group interview will be conducted during the student teachers' capstone seminar debriefing session. This will enable faculty to examine and discuss student teachers' use of podcasting as a learning tool with their secondary students. The focus group interview will inform faculty about students' perceived needs regarding their effective uses of podcasting and what may be opportunities for systematic inquiry on podcasting as an instructional tool. In addition, it is anticipated that cooperating teachers' use of podcasting will be studied in the future, together with the impact of student teachers on cooperators' adoption and use of this innovative instructional delivery method, i.e., student teacher as "change agent" (Rogers, 2003).

Item	**Cost Range**	**Average Cost**
iPod or MP3	$59-$300	$179.50
PC or Mac	$750-$2,500	$1,625
Audacity Software	Free	Free
Total	**$809-$2,800**	**$1,804.50**

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Poster Type (Research)

Northwest's Supply & Demand for 2009-2010: Who is filling the Ag Teaching Positions?

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Northwest's Supply & Demand for 2009-2010: Who is filling the Ag Teaching Positions?

Introduction

Within agricultural education, our country has faced a "very real teacher shortage since the 1960s" (Team AgEd, 2006, p. 24). Considering the documented teacher shortage and closing of agriculture programs, the National Council for Agricultural Education's "Long Range Strategic Goal" proposed the 10 by 15 initiative to have 10,000 quality agricultural education programs by 2015 (Team AgEd, p. 18, 2006) to motivate agricultural teacher education programs to rethink recruitment and retention. Currently there are approximately 8000 secondary agricultural education programs in our country (Team AgEd, 2006). With only 53% of the newly qualified agriculture teachers at the national level projected to enter the field in 2007, "This [teacher shortage trend] has the potential to reach epidemic proportions…" (Kantrovich, 2007, p. 37). The teacher shortage will only become more significant over the coming years.

Theoretical framework

With programs closing because of the teacher shortage, the question was asked, "what can we do to increase the number of graduates who seek teaching careers?" (Team AgEd, 2006, p. 24). To address this important question, "We need to research these questions at all levels (state, regional, and national) in order to find viable solutions" (Team AgEd, 2006, p. 24). Roberts, Harlin, and Ricketts (2006) identified three solutions: (1) increase the number of agricultural education graduates, (2) increase the percent of agricultural education graduates who choose to enter teaching, or (3) find alternative sources to supply agriculture teachers. Due to the lack of accurate empirical evidence, it is unknown which of the options the seven Northwest agricultural teacher education programs should focus their attention on. The three solution model (Roberts, Harlin, & Ricketts, 2006) served as the theoretical framework for this study.

While a national teacher shortage is quite evident in the literature, data does not clearly provide the Northwest a precise outlook on the number of graduates from each Land-Grant Institution and whether they enter the teaching profession, nor does the data identify the number of secondary agricultural education positions in each Northwest state (Idaho, Montana, Nevada, Oregon, Utah, Washington, & Wyoming). The purpose of this study was to capture accurate data as part of a multiyear tracking effort (Swan, 2009) that will provide insight as to where future emphasis should be placed for maximum benefit for the Northwest.

Methodology

Supply and demand data including graduates, open positions throughout each state, and what teacher classifications actually filled those positions were captured through contact with the seven Northwest Land – Grant University agricultural teacher education faculty coordinating the student teaching experience and the state program managers overseeing agricultural education.

Results/Findings

The Northwest Land-Grant Institution's agricultural teacher education programs produced 32 graduates for the 2008-2009 school year and there were 65 full time positions available in the Northwest area for the 2009-2010 school year, possibly filling 49% of those positions. Twenty two of the 32 (69%) 2008-2009 graduates taught secondary agriculture during the 2009-2010 school year (Table 1). Of the 65 positions open in the Northwest, 2 went unfilled (Table 2).

Table 1. *2008 - 2009 Northwest Land-Grant University's agricultural education teaching graduates and secondary positions within their respective state*.

Northwest Land-Grant Institutions	2008-2009 AgEd Teaching Graduates		2009-2010 Secondary Ag Ed	
	f	Teaching Secondary Ag	Positions Available	Programs gained or lost
University of Idaho	7	4	5	0
Montana State University	4	3	14	+5
University of Nevada - Reno	0	0	3	0
Oregon State University	4	3	5	0
Utah State University	6	4	11	+4
Washington State University	7	6	15	+1
University of Wyoming	4	2	12	+2
TOTALS	**32**	**22**	**65**	**+12**

Table 2. *2009 – 2010 Northwest agricultural education secondary teaching positions. Where are these individuals entering the positions from within each state?*

Northwest States	Movers from		New Teachers from		Returning with experience	Alternatively Certified	**TOTAL Positions Filled**
	within State	outside State	within State	outside State			
Idaho	0	1	2	1	0	1	5
Montana	1	3	2	1	4	3	14
Nevada	0	0	3	0	0	0	3
Oregon	1	0	3	0	1	0	5
Utah	5	0	4	0	0	2	11
Washington	7	0	6	1	0	0	14
Wyoming	5	0	2	4	0	0	11
TOTALS	**19**	**4**	**22**	**7**	**5**	**6**	**63**

Conclusions

The graduates potentially could have filled only one half of the available openings. Another third of the positions were filled with movers and a tenth of the positions were filled with alternatively certified teachers. Without those being alternatively certified and returning with experience, there would have potentially been up to 27 positions not filled in the Northwest.

Implications/Recommendations/Impact on Profession

According to the three solution model (Roberts, Harlin, & Ricketts, 2006), option #1 and #3 are the best solutions. Option #1 refers to more students graduating, inferring that more students need to be pumped into the pipeline from high schools, community colleges, and from other majors within Colleges of Agriculture. Option #2 is not viable, because despite only 10 graduates not teaching secondary agriculture; they would not come close to filling all of the open positions. Option #3 is also viable because they address the alternatively certified teachers entering the profession to filling positions in agricultural education programs. Addressing each solution quickly and efficiently should produce impact on new teachers entering teaching.

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Innovative Idea

Produce Your Own: A Community Gardening Program

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Produce Your Own: A Community Gardening Program

Introduction/Need for Innovation

Interest in at-home vegetable gardening continues to grow at a rapid pace. The National Garden Association conducted a survey in 2008 with results showing that "43 million U.S. households planned to grow their own fruits, vegetables, berries, and herbs in 2009—that is up 19% from 36 million households in 2008" (National Gardening Association, 2009, p.4). Families concerned with healthier eating, along with the economic downturn, have been compelled to replace lawns with vegetable gardens. While some people have a natural green thumb, others need direction and education in order to reap the fruits of their labor.

<deleted> Outdoor Science School (-OSS) was originally founded in 1994 as a summer camp for youth. The goal was to create fun, hands-on, nature-based educational experiences. After 14 years, -OSS has grown into a year- round program offered in both local schools and outside of school settings. While youth remain the primary focus, -OSS has found the growing need to teach adults. Based on an informal needs assessment, gardening was identified as a top priority for adult programming.

Many County Extension offices offer an adult Master Gardener Program which includes advanced gardening training, short courses, newsletters, and conferences. The program focuses on building participants' gardening knowledge and skills to contribute to community growth and development (Schrock, Meyer, Ascher, & Snyder, 2000). However, with the comprehensive training provided in this program comes a large time commitment of 17-22 weeknight sessions (Young, 2007). Therefore, the "Produce Your Own" program was created to introduce adult participants to gardening in a similar manner, but with shorter, less demanding sessions.

How it Works

Gardening is a time-honored tradition that can be difficult to master in a place where winter is the dominant season. Produce Your Own was created to give a foundational introduction into the challenges of vegetable gardening in southwest <deleted state>. Scheduled in accordance with the growing season, this educational program consisted of a series of four interactive sessions focused on plot design, crop selection, garden maintenance, harvesting and preserving. Each workshop included guest speakers considered experts in their field and hands-on learning activities. Classes were held in the summer of 2009, approximately one month apart on four Saturdays from 9:00 am -12:00 pm. Specific program objectives were that participants will: (1) learn to plant and grow the ten "best" vegetable crops suited for the region (2) prepare a garden plot with seeds or seedlings from the local nursery, (3) demonstrate correct maintenance procedures for a home garden (4) increase consumption of locally or home grown produce over the next year, and (5) increase knowledge and skills in harvesting, cooking, and preserving vegetables.

The program consisted of three workshops and a farm tour. Workshops were developed to provide experiential learning opportunities that allowed participants and instructors to interact, discuss, and demonstrate gardening procedures. A brief description of each workshop and its activities are as follows: The *Planning and Planting Your Garden* session introduced the course, explained how to prepare a garden bed, included a lecture by a Plant Science Professor about seed selection and planting dates, and concluded with participants planting vegetable seeds and creating a plot design map; the *Natural Weed and Pest Control* session included a discussion by

the Master Gardener State Program Coordinator and the owner of a local gardening store focused on USDA labeling regulations, integrated pest management techniques, organic and natural weed control, and the basics of composting; and the *Harvesting and Preserving Your Crops* workshop incorporated a demonstration with a local Chef, handouts with how to preserve or cook vegetables grown in <state>, and concluded with a hands-on cooking class made with participants' garden vegetables. The culminating *Local Farm Tour* brought concepts full circle as participants visited with local growers about production scale farming, garden design, greenhouse management, U-pick operations, cooperative farm business practices, and marketing and distribution techniques. Participants were also able to sample vegetables and take transplants home for their personal gardens.

Discussions were used at the beginning of each session to assess the knowledge and interest of participants. Participants were asked what they would like to learn from the sessions and what they already knew about gardening. At the end of each session, informal evaluations were conducted to measure learning and prepare content for future workshops.

Results to Date/Implications

A total of twenty-eight adults participated in program; however, a decrease in participation was seen after each workshop. There can be many explanations for this drop in participation, but the dates and times of the classes was the most common finding. Because <deleted state> has a short summer and growing season, participants indicated that they were less willing to participate in weekend programs. Informal evaluations also revealed that the majority of participants felt the registration cost was a fair price and would recommend the class to others.

Future Plans/Advice to Others

This program can be adapted in many ways for adults, seniors, youth, and other audiences interested in home gardening. As revealed, the dates and times when a program is offered can have a large impact on the participation. Offering the program during weeknights might help to increase participation for working adult audiences. In addition, because the sessions were spread throughout the summer months, many participants forgot about them, even though reminder emails were sent. Only one press release was used to promote the program. More frequent advertising would have likely increased participation in later sessions. Additionally, one-time panel discussions on a specific gardening topic could be designed to reach a broader, more diverse audience. Twiss (2003) concluded that the benefits of gardening "enhance nutrition and physical activity and promote the role of public heath in improving quality of life." (p. 1435). Expanding the program's audience and location to senior living homes, coffee shops, group homes, after-school programs, and community gardening sites could greatly increase the number of people introduced to the benefits of home gardening.

Cost/Resources

Cost was set at $10 per class or $30 if participants pre-paid for all four sessions. All materials for the hands-on portions of the class were donated by local businesses. Materials and resources used included soil, seeds, 4-packs, demonstration tools, handouts, and vegetables. In addition, every class had a raffle for a gardening related prize which were all donated by local businesses. Prizes included vegetable transplants, gardening tools, gloves, seeds, and a composter as a grand prize.

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SPSS Syntax for Calculating Mean Weighted Discrepancy Scores

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SPSS Syntax for Calculating Mean Weighted Discrepancy Scores

Introduction

The Borich Needs Assessment Model (model) has been used extensively in agricultural education to determine the in-service or training needs of secondary agriculture teachers and Extension faculty. Developed by Borich in 1980, the utility of the model has been demonstrated in numerous needs assessment studies related to agricultural education, both in formal settings (Edwards & Briers, 1999; Garton & Chung, 1997; Layfield & Dobbins, 2002; Newman & Johnson, 1994; Peake, Duncan, & Ricketts, 2007) and nonformal settings (Bowe, Smith, Massey, & Hansen, 1999; Conklin, Hook, Kelbaugh, & Nieto, 2002; Gregg & Irani, 2004; Waters & Haskell, 1989). The model allows ratings of two dimensions of training or other institutional need to be taken into account simultaneously to determine where discrepancies exist. Borich recognized that his model allows for modification and expansion; however, he primarily described two types of discrepancy scores: importance/ability and what is/what should be.

Need for Innovation

To use the model, mean weighted discrepancy scores (MWDS) must be calculated for each item. Each of the previously noted articles indicated the formula used to calculate MWDS; however, none of the articles suggested a specific medium to calculate the MWDS (e.g., statistical software, spreadsheets, manual calculation, etc.) much less provide an automated algorithm for doing so. Neither SPSS nor Microsoft Excel has a dedicated menu function or graphical user interface (GUI) for calculating MWDS. Some Excel applications have been developed to automate calculation of MWDS to some extent, but they still require manual entry of data and/or cutting and pasting of data; both of which are subject to user error and, thus, miscalculation of MWDS. Furthermore, the process is again subject to user error when the MWDS are incorporated back into SPSS or other software to complete the model. A Google search of the Web also failed to yield a feasible solution to calculating MWDS for multiple variables. A more automated process within statistical software (SPSS in this case) was desirable primarily to make the process of calculating MWDS more efficient, but also reduce opportunities for user error.

Prior to 1992, syntax files, or text files containing commands in the SPSS command language, were the only way to use SPSS. Today, most SPSS commands are accessible from the menus and dialog boxes in the GUI, but the ability to write syntax files remains very useful. Some SPSS commands are available only through the command language and the sequential ordering of commands can be scripted through syntax files to automate repeated data analyses. SPSS syntax files can be saved, allowing you to replicate exactly your analysis at a later date. For many applications, SPSS syntax also provides for greater flexibility and increased productivity when compared to the menu system (Boslaugh, 2005). However, many SPSS users do not have syntax writing or editing experience (Boslaugh). Therefore, SPSS syntax was written to simplify the process of calculating MWDS and expedite the needs assessment process.

How it Works

To determine where discrepancies exist for importance/ability, a discrepancy score is determined by taking the importance rating minus the ability rating for each respondent for each competency. A weighted discrepancy score is then calculated by multiplying each discrepancy score by the associated mean importance rating. The MWDS is produced by taking the sum of the weighted discrepancy scores for each competency and dividing it by the number of

respondents. To determine where discrepancies exist for what is/what should be, a discrepancy score is determined by taking the desired level (*what should be*) minus the perceived level (*what is*) for each respondent for each competency. A weighted discrepancy score is then calculated by multiplying each discrepancy score by the associated mean desired level (*what should be*) rating of the competency. Lastly, a MWDS is calculated by taking the sum of the weighted discrepancy scores for each competency and dividing it by the number of respondents.

Step-by-step instructions are included in each syntax file; however, the following steps summarize the step-by-step instructions provided in each syntax file:

1. Start SPSS and open the discrepancy score calculator (syntax) for the discrepancy score needed.
2. Open the raw dataset.
3. Edit the “USER REQUIRED” items in the syntax. Two “USER OPTIONAL” items—missing values and filter subset—are included in the syntax, but do not require editing unless the user deviates from the SPSS default settings.
4. Click on the line above "DATASET NAME." From the top menu, click on Run and select To End. A new data file will open with variables named mwds1, mwds2, etc. Those values are the mean weighted discrepancy scores.

Implications

Editing the syntax files is a simple process. The SPSS syntax can be edited within SPSS or copied and pasted into any text editor to modify the variable lists by using the “Find and Replace” command. Using the SPSS syntax provides greater automation of MWDS calculations and eliminates making manual calculations or copying data from SPSS to Microsoft Excel. Also, syntax serves to document how results were produced.

Future Plans

Future plans include adding a point and click interface for including relevant variables, eliminating the need to edit syntax, and expanding the MWDS calculator to accommodate a comparison of groups’ or organizations’ needs by calculating a MANOVA to create a single dependent variable forming a linear composite or a single weighted variable from all of the competencies (G. Borich, personal communication, April 30, 2009). The single weighted variable could be used to test the difference between the weighted means to identify the common needs between groups; potentially allowing one in-service or professional development training to address the greatest training needs common to both groups. Comparing groups, such as county Extension agents from different regions or secondary agriculture teachers from different regions, allows for autonomy between regions to address unique needs, while identifying common needs across regions to offer the most widely needed trainings at venues such as state level conferences.

Costs / Resources Needed

The command language comes as a standard part of the base SPSS product. The SPSS syntax for calculating MWDS is free of charge. Most syntax will run on any installation of SPSS; whereas, the menu system may vary across versions or operating systems (Boslaugh, 2005).

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Research poster

Students' new media use as a basis for advancing agricultural communications curricula

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Students' new media use as a basis for advancing agricultural communications curricula

Introduction

Electronic media have become a primary mode of interpersonal and mass communication during the past decade (Kerawalla, Minocha, Kirkup, & Conole, 2008; Lipsman, 2007; Pfeil, Arjan, & Zaphiris, 2009; Smith, Salaway, & Caruso, 2009), with businesses in multiple industries responding to these trends by increasing their reliance on new media as marketing and public relations tools (Li & Bernoff, 2008). To better prepare students as business professionals and to meet students' expectations for learning as digital natives, instructors have begun incorporating new media and other technologies into curricula (Baird & Fisher, 2005-2006; Kerawalla et al., 2007; Pfeil et al., 2009; Smith et al., 2009). The purpose of this study was to describe students' use of selected new media as a foundation for advancing agricultural communications curricula to better prepare students for evolving social and workplace demands. Objectives of this study were to 1) describe students' use of Facebook, including levels of activity, network members, and use for college courses; 2) describe students' use of LinkedIn, including levels of activity and network members; 3) describe students' use of Twitter, including levels of activity and network members; 4) describe students' use of blogs, including amount of time spent blogging and reading other blogs; and 5) describe students' preferences for use of selected new media in an agricultural communications course.

Conceptual Framework

Trends in the adoption of new media reflect the basic human need to connect with other humans (Li & Bernoff, 2008), as well as the human desire for social capital, or resources created by the connections within social networks that are beneficial to members of the networks (Ellison, Steinfield, & Lampe, 2007). Reasons often identified for using new media include maintaining friendships; making new friends; yielding to social pressures; paying it forward; and following creative, altruistic, inquisitive, and social impulses (Kerawalla et al., 2008; Li & Bernoff, 2008; Pfeil et al., 2009; Smith et al., 2009). The social technographics profile (STP) explains the steadily increasing use of new media (Foregger, 2008; Fox, Zickuhr, & Smith, 2009; Pfeil et al., 2009; Smith, 2009; Smith et al., 2009) to meet these needs by grouping new media users based on their activities (Li & Bernoff, 2008) in a structure similar to Rogers' (2003) theory of adoption. Rogers (2003) placed adopters of technology into the categories of innovator, early adopter, early majority, late majority, and laggards. In comparison, new media users are placed into one of six STP groups: creators, critics, collectors, joiners, spectators, and inactives (Li & Bernoff, 2008). Creators produce electronic media, while critics comment on content. Collectors save electronic media created by others. Joiners maintain a profile on at least one new media site and may visit multiple social networking sites. Spectators watch, read, or listen to electronic media without producing their own content or providing feedback on content produced by others. Inactives do not participate in new media use (Li & Bernoff, 2008).

Methodology

Students' use of selected new media, including Facebook, LinkedIn, Twitter, and blogs, was examined using survey methodology. The target population included 60 students enrolled in an upper-level agricultural communications service course at a land-grant university. The paper-based questionnaire was developed through a review of course curricula and literature describing new media use. A panel of experts established face and content validity of the instrument. A

post-hoc reliability analysis performed on scaled items included in the questionnaire produced a Cronbach's alpha of 0.90. Fifty-five students completed the survey, which was administered during a 15-minute portion of the first course lecture after the university drop-add deadline had passed. Descriptive data were used to interpret and describe students' responses.

Findings

The majority (86.7%) of respondents were classified as juniors or seniors, with majors in animal science (34.5%), agricultural education (29.1%), agribusiness (20%), agricultural economics (5.5%), natural resource ecology and management (5.5%), agricultural leadership (3.6%), and food science (1.8%). The majority (85%) of respondents reported having a Facebook account. However, all respondents indicated they did not have accounts with LinkedIn, and nearly all respondents reported they did not have Twitter accounts (92.7%) or blogs (96.4%). Respondents reported the highest levels of activity on Facebook for viewing friends' photos, followed by viewing friends' profile updates, sending messages and/or writing on friends' walls, uploading photos, updating profile information, and reading friends' notes. Respondents' Facebook networks did not include broadcast media outlets (97.9%), print media outlets (91.5%), other news services (89.4%), university news services (74.5%), professional contacts (66.0%), and professional organizations (55.3%). Facebook was rated low as a communication tool for courses. In addition, respondents' indicated low levels of preference for the use of blogs and Twitter as assignments.

Conclusions

The use of selected new media, particularly Facebook, by the respondents is consistent with other studies of college students (Li & Bernoff, 2008; Fox et al., 2009; Pfeil et al., 2008; Smith et al., 2009), although the majority of respondents' participation in at least one type of new media does conflict with reports that about one-quarter of college-age students are inactives (Li & Bernoff, 2008). Respondents' reported levels of activity on Facebook support Li and Bernoff's (2008) description of college-age new media participants as being primarily spectators, as respondents reported the highest levels of activity for viewing friends' content. Respondents' Facebook activities also could classify them as critics and creators, with spectators and critics more strongly represented than creators. The low value placed on the use of Facebook, blogging, and Twitter in coursework does agree with other studies that reported college students prefer face-to-face contact and moderate amounts of technology incorporation into curricula (Boyd, 2006; Kerawalla et al., 2008; Smith et al., 2009).

Recommendations and Implications

This study demonstrated that college students enrolled in the selected agricultural communications course are frequent users of certain types of new media but may not be familiar with or comfortable with using other types of new media. Incorporation of new media into curricula should be planned with attention to students' experiences and preferences in combination with the use of new media in various professions. Assignments involving new media should include detailed background and instructions for using the selected media, as well as examples demonstrating the use of new media in careers related to students' education. Meeting these needs will be vital to strengthening students' preparation to face constantly evolving technology throughout their careers and contribute successfully to the development of social capital on personal and professional levels.

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Research Poster

The Importance of Mentoring to Distance Graduate Students

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The Importance of Mentoring to Distance Graduate Students

Introduction

Distance education is becoming increasingly more popular as these processes and techniques make higher education available to additional learners. Enrollment increases in online courses have outpaced enrollment increases for higher education in general for several years with over 3.9 million students taking an online course during the fall 2007 semester (Allen & Seaman, 2008). One of the most attractive aspects of online learning is that it allows adults to pursue their education, arranging it around their everyday lives (Vrasidas & McIsaac, 2000).

Distance education, built upon a unique relationship between learners and instructors, calls for a qualitatively new pedagogy (Huang, 2002). Online learning presents many obstacles for adults who have little else but classroom exposure for their learning environment. Smith (as cited in Bernard, Brauer, Abrami, & Sturkes, 2004) is quoted as stating, "With an increasingly diverse range of pedagogical methods being employed by academics, little that students have previously learned in traditional classrooms has prepared them for the era of online learning" (p. 43). For beginning students, universities have created a number of opportunities designed to transition the new recruit to university life. Each of these efforts, whether at the undergraduate or graduate level, is designed to increase the retention percentage of each new group of students.

Conceptual or theoretical framework

Literature has suggested that university students are developing the skill sets needed to succeed in an online learning environment, but authors agree that as universities plan and deliver their academic programs, they need to address this issue in a formal way (Oliver, 2001). Stokes, Basford, and Cannavina (2004) found that students lack the educational readiness for interactive learning media. They also report that these students have the transferable skills and enthusiasm to enable the use of those skills in future learning situations.

One of the strategies for graduate student success that has been almost ignored for distance students is mentoring. Interest in mentoring, both scholarly and popular interest, has increased dramatically over the past two decades. The American Psychological Society (1999) stated that "one of the most rewarding and important relationships a researcher can have is with his or her mentor" (p. 1) and that "scientists are in need of mentors at many stages of their career but particularly in undergraduate and graduate study" (p. 18). Tenenbaum, Crosby, and Gliner (2001) found that three factors (networking, instrumental, and psychological help) explained 63% of the variance in advisement satisfaction. The researchers also found that practical help influenced students' scholarly productivity. Yet with this increased interest and stated importance of the mentoring process in graduate education, there is a dearth of literature in the mentoring of distance students.

Methodology

The population for this study is students who began their distance-delivered graduate program during Fall 2009 and for the two subsequent recruitment cohorts. Each student admitted to the

cohort was provided with a faculty advocate to serve as his or her point of contact and mentor to the degree program until the student formally selected his or her graduate committee chair.

For the complete longitudinal study, data will be collected from three consecutive recruitment classes at specified intervals during their respective graduate programs. Reported in this poster are the initial findings from two iterations of the instrument administered to the initial cohort admitted in May 2009 and who began the degree program in August 2009 with a face-to-face orientation program.

Data was collected from students just before their orientation meeting and three weeks after the start of their first semester. Students were emailed a link to an online instrument designed by the researchers. The first section of the instrument consisted of items developed by Dreher and Ash (1990) and modified by Tenenbaum, Crosby, and Gliner (2001). These items focused on the extent the student's advocate or mentor had completed various psychosocial, instrumental, and networking needs. Students indicated their responses using a Likert-type scale ranging from *not at all* to *great extent*. The second part of the instrument included items that addressed the role of graduate advisors and department heads in serving as mentors to the students.

Results

After two administrations of the instrument, distance students reported low levels of interaction with their faculty advocates. However, students reported mentoring relationships with others in addition to their assigned faculty advocate. Students indicated that the department chair, the graduate student coordinator, and other faculty had served as mentors to them. When asked if they felt their advocate had fulfilled the needs of the student mentee, one student answered "No, but I have not asked many questions either. I have asked questions of other advisors and they were very helpful." All other students who answered this question indicated that their advisor had met their needs as a mentee.

Conclusions

Students in the distance degree program, while reporting low levels of interaction with their assigned mentor, reported mentoring relationships with other members of the faculty at the cooperating universities and that these relationships were perceived as important to their success.

Implications

Even in the initial stages of their pursuit of a graduate degree, distance students sought out interactions with mentors, both assigned and not-assigned to them individually. As mentors to students, faculty must be cognizant to the importance of these mentoring relationships – both perceived and real. Further research is needed on mentoring at the graduate level for both resident and distance students. In addition, research is warranted on the mentoring received from relationships outside of traditional roles such as graduate committee chairs.

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Research Poster Abstract

The Influence of a Professional Development Workshop on Secondary Agriscience Instruction

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The Influence of a Professional Development Workshop on Secondary Agriscience Instruction

Need for Research

Across the United States, professional development workshops are conducted to provide teachers with the latest in content, instructional techniques, and classroom technologies that will facilitate their local efforts to improve their local curriculum and instructional programs. With seemingly limitless workshop opportunities offered through professional organizations (e.g. NAAE) or through education-focused businesses, the capacity to improve secondary instruction is ever present. Yet with these opportunities, little is known of the effectiveness of these workshops to create change in local secondary-level programs. Williams (2009) found that for agriscience teacher workshops to be effective measures, they needed to be confined to one-day or shorter in length as teachers were unlikely to participate if the workshop was any longer. Miller (2006) found that workshops can create a positive attitude towards the topic and intentions to change the local curriculum. However, Williams (2009) also found that intentions to change does not equate to actual change, even if the content is tied to an FFA-related CDE event.

Workshops related to topics like computer technology updates have the potential to impact across the entire local instructional program. However, many agriculture content-related workshops are designed for teaching in a specific course. There are some core content topics like water, energy, labor that have the ability to cross several agriscience course boundaries. As such, workshops related to these topics also have the potential to impact across the entire local instructional program. This study sought to understand the potential for an agriculture-related, content workshop to impact across a local agriscience curriculum.

Theoretical Framework

According to Cervero (1984), the effectiveness of a continuing professional education (CPE) program can be determined by looking at four separate variables instead of just the one variable, the CPE program, as stated in previous research. Those four variables are: characteristics of the CPE program, characteristics of the individual professional, characteristics of the proposed behavioral changes, and characteristics of the social system in which the professional operates. These variables commonly appear in diffusion of innovations literature, which also focuses on behavior change. In this study we will specifically look at the behaviors, attitudes, and characteristics of the individual teaching professional.

Purpose and Objectives

The purpose of this study is to determine the effectiveness of using a workshop to influence knowledge, beliefs, attitudes, and behaviors of agriscience teachers toward the implementation of water-management curriculum into their classroom instruction. The specific objectives guiding this study are to:

1. Describe [state] agriscience teachers through demographic variables: age, completed years teaching, gender, highest degree received, background, water management

related experience, current water-related instructional practices, and frequency of water management and conservation information seeking behavior.
2. Determine knowledge, beliefs, attitudes, behaviors, and confidence of Texas agriscience teachers towards the implementation of water related curriculum in their classroom instruction immediately following participation in the workshop.

Methodology

Agricultural educators in [state] were the target population for this study. From the population, those who attended the annual [state] agriscience professional development conference were deemed the sampled population (Lohr, 1999), and the 28 who attended the water management workshop served as the sample for this study. This quantitative study utilized a 75-item questionnaire to examine characteristics of the four variables previously mentioned and to gather demographic data. Items were measured using Likert type scales and true/false questions. At the conclusion of the workshop, teachers were asked to complete the instrument. Appropriate statistical analyses were selected using SPSS 17.0 to answer the research objectives.

Results

The respondents ranged in age from 21 to 58 with the mean age being 40 years. The respondents were 37% female and 63% male. A majority (92.9%) of the respondents were Caucasian. The number of completed years in teaching ranged from zero to 36 (M=11). Bachelor's degree was the most common education level (53.6%) followed by Master's degree (35.7%). For frequency of information seeking regarding water management and conservation, *more than once a year but less than monthly* was the most frequent response (39.3%).

Related to Objective 2 the study revealed that the majority (82%) of secondary agriscience teachers who attended the workshop agree or strongly agree that they are better able to communicate about water management and conservation with others, and they are more likely to include water management and conservation topics in their curriculum. The study also found that 89% of workshop participants felt a workshop is an effective method of increasing water management and conservation knowledge. Over half (64%) of the participants chose agree or strongly agree to the statement *I find teaching water management and conservation to be advantageous in my job*.

Conclusions/implications/recommendations/impact on profession

The study found that upon completion of the workshop almost all participants believed they had gained the knowledge to teach about water management, and they thought a workshop was an appropriate form of gaining that knowledge. All participants said they could teach water management and conservation. Overall, agricultural educators agreed with the statements about changes in their knowledge, beliefs, and attitudes related to water management and conservation. Based on the findings, a workshop can be a successful means of introducing a new idea to teachers. The results from this study will enhance workshop design and delivery for future teacher conferences.

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Research

Twitter Use Among Texas Agricultural Organizations

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Twitter Use Among Texas Agricultural Organizations

Introduction/Need for Research

Social media websites such as Facebook and Twitter are very popular tools for communication. According to a recent American Farm Bureau Federation survey, among the 92% of young (ages 18-35) farmers and ranchers who use computers, 46% regularly plug in to some form of social media. said the agricultural community can embrace social media as a new way to open lines of communication with growers, distributors, and consumers (Hoffman, 2009). The *National Research Agenda (NRA): Agricultural Education and Communication 2007-2010* (Osborne, n.d.) stated that research is needed to analyze and improve the effectiveness of technologies that communicate agricultural information.

Twitter is one social media website currently being integrated as a communication outlet within the agricultural industry. Those in the agricultural industry are still wondering how effective this networking tool is, and whether or not Twitter is a "passing fad" (AgWired, 2009, ¶ 6). Therefore, the purpose of this study was to determine the prevalence of Twitter use among agricultural organizations in Texas, and to describe their use of this information technology.

Conceptual Framework

The conceptual framework for this research is based on Blog-Mediated Public Relations (BMPR) and Computer Mediated Communications (CMC). The key features of BMPR (blogger credibility, salience of narrative structure, interactivity, and dialogical self) are conducive to initiating and nurturing relationships with publics, which is a desired outcome of any public relations effort. As a result, blogs and social media have emerged as a new venue for public relations in recent years (Yang & Lim, 2009).

CMC is the "process by which people create, exchange, and perceive information using networked telecommunications systems (or non-networked computers) that facilitate encoding, transmitting, and decoding messages" (December, 2009, ¶ 3). Studies of CMC can view this process from a variety of interdisciplinary theoretical perspectives by focusing on some combination of people, technology, processes, or effects (Walther, 1996).

Methodology

This study conducted an environmental scan in order to identify the prevalence of Twitter use among Texas agricultural organizations. An environmental scan involves the acquisition and use of information about events, trends, and relationships in an organization's external environment (Choo & Auster, 1993). The researchers began by compiling a list of Texas agricultural organizations from the Texas Department of Agriculture and the Texas Agricultural Council. The resulting list contained 67 organizations. The researchers then searched for each organization on Twitter and found that only four were current users of Twitter. The researchers then investigated these four Twitter accounts to obtain the following information: the number of followers, number of users being followed, how often the organizations post "tweets," and what types of information is being provided.

Results/Findings

Results are displayed in Table 1.

Table 1

Texas Agricultural Organizations' Twitter Use Characteristics

Name of Organization	Twitter User Name	Followers	Users being Followed	How Often Information is Updated	Type of Information Disseminated
Texas Corn Producers	TexasCorn	19	16	Bi-monthly	News and Events
Texas Department of Agriculture	TexasDeptofAg	947	122	Daily	Legislative and Blog Information
Texas Farm Bureau	TexasFarmBureau	2,303	1,344	Daily	Legislative and Blog Information
Texas Wildlife Association	texaswildlife	965	5	Bi-monthly	News and Legislative Information

Conclusions

Of Texas agricultural organizations, 94% are not currently users of Twitter. The four organizations that have Twitter accounts use this form of social media to relay information about the organization, upcoming events, legislative information, and news on their blogs. Except for the Texas Wildlife Association, there seems to be a similarity between the number of followers and the number of users that the organization is following. Also, the organizations that have a higher number of users also update their information more frequently.

Implications/Recommendations/Impact on Profession

It appears that although social media is being utilized more regularly among those in agriculture (Hoffman, 2009), very few agricultural organizations in Texas have adopted this communication technology. Those that do use Twitter are posting information regarding their organizations and issues of interest to their audience. Organizations that adopt Twitter should provide frequent posts so their followers receive useful information on a timely basis. These organizations should also follow other users on Twitter to increase their number of followers.

Additional research is needed to continue to explore the use of Twitter among agricultural organizations nationwide. It would also be insightful to interview individuals who are representing these organizations on Twitter to determine why they view it as a worthwhile communication channel. Research is also needed with audience members who are following these organizations to determine why they use Twitter and what types of information they prefer to receive from the agricultural organizations they follow.

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Poster Type: Innovative Idea

Using Technology to Improve the Teaching of Equine Science: Bringing the Horse Clinician into the Classroom Virtually

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Using Technology to Improve the Teaching of Equine Science: Bringing the Horse Clinician into the Classroom Virtually

Introduction

When you think of the typical classroom setting, what do you see? Perhaps you picture a classroom, with desks, chalkboards, students, and a teacher. Or, maybe you picture a more high-tech setting where the learner is separated from the teacher by distance and time (Dooley, Lindner, & Dooley, 2005) and accesses his/her work using a computer and the web. Whatever the picture in your mind, it is quite possible that it does not include a horse and saddle.

Equine science is an area that generates high interest from agricultural science students; however, agricultural science teachers are not always prepared to provide the specialized instruction required in these courses. Horse clinicians are individuals that are skilled in the area of horse training, and providing detailed hands-on instruction in this area. However, not everyone has access to horse clinician, or if they do, they may not be able to afford to bring them into the classroom. One potential way to address this problem is through the use of technology. Improved technologies, as well as the introduction of television channels like "RFD-TV" (Rural Media Group), have provided clinicians a new venue to share their talents. Clinicians are now able to market their knowledge to self-directed learners who wish to gain knowledge from expert clinicians without leaving home or the traditional classroom. This poster shares an example of how agricultural science programs can benefit through the involvement of horse clinicians in the delivery of their educational programs.

Websites have become widely accepted as a successful approach to disseminating information, and specifically equine related material (Denniston & Callahan, 2005). Society has become dependent upon educational material that can be accessed quickly and easily. Research indicates people are increasingly using the web as a means of gathering information, and this is a proven means of distributing information to people interested in equine science (Denniston & Callahan, 2005). Cavinder, Antilley, Gibbs, and Briers (2008) proved the effectiveness of delivering educational materials on teaching horse judging through a website. In this study, positive responses were received from participants when they were asked if the information presented increased their ability to teach conformation (83.3%), balance (91.6%), structure (82.6%), and quality (92.0%). Participants also reported that the information presented increased their understanding of oral reasons (92.3% positive responses).

Methodology

The success of this effort will depend on quality instructional designers working with knowledgeable clinicians to develop effective online materials. There are two primary objectives for this project. The first objective is to develop an improved lesson structure for clinicians to utilize. This objective capitalizes on borrowing strategies from the field of education and incorporating them into this segment of the equine industry. The second objective is to create more valuable horse training video resources for the public and to improve the knowledge base within the field of equine science. To formulate effective lessons, equine clinicians should integrate the following steps into their videos:

1. State the instructional goals and learner objectives for the lesson
2. Provide an overview of the lesson
3. Present key vocabulary, anatomy and equipment that will be necessary for learner comprehension
4. Demonstration and discussion of the skill(s)
5. Review
6. Provide an assignment or application activity
7. Provide feedback on assignment or application activity

The creation of instructional media as described can provide agricultural science teachers with the tools needed to provide quality equine science instruction as part of their educational programs. Finally, evaluation of students' reactions and feedback will need to be performed to improve the development and delivery of materials to increase effectiveness.

Implications

Employing instructional design techniques to the knowledge of horse clinicians should result in improved instruction in the agricultural science classroom. Implications include the increased ability of students to transfer knowledge and skills gained from the lessons to useful, real-world applications, an increase in knowledge transfer leading to better understanding within the field of equine science and in the equine industry, and an increased interest in equine science. In addition, students will be able to make connections with working horse clinicians through these technology-enhanced lessons.

Future Plans/Advice to Others

Technology is constantly changing. Clinicians and teachers dedicated to providing quality lessons will need to continually update technology and adapt curriculum as needed. New technologies should only be utilized if these technologies increase learning effectiveness. It is important to look for opportunities to help students make connections, and to seek opportunities to bring "reality" into the classroom. Clinicians should be aware that the knowledge they impart through their clinics and lessons contribute to the field of equine science. This awareness should bring with it a sense of responsibility to create the best materials possible in order to ensure the continued growth and improvement of the field of equine science and the equine industry.

Resources needed

Cooperation and support from schools and/or decision makers is essential. A thorough understanding of the essential knowledge and skills students are expected to gain from the learning materials is crucial. Interested and willing experts that include horse clinicians, instructional designers, and technology specialists are needed. Finally, creativity and a desire to help learners are needed from all involved.

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Poster Type (Innovative Idea)

Using YouTube® as a Medium for Teaching Self-Reflection

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Using YouTube® as a Medium for Teaching Self-Reflection

Introduction

Engaging students in reflection to promote self-regulated learning is a goal of many university faculty members (Stefani, Clarke, & Littlejohn, 2000). Three major characteristics of self-regulated learning described by Zimmerman (1990) include the use of self-regulated learning strategies, responsiveness to self-oriented feedback about learning progress, and interdependent motivational processes. The metacognitive nature of reflection allows students to critically monitor and evaluate their progress towards achieving learning goals (Schraw, Crippen, & Hartley, 2006). Self-reflection should allow preservice teachers to initiate a cyclic process in which they monitor their teaching performance, develop a plan for improvement, and implement changes. However, most students do not fully self-regulate their learning (Zimmerman, 2000; Pintrich, 2000). Shinn and Briers (2009) stated "pausing to reflect and learn is not a naturally occurring part of our American DNA" (p. 1).

Just as coaches utilize video playback to help professional athletes review past performances to develop improvements for the next competition, so can teacher educators help pre-service teachers with improving their teaching. The recording of pre-service teacher microteaching to engage students in self-reflection is not a new concept for teacher educators. Krysher (2009) stated "it is now a common practice in many institutions for pre-service teachers to reflect upon their experiences by reviewing a video of themselves" (p. 1). However, variety of audio-video media formats used in recording these teaching experiences, expense of media used, and availability of playback equipment have been difficult hurdles for students to maneuver. Further, the available means of utilizing these recordings has changed with the advancement of social websites such as YouTube®. Warner and Thoron (2009) argue that the incorporation of technologies familiar to students should be linked to meaningful learning objectives.

Purpose

The purpose of this poster is to share our experiences in implementing the use of YouTube® as an instructional tool to develop preservice teachers' reflection skills at [Land Grant University].

How it Works / Methodology

During the methods course prior to student teaching, preservice agricultural education teachers were required to prepare lesson plans and deliver segments of these lessons to their peers. These teaching segments, also known as microteaching, were recorded using a digital video camera so students could view their own teaching and complete a self-reflection exercise. To facilitate the viewing of these teaching segments, the clips were uploaded into a private account on YouTube®. These video clips were not published for public access on YouTube® but were held within the private account. A private access URL for each clip was then provided to each student to access their video clips and complete a self-reflection exercise. The document for self reflection was emailed to the student along with the URL and students emailed the completed self reflection document back to the instructor.

Results to Date / Implications

Self-reflection forms were required from each student for each teaching segment. Over the semester, the depth of self-reflection improved. At first, the comments related to appearance, voice, and gestures. However, toward the end of the semester the reflections focused on student engagement and implementation of teaching strategies. Several students were so pleased with the video clips that they included them in their online teaching portfolios. Because of their familiarity with such media, they were easily able to take the clips from YouTube® and import them into their portfolios.

Student feedback at the conclusion of the course was very positive. One student said, "I appreciated that the camera and YouTube clip could help me monitor my teaching. My favorite part of using YouTube is that the clips are private. Teaching style is something very personal. But because it's so personal, I want to be the best at it that I can and the YouTube video helped aid me in self reflecting on ways to improve." Another student remarked, "I felt that recording our microteachings for self reflection was invaluable. Teachers are constantly needing to self reflect on their teaching - what a great opportunity to do it before you get into the classroom! We were taught to self reflect and successfully critique our teaching through the microteaching recordings. Through the video recordings in my methods class, I was able to create a video to be placed into my electronic portfolio that showcases my teaching styles."

Future Plans / Advice to Others

Based on the feedback from the students and the depth of their self-reflection, we plan to continue using the technology as a means for students to view clips of their teaching and complete the self-reflection exercises. We plan to expand this to other courses in which the students are completing presentations. It is recommended that equipment be used that facilitates efficient transfer of the video clips to YouTube®. The equipment we used is summarized in the next section. It is also recommended that this be used for more than one teaching experience so students can shift their reflection away from personal characteristics and focus on their teaching. One idea for future implementation is the use of a final reflection assignment through which students can compare their teaching experiences throughout the semester and reflect upon their growth. The ability to archive the video clips on YouTube® so students can access these at a later date and view them in sequence will help facilitate this final reflection.

Costs / Resources Needed

The costs involved with this project included the digital video camera and the computer used to upload the clips. We used a Sony Handycam® 240 Gigabyte Hard Drive Camcorder (approximate cost $1,200) to record the microteaching and used iMovie® software on an iMac® computer (approximate cost $1,500) to upload the clips onto YouTube®. Transferring the clips to the computer was at or near real time and all clips could be transferred at one time along the seamless integration of YouTube® with iMovie® minimizing time and labor costs. The account on YouTube® is free and because everything is digital, there are no costs for consumables such as video tapes, DVDs, or memory cards and no issues with finding playback equipment.

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Poster Type (Innovative Idea)

Youth Science Literacy and Leadership Development Through the Memorial Middle School Agricultural Extension and Education Center

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Youth Science Literacy and Leadership Development Through the Memorial Middle School Agricultural Extension and Education Center

Introduction and Need

In an innovative approach to teaching and learning, New Mexico State University (NMSU) and Las Vegas City Schools in New Mexico have developed an educational partnership focused on agriculture, food, and natural resources (AFNR). The Memorial Middle School Agricultural Extension and Education Center (MMSAEEC) is a youth agricultural science center emphasizing participatory learning and experiential education. The MMSAEEC was founded in 2005 and became operational in late 2006. The mission of the center is to develop a model of teaching and learning excellence that complements in-class instruction by providing context to content. Context is linked to content and enhanced through 4-H SET (science, engineering, and technology) and STEM (science, technology, engineering and mathematics) based curricula, activities, and experiments.

In 2007, the National Council for Agricultural Education, started a 10x15 taskforce to identify innovative AFNR education program delivery models. The MMSAEEC is such a model. The center seeks to improve achievement in STEM subjects through hands-on lessons, projects, and experiments undertaken in the MMSAEEC greenhouse and land laboratories. These educational activities are meant to enhance learning in academic classes by grounding academic teachers, their students, and academic content in real-world AFNR contexts.

Development and Current Operation of the Center

The decision to locate the MMSAEEC in Las Vegas, New Mexico was not by chance. Las Vegas has a rich agricultural heritage, but many economic challenges that have left the community underserved. School district data reflect these challenges, as 89% of Memorial Middle School's 428 students are Hispanic, 66% are economically disadvantaged, and 25% have special needs. Las Vegas City Schools (LCVS) struggles to meet Adequate Yearly Progress as mandated by the No Child Left Behind Act. The middle school was chosen for the center because decision makers felt young people of middle school age are beginning to gain an appreciation for life-long learning, but are also becoming at risk of being left behind.

The center serves all 428 students at the middle school, including the profoundly handicapped. As part of the agreement between NMSU and LVCS, NMSU provides a faculty member and a STEM/4-H agent, and the school district supplies land, a 1,800 square foot greenhouse, and a wet lab to be added in the coming years. Currently, the center works with eight of nine science teachers, as well as teams of teachers to develop cross-curricular approaches to teaching and learning. The goal is help prepare young people for careers in the sciences, particularly for minority students who are underrepresented in these careers, but also to develop students with a variety of skill sets to prepare them for the many unique challenges their generation will certainly encounter in the future.

Preliminary Results and Implications for Research

To date, traditional performance measures are used to monitor student progress. These measures include: quizzes, exams, reports, reflections, indicators of individual improvement, and criterion-referenced test scores. Tentative results suggest that the MMSAEEC model is having an impact on knowledge, skills, motivation, and attitude of students participating in the program.

Teacher feedback is promising as well, with teachers reporting improved enthusiasm about learning and a preference by students for the hands-on, applied nature of programming efforts.

These preliminary results are promising, but inconclusive. It is critical that the MMSAEEC be subjected to a rigorous research model to determine its impacts on teaching and learning. The New Mexico Cooperative Extension Service, LVCS, and another Northern New Mexico school district similar to LCVS in student demographics, are cooperating on a four-year quasi-experimental study to compare science achievement, AFNR achievement, leadership life skills development, and career interests between students participating in MMSAEEC learning activities for three years of middle school and students at a comparison middle school who receive their instruction without the agricultural science center enhancements (Skelton & Dormody, 2009).

To date, most of the secondary education research conducted on the impacts of integrating agriculture with science has been descriptive-perceptual research and limited to high school students (Balschweid 2002; Thompson and Warnick 2002). A couple of secondary education studies have employed quasi-experimental and causal comparative research designs to determine the impacts of integrating agriculture with science (Roegge and Russell 1990; Chiasson & Burnett 2001). Research on the impacts of integrating science and agriculture in the secondary curriculum into middle schools fits well within the National Research Agenda for Agricultural Education and Communications (Osborne, 2007). The research also fits well within the SAES National Research Priorities 2005-2010 (SAES/ARD Directors, 2000) in rural community vitality, specifically research in human capital development and access to and application of new technologies.

Future Plans and Advice to Others

The MMSAEEC is an innovative education delivery model with a relevant curriculum that reaches a diverse and underserved community in Northern New Mexico. The research that will be conducted over the next four years on the MMSAEEC will determine if it is a program delivery model that makes a difference in student learning and career choice, and is worthy of diffusion. The research will also assist those developing and implementing the model in improving it to maximize teaching and learning impacts.

For others considering starting a program like this, careful consideration of site is warranted. With school budgets tightening, it will mean that school districts must be ever more vigilant in allocating resources. Yet, there are many opportunities for extramural funding that can ease the fiscal constraints a program like this can impose on a school district.

Budget and Resources Needed

The MMSAEEC is funded primarily through a legislative appropriation and has two full-time positions: a director of the program and assistant. Facilities include: a greenhouse, 640 square feet of raised bed gardens, a 0.5 acre experimental row crop field, a 1 acre fruit orchard, and a 2.3 acre learning landscape with a nature trail and demonstration gardens (to be developed). Community support has been vital in developing the landscape, as community members have donated time and money to develop the nature trail. Mechanical preparation of the fields is provided by the Adelante Resource Conservation and Development District (RC&D) through an exchange with the center for greenhouse space for RC&D conservation plantings. Finally, grant funding has assisted in the purchase of appropriate technologies, resources, and equipment necessary to further the goals of the MMSAEEC.

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Poster Type: Research

Youth-Adult Partnerships – Get your 50/50

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Youth-Adult Partnerships – Get your 50/50

Introduction / Theoretical Framework

Youth serving organizations are not only interested in getting youth participation in their organizations, they are also concerned with how to get youth active within the organization. Some youth serving organizations are giving youth an opportunity to have a voice and voting right on the youth serving organizations board. The logic for engaging youth as partners in collective decision making and action has been articulated as both an issue of social justice and as a matter of good practice, most recently by the United Nations Convention on the Rights of the Child (Zeldin & Petrokubi, 2006). "The shift is toward partnership and connection, toward positive youth development and youth voice and responsibility" (Noam & Fiore, 2004, pg. 1). Within youth development theoretical frameworks, this paradigm shift is referenced as a Youth-Adult Partnership.

Young people want to be involved in the decisions that affect them in everyday life just as adults are involved with the decisions that affect them. This desire to be a part of the decision-making process benefits both youth, adults, boards, and even communities in positive ways. "When adults in young people's lives hold similar positive values, make these values explicit, and intentionally seek to promote them, they provide a solid guiding influence that helps youth navigate through their social worlds and internalize positive values" (Scales, Leffert & Lerner, 1999, pg. 171). The positive values youth gain while being in a youth adult partnership will in return affect a community or a board.

Numerous youth serving organizational boards utilize youth adult partnerships. One example of a youth serving organization that has taken a strong role in youth adult partnership movement has been the National 4-H. To continue this momentum within the organization, it is imperative that youth-adult partnership research continues. Calvert, Zeldin and Weisenbach stated, "Research is needed to examine the impact of young people on individual adults, both the direct effects of youth action and indirect effects such as changing adult perceptions and expectations of young people" (2002, pg 8). "Researchers can support practice and advance knowledge by documenting the outcomes youth, adult, organizational, community that emanate from different types of youth-adult relationships and partnerships" (Zeldin, Larson, Camino & O'Conner, 2005, pg. 8). The purpose of this study was to examine perception of youth and adult members serving on 4-H Foundation boards in order to develop an effective model for implementing youth-adult partnerships and training members to work together effectively.

Methodology

The target population included youth and adults members from selected 4-H Foundation boards that involved youth as voting members: <states removed for blind review>. The study was limited to states designated within the Western 4-H Region. Both youth and adult board members were asked to complete the researcher-modified *Involvement and Interaction Rating Scale* (IIRS) developed by Kenneth R. Jones (Jones, 2006). The IIRS had three sections of semantic differential questions: 1) Youth Involvement Indicators; 2) Adult Involvement Indicators; and 3) Youth-Adult Interaction Indicators. The IIRS instrument reliability has been reported at 0.94 alpha (Jones & Perkins, 2005). An example semantic differential question was "Youth appear uneasy

and intimidated by adults" opposed to "Youth seem comfortable working with adults". Participants would place an "X" in four boxes between the two bipolar statements, nearest the statement they perceived as most accurately reflecting their foundation and experiences as a board member. The researchers used SPSS to analyze data.

Results/Findings

The response rate for this study was 77.8% (7/9) youth and 54.2% (39/72) adults; with an overall response rate of 56.8% (46/81). Female youth accounted for 71.4% (n=5) of youth respondents; males made up 28.6% (n=2). Female adults accounted for 53.8% (n=21) of adult respondents; males made up 46.2% (n=18). The respondents' ethnicity included 19.6% (n=9) Asian and 80.4% (n=37) White/European-American. The majority of respondents 58.7% (n=27) reported living in a Rural/Farm area; 21.7% (n=10) reported Suburban, and 19.6% (n=9) indicated Urban/City.

To the question, "Is this your first time participating in a setting that involves youth and adults working together?", 57.1% of youth responded no, and 76.9% of adults responded no. Respondents who answered no were asked to list other youth-adult partnership settings in which they had worked. Youth listed county 4-H programs, Business Professionals of America, Key Club, Boy Scouts, and High School Rodeo. Examples listed by adults included FFA Foundation boards, church, Boy and Girl Scouts, teenage parenting education, and community projects.

The independent t-test analysis of the semantic differential questions revealed only one question that returned statistically significant differences between youth and adult responses. Upon comparison, the statements, *Adults command youth to follow the directions of adults* contrasted with *Adults encourage youth to come up with their own ideas*, were ranked lower ($p = 0.018$) by the youth than the adults.

Conclusions

Based on data analysis, it was apparent that youth and adults serving on 4-H Foundation Boards in the 4-H Western Region lacked the levels of ethnic diversity corresponding with the states' populations. It was also apparent that gender representation, especially among youth serving on these boards was unequal. The majority of youth and adults had experienced working within a youth-adult partnership for decision-making in settings besides the 4-H organization. The researchers concluded that, while differences between youth and adult perceptions and values existed, both groups were more in agreement than disagreement about the value of the youth-adult partnerships.

Implications, Recommendations & Impact on the Profession

Western Region 4-H Foundation boards should broaden the selection criteria in order to diversify. Additional research due to expanded ethnic and gender diversity is needed. Due to lack of equal representation, the researchers question whether board effectiveness and youth-adult partnerships would be impacted by equal representation between youth and adults. Additional research comparing different types of youth-adult partnership boards (4-H and others) will strengthen the theoretical framework. Research is also needed to determine the impacts of member training on Youth-Adult Partnerships.

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