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2011 NC-AAAE Poster Proceedings

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Research Posters

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2011 NC-AAAE Poster Proceedings

Aligning Educational Learning Theories and Educational Philosophies

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Introduction

Theoretical frameworks have become essential components of school-based agriculture research (Roberts et al., in press). Contemporary researchers have identified educational theories and concepts that apply to agricultural education, such as the project method (Roberts & Harlin, 2007), experiential learning (Knobloch, 2003; Terry & Briers, 2010), and educational learning theories such as cognitive and social constructivism (Doolittle & Camp, 2001; Roberts & Ball, 2009). The philosophy of school-based agricultural education has also been recently defined. Wardlow and Osborne (2010) identified the educational philosophies of realism (knowledge-based program) and pragmatism (student-centered and Deweyian program) within school-based agricultural education. Yet, no study within agricultural education research has attempted to broadly conceptualize educational learning theories and philosophies within the discipline. This clarification can help guide research and has been expressed in the National Research Agenda (Osborne, 2007, p. 21). The goal of this study was to align educational theories and educational philosophies along a single continuum to facilitate research frameworks and discussions.

Conceptual/Theoretical Framework

The researchers understood the need to precisely conceptualize educational philosophies and learning theories. The researchers conceptualized an educational philosophy as a broad and abstract explanation of teaching and learning. The five philosophies identified were idealism, realism, pragmatism, existentialism, and postmodernism and grounded in the work of Gutek (2004). The researchers acknowledged that there were a variety of educational theories, such as experiential education and problem-solving, which helped explain the processes occurring in education, but only grand educational theories fully explained the processes of teaching and learning. The researchers identified behaviorism, informational processing, social cognitive, cognitive constructivism, and social constructivism as grand educational learning theories (Bruning, Schraw, & Ronning, 1999; Schunk, 2008). The researchers utilized a conceptual model developed by D.C. Phillips (1995) to align the educational learning theories and educational philosophies. Phillips developed a continuum model explaining how knowledge was either created or transformed and who has the power to transform the knowledge

Purpose

The purpose of this study was to position educational learning theories and educational philosophies along a continuum of how knowledge is created and transformed.

Methodology

Qualitative research methods were utilized. The researchers examined multiple definitions of educational theories and educational philosophies, synthesized the definitions, and placed them along Phillip's (1995) continuum of knowledge (Patton, 2002). Credibility was built through a consensus by peer debriefing and the control of researchers' bias through reflexivity activities. Dependability and conformability was developed through a detailed audit trail and triangulation of each definition and conceptualization of how the philosophies and theories operate (Ary, Jacobs, & Razavieh, 2002).

Findings/Conclusions

The researchers found that the both educational learning theories and philosophies can be aligned within a framework of how humans conceived knowledge. When knowledge was conceived to be created outside of the human consciousness, then an idealist or realist philosophies and behaviorist learning theory was present. When knowledge was conceived to be created by human consciousness then realist or pragmatist philosophies and social cognitive or information processing learning theories was present. Finally, when

knowledge was conceived to be transformed by human consciousness, then postmodernist or existentialist philosophies and social or cognitive constructivist learning theories was present. Figure 1 outlined these findings.

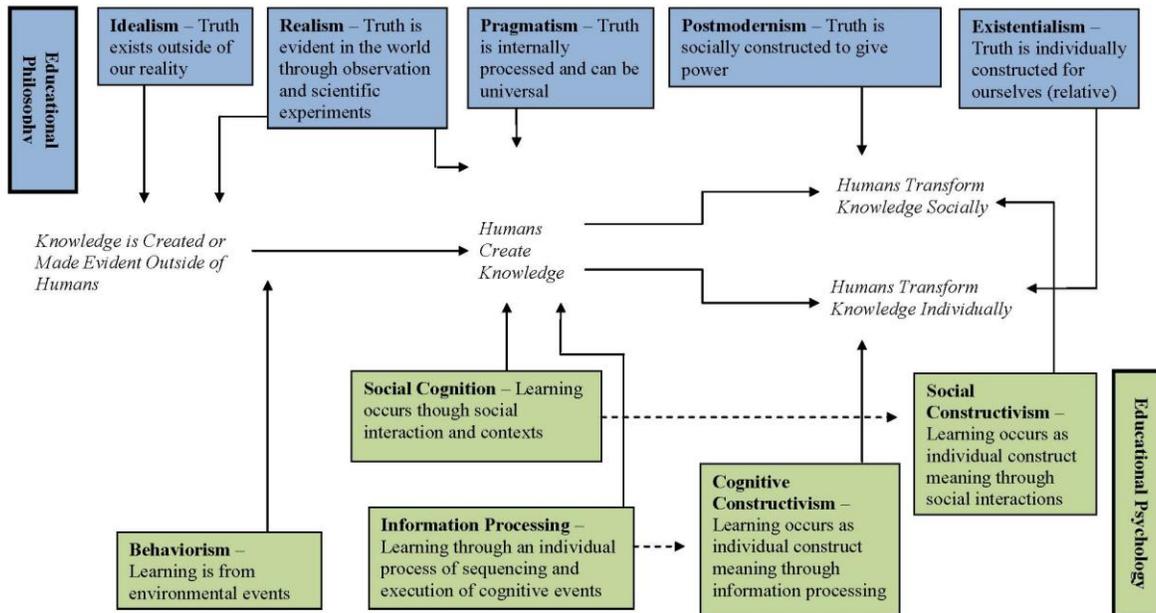


Figure 1. A framework for aligning educational learning theories and educational philosophies.

Implications/Recommendations

The findings of this study have implications for the current status of school-based agricultural education research. Roberts and Ball (2009) reported that school-based agriculture “oscillates between cognitive and social constructive” (pg. 87), which would suggest that school-based agriculture would tend to operate under the philosophies of postmodernism and existentialism. But, Wardlow and Osborne (2010) argued that the philosophy of school-based agriculture was either realism or pragmatism, which would suggest that school-based agriculture operates optimally within informational processing and social cognition learning theories. The researchers do not claim to know who is right, but recommend that philosophical, theoretical, and experimental research be conducted on school-based agricultural education to explore possible contradictory thoughts. A clear philosophical and theoretical foundation can accurately dictate research and policy for the profession.

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Assessing the Agricultural Mechanic Competencies of Former High School Agricultural Education Students

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Introduction

The agricultural mechanics curriculum has always been a cornerstone in secondary agricultural education programs across the country (Burris, Robinson, & Terry, 2005). Agricultural mechanics combines the introduction of new material with problem solving skills that prepares students for post high school agricultural pursuits. Kotrlik and Drueckhammer (1987) found that agricultural mechanics, along with supervised occupational experience programs, were the two most important components in ensuring quality programs in the future. In order for a continuation of qualified personnel, the need to examine the competencies of agricultural education students must continue. The purpose of this study was to assess the agricultural mechanic competencies of former high school agricultural education students. Specifically, the study intended to answer the following research questions: (1) What was the agricultural mechanic skill level of the students upon entering their high school agricultural program, and (2) What was the agricultural mechanic skill level of the students upon exiting their high school agricultural program?

Conceptual Framework

The conceptual framework for this study is based upon a review of literature concerning the effectiveness of agricultural mechanical courses at the secondary level. Agricultural mechanics courses provide students with an opportunity to develop new skills or refine pre-existing skills in the field of agriculture. The mechanical skills that students develop have the potential to make them more diverse and marketable in an ever changing world. The Missouri Department of Elementary and Secondary Education (2003) identified agricultural mechanics courses as the highest area of enrollment among secondary agriculture classes. Additionally, agricultural mechanics was identified as the highest rated student interest area.

Agricultural mechanics is a subject that is not limited to topic specific courses. Agricultural mechanics can be found in all facets of agriculture and can be integrated into all curriculums that are found in a high school program. Phipps (1983) expressed that agricultural mechanics is an important part of the total agricultural education program. In many courses, the time allocated for instruction in agricultural mechanics comprises 25-40% of the total instructional time (Phipps, 1980).

Methodology

The target population consisted of select agricultural mechanical courses 103 [Course title], and 330 [Course title] at [University] during fall semester 2010 (N = 25). A modified Delphi technique was used to develop the questionnaire. During the first phase, researchers identified the content standards and objectives (CSO's) for agricultural mechanic courses as listed by the [State] Department of Education. During the next phase, the CSO's were alphabetically listed and disseminated to pilot group of secondary agricultural education teachers in the state to identify which objectives were most important for student attainment through agricultural mechanic courses. During the next phase, researchers examined the responses for emerging themes. Similar responses were grouped with the most frequently selected responses used to develop a questionnaire of Likert scale items. The questionnaire was presented to a panel of experts consisting of agricultural education faculty members at [University] to establish face and content validity. The reliability coefficient (Cronbach's Alpha) for the questionnaire was .95. The competency levels were based on a 4 point Likert scale: 1-1.50 = no skills, 1.51-2.50 = minimal skills, 2.51-3.50 = basic skills, and 3.51- 4.0 = mastery skills.

Findings

Respondents indicated having minimal skills in wood working ($M = 1.96, SD = .98$) prior to taking agricultural mechanics courses and having minimal skills ($M = 2.36, SD = 1.19$) after completing the courses. Respondents also indicated having minimal skills in concrete systems ($M = 1.72, SD = .94$) prior to taking agricultural mechanics courses and having minimal skills ($M = 1.84, SD = 1.07$) after completing the courses. Additionally, respondents indicated having no skills in small engines ($M = 1.44, SD = .87$) prior to taking agricultural mechanics courses and having minimal skills ($M = 1.76, SD = 1.01$) after completing the courses.

Respondents indicated having no skills in arc welding ($M = 1.40, SD = .82$) prior to taking agricultural mechanics courses and having minimal skills ($M = 2.04, SD = 1.06$) after completing the courses. Respondents also indicated having no skills in plumbing systems ($M = 1.40, SD = .75$) prior to taking agricultural mechanics courses and having no skills ($M = 1.40, SD = .75$) after completing the courses.

Respondents indicated having no skills in welding ($M = 1.32, SD = .80$) prior to taking agricultural mechanics courses and having minimal skills ($M = 1.52, SD = .92$) after completing the courses. Respondents also indicated having no skills in electrical wiring ($M = 1.32, SD = .75$) prior to taking agricultural mechanics courses and had no skills ($M = 1.44, SD = .82$) after completing the courses.

Conclusion/Recommendations

Through the analysis of data for this study it was seen that many students are graduating high school with a very small knowledge base of agricultural mechanical competencies. This finding is of vital concern considering the fact that historically, agricultural mechanics has been one of the highest rated sectors of program recruitment and has been linked to desirable attributes as mathematical problem solving skills (Reis & Kahler, 1997; Parr, Edwards, & Leising, 2006). If agricultural mechanics is to remain a vital part of secondary programs, it is imperative for teachers to teach students these skills. Agricultural mechanical skills are useful and they can transfer into a student's career and personal life. The combination of hands on application, problem solving, and practical use of the skills gained in agricultural mechanic courses is an integral part of any secondary agricultural education program and one of the aspects that is appealing to potential students. Exposing students to these opportunities and engaging them in hands on learning could increase the appeal of an agricultural program. There are numerous jobs that are available in the agriculture sector that can be directly related to the agricultural mechanics lab. Presenting students with skills that will make them marketable and employable can be achieved through agricultural mechanic competencies.

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Can we do More With Less? Examining the Relationship between Course Size, Course Capacity, and Classroom Crowding on Student Ratings of Instruction

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Introduction/Need for the Research

Undergraduate enrollments in higher education across the United States are booming. More than 70 percent of the members of the high school graduating class of 2009 enrolled in college, which is the highest portion of individuals on record, dating back to 1959 (U.S. Department of Education, 2009). The number of students that professors now teach has increased accordingly. Specifically in the University of Missouri system, the student to faculty ratio from 2007-2009 increased from 17.2:1 to 19.0:1 (UM System, 2010). The rising number of students in higher education coupled with the decreased number of faculty and instructors to teach them begs the question of how to maintain quality and student satisfaction under the constraints of shrinking resources.

In an early meta-analysis by Glass and Smith (1979) regarding class size and student achievement, the researchers concluded, "there is little doubt that, other things equal, more is learned in smaller classes" (pg. 15). Large, lecture style classes have been noted to be less conducive to critical thinking and advanced problem solving (Whittington, Stup, Bish, & Allen, 1997), whereas higher-order thinking is more easily achieved in smaller class settings (Persky & Pollack, 2010). Furthermore, it has been widely concluded in the literature on student ratings of instruction that class size has a negative impact on course evaluations (Monks & Schmidt, 2010).

This study was conceptualized around the psychological literature regarding environmental stress and how the stressors of course and classroom crowding can impact students' perceptions of instructional effectiveness (Gifford, 2007). Environmental stress can be caused by factors such as noise, crowding, and temperature. For this study, it was conceptualized that the physical crowding of a classroom, the number of students enrolled in a course, and the enrollment capacity of a course could have an impact on student perceptions of the instructional quality in a course.

The purpose of this study was to examine the relationships between course enrollment, room capacity and enrollment capacity for specific Agricultural Economics and Agricultural Education classes on end of semester ratings of instruction. The following research objectives guided the stated purpose of the study: (1) describe the characteristics of selected agricultural education and agricultural economics courses in regard to class size, room capacity, and enrollment capacity; and (2) describe the variance in student ratings of instruction that can be explained by room capacity and enrollment capacity when controlling for class size.

Methodology

This study utilized a descriptive-correlational research design. The population was all undergraduate courses in agricultural education and agricultural economics taught at the University of Missouri. The study utilized a time and place sample of courses taught between 2000 and 2010, with adjustments made for duplications in the data frame, courses that were problems or seminar in nature, and courses with missing course evaluation data (N= 393). Data were collected end of semester course evaluations as well as university and departmental enrollment records. The dependent variables of ratings of instruction were two major end of semester evaluation items including "effectiveness of the course as a whole" and "teaching effectiveness of the instructor". These items were reported as mean scores on a 5-point scale. These items are publicly available to students per a state law mandate. The independent variables, collected from the university enrollment system, were the enrollment capacity of the course (how many students at which the department caps the course), and the room capacity (how many students the university says the room will accommodate). Hierarchical multiple linear regression was utilized to describe the variance in student ratings of instruction

contributed by enrollment capacity and room capacity when controlling for class size. An alpha level of .05 was set *a priori*.

Results/Findings

A total of 17,541 students were enrolled across 393 undergraduate courses representing 55 different instructors. For objective 1, the average class size was 61 students, with the smallest class having six students and the largest having 441. On average, the enrollment capacity for all courses in the sample was 74% (SD=26%), with the lowest course enrolled at 14.5% capacity and the highest at 168% enrollment capacity. The average room capacity for all courses was 79.9% (SD=28%) with the lowest course at 20.8% of the room capacity and the highest at 200% of the total capacity for the room. The average instructional rating for the course as a whole for all 393 course was a 3.9 on a 5.0 scale (SD=.57) and the average instructional rating for instructor teaching effectiveness was a 3.8 on a 5.0 scale (SD=.58). Objective 2 was to explain the variance in student ratings of instruction attributed to room capacity and course capacity when controlling for class size. All assumptions were tested and met and the hierarchical regression model for enrollment capacity, room capacity and class size explained approximately 6.7% of the total variance ($R = .306$, $R^2 = .093$) in the teaching effectiveness ratings. The model was found to be significant ($F(3, 392) = 9.287$; $p \leq .05$). When controlling for class size, enrollment capacity and room capacity explained approximately 3.8% of the unique variance and were significant ($p = .001$). The hierarchical regression model for enrollment, capacity, room capacity and class size explained approximately 9.3% of the variance associated with the course as a whole rating of instruction. The model was found to be significant ($F(3, 392) = 13.361$, $p \leq .05$). When controlling for class size, enrollment capacity and room capacity were found to be significant ($p = .000$), and uniquely contributed approximately 3.3% of the total variance in the course as a whole rating of instruction.

Conclusions/Implications/Recommendations

It was concluded that enrollment capacity, room capacity, and class size contributed to the statistical variance in student ratings of teaching effectiveness (6%) in a course and of the course as a whole (9%). It was further concluded that when controlling for class size, enrollment capacity and room capacity were still significant. While statistically significant, neither model explained a great deal of the variance in student ratings of instruction from a practical perspective. These findings were in contradiction of prior literature emphasizing the power of smaller classes for higher instructional ratings. The findings imply that instructors can be effective, as perceived by students, in larger classes. Furthermore, while the relative crowding within a class as attributed to enrollment and room capacity is associated with instructional ratings, this association is minimal from a practical perspective. The findings also suggest that the departments in this particular study are finding ways to "do more with less". Perhaps they are more efficient in coping with increased enrollment. Perhaps they are placing instructors in large classes who are more capable of teaching larger class sizes. It could be that the instructors of the courses are more adept to adjusting their instruction to accommodate more students. This study illustrated that students can still be satisfied in courses with more students, however the study did not pinpoint the major source of that student satisfaction. Further research is warranted to better explain the remaining variance in student ratings of instruction.

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Consumer Perceptions of Produce Safety: A Study of Pennsylvania

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Introduction

An estimated 48 million foodborne illnesses, including 3,000 deaths, occur each year in the United States (Centers for Disease Control and Prevention [CDC], 2010). Research has documented that fresh produce is a rising cause of the foodborne outbreaks reported to the CDC (Doyle & Erickson, 2008; Sivapalasingam, Friedman, Cohen, & Tauxe, 2004). As a result, fresh fruits and vegetables have received national attention, recently highlighted by the Food Safety Modernization Act which was signed into law in early 2011 by President Obama. Through this law [P.L. 111-353], the Food and Drug Administration will establish mandatory minimum standards based on known safety risks for the safe production and harvesting of produce. As the new law is implemented, continuing to assess consumer perceptions regarding produce safety will be particularly important, for those perceptions will allow stakeholders within the supply chain to better meet consumer demand.

Theoretical Framework

The Theory of Planned Behavior (TpB) asserts that subjective norms, which are the social pressures stemming from the expectations of important individuals and groups, are a critical component to understand the motivations that influence behavior (Ajzen, 1988). In the case of produce safety practices and policies, consumers are an important group to both produce growers and supermarkets. Fresh produce growers have acknowledged their desire to meet customer demands for fresh produce safety (Eggers, Ackerlund, Thorne, & Butte, 2010), and one of the benefits of food safety policies for supermarkets is the enhancement of customer confidence and loyalty (Henson & Reardon, 2005). Therefore, a clear understanding of consumer expectations is critical for produce growers and supermarkets to make informed decisions regarding their produce safety policies and practices.

Research has shown that many consumers prefer local and organic produce for their perceived superior attributes (Berlin, Lockeretz, & Bell, 2005; Onozaka, Nurse, & McFadden; Pirog, 2004; Yiridoe, Bonti-Ankomah, & Martin, 2005). These findings indicate that growers and supermarkets can position themselves advantageously by meeting consumer demands for produce that is local or organic and safe. However, for growers and supermarkets to capitalize on these market niches, evidence needs to empirically demonstrate the relationship between consumer preferences for fresh fruits and vegetables and their produce safety perceptions.

Methodology

The purpose of this study was to assess Pennsylvania consumer perceptions of produce safety and various factors that affect those perceptions, providing important information regarding consumers' subjective norms. Using data collected among Pennsylvania consumers, this study presents evidence documenting how consumer demographics, along with their preferences for specific attributes in fresh produce, such as locally grown, organically grown, and inspected for food safety, affect their produce safety perceptions. In order to determine these relationships, telephone interviews with randomly sampled Pennsylvania consumers were conducted. Interviews included questions about consumers' produce safety perceptions, their preferences for local produce, organic produce, and produce that has been inspected for on-farm food safety, as well as demographic information. A total of 604 Pennsylvania consumers provided valid data, for a survey cooperation rate of 71.6%.

Results

The most significant result from this study is that Pennsylvania consumers, regardless of gender, race, age, educational level, financial status, or residential location, believed produce safety is an important issue. This finding is critical to communicate to Pennsylvania produce growers and supermarkets. From the consumers' perspective, current practices in the food system regarding produce safety are not sufficient.

A multivariate analysis also determined that preferences for locally grown produce, organically grown produce, and produce that has been inspected for on-farm food safety were the most significant predictors of produce safety perceptions among consumers. Those who more strongly preferred these produce attributes placed higher importance on the issue of produce safety. The only demographic variable that emerged in the multivariate analysis as a significant predictor of produce safety perceptions was income group. Those in lower income groups perceived the issue of produce safety as more important than those in higher income groups.

Conclusions/Implications

The results from this study provide important information for other groups of stakeholders seeking to implement practices that reduce the risk of foodborne contamination. A better understanding of consumer produce safety perceptions and preferences will allow stakeholder groups, including growers and supermarkets, to make more informed decisions regarding their food safety policies and practices. Communicating consumers' perceptions to supermarkets and produce growers is particularly important, for these groups are not likely to capitalize on market opportunities without a thorough understanding of consumers' perceptions. Extension, therefore, can fill a critical role as a communications facilitator among these groups of stakeholders. Through its educational programming, Extension can present the findings from this study to Pennsylvania supermarkets and produce growers to encourage the implementation of food policies and practices that reduce the risk of foodborne contamination.

In addition, Extension should also consider amplifying its role in educating consumers about produce safety. Just as consumers have needs and interests regarding produce safety, so too do produce growers and supermarkets. Thus, Extension should convey the perspectives of these other stakeholders to consumers. For example, although this study found high produce safety perceptions among Pennsylvania consumers, only 2.2% of foodborne outbreaks in the United States between 1990 and 2007 were connected with on-farm activities (Duman, 2010). Educational programming could inform consumers that foodborne contamination does not necessarily mean poor practices by farmers but might occur during any of the several phases along the commodity chain.

In disseminating these findings, Penn State Extension should also evaluate and document the resulting behavior changes made by Pennsylvania produce growers and supermarkets. Using TpB as a guide, Penn State Extension can understand the degree to which the subjective norms of consumers have caused produce growers and supermarkets to reconsider their produce safety policies and practices. This recommendation, in particular, is important. By utilizing TpB as its theoretical framework, this study operated from the understanding that its value rested in the potential for produce growers and supermarkets to take the necessary actions to respond to consumer demands.

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Do the Tenets of the Nature of Science Exist in a Science-Intensive Agriculture and Life-Science Course?

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Introduction

To fuel the future of the economy the number of students entering the Science, Technology, Engineering, Agriculture, and Mathematics (STE[A]M) careers needs to increase (National Academies Press 2010). One strategy that may prove useful is through the integration of science into agricultural education courses. To meet the demand for more STEM integration, several States have developed initiatives aimed at enhancing the scientific rigor of the agricultural education courses being offered. One approach of increasing the rigor is to offer new courses, or to implement an innovative curriculum. In the State of [State], the Advanced Life Science (ALS) curriculum is being used by more than half of the agricultural science and business programs. The ALS courses use hands-on, inquiry based learning to enhance learning and understanding of advanced science concepts utilizing the context of agriculture. By taking ALS courses, students are able to earn science credit towards graduation and able to earn dual credit through the [State] University to apply towards a post-secondary degree.

Although curriculum-based initiatives such as the ALS courses are being used to ready students for STEAM education and careers, students are still not obtaining the preparation they need from the curriculum and classroom instruction to be science functioning citizens. In today's classrooms, students often misunderstand how science actually works and progresses. McComas and Almazroa (1998) state that "this lack of understanding is potentially harmful, particularly in societies where citizens have a voice in science funding decisions, evaluating policy matters and weighing scientific evidence provided in legal proceedings" (p. 1).

In order to help students better understand their potential as future scientists; it is important that strategies be used in the classroom that help them to better identify with science. One method that could prove useful is through the utilization of the Nature of Science (NOS) in the agriscience curriculum. The NOS is "the epistemology and sociology of science, science as a way of knowing, or the values and beliefs inherent to scientific knowledge and its development" (Grady, Dolan, & Glasson, 2010). In [State], the NOS is embedded within the State standards for science classroom instruction as well as in most science textbooks. However, there is little indication that the NOS is actually being utilized and or practiced by [State's] agricultural science and business teachers.

Purpose and Research Questions

Although several studies have been conducted in classrooms examining the teachers' extent of use of the NOS; no studies were found that examined the curriculum-related materials of an agriscience curriculum with respect to the presence of NOS. As such, we chose to determine if the tenets of NOS were embedded within the four major components of a science-intensive agriculture and life science course, which for the purpose of this study was the ALS: Plants and Soils curriculum. To evaluate the ALS: Plants & Soils curriculum with respect to NOS, three tenets of NOS that are most agreed upon in the literature were utilized. These tenets included: 1) Material is empirical, 2) Labs and Teaching content is subjective, and 3) Collaboration of students, and debriefing of activities with the teacher (social context) (Grady, Dolan, Glasson, 2010; McComas 2007). Four research questions guided this study: 1) Are the tenets of NOS represented within the lesson materials of a science-intensive agriculture and life science course? 2) Are the tenets of NOS represented within the additional teaching materials/aids of a science-intensive agriculture and life science course? 3) Are the tenets of NOS represented within the lab materials of a science-intensive agriculture and life science course? 4) Are the tenets of NOS represented within the exam materials of a science-intensive agriculture and life science course?

Methods

The lessons of the ALS: Plants & Soils curriculum were analyzed using a stepwise evaluation process that involved a thorough examination of all components of the curriculum (lesson materials, exams, additional teaching material/aids, and labs). Each tenet was coded using a researcher-developed coding system that included the following: 0 = The tenet is not present in the section being analyzed, 1 = Material is empirical, 2 = Labs and material are subjective, 3 = Collaboration between students & debriefing activities with the teacher. This evaluation process was repeated three times in order to achieve coding accuracy.

Findings

First, the findings of this study should be considered in light of a limitation which is that the researcher created the coding system and conducted the actual coding of the curriculum both of which could have influenced the validity of the findings. The most prevalent tenets found in the ALS: Plants & Soils curriculum were Tenet #3: Collaboration and debriefing, and Tenet #1: Material is empirical. Tenet #3 was found to be most prevalent because there were places within the lesson materials that referred to having a “discussion with students”. Tenet #1 was also prevalent due to the fact that the lab portion of the curriculum would involve the students being asked to record data, with many of the labs also requiring students to “observe” what was occurring. The tenet that was least represented within the ALS: Plants and Soils curriculum was Tenet #2: Labs and material are subjective. This was due, in part, to the fact that the lesson materials focused primarily on the memorization of definitions and step-by-step lab procedures,

Conclusions

Overall, there was moderate representation of the NOS tenets in the ALS: Plants & Soils curriculum. If the teacher were to include additional, and or supplementary instructional materials above and beyond the written curriculum, it is also possible that the amount of NOS in the course could be much greater. Also, because teachers differ in their educational philosophies, values, beliefs, and level of content expertise, this could also impact the degree to which the NOS would be practiced in the classroom.

Implications

Due to the lack of NOS tenets being represented, revisions should be made to the ALS: Plants & Soils curriculum to ensure that students are truly learning how science works and progresses. Also, the weak representation of NOS in the curriculum could also suggest that the other two ALS courses (ALS: Animals and ALS: Foods) should be evaluated for NOS representation since they too were developed at the same time using similar curriculum development procedures. This is important to ensure that NOS is thoroughly embedded within ALS program of courses.

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Educating Learners with Special Needs: Perceptions of Teachers in Agriculture Classrooms

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Introduction

Data from the United States Department of Education (USDE) show an increasing number of learners with special needs are being served in inclusion classrooms across the country. During the 2007-2008 school year, 13.4% of students in American schools were being served under the Individuals with Disabilities Education Act (IDEA); that number was up from 8.3% of students who were served when the legislation was first enacted during the 1976-1977 school year (National Center for Education Statistics, 2011). Statistics involving learners with special needs have changed over the years. "Demographic and socioeconomic changes have resulted in an increasingly diverse and disadvantaged student population, posing increased challenges to educators" (Wang & Reynolds, 1996, p. 21). The USDE National Center for Educational Statistics, found that from the 1976-77 school year to the 2001-2002 school year, the percentage of students (ages 6-21) receiving special education services for a specific learning disability increased three fold (2006).

According to Darling-Hammond (2005), during many periods in history, schools fostered segregation rather than inclusion. Secondary agriculture teachers have traditionally served learners with special needs in their classrooms, however, diversity in the range of academic abilities within classrooms has grown as schools have included more students with exceptional needs into mainstream education (Darling-Hammond, 2005). The probability is high that most or all teachers in public school settings will have academically disadvantaged students in their classes. How teachers integrate these learners with special needs into the lesson is what helps determine if the students are successful. Research data were used to indicate that learners with special needs are a fact-of-life in agricultural education and will continue to grow.

Theoretical Framework

Vygotsky's zone of proximal development theory (Mallory & New, 1994) served as the theoretical foundation for this study. The zone of proximal development is based on the social constructivist theory that the role of social activity, including classroom instruction, promotes individual development of knowledge of how to interact with peers and become a member of society. Inclusion of learners with special needs into general education classrooms places those learners into a social environment similar to what they will experience outside of the classroom, preparing them to live and learn using social interaction with peers and adults. Principles for inclusive learning are based on the concept of the classroom as a community, learning as socially mediated, curriculum as contextually relevant and problem based, and assessment as authentic and meaningful (Mallory & New). Students who are excluded from inclusive classrooms learn to construct meaning in isolated environments that may not be congruent to what they will experience once they complete their secondary education.

Methodology

The research was a descriptive study of secondary agriculture teachers in comprehensive agricultural education programs. A researcher-designed questionnaire contained 37 quantitative and qualitative items used to obtain the information needed to address the research purpose and objectives which were to describe the current status of classroom inclusion activities of secondary agriculture teachers in comprehensive programs in a Midwestern state. The questionnaire was deemed valid and reliable through a panel of experts and an established Cronbach's Alpha score of .766. The questionnaire was distributed through an on-line survey provider.

An original hard-mailed notice letter was sent to the target population of comprehensive secondary agriculture teachers before the survey instrument was mailed electronically, thereby encouraging irregular electronic mail users to check for the survey in their inbox on the distributed date indicated. A total of five

emails were sent to the subjects soliciting their participation in the survey. At the end of 28 days, a total of 184 responses (61.1%) had been collected.

Findings

Secondary agriculture teachers in the study had approximately 20% of their students identified as learners with special needs. The participants in the study taught six to seven class sessions per day, in which there was frequent enrollment of learners with special needs. It was also found that 31% of secondary agriculture teachers in the study had taught in inclusion settings for zero to five years, making them relatively new to teaching in inclusion environments. Secondary agriculture teachers in the study (70.5%) perceived learners with special needs as having more positive relationships in inclusion classes than in special education classes. However, teachers in the study (69.7%) also perceived that learners with special needs had more discipline issues in inclusion classrooms. Teachers in the study (82.9%) also perceived that it was easier for learners with special needs to talk to support personnel in special education classrooms. Secondary agriculture teachers in the study (70.3%) perceived that learners with special needs are better-prepared for real-life during inclusion classes as opposed to special education classes. The teachers in the study (87.3%) also perceived that learners with special needs felt more like they were part of the school when they are enrolled in inclusion classes.

Conclusion and Recommendations

The number of learners with special needs being served in inclusion classrooms is growing. Approximately one in five students in comprehensive agriculture programs in the study were identified as having 'special needs'. Secondary agriculture teachers in the study perceived, for the most part, the inclusion of learners with special needs into regular education classrooms positive. The teachers indicated that inclusion classes better-prepare learners with special needs for real-life and promoted more positive peer relationships. The negative perceptions were that the teachers believed learners with special needs had more discipline problems in inclusion classes and also had a more difficult time accessing support personnel.

Teachers should understand students' rights and have a working knowledge of the laws and policies associated with access to education, such as IDEA, so that they can meet the spirit of these policies (Darling-Hammond, 2005). Agriculture teachers must take advantage of opportunities to enhance their knowledge about working with learners with special needs. Agriculture teachers should utilize professional development opportunities to promote and update their teaching methods in order to effectively teach all students in their inclusive classrooms.

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**Examining the Factors Associated with Continued Motivation to be an Effective Teacher Regarding
Classroom Instruction and Supervised Agricultural Experiences**

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Introduction/theoretical framework

The motivation that inspires someone to become an agriculture teacher varies among individuals. In a review of literature concerning agricultural education students, Stewart (1950) quoted students saying: "I am interested in becoming a good teacher in whatever field I decide to work. I have seen enough mediocre teachers, uninteresting teachers, teachers who were merely 'keeping school'. I want to be a good teacher" (p. 1). It appears that there are individuals that enter into teaching fields that were inspired by their prior teachers' hard work and dedication, and those who were inspired by the sub-standard absence of teaching that they experienced while they were in high school.

The role of an agricultural education teacher is more complex than merely distributing information to students in the classroom. A proficient teacher must ensure that the students are engaged in the classroom, the laboratory, in their supervised agricultural experiences (SAEs) and also that the students are active participants in the National FFA Organization. Murray (1981) summarized the role of the agricultural teacher by stating that the teacher is a catalyst that should always provide motivation an inspiration to all students within agricultural education.

Purpose

The purpose of this study was to determine and evaluate the factors associated with continued motivation to be an effective teacher in agricultural education classrooms in [State]. The objectives of the study were reflected in the following research questions:

What factors influence agricultural teachers to remain motivated to continue to promote student learning?

What factors contribute to the diminishing motivation to continue to promote student learning?

What factors influence agricultural teachers to continue to have high expectations for student growth with SAE's?

What factors contribute to agricultural teachers diminishing expectations for student growth with SAE's?

Procedures

A descriptive method was used to determine factors associated with continued motivation to be an effective teacher in agricultural education classrooms in [State]. The population consisted of 90 teachers employed in [State] during the 2010-2011 school year. A modified Delphi technique was used to develop the questionnaire. The instrument was presented to a panel of experts consisting of agricultural education faculty at [University] to confirm content and validity. Reliability of the instrument was conducted. An overall alpha level of .90 was calculated for the total number of items within the instrument. A chi-square test of independence was used to determine whether there was a significant difference between early and late respondents. The chi-square values were not significant ($\alpha > .05$). A conclusion that non-respondents were similar to respondents was drawn (Ary et al., 2006); hence, generalizations could be made to the entire population.

Results

Thirty-six respondents (40%) returned completed questionnaires.

Respondents strongly agreed that motivated students ($M = 3.56$, $SD = .56$), good working conditions ($M = 3.56$, $SD = .56$), and students' successes and achievements ($M = 3.53$, $SD = .56$) had an influence on them remaining motivated to promote student learning. The respondents agreed that administrative support ($M = 3.44$, $SD = .65$) and taking continuing education classes ($M = 2.92$, $SD = .84$) also helped to influence on them remaining motivated to promote student learning.

Respondents agreed that a lack of student motivation ($M = 3.14, SD = .60$), discipline problems ($M = 2.94, SD = .72$), administrative policy decisions ($M = 2.78, SD = .76$), and a disproportionate number of special needs students being placed into the program ($M = 2.64, SD = .80$) contribute to their diminished motivation to be effective to promote student learning.

Respondents agreed that having students in classes for multiple years ($M = 3.39, SD = .73$), student success ($M = 3.33, SD = .63$), preparing students for future careers ($M = 3.17, SD = .61$), parent participation ($M = 3.06, SD = .67$), and community involvement ($M = 3.00, SD = .72$) were all factors that influence teachers to continue to have high expectations for student growth with his/her SAE.

Respondents agreed that not having an extended contract ($M = 3.11, SD = .92$), a lack of work ethic from students ($M = 2.97, SD = .81$), a lack of student interest's ($M = 2.97, SD = .74$), a lack of time ($M = 2.83, SD = .74$), parental support ($M = 2.69, SD = .69$), and difficulty finding enough quality SAE opportunities ($M = 2.61, SD = .90$) were all factors that contribute to diminishing expectations for student growth with his/her SAE.

Recommendations/Implications

Agricultural education teachers have to educate students, school counselors, school administration, and the community on the benefits and importance of agricultural education. One of the reoccurring responses throughout this study was that administrative and community support was required to help teachers remain motivated and effective. Teachers have to educate students, parents and his/her administration of the role that agricultural education plays in America and the opportunities that agriculture presents to students.

Understanding the factors that increase and diminish educators' motivation to remain effective can have a large impact on the agricultural education field. If factors are identified that increases motivation, teacher retention and success rates may increase and teacher burnout could possibly decrease. Teacher motivation affects many facades of the total program of agricultural education. A decrease in the effectiveness of the teacher can directly correlate with the motivation and success of the students that encompasses agricultural education classrooms.

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**Examining the Principals Role in Continued Growth and Success of High School Agricultural Education
Teachers**

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Introduction/theoretical framework

The relationship between an agricultural education teacher and their administration is extremely important. In order to have an effective program, the students will need to go on field trips, facilities will have to be updated, and the support of the entire school, especially from the principal, is important for the agricultural student's and teacher's morale. [Author] [(Date)] found that in viewing vocational agriculture programs, administrators were more concerned with those activities bringing recognition to the student and the school than with other aspects of the program. There was also evidence that some teachers and administrators believe that too much emphasis is placed on FFA and contests. Administrators were also concerned that insufficient attention is given to agricultural subject matter.

The rapport that exists between teacher and principal can have a direct effect on teacher stress and job satisfaction. In a study by Thompson, et al. (1986), agricultural teachers noted that one of the reasons for teachers quitting vocational agriculture teaching was 'difficulty with school administration'. Similarly, Moore and Camp (1979) cited 'inadequate administrative support and backing' as a perception by former teachers as to why they left vocational agriculture teaching. Mattox (1974) identified factors that were given for agricultural teacher leaving the field. Those reasons are: (1) personality conflicts with administration; (2) lack of administrative support and backing on decisions; and (3) lack of administrative trust and support.

Purpose

The purpose of this study was to determine and evaluate the roles that principals play in the continued growth and success of high school agricultural teachers in [State]. The objectives of the study were reflected in the following research questions:

What roles do administrators play in the continued growth and success of a teacher's job performance?
What roles do administrators play in the diminishing growth and success of a teacher's job performance?

Procedures

A descriptive method was used to determine factors associated with continued motivation to be a highly effective teacher in agricultural education classrooms in [State]. The population consisted of 90 teachers employed in [State] during the 20010-2011 school year. A modified Delphi technique was used to develop the questionnaire. The instrument was presented to a panel of experts consisting of agricultural education faculty at West Virginia University to confirm content and validity. Reliability of the instrument was conducted. An overall alpha level of .90 was calculated for the total number of items within the instrument. A chi-square test of independence was used to determine whether there was a significant difference between early and late respondents on gender and years of teaching experience. The chi-square values were not significant ($\alpha > .05$). A conclusion that non-respondents were similar to respondents was drawn (Ary et al., 2006); hence, generalizations could be made to the entire population.

Results

Thirty-six respondents (40%) returned completed questionnaires.

Respondents strongly agreed that allowing time for teacher workshops, travel, and competitions ($M = 3.56, SD = .56$) was a role that administrators play in the continued growth and success of a teacher's job performance. Respondents agreed that a supportive administrations makes new ideas and programs possible ($M = 3.47, SD = .56$). Respondents also agreed that providing students with flexibility in their schedules ($M = 3.33, SD = .72$), providing funding and facilities ($M = 3.25, SD = .84$), the administration having high expectations of the teacher

($M = 3.22$, $SD = .68$), understanding and support of the total program ($M = 3.17$, $SD = .85$), recognition of program accomplishment ($M = 3.14$, $SD = .76$), and having a genuine interest in the agricultural program ($M = 3.03$, $SD = .88$) were all roles that administrators play in the continued growth and success of a teacher's job performance.

Respondents agree that using agricultural education classrooms as a dumping ground for low performing and/or behavioral problem students ($M = 2.89$, $SD = .92$), and a lack of cooperation or support ($M = 2.83$, $SD = .78$) are roles that administrators play in diminishing the growth and success of a teacher's job performance. Respondents agreed that administration plays a large role in determining the success of the agricultural program ($M = 2.72$, $SD = .85$). Respondents also agreed that a lack of understanding the benefits of the program ($M = 2.69$, $SD = .71$), the paperwork that is required by the administration ($M = 2.67$, $SD = .76$), and a lack of appreciation for career/technical education ($M = 2.61$, $SD = .80$) were also roles that administrators play in diminishing the growth and success of a teacher's job performance.

Recommendations/Conclusions

The relationship that exists between an administrator and the agricultural education teacher can have a direct correlation with program success. It is essential that a clear line of dialog exist between the two parties. The agricultural education teacher needs to express the importance and components of a total agricultural program to the schools administration and work together to ensure that the students of the program have an opportunity to succeed.

More research needs to be conducted on the relationship between school administrators and job satisfaction of agricultural teachers. Agricultural education is the corner stone of many communities throughout the United States and both teachers and administrators have to work together for the advancement of the students. A motivated teacher is able to motivate students and having a healthy working relationship with the school principal will help to make better teachers.

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Importance of Administrator Supervisory Practices Used in Non-formal Agricultural Education

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Introduction/Need for Research

Since the implementation of the No Child Left Behind Act of 2001, an increased emphasis has been placed upon student achievement, with increased accountability on the classroom teacher (Salinas & Kritsonis, 2006) as well as on educational administrators (Danielson & McGreal, 2000). Improving teacher quality is believed to positively impact educational achievement (Darling-Hammond, 2000). Wright, Horn, and Sanders (1997) found that teacher effectiveness was the most important factor in student academic gain. Sanders and Rivers (1996) recommended that educational administrators use formative instructional supervision to assist teachers in increasing student achievement.

Agricultural education programs use a whole person approach to education (National Council for Agricultural Education, 2000). These programs include the formal classroom and laboratory component, as well as the two traditional non-formal program components: 1) experiential learning—Supervised Agricultural Experience (SAE) and 2) leadership and personal development—FFA (Phipps, Osborne, Dyer, & Ball, 2008). When considering perceptions regarding instructional supervision practices agricultural education teachers deem important in the non-formal components of the program, no known studies have been identified. Zepeda and Ponticell (1998) concluded, “Far more research is needed from many contexts examining teachers’ perceptions on supervision” (p. 71). The purpose of this study was to identify agricultural education teachers’ perceptions regarding the importance of instructional supervisory practices implemented in the non-formal components of the agricultural education program.

Theoretical Framework

The theoretical framework underlying this study originated from Ferguson and Bargh’s (2004) work regarding how social perception can automatically influence behavior. According to Ferguson and Bargh (2004), social knowledge, activated through perception, can shape and guide complex human behaviors automatically without one’s knowledge of how or why these behaviors are taking place. Agricultural education teachers’ perceptions of supervision may impact the manner in which they approach their instructional practice.

Methodology

This cross-sectional survey design was implemented through email according to the tailored design method (Dillman, Smyth, & Christian, 2009). Items were developed from a thorough review of the literature regarding teacher perceptions of instructional supervision (Pajak, 1989; Zepeda & Ponticell, 1998) and deemed valid by a panel of experts. A five-point Likert-type importance scale was used to determine respondents’ perceptions regarding each of 28 instructional supervision practices used in the non-formal components of agricultural education. United States agricultural education teachers identified on available, electronic state directories were sampled randomly through a disproportional stratified technique (Ary, Jacobs, and Sorenson, 2010). A total of 293 agricultural education teachers from 17 states responded to the questionnaire for a 44.13 percent response rate. No statistically significant differences were identified between early and late respondents.

Results/Findings

The average respondent was male (70.6%), 40.62 years old, held a Bachelor’s degree (58.4%), and had 14.86 years of teaching experience. Table 1 provides the frequencies, percentages, mean scores, and standard deviations for the most highly rated statements by the teachers regarding the importance of instructional supervision practices used in the non-formal components of the agricultural education program.

Table 1

Frequencies, Percentages, and Mean Ratings of Perceptions of Agricultural Education Teachers Regarding the Importance of Selected Instructional Supervision Behaviors in Non-formal Educational Settings

My supervisor...	$\frac{f}{\%}$					N	Mean	SD
	1	2	3	4	5			
understands my role as a teacher in non-formal settings	5	16	38	107	68	234	3.93	.958
	2.1	6.8	16.0	16.0	28.7			
supports and facilitates my work in non-formal settings	9	24	41	103	57	234	3.75	1.057
	3.8	10.1	17.3	43.5	24.1			
provides me with resources and time to improve my educational practice in non-formal settings	8	20	49	106	50	233	3.73	1.004
	3.4	8.4	20.7	44.7	21.2			
instills confidence in me about the work I do in non-formal settings	12	22	60	91	49	234	3.61	1.076
	5.1	9.3	25.3	38.4	20.7			
observes me in a variety of educational settings	7	27	61	100	39	234	3.59	.995
	3.0	11.4	25.7	42.2	16.5			

Note. The instructional supervision behavior statements were rated on a Likert-type scale of 1 to 5, where 1 = Not important; 2 = Somewhat important; 3 = Moderately important; 4 = Very important; 5 = Extremely important.

Conclusions

Respondents believed that their instructional supervisors should support their work in a variety of educational settings (Ovando, 2001). They support Pajak's (1989) assertion that successful supervisors should empathetically understand the teacher and his or her work within non-formal settings. They also prefer instructional supervisory practices that are supportive (Zepeda & Ponticell, 1998), provide resources and time for improvement (Blase & Blase, 2004), and instill confidence (Ovando, 2001). Since perceived beliefs regarding instructional supervision can impact instructional practice (Ferguson & Bargh, 2004), agricultural education teachers should engage their supervisors in a holistic approach to supervision—encouraging them to take into consideration the formal and non-formal aspects of the teacher's professional practice.

Implications/Recommendations

Instructional supervision is a complex activity that should transcend the traditional classroom setting; therefore agricultural education instructors should invite their high school principals to supervise them in all aspects of their teaching. Additional research is needed (Zepeda & Ponticell, 1998) regarding how frequently specific instructional supervisory practices are experienced in the non-formal components of the agricultural education program. By further exploring instructional supervision, a list of appropriate supervisory strategies

can be developed to positively impact student achievement through instructional supervision in agricultural education.

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

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Introduction/Need for Research

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

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

Conceptual/Theoretical Framework

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

Methodology

This was a descriptive study that used questionnaires to survey the faculty members. Closed- and open- ended questions formed Section I (Personal Data) of the instrument. A bipolar adjective scale was used for Section II (Personal Characteristic Profile) and a Scoring Likert scales was used for Section III (Origin of Motivation). The demographic items in the instrument included sex, age, education, farm background, percentage of assigned duties in research, extension, teaching and administration, academic rank tenure status, departmental affiliation, years employed by the university, time worked in a developing nation, number and length of developing country assignments, employers, and how the developing country experience is used in faculty development work. Both descriptive and inferential analyses were used. The descriptive procedure included frequencies, percentages, means and standard deviations. The inferential procedure included a T-test for comparison between the data collected. One-way analysis of variance tests were used to find the differences between the different levels found in the independent variables (country of birth, department affiliation and academic rank). The alpha level was set at 0.05. The software program Statistical Package for Social Sciences (SPSS) was used in the computer analysis of the data.

Results/Findings

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

Conclusion

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

Implications/Recommendations/Impact on Profession

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

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Pennsylvania 4-H Volunteer Leaders Perceived Use of Experiential Learning

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Introduction/Theoretical Framework

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

To help 4-H leaders understand experiential learning, training sessions need to be utilized (McKee, Talbert & Barkman 2002). In a survey by Diem (2009), experiential learning was one of the top five categories in which volunteers wanted more information. Pennsylvania 4-H staff offered training for 4-H volunteers approximately five years ago (C. Mincemoyer, personal communication, November 11, 2010). Because of the length of time since the initial training, the Pennsylvania 4-H staff would like to capture the current use of experiential learning within 4-H clubs. Pennsylvania is not alone in offering an educational program to the volunteer leaders. A training program at the University of California had a high overall success rate of teaching 4-H leaders the principles and methodologies of experiential learning (Enfield et al, 2007). The experiential learning model is used in 4-H because it is relatable, supports different learning styles, encourages discovery of knowledge, and helps draw conclusions (University of Arkansas, n.d). Besides the skills directly related to the cycle, it also encourages teamwork, communication and self-directed learning (Enfield, 2001; University of Arkansas, n.d).

Methods

The purpose of the current research study was to help the Pennsylvania 4-H staff gain a better understanding of the current use, effectiveness and understanding of experiential learning by 4-H volunteer leaders. The specific objective of this research poster was to determine the perceived use of experiential learning by Pennsylvania 4-H volunteer leaders within their local clubs. Data was collected through the utilization of a modified version of the Dillman Total Design Survey Method (Dillman, 2000).

As part of a larger study looking at experiential learning within Pennsylvania 4-H, a survey instrument was developed and a field and pilot study were conducted. The survey was sent to 346 Pennsylvania 4-H volunteer leaders via SurveyMonkey. The sample used in this study was selected from the e-data enrollment system using a stratified random process based on the four Pennsylvania 4-H regions. To understand the use of experiential learning, yes/no, Likert-type scale and write in questions were used. Non-response was controlled by comparing early to late respondents as reported by Miller and Smith (1983). Comparisons indicated no significant difference in early to late respondents.

Results/Findings

A total of 346 surveys were sent and a total of 103 usable instruments were returned for an overall response rate of 29.7%. Means and frequencies were completed for two of the three questions related to this research objective. The third question was a write-in question and common themes were identified among the responses. When the Pennsylvania 4-H volunteer leaders were asked if they incorporated experiential learning

within club activities, 67 percent reported that they did incorporate experiential learning within club activities and 33 percent reported that they did not provide these experiential learning opportunities.

Of the 4-H volunteer leaders who reported using experiential learning, approximately 43 percent perceived themselves to frequently (75-99% of time) use experiential learning at club meetings (see Table 1).

Table 1: *Use of Experiential Learning at 4-H Club Meetings*

	Percentage	Frequency	
Almost Never (24-0%)	5.7	4	Survey respondents were asked to provide an example of perceived
Rarely (49-25%)	8.6	6	
Sometimes (74-50%)	31.4	22	
Frequently (99-75%)	42.9	30	
Always (100%)	11.4	8	
Total	100	70	

experiential learning used within their club. Fifty survey respondents completed this question and 29 examples referenced animal care, selection or exhibition. The second most popular topic was construction or assembly of a project.

Conclusions/Implications/Recommendations

The respondents of this survey perceive that they frequently use experiential learning within 4-H club meetings. The majority of respondents provided examples of experiential learning with animal projects. With the high level of volunteer leaders perceiving that they utilize experiential learning, programmers should work to ensure that the 4-H model is being fully implemented within the club activities. Additional investigation should occur with those individuals that indicated that they did not incorporate experiential learning, or with those individuals that indicated that they “rarely” or “almost never” use experiential learning. Opportunities may exist for further training in the utilization of the experiential learning model. By collecting more information, researchers will be able to determine if volunteers understand experiential learning or only believe they incorporate the learning model. Researchers should also look for additional ways to incorporate experiential learning into non-animal 4-H projects to improve all 4-H members experience with the program.

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Perceptions of High School Principals Regarding Supervised Agriculture Experiences

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Introduction/theoretical framework

Effective leadership plays a vital role in setting the direction for successful schools (Reynolds, & Warfield, 2009). Jewel (1995) stated that administrators possess influence and authority at the school level that is necessary for their agricultural education programs to develop and grow. In addition, Thomas (1997) concluded that the relationship between the teacher and the principal can affect the performance of the teacher. In order to have an effective teacher and a success program, it is imperative that agricultural education teachers have modern facilities with the support of the principal and school community. If agricultural education is to remain a viable option to high school students, the perceptions of administrators at these schools must be assessed.

Barth (1984) stated that school principals have a critical role in setting the school climate, which can nurture or deplete the desire of teachers to have their students conduct supervised agriculture experiences (SAEs). Wilson and Moore (2006) found that teachers believe that principals do not reward them for having their students conduct SAEs). In a focus group study conducted by Myers, Breja and Dyer (2004), the researchers reported that administrators perceived SAE's as record-keeping conduits for students to earn FFA awards. Conversely, the researchers also reported that the experiential learning focus of the program component was not currently being conducted. Principals can support or de-emphasize the importance of SAE's at their school in their annual evaluation of the teacher and the agricultural education program (Rayfield, & Wilson, 2009). If principals have positive perceptions of SAE, these perceptions could indirectly increase student achievement (Rayfield, & Wilson, 2009).

Purpose

The purpose of this study was to analyze [State] high school principals' perceptions regarding supervised agriculture experiences in secondary agricultural education programs.

Procedures

Following Dillman's (2007) *Tailored Design Method*, the researchers implemented a questionnaire using a series of emails. The questionnaire was based on previous work by Simelane and Lawrence (1985) concerning vocational agriculture teachers' and their administrators' perceptions concerning selected activities/tasks performed by vocational agriculture teachers. The accessible population of the study consisted of all 70 principals in [State] high schools that offered courses in agricultural education. A statistical factor analysis was not conducted. Rather, the factors were determined conceptually by the research team based on the borrowed instrument. Individual statements were identified conceptually as contributing to the construct. The reliability coefficient (Cronbach's Alpha) for the items was .96. The instrument was reviewed by a panel of experts in the [College] at [University] to ensure content and face validity. A chi-square test of independence was used to determine whether there was a significant difference between early and late respondents. No difference was found; therefore generalizations could be made to the entire population (Ary et al., 2006). The final response rate was 57%. ($n = 40$).

Results

The Likert scale for the individual items was: 1.00-1.50 = Strongly Disagree, 1.51- 2.50 = Disagree, 2.51-3.50 = Agree, 3.51- 4.00 = Strongly Agree. Respondents strongly agreed that promoting the growth and scope of SAEs ($M = 3.55$, $SD = .50$) and supervising SAEs at critical times ($M = 3.53$, $SD = .51$) were tasks that teachers should accomplish. Respondents agreed they believed the following tasks should be carried out by the agriculture teacher: explore SAE opportunities with first-year students ($M = 3.40$, $SD = .71$), use summer months primarily for supervision of student SAEs ($M = 3.35$, $SD = .58$), supervise each student SAE at least four times during the

year ($M = 3.30, SD = .69$), promote entrepreneurship for students with off-farm agricultural interests ($M = 3.15, SD = .58$), hold meetings with parents of first year students to explain expectations of student, parents, and teacher ($M = 3.15, SD = .86$), involve first year students in profitable and challenging SAEs ($M = 3.10, SD = .59$), place students with agribusiness firms in the community ($M = 2.93, SD = .86$) and expecting each senior student to earn \$1,000 or more through his/her SAE and obtain their State FFA degree.

Respondents were asked to identify how well the individual tasks were being done at their school. They identified that the following tasks were being well done: promote growth and scope of SAEs ($M = 2.85, SD = .86$), supervise SAEs at critical times ($M = 2.75, SD = .95$), explore SAE opportunities with first-year students ($M = 2.78, SD = 1.03$), use summer months primarily for supervision of student SAEs ($M = 3.08, SD = .86$), supervise each student SAE at least four times during the year ($M = 2.68, SD = .84$) and involve first year students in profitable and challenging SAEs ($M = 2.63, SD = .84$). Respondents identified the following tasks as being fairly well done: promote entrepreneurship for students with off-farm agricultural interests ($M = 2.42, SD = .84$), hold meetings with parents of first year students to explain expectations of students, parents, and teacher ($M = 2.40, SD = 1.11$), place students with agribusiness firms in the community ($M = 2.13, SD = .94$) and expect each senior student to earn \$1,000 or more through his/her SAE and obtain their State FFA degree ($M = 2.33, SD = 1.05$).

Recommendations/Conclusions

With the increase demand for students to take more courses in science, math, and English, there are fewer opportunities to take elective courses in agricultural education which decrease a student's opportunity to partake in an SAE. It was also discovered that younger principals had less of an opportunity to enroll in high school agricultural classes than older principals in the study. If principals were not exposed too and/or do not understand the components of agricultural education then there is the potential that there can be a lack of support that develops which can lead to stress and tension between the administrator and the agricultural teacher.

Agricultural education teachers have to inform the parents, community and administration of the importance of SAEs. The students need to be integrated into the community to showcase the skills and abilities that they are learning in the classroom and laboratories. Teachers have to take into consideration the resources that are available in the community and base their curriculum around the needs of the community. In order for an agricultural program to be an effective teaching tool, the teacher must have the support of the school system and community and successfully showcase student SAEs.

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Self-Assessment of Undergraduate Agriculture Students on Leadership Qualities

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Introduction and Conceptual Framework

Leadership skills lead to students' success at workplace. In addition, these skills also help young people to contribute positively to their societies (Scheer, 1997 as cited by Boyd, 2001). Potential employers look for candidates with leadership experiences (Townsend, 2002). Therefore, leadership skills are an essential asset for students. However, The U.S. Bureau of Labor Statistics reported that the nation is likely to face a shortage of workers equipped with leadership skills (Waxer, 2008). In this context, developing leadership in future leaders is a critical need (Wieck, Prydun, & Walsh, 2002), and the value of education in preparing future leaders is becoming more and more important (Ghimire & Martin 2008).

Students can acquire leadership skills through various venues with leadership education courses offered at colleges and universities being one of the important ones. Thomas (2010) stated that leadership is about maximizing the inherent talents in an individual by combining it with education indicating that leadership skills can be taught. The departments of Agricultural Education have identified this need and are offering agricultural leadership courses. While delivering these courses, it would be beneficial for instructors to know the current leadership skills of students to improve curriculum and teaching strategies to hone these skills. There are several indicators to assess leadership skills of students with leadership qualities being one of the important ones.

This study assessed the leadership qualities of undergraduate agriculture students at ["university"]. Students assessed themselves on 10 leadership qualities: vision, ability, enthusiasm, stability, concern for others, self-confidence, persistence, vitality, charisma and integrity, which provided the conceptual framework for this study. These 10 leadership qualities were adopted from the works of Morrell; Burns; Edmondson (1974); House and Aditya (1997); Yukl (2007) (as cited by Manning & Curtiss, 2009). These qualities were conceptualized to give an overall understanding of the current leadership skill level of students in this study. The purpose of this study was to analyze undergraduate agriculture students' self-assessment on 10 leadership qualities with an aim of improving teaching and learning processes. The department of Agricultural Education at the ["university"] offers a 3-credit agricultural leadership course every semester which the first author has been teaching for the past two semesters. The findings from this study were used to improve the teaching and learning processes of this course.

Methodology

The Institutional Review Board at the ["university"] approved this study. All the students that registered for an agricultural leadership course in the spring 2011 semester ($n=50$) served as the research subjects. Students rated themselves on a five-point Likert-type scale ranging from 1= Poor, 2= Fair, 3= Don't Know, 4= Good and 5= Excellent on the 10 leadership qualities. The survey instrument was adapted as published by Manning and Curtiss (2009) with the rating scale modified to suit the needs of this research study. The questionnaire was considered valid as it is in use. However, it was pilot-tested for reliability with the 50 students that took the same course in fall 2010 semester. A Cronbach's α of .70 was reported which is categorized as 'acceptable' reliability by George and Mallery (2003). Students were given an option to elect if they wished their data not to be included in the study.

Results

Fifty out of 50 (100%) students responded to the survey. A majority of the students were male (66%) and in their junior year of undergraduate education (70%). All respondents were in the age group of 19-23 years. A majority of the students' perceived themselves to be either good or excellent at all the 10 identified leadership qualities. However, a considerable percentage of the students rated themselves to be poor, fair or

don't know/unsure about their leadership: charisma (36%), stability (28%), self-confidence (24%), abilities (20%), enthusiasm (18%), and concern for others (16%).

Conclusions, Recommendations and Implications

Two conclusions were drawn based on the findings of the study. First, a majority of students rated themselves to be good or excellent on all 10 identified leadership qualities indicating that they are already playing a leadership role and/or have a potential to become successful leaders. Second, despite a majority rating themselves good or excellent, there were still a considerable percentage of students that rated themselves to be lacking in six (charisma, stability, self-confidence, ability, enthusiasm and concern for others) of the 10 leadership qualities indicating a need to address these areas as higher priority in designing course curriculum and teaching and learning strategies. Literature suggests that the 10 leadership qualities used in this study are important for a leader's performance (Manning & Curtiss, 2009; Paul, Costley, Howell, & Dorfman, 2002; Strang, 2007). Therefore, due consideration should be given to these qualities while developing leadership course curricula and selecting teaching strategies for undergraduate leadership courses.

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The Professional Development Needs of Agricultural Education Faculty in Nigeria

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Introduction / Need for Research

Teacher quality and functional education systems are pivotal to the growth and development of any nation. Globally, effective teachers are needed for the implementation of authentic learning opportunities which assist pupils in mastering the foundations they will need as productive adults. This realization has cultivated an international project designed to construct collaborate connections with agricultural educators in Nigeria. The international project was implemented to foster the development and dissemination of customized professional development workshops and resource materials for agricultural education faculty in Nigeria.

Conceptual Framework

Contextual learning theory postulates that learning occurs only when learners process and connect novel information or knowledge to their own established frames of reference (Owens & Smith, 2000). When knowledge and experiences are contextualized learners do not need to construct artificial connections between what they are learning and how it fits into their reality (Gredler, 2001). Contextual learning creates platforms for learning experiences that explicitly illustrate the relevance of the content and skills to be practiced and internalized (Karweit, 1993). The professional develop workshops and materials utilized within the current project must be grounded in the realities of agricultural education faculty in Nigeria. Further, it is imperative that the project value the knowledge and views of the participating agricultural education faculty in order to facilitate the creation of customized learning experiences and resources.

Methodology

In order to attain the project's overall purpose the following four initial activities have been undertaken: 1) fact finding; 2) consensus building and consultations with major stakeholders; 3) program-based needs analysis; and 4) development of customized up-skilling programs. The central focus of the initial four steps of the project was the development of information regarding the overall professional development needs of agricultural education faculty in Nigeria. These steps allowed the project implementers to gain a baseline understanding of the content that was most useful to incorporate within the structure of the first stage of collaborative instructional experiences to be provided to master trainers in Nigeria. Following extensive consultations with agricultural education experts in Nigeria data was collected by utilizing an online survey composed of summative rating scale and open ended items. Survey items were developed by the project implementers and all items were reviewed for content and face validity by a panel of experts consisting of three U.S. based researchers with international development experience and four Nigerian based agricultural education experts.

Results / Findings

The initial findings reveal that agricultural education faculty in Nigeria have the greatest need for professional collaboration in the following general areas: 1) instructional technology & media; 2) work-based & experiential learning; and 3) research & assessment. Table 1 illustrates specific examples of competencies for which agricultural education faculty have the greatest need for professional collaboration.

Table 1

An illustration of specific competencies for which agricultural education faculty in Nigeria have the greatest need for professional collaboration

General Area	Specific Competency
Instructional technology & media	Creating instruction or learning resource videos
Instructional technology & media	Designing and using web-based instructional materials
work-based & experiential learning	Developing articulation agreements between secondary and postsecondary institutions and worksites
work-based & experiential learning	Obtaining and sustaining active community support
research & assessment	Packaging research for international dissemination
research & assessment	Developing a system wide research framework

Conclusions / Implications

The findings of this research illustrate two central conclusions or implications: 1) collaborative instructional experiences should be designed to contextualize the following general areas within the Nigerian agricultural education context: a) instructional technology & media; b) work-based learning & experiential learning; and c) research & assessment; and 2) instruction and resource materials should capitalize on the interconnections between the specific competencies to be included in collaborative learning experiences. For example, project implementers could collaborate with agricultural education faculty to create instructional videos that demonstrate the utilization of excel for data analysis.

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The Use of Theory in Agricultural Education: A Review of JAE Articles 2007-2011

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Introduction and Theoretical Framework

Theory is an important part of the research process; researchers have a variety of ideas on how theory can and should be used in conducting and writing about research. Theories and models help specialists focus on what is changeable and the most suitable area or targets for change (Trifiletti, Gielen, Sleet, & Hopkins, 2005). Researchers should demonstrate a need for the work they are doing and agricultural education is no exception; thus theories and conceptual models are used to provide the rationale for many studies. Camp (2001) cited Kerlinger (1979) describing theory as the explanation of reality; stating that without theory, the research would lack context. Quantitative research is often done in the quest to measure components of or test a theory. Creswell (2009) wrote that quantitative research involves an inquiry into a social or human problem based on testing a theory, and determine if the predictive generalizations of the theory hold true.

Simply described, theory is “one’s understanding of how something works” (Shoemaker, Tankard Jr., & Lasorsa, 2004, p. 6). In more complex research terms, a theory is “an interrelated set of constructs (or variables) formed into propositions, or hypotheses, that specify the relationship among variables (typically in terms of magnitude or direction)” (Creswell, 2009, p. 51). Theories and models can be used to guide a researcher in the quest for reasons *why*, they can help point out *what*, and they provide insight into *how* programs and policies are shaped. Trifiletti et al. (2005) report that theories can be useful in planning, implementing, and evaluating as well as help researchers go beyond basic unchangeable risk factors. For this study, a review of the theories or models that were used in the field of injury prevention by Trifiletti et al. (2005) was applied to contemporary articles published in the *Journal of Agricultural Education*. After a review of literature from multiple disciplines, the use of theory in research writing was determined to fit into four categories for the purposes of the current study: Development/Design of a Program, Measurement of Components of a Theory, Testing of a Theory, or Other (meaning that the use did not fit the previous three categories).

Methods

“Trustworthy accounts that accumulate past research are a necessary condition for orderly knowledge building,” (Cooper, 2010, p. 1). Quantitative research methods were used to fulfill the purpose of describing frequencies related to the use of theory in articles within the *Journal of Agricultural Education* (JAE). Only articles using quantitative methodology were considered for this study because of the difference in schema for use of theory among qualitative, quantitative and mixed methods research (Creswell, 2009). The researchers coded the articles into categories utilizing the framework of Trifiletti et al. (2005): 1) Program Development/Design, 2) Measurement of Components/Variables, 3) Testing of a Theory, and 4) Other. To establish reliability, an extensive discussion ensued to define each code as applicable to agricultural education research five articles were then coded by four researchers to develop a more concise coding scheme. An inter-reliability rate of 80.53% was established among the four researchers after coding all articles using exclusively quantitative methodology from two issues of the JAE. The majority of the discrepancies were related to one coder’s interpretation of the coding scheme that was rectified after the two-issue inter-rater reliability check. Each researcher was then assigned a complete year of JAE articles to code. The most recent five years of JAE articles were selected to provide an overview of how theory is being utilized in contemporary research within agricultural education. Data were analyzed and reported by frequencies and percents.

Findings

The researchers analyzed a total of 164 articles over a five-year period starting with the first issue from the JAE in 2007. The area categorized as *program design* yielded 1.22%, proving the least common use of theory across all 5 years. *The tested* category yielded 11.59%, coming up as the second least common use of theory as

a whole. *Other* yielded 28.05%, also of note is that all instances of usage that did not fit into one of three clearly defined categories utilized theory for rationale of the study. The most common use of theory across all five years and as a whole was *measurement*, yielding 59.15%, of the articles. Table 1 displays the usage of theory disaggregated by year.

Table 1
Use of Theory in JAE Quantitative Articles from 2007-2011

Use category	2007		2008		2009		2010		2011	
	<i>f</i>	%								
Program Design	1	3.23	0	0.0	0	0.0	1	2.78	0	0.00
Measurement	23	74.19	24	58.54	18	52.94	20	55.56	12	54.55
Tested	4	12.90	3	7.32	4	11.86	3	8.33	5	22.73
Other	3	9.68	14	34.15	12	35.29	12	33.33	5	22.73
Total Articles	31	100	41	100	34	100	36	100	22	100

Implications

An important limitation to this study is that the researchers did not analyze *proper* use of theory; there was not a judgment made at that level. Through this five-year review quantitative JAE articles, it is evident that theory is widely and commonly used in agricultural education research. Patterns emerged related to use category of theory, indicating that the culture of agricultural education promotes the dissection of larger theories and concepts in order to examine and measure various components. When one measures variables, this implies a descriptive nature or intention to our work in agricultural education. Does this use of theory match with purpose of these studies? Also, the increased prevalence of the “other” use category, in which all researchers were using theory or concepts to provide a rationale for a study is an interesting development. Authors in the field of theory did not describe the use of theory to rationalize a line of inquiry. Is the use of theory to rationalize a study a valid use? The researchers anecdotally observed that authors are often not very clear in conveying how particular theories were utilized in a study, regardless of how descriptive of a definition of the theory was provided.

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Using SWOT Analysis to Facilitate Self-directed Learning in an Undergraduate Agricultural Leadership Class

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Introduction and Conceptual Framework

Instructors are looking for ways to help meet students' learning needs. One way to meeting students' needs is to facilitate conditions that help them become self-directed learners, as learning is a life-long process extending beyond the confines of the classroom. Self-directed learning leads to a deeper level of learning that lasts long (Knowles, 1975). Knowles stated that the capacity for self-directed learning should be nurtured as quickly as possible, indicating the importance of designing the teaching and learning process at college/university level in a way they promote self-directed learning. Coleman (1999); Litzinger, Wise, and Lee (2005); Yuan et al. (2011) pointed out the utility of self-directed learning to undergraduate students. Of the strategies available to facilitate self-directed learning, SWOT analysis is a simple yet powerful tool. Nicholls, Thoburn, Crecy, and Smart (2008) stated that engaging students in SWOT analysis will help facilitate self-directed learning.

SWOT analysis is used to analyze the strengths, weaknesses, opportunities and threats in a variety of settings like business organizations (Dyson, 2004), educational institutions (Rund, 2008) and also at an individual level for students (Nicholls et al.). SWOT analysis is useful in formulating strategies (Dyson). Techniques like resource-based planning, competency-based planning and scenario planning have roots in SWOT analysis (Dyson). This study was conceptualized based on the tenet of SWOT analysis leading to self-directed learning, and was carried out with students in an undergraduate agricultural leadership course. The purpose of the study was to identify undergraduate agriculture students' perceived strengths, weaknesses, opportunities and threats regarding their future career goals. The data obtained from this study will be used to improve teaching and learning processes in the undergraduate agriculture leadership course.

Methodology

The Institutional Review Board at the ["university"] approved this study. All the students of an agricultural leadership course offered by the Department of Agriculture in the spring 2011 semester ($n=50$) served as the research sample. Case examples of SWOT analysis were discussed in the class, and these students were asked to use SWOT analysis as a tool and identify their perceived strengths, weaknesses, opportunities and threats regarding their future career goals. Each student conducted his/her SWOT analysis on his/her career goals and orally presented to the rest of the class. Each presentation was video recorded and the contents were scrupulously analyzed. Content analysis is a suitable analytical tool to analyze recorded information (Colorado State University, 2011). The video tapes were watched for frequently occurring concepts (Colorado State University). The data were fed into MS Excel Spread Sheet and analyzed by frequencies.

Results and Discussion

All 50 students participated in the study and provided their inputs. Of the 50 respondents, 66% were male. Seventy percent were at junior level of their undergraduate education followed by 22% seniors and an equal number of freshmen (4%) and sophomores (4%). All respondents were in the age group of 19 to 23 years. Students identified 62 strengths, 58 weaknesses, 45 opportunities and 36 threats. The most commonly identified strengths included: farm experience (40%), their education background (36%), internship experience (28%), and hard working nature (22%), whereas the most commonly perceived weaknesses included: procrastination (24%), distractions (20%), financial problems (16%), lack of technical knowledge (12%), and difficulties in decision making (10%). For opportunities, these students identified: networking (34%), family farms (26%), internships (22%), education at the ["university"] (16%), and availability of jobs upon graduation (16%), whereas for threats they identified competition from peers for jobs (44%), economic problems (36%), market costs to start a new business (22%), and competition from farmers (18%) as threats to achieving their future career goals.

The results were overall in line with Nicholls et al., (2008) who stated that in a SWOT analysis, strengths and weaknesses relate to internal or personal factors whereas opportunities and threats relate to external or extraneous factors. Students from this study overall followed this trend by identifying factors such as their personal experiences, hard working nature, their education as strengths, and procrastination, distractions, lack of technical knowledge as weaknesses. Further, they adhered to this trend by identifying external factors such as networking, family farm, jobs as opportunities, and peer competition for jobs, economic problems as threats.

Conclusions, Recommendations and Implications

Two conclusions were drawn based on the findings. First, the SWOT analysis exercise seems to have stimulated students' thought processes, and helped assess and analyze their own situations in a systematic way. Secondly, SWOT analysis appears to have facilitated self-directed learning in students. Students' self-awareness of their own strengths, weaknesses, opportunities and threats was believed to have increased based on the large number of strengths, weaknesses, opportunities and threats identified by the participants in this study. Awareness of strengths and opportunities provides a boost to their confidence while awareness of weaknesses and threats highlights areas that they need to improve upon.

This study has implications for both students and instructors. At students' level, SWOT analysis helps promote self-directed learning as they analyze their own situations, and make strategic decisions to achieve their career goals. Students should be encouraged to interact and discuss with their peers and consult instructors for further feedback on their SWOT exercise. These SWOT results were presented and discussed in class. By such an exercise, instructors may gain an overall understanding of their students' backgrounds, interests and skill levels; and design their teaching and learning projects/activities to help facilitate self-directed learning.

The results from this study also have implications for career and financial counseling services at colleges/universities as some of the identified weaknesses and threats are related to financial concerns and jobs that can be best addressed by these services rather than course instructors. The identified strengths, weaknesses, opportunities and threats will be developed into a systematic questionnaire to collect data from a larger undergraduate population to gain more insights that would inform teaching, learning and advising processes. Similar studies should be conducted with undergraduate students from other majors and colleges for further comparisons and application.

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Innovative Idea Posters

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2011 NC-AAAE Poster Proceedings

Developing Alternative Agriculture Projects for Secondary Programs in Virginia

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Need for the Innovative Idea

As the United States has gained in wealth and population, the increase is not present in many rural areas of the United States. "Counties largely dependent on farming have been much more likely to lose population than other counties." (McGranahan & Beale, 2002, p. 11). McGranahan and Beale (2002) state that these rural counties will either develop recreational opportunities as a tourism business or they will have to develop infrastructure to support large scale commercial agriculture. Failure to provide the services that either community requires will result in a further loss of population for rural counties (McGranahan & Beale, 2002). The population loss has been attributed to the lack of available economic opportunities to people that live in these areas (Howley et. al, 2009). The communities in rural areas have a much older population than the national average, the young people in rural areas tend to move to cities to find educational and employment opportunities (Howley et. al, 2009). Once the rural youth move away, they almost never return to their home rural community (Strickler, 2008). What is worse, the rural young people that receive college degrees are most likely to permanently leave to never return (Howley et. al, 2009). If these young people do remain in rural areas, they are seen as resigning themselves "to a life short of one's potential" (Burton, 2011, p. 113). Sadly, parents accept that it is inevitable that their children will leave the rural community if their children are to achieve success.

This trend has not always been the case; at one time rural youth that attended colleges would return home to take positions on the family farm or jobs in nearby towns (Howley et. al, 2009) The trend of population loss and persistent poverty can be reversed when capable young people "decide to seek or create employment opportunities for themselves in their rural communities" (Howley et. al, 2009, p. 517). Funding alternative agriculture projects in local secondary schools are one way to create an option to create employment opportunities for rural youth. Alternative agriculture is defined as multiple types of agricultural production that include goals such as reducing chemicals, smaller farm sizes, efficient use of technology, more direct-to-consumer sales, lower energy costs and greater self-sufficiency (Beus & Dunlap, 1990).

How the Program Works

The agricultural education department, along with Virginia's Department of Agriculture and Consumer Sciences and Virginia Cooperative Extension's Community Viability Fund, provided money to develop alternative agriculture programs in secondary agriculture classrooms. The proposed concepts included the addition or production of an agricultural crop or service which is not currently produced in the local county of the secondary agricultural education program applying for the grant. Each of the programs selected received \$3,000 - \$9,000 that they are using to develop an alternative agriculture crop in their local program. The awarded amount requires a match by the secondary school program. The match could include inputs related to salaries, school district funds committed to the project, student hours devoted to the project outside of normal class times and the purchase of goods and other services that will be used with the grant. The crop or service implemented should aim for long-term sustainability; therefore the alternative agriculture product should have the opportunity to earn money for the secondary school agriculture program. The grants allow for the increase of Supervised Agriculture Experiences (SAE) and student Agriscience fair projects related with the offered alternative product or service. The schools were required to enter SAE proficiency applications and FFA agriscience projects based upon the grant to show evidence of student involvement. Recipients of the grants were required to report on their individual projects to they could be replicated in other secondary schools throughout Virginia. Teachers were required to provide lesson plans, support materials and photographs of the project to help with the replication of the grant. Support from local school districts was required and was secured through letters of support from the school principals, career and technical education directors and the district superintendents.

Results to Date

Five schools were awarded grants in the Alternative Agriculture program, and each program is in process of developing their own individual crops or animals to be raised for profit in the program. Each of the programs has been able to accomplish some early successes prior to their first harvests. The first school built two high-tunnel greenhouses, one purchased with the grant and the other with matching funds from the school district. The high tunnels are being used for raspberry and blackberry production. The second school also has a purchased a high-tunnel greenhouse for raspberry production. Both of these two schools were able to receive free strawberries due to an ongoing extension project within the state. The third school developed specialty potatoes grown in raised beds. The project has allowed for the construction of five different types of materials used for construction. The fourth school raised greenhouse tomatoes in their new school greenhouse. The tomatoes are being grown within the structure and will be able to provide locally-grown, out-of-season tomatoes. The fifth school was able to build a fillet station room next to their existing tilapia operation. The school system, seeing the benefits of the added grant funding agreed to construct a new aquaculture facility that will be three times the size of the current operation. The building was finished by summer 2011.

Future Plans

The schools participating in the grants are actively taking part in a major research study outlining the benefits and shortcomings of developing alternative agriculture programs at secondary schools throughout the state. The department will continue working with the schools to create materials that will be shared with the state's other programs, hopefully encouraging them to participate in similar projects.

Costs

A total of \$30,000 in grants, ranging from \$3,000 to \$9,000 each, was awarded to five schools in spring of 2011. The \$30,000 was not the only input; money was needed to pay for one faculty member's summer employment, one graduate student assistantship, money for travel between the schools and money to help pay supporting personnel who were conducting school visits. The overall cost of the program is estimated at \$150,000.

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Development of a Checklist to Ensure Data Quality in Theses and Dissertation Research

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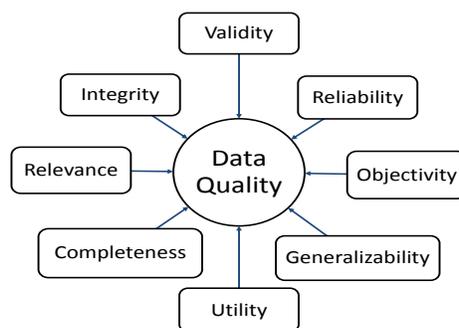
Introduction/Need for Innovation or Idea

The main purpose of ensuring quality in theses and dissertation research is to present information that is credible. Such research follows research protocols, conducted in an ethical manner, and withstands the test of scrutiny by reviewers. Data quality is generally understood to be the degree to which data, including research processes such as data collection and statistical accuracy meet the needs of users (Vale, 2010). Among the critical aspects to consider when assessing data for quality are relevancy, validity, reliability, objectivity, integrity, completeness, generalizability and utility. Ensuring these critical aspects of data quality in theses and dissertations are of paramount importance if we are to prepare students for scholarly work and to conduct research based on sound methods.

The overall purpose of this poster is to develop a checklist for graduate students and faculty to use to ensure data quality in theses and dissertations. First, key components of data quality as reported in the literature and the experiences of the authors are documented. Second, a definition for each of the components is provided so that everyone understands what these components are in the research context and how they should be carried out to ensure data quality. And third, based on the information gathered, a checklist for ensuring data quality was developed.

Definition of data quality varies from discipline to discipline based on relevance, importance, and user needs. Keeping in mind a broad definition for agricultural and extension education, the following eight data quality components were identified. See Figure 1.

Validity refers to the “closeness between the values provided and the true values” (Organization for Economic Cooperation and Development [OECD], 2003, p.7). Careful development and field testing of the questionnaire provides a basis for validity. Development of the questionnaire based on previous studies, ongoing review by a panel of experts and the thesis committee, and carrying out a readability test makes the case for construct, content, and face validity. *Reliability* is determined by the degree to which measurements are similar (consistent) on repeated measurements (Centers for Disease Control, 2009). Careful wording of the instrument and pilot testing the instrument with subjects not included in the sample and a high percentage of usable instruments provide evidence for reliability.



Objectivity of data means that conclusions are based on statistically sound methods (Guba and Lincoln, 1981; Guba, 1981). Careful analysis of assumptions/hypotheses/objectives/research questions and use of appropriate statistical procedures and results provide evidence of objectivity. *Integrity* is concerned with minimizing errors through the process of collecting, recording, and analyzing data (CDC, 2009). *Relevance* refers to the degree to which data are important to users and their needs (OECD, 2003; Vale, 2010). *Generalizability* is concerned with sound sampling procedures that yield a sample very similar to the

population on key variables (Guba & Lincoln, 1981; Guba, 1981) and follow-up with non-respondents (Radhakrishna, 2008; Miller & Smith, 1987). *Completeness* refers to handling of the number of missing values that exist in a given dataset (CDC, 2009). Finally, *Utility* includes aspects of timeliness (data collected in a timely manner so that data maintain their relevance to their users), punctuality (release of data), and accessibility (ways in which data are made available to the users).

Result - Development of a Checklist

Based on the information gathered and our experience in reviewing theses and dissertations, a checklist was developed. A sample checklist for the *Relevance* component and instructions are provided below. Please indicate the extent to which these components are addressed in a thesis/ dissertation proposal by recording a score of 4, if it is addressed; 3, addressed, but needs improvement; 2, partly addressed, requires major revisions; 1, not addressed at all; and 0 if it doesn't apply.

Please provide suggestions and/or comments (in the box below) if any of the statement are rated 3 or below.

	Proposal Stage	Defense Stage
Relevance		
1. Need for conducting the study	<input type="checkbox"/>	<input type="checkbox"/>
2. Study need based on gaps identified in literature	<input type="checkbox"/>	<input type="checkbox"/>
3. Addresses a significant issue related to Ag & Extension Education	<input type="checkbox"/>	<input type="checkbox"/>
4. Timeliness of the study	<input type="checkbox"/>	<input type="checkbox"/>
5. Study's impact on the profession	<input type="checkbox"/>	<input type="checkbox"/>

We are in the process of using this checklist with theses and dissertations and we have asked faculty to use this checklist as they review proposals. In addition, we have asked students to include data quality aspects in the methods chapter of their thesis or dissertation. A sample template appropriate to include in a thesis follows:

Aspect of Data Quality	Was it a Threat?	If Yes, measures taken
Relevance	No	-
Integrity	Yes	Interviewers trained; dataset reviewed for mistakes
Objectivity	Yes	Assumptions of normality tested; scales of measurement considered and treated accordingly

Future Plans and Advice

Ensuring data quality in all research, including theses or dissertations is critical to answering the purpose and methodological rigor questions. Graduate students as well as faculty teaching research methods and data analysis courses will find the checklist and template useful. Detailed checklist and the template will be made available during the poster presentation. Careful attention to these data quality components will not only help reduce errors but also help research stand up to the critical review and scrutiny of reviewers, committee members, and faculty. Further, the approach we have taken will inform graduate students of what it takes to conduct scholarly research that withstands professional scrutiny.

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Enhancing STEM Learning Experiences Through Advanced Life Science (ALS) Courses

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Introduction

As the agriculture industry shifts to more scientific careers, the need for agricultural education programs to integrate science into the curriculum is at an all-time high. In addition, the [State] educational standards and graduation requirements, as well as college entrance requirements, have placed overwhelming pressure on school systems and educators to incorporate more rigor into their educational programs. The result is that there is less time for students to participate in elective courses (Thompson, & Balschweid, 1998). Also, due to a decreasing number of opportunities available for students to take elective courses, it is becoming more important for agricultural education programs to find a way to make the courses in their program more appealing. The need for traditional agricultural education programs to change is also apparent, and if a change towards more rigorous academic integration is not achieved, agricultural education programs risk becoming irrelevant. The ability of agriculture programs to offer their courses as science credit is one strategy that has been used to help programs remain relevant in the changing educational landscape. In [State], the ALS courses were created to give students the opportunity to learn complex science topics in a more relatable format utilizing animal science, plant & soil science, and food science. Balschweid and Huerta (2008) found that “teaching biology using animal agriculture as the context was effective for helping students appreciate and understand science better than traditional methods of teaching biology” (p. 18). Not only are students being given the opportunity to learn difficult science concepts contextually, they also have the opportunity to apply science concepts previously learned while receiving science credit towards any high school diploma. Overall, “the pursuit to integrate science into agriculture programs could improve the image and quality of programs while meeting the needs of a rampant changing industry” (Thompson, 1998, p. 77).

Innovativeness of the Advanced Life Science Program

Thompson (1998) stated that by integrating rigorous science into the agricultural education program, students will see academic courses as more relevant as well as demonstrate higher academic achievement. The ALS courses addressed Thompson’s recommendations through its focus on life science concepts through the components of “college preparation and inquiry-based learning all while utilizing the context of animal science, food science, and plant & soil science” (Authors, 2009). The ALS courses utilize labs and student-based teaching approaches that assist students in developing their science skills while using agriculture as a context to teach science, technology, engineering, and mathematics (STEM). By utilizing labs and a variety of teaching methods, students are able to acquire science credit towards any [State] academic diploma. In addition, the College of Agriculture at the [State] University has three courses that are linked with the ALS program, ALS: Animals, ALS: Plants & Soils, and ALS: Foods courses that are eligible for dual credit. If a student successfully completes the ALS course material and ALS dual credit exam, students will receive dual credit to apply towards a postsecondary degree. The dual credit earned through the University looks favorably towards college admission and can be transferred to other academic institutions if a student chooses not to attend the [State] University.

Results to Date

Through the ALS courses, students are better prepared to meet the rigors of a changing agricultural industry. Balschweid, Thompson, and Cole (1998) note that “students taught by integrating agriculture and scientific principles demonstrated higher achievement than did students taught by traditional approaches” (p. 3). This is due, in part, because students have the opportunity to learn in a more contextually-rich instructional environment; therefore students gain a better understanding of complex scientific concepts. The ALS courses have also provided opportunities for students to earn science credit towards their high school diploma as well as dual credit **towards a postsecondary degree**. Finally, the ALS courses have attracted students of diverse

backgrounds that would not normally enroll in agriculture courses. This is important considering that “appealing to a broad audience with various motives for enrolling in agriscience courses should be a driving force of agriculture programs (Balschweid, Thompson, & Cole, 1998, p. 3).”

Future Plans

To ensure that high school teachers are adequately prepared for teaching the ALS courses, [State] University requires a summer ALS training workshop. However, because of time constraints prohibiting teachers from traveling during the summer, an alternative distance training program is being developed. By utilizing a variety of training methods, it is anticipated that there will be an increase in the overall growth of the number of teachers teaching the ALS courses.

Costs and Resources Associated with Developing the ALS Courses

The costs and resources that were associated with developing the ALS courses included:

- The summer ALS training workshop for teachers.
- The development of the ALS distance training program.
- The cost of the reviewers for the ALS academic standards during course development.
- The cost of lab kits for the initial implementation of the ALS courses in select high schools across the [State].
- The cost of printing the ALS posters and brochures for marketing of the program.
- The cost of the outsourcing of the ALS standards to an external company for the development of curriculum lesson plans for the ALS courses.
- The costs of utilizing a nationally approved curriculum assessment system for enhanced student evaluation.

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Facebook as an Educational Tool in an Agricultural Communications Course

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Introduction

Traditional approaches to teaching and learning are quickly losing their ability to challenge, motivate, and engage students in ways that are compatible with their digital lives in a techno-centric society (Roth, 2009). The current student generation has grown up in a technologically rich world, using mobile phones, chat rooms, email, computer games, listening to music and watching television and videos, often simultaneously as part of their social engagement (McMahon & Pospisil, 2005). Students today spend a majority of their time accessing social networking sites (SNS) that they use to connect with friends all over the world.

Facebook is a SNS that has more than 500 million active users and 50% of active users log on to Facebook everyday (Facebook, 2011). Facebook is one of the most popular SNS for college students and was by far the one website that helped “tip” SNS into the mainstream culture (Roblyer, McDaniel, Webb, Herman, & Witty, 2010). With the increased interest held by students, some educational experts have begun looking into introducing Facebook into their curriculum as an educational tool. Reuben (2008) argued that there is great potential in education for Facebook. This innovative idea examined the impact of Facebook as an educational tool on student performance in an agricultural communications course.

How it Works

At the beginning of the semester, every student in the course is encouraged to join the Facebook group that is created by the instructor for the course. Students were notified that there was no penalty or incentive for joining the group and that they can join at any time during the semester. Throughout the course of the semester, the Facebook group page was used as a vehicle to provide students with instant feedback on course work and presentation grades (sent through private messaging). The group page also was used to post course reminders (e.g., chapter readings), dues dates (e.g., peer evaluation form due dates), and allowed students to post links to additional resources. The group page also served as a communication tool that was used to address student questions about topics that were discussed in class. The syllabus for the class and other documents such as rubrics were accessible to the students through the document uploading feature.

Additionally, a video library was uploaded to provide students with examples of presentations that they would have to perform in class. Students were given the option to leave the group at any time (with no penalty). The instructor and teaching assistant (if available) served as administrators for the group. Students were informed that any vulgar language or inappropriate pictures posted to the group site would not be tolerated. Other features of the Facebook group were the poll/survey option in which the instructor could post questions for quick student response. Online chats can also be arranged with all group members.

Results to Date

There were a total of 37 students enrolled in the course. The researchers discovered that a majority (20) of the students did join the Facebook group. The researchers did observe that those students who were members of the Facebook group had better classroom relationships among other group members. It was also observed that, because of the increase use of smartphones and other Internet-ready devices (e.g., I-Pads, eReaders, computer tablets, etc.), course information was available at any time. Students indicated that they were more successful in the course because of their ability to stay updated on the course information while being on a website (Facebook) that they enthusiastically use as compared to other instructional-dedicated sites such as WebCT and eCampus. The Facebook platform also allowed larger files to be uploaded as compared to eCampus. This was a crucial consideration for the video library.

Future Plans

Participants of the study suggested that this tool should be used as an educational tool in the future for the course. Participants also agreed that having a similar Facebook group for other courses would have been beneficial for their success. Overall, the students felt that the use of the Facebook group as an educational tool was beneficial. Due to the student response to the integration of Facebook as an educational tool and their academic performance, the Facebook group will be used again during the next course. Future research plans include developing an instrument to assess the impact that the Facebook membership had on test scores, attendance, and in class presentations.

Resources Needed

Internet access (provided by the university).

Facebook account (free)

A Facebook group (created once the user has created an account). Allow only members of the course (through invitation) and teaching assistants to have access to the group.

Minimal knowledge of creating special groups within social networking sites.

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Green Welding...Utilizing the VRTEX 360 to Reduce Our Carbon Footprint

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Introduction

“Thanks to a global boom in industrial manufacturing, skilled welders are in greater demand than ever” (Brat, 2006, p.1). Since the demand for skilled welders has increased the need for more advanced training facilities and equipment is a necessity. With the increased amount of welder training raises a problem. This problem is the amount of waste that is accrued throughout the training process. There are multiple forms of waste that include metal, electrodes, gases, and electricity as well as the release of toxins during the welding process. In an effort to keep our environment healthy we must find a way to combat this carbon based waste.

The solution to this problem of welder training is to initiate the use of a green welder, the VRTEX 360™. The VRTEX™ 360 is a Virtual Reality Arc Welder produced by Lincoln Electric. This machine puts the operator in a virtual reality welding simulation that can be used to train the welder for Gas Metal Arc Welding (GMAW), Shielded Metal Arc Welding (SMAW), and Flux Core Arc Welding (FCAW). With a virtual reality welding simulator the carbon foot print left by traditional welding processes will be drastically reduced.

How it works

The VRTEX 360™ welding simulator is a computer based training apparatus used to train beginning welders prior to operating an actual welder and throughout the training process. Placing the operator into a simulated environment to practice their welding technique before welding reduces the production of waste of traditional training techniques. One program utilized by the VRTEX 360™ called the weldometer, tracks the material usage and verifies the cost and savings of consumable materials that the student would have utilized while welding. The consumable materials that are associated with the welding process include metal used, gases consumed, and electrodes utilized.

This program uses five welding coupons in the shape of Flat, Tee, Groove, 2” pipe, and 6” pipe. The use of these five welding coupons alone will cut down on the waste metal material that would have been utilized in the training of a skilled welder, thus reducing the carbon foot print left behind from the traditional welding training process. The coupons can be utilized in four different positions, which are flat, horizontal, vertical, and overhead. The program utilizes a traditional welding helmet that has been retrofitted with virtual reality goggles and ear buds. This allows the welder to see and hear everything that is happening just like if they were welding. The program also utilizes a realistic puddle simulation to help tie in the entire virtual reality simulation together.

The VRTEX 360™ utilizes a program called Weld Tracker. This program allows for instant feedback to the welder, which increases the learning curve of the welder. Within this program the welder can see their performance on specific indicators that affect their weld. Some of the indicators that can be analyzed are arc length, travel speed, and travel angle. With the instantaneous feedback from the program the welder can quickly utilize this information and fix any problems they have, thus reducing the amount of wasted metal, gas, and electrodes being used by the welder. The other aspect of this program is the ability to track a welder performance from start to finish during the training program. The ability to track performance of the different welding indicators from one weld to the next will show areas that need improving.

The utilization of a virtual reality welding simulator also creates a safer environment for the welder to practice and hone their skills. Some safety concerns for welders include the exposure to welding fumes created by the welding process. There are different pollutants in welding fumes, but one that can cause death after prolonged exposure is carbon monoxide. The carbon monoxide pollutant can be “found in fumes of SMAW, GMAW, and FCAW” (Balchin, 1993, pp.160-161) welding processes. This is the reason welding facilities utilize ventilation systems, to reduce exposure of welding fumes to the welder. With the virtual reality welding simulator there

is no risk of exposure to these harmful fumes that are created, and also reduces the amount of carbon released into the atmosphere from welding training.

Results to Date/Implications

[STATE] University offers one agricultural mechanics course that covers construction, electricity, small engines, and welding skills training; thus allotting roughly four weeks for each skill area. The students enrolled in the spring 2011 course utilized the VRTEX 360 prior to the welding section of the course. The students had positive feedback regarding several variables associated with the machine; however, they did indicate the need for access to the machine throughout the welding process. The feedback from the students led the department to recently purchase a VRTEX 360 to assist in the training of pre-service agricultural education teachers and reduce the department's expenditures on welding consumables. The VRTEX 360 will also be used for in-service welding workshops and other training opportunities hosted by the department.

Future Plans

A research project has been designed to be implemented in the Fall 2011 course measuring the consumables utilized by a control group that does not use the VRTEX 360 for training purposes compared to a test group that will utilize the VRTEX 360 as a training aid. Data collected from the weldometer will also be reported to track "virtual" consumables used.

Costs/Resources Needed

The faculty in Agricultural Education department applied for and received funding from the University's student technology fee grant. The university was able to purchase the unit for \$45,489.00. A one-year software upgrade for \$7,440 is optional. The researchers also recommend storing the VTREX 360 in a clean, and temperature controlled environment.

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Improving Financial Planning and Management

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Introduction

Economic cycles in the United States have historically reflected normal ebbs and flows of production and consumption, which have become closely linked with the global economy. Although most acknowledge that the dynamics of an ever-changing global economic climate are beyond the control of individuals; each person is responsible for their own personal economic well-being. Decisions made by individuals often have far-reaching and long-lasting effects on their disposable income and how they spend their money. Ultimately, it is the personal decisions about spending and saving that are the primary determinants of an individual's economic well-being, now and in the future. Therefore, it is vitally important for each and every person, beginning at an early age, to have a basic knowledge of personal financial planning and money management, which has lifelong implications for their standard of living and economic welfare.

Over the past several years, several reports have indicated that U.S. consumers are trending toward more negative savings rates (i.e. spending more than they earn), higher rates of bankruptcy, and less knowledge of basic principles of financial planning and management (Bernheim, 1994; Lusardi, 2001; Willis, 2008). Based on these trends, several states have adopted policies leading toward educational efforts to help prepare young people, primarily school-aged populations, to become better informed about financial matters and the far-reaching importance of financial decisions they will face in the future. Coincidentally, 18 states and one U.S. territory have mandated financial literacy education in secondary schools in recent years (Jumpstart Coalition for Personal Financial Literacy, 2008b). Specifically, the Ohio legislature revised the state's high school graduation requirements to include the study of economics and financial literacy (126th Ohio General Assembly, 2006). The new guidelines require the preparation of high school students who are able to: (1) explain the use of a budget in making personal economic decisions and planning for the future; (2) explain why incomes will differ in the labor market depending on supply and demand for skills, abilities, and education levels; (3) explain the role of individuals in the economy as producers, consumers, and savers, workers, and investors; (4) explain the consequences of economic choices made by individuals and the tools that can be used to manage financial resources including budgets; savings; investments; credit; and philanthropy; and (5) describe how interest rates affect savers and borrowers.

On a national level, the United States Government Accountability Office (2004, summary page) reported that ". . . research has shown that many Americans lack the knowledge of basic personal economics they need to make informed financial judgments and manage their money effectively . . ." Specific emphasis was placed on the need for personal instruction, and including financial education in school curricula. It was also recommended that financial education be delivered at teachable moments when the information was most directly applicable to a person's life. This project was conducted in response to that call by developing instructional materials tailored to young people with a career interest in agriculture.

Methods/Procedures

This research was conducted as a multiple site case study to evaluate the effectiveness and utility of the financial planning and management instructional resources developed in the project. Development of the instructional resources was initiated by identifying priority topics to address. Several existing resources were examined including high school personal finance textbooks, the *High School Financial Planning Program* (National Endowment for Financial Education) and the *Financial Fitness for Life* (National Council for Economic Education) program.

Instructional resources (including lesson plans, PowerPoint™ presentations, student learning activities, assessments, etc.) were created for eleven different financial planning and management topics. Lessons topics included: (a) introduction to financial planning and management, (b) wants, needs and SMART goals, (c)

short, intermediate and long term goals, (d) budgeting and cash flow, (e) paying yourself first, (f) credit history and ratings, (g) loans and interest, (h) credit cards, (i) investment basics, (j) taxes, and (k) insurance. Each lesson included subject matter content that was adaptable for 9th through 12th grade students with an emphasis on building financial capability and financial decision making.

Agricultural education teachers who had been selected and agreed to participate in the field test attended an orientation workshop held in conjunction with a professional development conference in June, 2010. Workshop instruction outlined the subject matter content and lesson plan format. In addition, field test teachers were provided with information about the need to collect feedback regarding the quality and usefulness of the instructional resources. Each field test teacher was assigned two of the eleven lessons on which to provide in-depth feedback, and was asked to complete a lesson plan feedback scoring rubric with comments for each assigned lesson. Lesson plans were modified based upon teacher feedback after the field test. Field testing was completed by 11 secondary agricultural education teachers and 192 students.

Pretest and posttest knowledge examinations were administered at each field test site to measure student knowledge. Identical questions were used for the pretest and posttest examinations. The examination included 26 multiple choice and 4 matching test items with a total possible score of 30. Field test teachers scored the exams and sent the results to the researchers without student names in order to protect their confidentiality.

Findings/Results

Based on lesson plan feedback rubrics, 95% of field test teachers reported that they would teach the financial planning and management lessons in their program. Student knowledge of financial planning and management concepts was measured based on a 30 question pretest posttest differential. Student knowledge of financial planning and management concepts increased 44%. Students scored an average of 15.69 correct answers on the pretest and 22.62 on the posttest. Secondary agriculture education teachers rated most lesson components as "Outstanding" (M= 8.90), on a scale of 0-10.

Advice to Others

Secondary agriculture education teachers are encouraged to teach financial planning and management lessons. A recognized lack of knowledge and instructional resources led to the development of the financial planning and management lessons developed through this project. Secondary agriculture education teachers have historically not been required to teach personal financial planning and management and many appear to lack knowledge and confidence to teach in the area. It is recommended that professional development workshops be provided to secondary agriculture education teachers to enhance their capacity to teach financial planning and management.

Costs

Development costs for the financial planning and management lessons were funded by a USDA Secondary/Two-Year Postsecondary Agricultural Education Challenge Grant. The lesson plans will be accessible to agricultural educators without charge at the National FFA Organization web site.

(<https://ffa.learn.com/learncenter.asp?&id=178409&page=96>)

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Introducing Inquiry-Based Instruction to Agriculture Teacher Candidates

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Introduction

STEM (Science, Technology, Engineering, and Math) is a call to action from the Obama administration to integrate scientific inquiry, problem-based instruction, and hands-on applications into all K-16 science education. In fact, federal funding under Race to the Top prioritizes STEM programs (Prabhu, 2009). Due to Inquiry-based-instruction emphasis on active, transferable learning and its potential for motivating learners Inquiry-based-instruction (IBI) is rising in popularity as a teaching strategy necessary for the preparation of agriculture teacher candidates. As agriculture educators abroad are faced with the challenge of incorporating science, math, reading, and writing in their everyday instruction, many have focused on implementing inquiry based instruction into their classrooms to improve student achievement in these areas (Parr & Edwards, 2004).

Inquiry based instruction often represents a new, different, and complex classroom situation for teachers and students (National Research Council, 1996). Instead of direct instruction, inquiry-based learning is a student-centered, active learning approach focused on questioning, critical thinking, and problem solving (Colburn, n.d.). Inquiry-based learning activities begin with a question followed by investigating solutions, creating new knowledge as information is gathered and understood, discussing discoveries and experiences, and reflecting on new-found knowledge. Inquiry-based learning encourages a hands-on approach where students practice the scientific method on real problems (Savery, 2006).

Inquiry-based instruction and problem-based learning (PBL) are very similar. Problem-based learning is a teaching strategy that is learner-centered. The goal of problem-based learning is to allow learners to conduct research, integrate theory and practice, and apply knowledge and skills to develop a practical solution to a defined problem (Savery, 2006). In this approach the teacher supports the process and expects learners to make their thinking clear, but the teacher does not provide information related to the problem (Savery, 2006). The primary difference between problem-based learning and inquiry-based instruction is the role of the teacher. In inquiry-based instruction, the teacher facilitates learning through questions, allowing students to arrive at concepts themselves. Students determine what is needed to learn, identify resources, use those tools and can recognize progress (Colburn, n.d.).

Today's students will enter a job market that values skills and abilities far different from the traditional workplace of the past. They must be able to collect, synthesize, and analyze information, then conduct targeted research and work with others to employ that newfound knowledge. In essence, students must learn how to learn, while responding to endlessly changing technologies and social, economic, and global conditions.

How it Works

All teacher candidates are required to complete the "Methods of Teaching Agriculture and Environmental Science" Course with a final grade of "C" or higher in order for certification and to be released to student teaching. Course is primarily built upon authentic contextual application of topics learned in laboratory settings. Six sessions were dedicated to the Inquiry-Based Instruction (IBI). The **first session** of 120 minutes included introducing the concept and the role the teacher plays. During this session, students were randomly assigned a LAB-AIDS Applied Science Concepts Kits and informed that they would be responsible for transforming the materials to IBI instruction which they would facilitate in one week. The **second session** involved a field trip to a local secondary agriscience program to observe a National Agriscience Ambassador lead an IBI lesson in the topical area of agricultural mechanics. The **third session** provided for a guest panel interaction with the state's National Agriscience Ambassador Teachers providing instruction using the IBI

approach. The students participated in the learning activities as well as noted the approach taken and techniques used by the Ambassadors. The **fourth and fifth sessions** provide the opportunity for application for teacher candidates to present a “slice of time” of thirty minutes of their IBI lesson using their Lab-Aids materials. Each teacher candidate was video captured for their use and provided peer evaluation of instruction. During the **sixth session**, students submitted their written personal reflection from viewing their video and participated in group reflection sharing their frustrations, concerns, suggestions, and accomplishments. All comments were recorded and taken into account for future improvement of the instruction sequence.

Results

During the group reflection, the teacher candidates were very helpful in expressing their feelings about inquiry based instruction. Thoughts on how the sequence could be improved, where there was a disconnect in the learning process of what inquiry based instruction is, and the struggle discerning the difference between inquiry based instruction and the problem solving approach. At this point in time, the teacher preparation program would only claim an increased awareness of the Inquiry-Based-Instruction by teacher candidates with hope of increasing proficiency through the new and beginning teacher program.

Future Plans

Upon return from the student teaching experience, candidates will participate in a regional student teacher conference and revisit the IBI process. As with most things, future plans to increase comfort level and proficiency of use is early and often exposure to the concept. The challenge that will be more clearly posited to the teacher candidates in future renditions will be to translate an existing lesson or instructional resources from traditional format to an inquiry-based approach format.

A future template to provide teacher candidates with may look like the following (adapted from Bloom, 2008): Guiding Question (and sub-questions); Frontloading; Instructional Activities (follow this order but you won't necessarily use all categories); and Assessment / Proof of Learning

Costs

Total cost of adding this to the curriculum in the first year was approximately \$1500. The upfront costs of the LabAid Kits was \$1000 and costs were incurred in van for field trip and travel reimbursement. It is estimated that reoccurring cost would be approximately \$500 for field trip and travel reimbursements.

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Ripened with Wisdom: Expanding Horizons through Student Teaching Tours

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Introduction

Field-based experiences are designed to provide concrete experiences in the teacher preparation program (Torres, Ball, & Kitchel, 2010). Student teaching is the capstone field experience of many teacher preparation programs (Kirts & Claycomb, 1981) and is a critical component of teacher preparation programs (Juergenson, 1966; Borne & Moss, 1990); this experience influences the intern's decision to enter the teaching profession (Roberts, 2006).

The National Standards for Teacher Education in Agriculture (AAAE, 2002) recommended the student teaching field experience includes opportunities to “apply principles and theories from the conceptual framework to actual practice in classrooms and schools where diverse agricultural education programs have demonstrated success in integrating instruction, Supervised Agricultural Experience, and FFA” (p.6). However, it is difficult for student teachers to understand the variety of agricultural education programs when stationed at one student teaching site. The purpose of the student teaching trip was to provide opportunity for interns to visit and reflect on an array of agricultural programs.

How it works

Agricultural education student teaching interns at [University] were required to complete a seminar course concurrent with their student teaching experience. The final seminar assignment was a two-day trip to visit school-based agricultural education programs in a neighboring state. The seminar instructors identified five school-based agriculture programs that represented a variety of sizes, number of agriculture teachers, teachers' years of experience, community type, and program curriculum emphasis. (i.e. aquaculture, animal science, horticulture, etc.). The instructors believed that taking interns to agriculture programs with a variety of characteristics in a different state would provide interns an opportunity to see how school-based agricultural education programs serve students in different settings.

An agriculture teacher from each school was contacted by phone, informed about the intent of the visit, and asked for permission to bring the interns to the program on a specified date. Additionally, coordinators drafted and sent permission letters to school administrators, requesting access to the school. The course instructors used university vehicles to transport the interns to each school; each visit lasted approximately three hours. Host teachers led a tour of the school agriculture facilities, discussed challenges/benefits of their particular program's structure, and provided practical advice to interns based upon their teaching experiences. Interns completed a reflection journal activity after each school visit; interns also participated in instructor-led group discussions following each visit.

Results to date

Students were surprised by the size and scope of the large, multi-teacher facilities with learning laboratories. Students opined the advantages and disadvantages of these large livestock and greenhouse facilities, such as experiential learning opportunities and positive public relations (See Figure 1). Students gained valuable insight visiting with a beginning teacher opening a new agriculture program. Interns saw their own possible future struggles they may experience; discussion shifted from curriculum and program possibilities to limitations. The final site was a small, ethnically diverse agriculture program with a focus on agri-science instruction. This program had few facility resources, but utilized student interests and community resources to enhance learning. Interns reflected on program size, structure, curriculum, facilities, and resources they will implement in their future teaching career.

Prompt	Sample Student Response
What perceived roadblocks do teachers place on themselves?	"Many teachers do too much when they should be teaching kids how to do it."
Would you want a school farm? Why or why not?	"Yes, because you could have so many hands-on projects and learning on a daily basis. Could be a ton of extra responsibilities."
Is there anything different about these programs today that makes you rethink Ag Ed?	"The [city] school was a good example of how hard it can be starting a program."
What is one big issue you will face as a beginning teacher? How will you handle it?	"Establishing community and student confidence in you." "Try to do what is best for the students"
Final Thoughts	"This experience was awesome...Each place we went was completely different. This was a very eye-opening and thought provoking experience."

Figure 1. Excerpts from written student reflections.

Future plans / advice to others

More time at each site would provide interns an opportunity to see teachers teaching, allowing interns to see "business as usual" in the school. This may require visiting fewer school, but for longer periods of time. This would allow interns to see a more authentic version of the teacher in action. Additionally, organizers should seek to involve the school administrator (principal, asst. principal, CTE director) in the visit. Administrators could share their perspective on agricultural education and provide interns an opportunity to ask questions they may be uncomfortable asking a local principal.

Costs / resources needed

Transportation- 2 full size vans for 2 days

Rent- \$700.00 Fuel- \$412.00

Transportation Total= \$1,112.00

Hotel

Night 1 (6 rooms @ 63.41)- \$380.46

Night 2 (6 rooms @ 91.80)- \$550.80

Hotel Total= \$931.26

Total Cost=\$2043.26

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Supplemental Units of Instruction in Equine Welfare for Secondary Education Curriculums

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Introduction

Livestock animal treatment has been of public concern with public opinion being the driving force behind new animal welfare rules and regulations (Mejdell, 2006). The topic of equine welfare has become a pressing issue for most of the public, partially due to the difficult debates relating to the transport and processing of horses (American Association of Equine Practitioners, 2009). As societal focus shifts in a new direction, so must the curriculum of secondary agricultural education programs.

Changes in student demographics are creating challenges for the traditionally stable secondary agricultural education programs (Bump, 2010). A curriculum is needed that meets the interests and demands of these new learners. The large number of individuals participating in equine related activities (Swinker, Tozer, Shields, & Landis, 2003) creates a felt need for our students to become educated in equine welfare specifically.

Despite the role and stability of agricultural education programs, it is now apparent the challenges facing agricultural studies due to the changes of population demographics. Change must occur in agriculture-based curriculums in order to remain relevant and progressive (Bump, 2010). With a prevalent equine population, it is imperative that our youth become educated on the basis of equine welfare; thus a secondary education curriculum is needed to address the most current and relevant issues regarding equine welfare.

How it works

The supplemental units of instruction in equine welfare were designed to maximize learning within a total agricultural education program at the secondary level, with clear connections created between classroom instruction, supervised agricultural experiences and the FFA. These units provide agricultural educators with lessons that could easily fit into any secondary equine science or animal science curriculum. The supplemental units of instruction can be taught in succession or individually, allowing for more flexibility among secondary agricultural educators. The following are the unit and lesson titles for each supplemental unit of instruction in equine welfare:

Unit 1: Welfare and Treatment of Horses

Lesson 1: What kind of impact do specific housing systems have on a horse? (1 hr)

Lesson 2: What is considered to be normal and abnormal behavior in stable horses? (1 hr)

Lesson 3: How can we reduce the risk to a horse's psychological health? (1 hr)

Lesson 4: What is your ideal welfare management plan for a family who owns a single horse? (3 hrs)

Unit 2: Welfare and Treatment of Racehorses

Lesson 1: What are the recommendations for the safety and welfare of the standardbred racehorse? (1 hr)

Lesson 2: What are the safety and welfare recommendations for the thoroughbred racehorse? (1 hr)

Lesson 3: What are the clinical guidelines for veterinarians practicing in an environment where wagers are placed? (1 hr)

Unit 3: Welfare and Treatment of Unwanted Horses

Lesson 1: What do we mean when we say the term unwanted horse? (2 hrs)

Lesson 2: What are the current welfare issues faced by the unwanted horse? (2 hrs)

Lesson 3: What solutions are there for the unwanted horse? (2 hrs)

Results to date

The feedback provided by the advisory team stated that the unit lessons were detailed and easy to follow. Pilot testing of the curriculum indicated that each supplemental unit contained sufficient variability in instruction planning and student activities to ensure student engagement during classroom instruction. Proper guidance and feedback provided by the advisory team and pilot test concerning the supplemental units in equine welfare has helped to achieve the goal of enhancing both equine and animal science welfare curriculums at the secondary level.

Future Plans/Advice

The three supplemental units of instruction on equine welfare will be presented during the NAAE Summer Ag. Teachers Conference on July 11, 2011. The goal is to present each unit to secondary agricultural educators as supplements or additions into their already existing equine and/or animal science curriculum.

The lessons within each supplemental unit of instruction in equine welfare were designed to maximize learning within a total agricultural education program at the secondary level, with clear connections created between classroom instruction, supervised agricultural experiences and the FFA. A future recommendation is the addition of supplemental lessons focusing on laboratory instruction in equine welfare for secondary agricultural curriculums. The addition of laboratory instruction would strengthen the already existing supplemental units in equine welfare and provide hands on experience to students participating in secondary agricultural education programs.

Cost/Resources Needed

There are no direct costs for implementing the supplemental units of instruction on equine welfare into a secondary agricultural classroom. Each unit will require student copies of information as well as internet use and materials needed for note taking.

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The Sustainable Student Farm at the [University]

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Introduction

Over the past half-century, globalization and the consolidation of the agribusiness industry have led to the rapid dwindling of small-holder farms (Osrom, 2005). Land Grant Universities (LGUs) have followed this trend in the realms of agricultural research and extension. While their efforts have contributed to the fine-tuning of industrial production mechanisms, it has come at the cost of belying the original purpose of LGUs, which were established in part to advance the self-reliance of working class families in rural and urban areas through technical education. With the groundswell of interest and activism around small-scale, organic, and local food production in recent years, LGUs are now poised to revisit their original mission and foster research, education, and extension initiatives around small-scale agriculture (Ostrom, 2005). Unlike individual farmers, research institutions have the capacity to develop, test, and make available small scale farming techniques and instruments that can be both technologically advanced as well as economically accessible. In addition, public universities in general and LGUs specifically should be uniquely accountable to the needs of historically marginalized farmers, such as women, people of color, and urban farmers. The [University], a LGU that was established through the efforts of the founder of the Land Grant movement, Jonathan Baldwin Turner, is now the home of a burgeoning student-led small-scale agriculture movement. Most notably, the Sustainable Student Farm is a three-year-old program that grows organic produce for campus clientele, teaches student volunteers about sustainable agricultural production, and has the potential to become a learning nexus for small scale farmers in the region.

How it works

In the fall of 2009, the Student Sustainability Committee, a student organization at the [University], created the Sustainable Student Farm with a grant funded by student fees that are collected with the explicit purpose of increasing campus sustainability. The Department of Crop Sciences in collaboration with the University Dining Services helped initiate and implement the project, and they continue to provide financial support. The Student Farm is comprised of three acres of outdoor production space, and 10,000 square feet of year-round high tunnel production, which utilizes a passive solar heating structure. Dining Services financed the construction of the 3 high tunnels, which allows the farm to supply organic produce to the dining halls during the academic year when demand is highest. With the help of the high tunnels, the first three years of the project have been focused on developing a production farm for the dining halls, with the goal of becoming financially self-sustaining from produce sales (Grant, 2009).

The long-term intention is to expand beyond the production focus, and become a teaching and research farm that fulfills the university's land grant mission of research and extension. The project organizers ultimately hope to evolve the farm into a research and demonstration site. This "living laboratory" will provide small-scale producers with the opportunity to learn labor saving and cost effective strategies that help to make localized food systems a viable economic model (Z. Grant, pers. comm., July 6, 2011).

Results to Date

In an effort to meet the steering committee's financial goal for the project to become economically self-sustaining, the farm has prioritized production at the expense of research, education, and outreach. After three growing seasons it is apparent that the farm cannot generate enough revenue from sales to Dining Services to cover all of its costs if labor continues to be included in the operational budget, and Dining Services continues to only pay wholesale conventional prices for the farm's organic produce. The project currently has one full time employee, the farm manager, who is responsible for farm operations, education and outreach. Each summer he hires two student interns to help with the labor demands of the peak production season. In addition to the farm manager and the two seasonal employees, the farm relies on

the 100 to 200 volunteers that help out every year. Many people volunteer on a regular basis, while others work one or two days in return for extra credit in horticulture classes, as members of community service organizations, or for the hands-on learning experience.

While the majority of the farm manager's time is spent trying to meet production goals, he has also worked to establish relationships with departments across campus and organizations throughout the community. Examples of classes that integrate the farm into their curriculum include an engineering class that designed and built an electric cultivating tractor for the farm, as well as a graphic design class that produced a branding package for the farm made up of a logo, posters, and material for the website.

Future plans

In efforts to transition from a production farm to a research and teaching site for small-scale agriculture, the Sustainable Student Farm hopes to increase collaboration with [State] Cooperative Extension to conduct targeted research and provide demonstration and outreach programs on crop varieties, pest management, season extension, energy efficiency, post-harvest handling, and storage. In addition to meeting the needs of small farmers, these programs would also serve to train extension educators, agriculture teachers, and non-profit workers (Z. Grant, personal communication, July 6, 2011). Through these training programs, the farm would foster a regional web for promoting agricultural careers, training young and emerging farmers, and increasing food security. As a "living laboratory", the Sustainable Student Farm can follow the model of successful student farms at other LGUs such as [Other University], which provides organic food to area consumers (with their Community Supported Agriculture program) and also trains new farmers with an apprenticeship program (XXX, 2011).

Resources needed

In order to fulfill these goals, the Sustainable Student Farm needs additional personnel. Rather than employing one farm manager responsible for both farm operations and outreach, funding should be allocated for three fulltime employees – a production manager, a research coordinator, and an extension educator. The Farm Manager will continue coordinating volunteers and sales, while the two additional staff people will help the Sustainable Student Farm and the University of Illinois fulfill the Land Grant mission of extension and research by advancing agriculture techniques, providing training and support to regional farmers, and serving as a learning nexus for small-scale, local, and organic food production.

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Utilizing Role-Play Characterizations to Teach Classroom Behavior Management Strategies

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Introduction/Need for Innovation

Classroom behavior management is one of the more challenging topics in teacher education due to the constantly changing dynamics of students and the classroom (Levin & Noaln, 2010). Mastery of classroom behavior management can hardly be achieved without practical application experiences. Conventional methods of teaching classroom behavior management have been criticized for lacking a real world application opportunity and transferability to the classroom. However, classroom behavior management skills can potentially be better learned by pre-service education interns through the use of role play in the classroom (van Ments, 1999). "Role-play places the student in a situation, which imposes the same type of constraints, motivations and pressures that exist in the real world" (van Ments, 1999, p. 12). Role-play is a highly effective method for increasing communication skills between teachers and students, developing skills for thinking on one's feet in a classroom environment, and enhancing acquisition of student behavior management techniques (Alkin & Christie, 2002). The agricultural education undergraduate teaching methods course at the [University] implemented characterization roles for all pre-service agricultural education interns in an attempt to simulate an actual secondary classroom. The characterization roles were utilized during microteaching experiences in the laboratory section of the agricultural education teaching methods course.

How it Works

Microteaching laboratory character roles are used to simulate a variety of student behaviors that may be experienced by the pre-service agricultural education intern upon entering a "real" classroom for the student teaching experience. During each lesson, the pre-service intern practices classroom management strategies learned in the lecture portion of the course to correct undesirable student behaviors. Behavior management strategies are used at the discretion of the pre-service intern and may include strategies such as giving the student(s) assigned seating, conferencing with the student about their behavior, or giving the character a detention/office referral. Characters that can be simulated include examples such as the "know-it-all," "shares-a-lot," "sleepy," "teacher's pet," "complainer," or "confused" student.

At the beginning of the course, pre-service interns are given character role assignments that designate which character they are to role-play when each of their peers are teaching. Pre-service interns portray the same character for a certain peer throughout the semester. This is so that teaching interns can accordingly plan teaching and learning strategies to accommodate recurring character behaviors. Additionally, pre-service interns portray a different character for each teaching intern. This is directed to help pre-service interns avoid the monotony of constantly portraying the same character repeatedly. It is also intended to help interns better conceptualize why different student behaviors may occur from a student perspective.

The lab instructor assesses the pre-service interns on their character role participation throughout the semester and provides feedback accordingly on characterizations during bi-weekly individual reflection meetings. A checks and balances system is maintained to ensure students do not sabotage or overly simplify a fellow pre-service intern's teaching experience. Characters who display overly extreme behaviors lose points from their character role grade. Those in the teacher role can lose points from their teaching score for not addressing negative character behaviors or not providing consequences that reflect the severity of character behaviors. Students choosing not to participate in character role simulations or choosing to portray characters they are not assigned lose points from their character role portion of their overall grade in the course. Finally, a checks-and-balances system is also built into the role play as pre-service interns who are teaching can issue "detentions" for extreme behavior; however, if the behavior is not extreme, the pre-service intern who is teaching will lose points for improper behavior management.

Results to Date/Implications

Following the first year of implementation at [University], pre-service characterization role-play during microteaching has proved to be highly successful. Cooperating teachers at the student teaching sites often commented positively on the overall readiness of this particular group of student teachers as compared to previous student teachers. The pre-service teachers also felt that the role-play was particularly beneficial in helping to increase intern's level of confidence and preparedness for the secondary classroom. One student teacher remarked:

Watching the role-playing of others while someone else was teaching was helpful to me, watching how someone else handles situations. You run in to all of those students that we had role-played. That got me more in the mindset of when I was student teaching, "Ok, I've seen this before—I've seen how this plays out."

Pre-service teachers described the role-playing as a basis for initiating reflection. One of the interns stated, "The character roles let you think about how you'll react to different situations."

Future Plans/Advice to Others

The success and positive (formal course and informal) feedback from this year's graduates indicate that the use of role-play was effective. Student characterization role-play will be utilized again in the upcoming year. Based upon feedback from the previous year's lab instructors, the character roles and descriptions will have minor changes to ensure that a variety of "students" are being presented to the pre-service teachers. In addition, directed reflection questions will be used to hone in on choice of student behaviors and how said behaviors would have been treated if that pre-service intern was teaching. Those who implement this learning opportunity are encouraged to utilize a system of accountability and checks-and-balances to ensure all pre-service interns have a positive experience.

Cost/Resources Needed

Costs are minimal and mainly fall into the time category for implementing character role-play during microteaching. Laboratory students need to be appropriately trained during the first laboratory session to fulfill their roles throughout the semester. The laboratory instructors' time was used in individual reflection sessions to discuss how classroom behavior management tactics were used effectively and/or ineffectively. Following summation of the course, the laboratory and lecture instructors met to evaluate the experience and make adjustments the upcoming year.

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**Utilizing Service-Learning to Encourage Career Exploration, Develop Community Partnerships, and Offer Ag
Literacy Education**

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Introduction/Need

Faculty who engage in preparing future secondary agriculture teachers constantly seek new instructional strategies, approaches, and assignments that may enhance the abilities of program graduates. As indicated by the *National Research Agenda: Agricultural Education and Communication 2007-2010*, one of the priority areas for *Agricultural Education in Schools* is to “prepare and provide an abundance of fully qualified and highly motivated agricultural educators at all levels” (Osborne, n.d., p. 5). To achieve success with regard to that priority area, teacher educators must continually be aware of issues and trends in Agricultural Education, be willing to update and modernize curriculum, and offer rigorous, relevant opportunities for students.

Often efforts to prepare fully qualified agricultural educators lead faculty to incorporate authentic, real-life learning experiences into their courses. One common approach utilized to offer an authentic learning experience is service-learning. By definition, service-learning is a strategy that combines instruction, meaningful service to one’s community, and reflection (Learn and Serve America, n.d.) Further, service-learning allows students to take ownership of the learning process and experience skills important to employment (Robinson & Torres, 2008).

By incorporating service-learning into an introductory Agricultural Education course, one institution was able to offer its students a “real” teaching experience, develop unique community partnerships, and provide ag literacy instruction to area youth. This opportunity was designed much like an early field experience. Such experiences are considered quite valuable to students as they may alter students’ beliefs about the profession and can ultimately impact pre-service teachers’ decisions to enter the profession (Myers & Dyer, 2004).

How It Works

Developed in Spring 2011, Orientation to Agricultural Education, offered freshmen and sophomore Agricultural Education students an opportunity to learn about the major and experience teaching early in their degree program. In addition to exploring career options, reviewing degree requirements, and learning about student and professional opportunities, a major component of the course was a service-learning activity that required students to prepare and present a lesson on an agricultural topic to area youth.

The purpose of this activity was three-fold. 1) To appropriately orient underclassmen enrolled in Agricultural Education to the planning, preparation, and evaluation involved in designing and delivering effective instruction for students. 2) To provide an interesting, engaging learning opportunity for youth who may not have convenient access to such experiences typically. 3) To increase agricultural literacy among area youth, many of whom are not regularly involved in or exposed to the agriculture industry despite living in a fairly rural community.

Before the semester began, program leaders and teen impact coordinators with the Area Home-School Alliance, Fellowship of Christian Home Educated Students, and the Boys & Girls Club were contacted. Each enthusiastically agreed to facilitate meeting times for educational lessons and recruit student participants. The first week of class, students were informed of the assignment and placed into pairs/groups based upon their availability for presentation dates. Following instruction on lesson plan development, locating educational resources, and a visit from the state Ag In the Classroom coordinator, students developed lessons about an agricultural topic of their choice. The week prior to the actual presentations, each pair or triad conducted a “trial run” of the presentation to an audience of peers and recent Ag Ed student teachers. Based on feedback received on both the plan and presentation, final revisions were made.

Results to Date/Implications

Nineteen students enrolled in the course yielded eight assigned pairs and one triad. Nine educational presentations were scheduled between February 17th and February 25th (corresponding with National FFA Week). Lessons presented addressed a variety of topics including: *Pizza: Where Does It Come From?*, *The Importance of Soil*, and *What's in Your Diet?*, as well as others. Nearly 80 youth, between age 5 and 15, attended the presentations.

As a result of this project, relationships were developed with the three community partners. Students in the course experienced a valuable teaching opportunity that allowed them to realize the work that preparing and presenting a lesson required. The experience also gave students insight as to whether or not they truly would enjoy a career in teaching. Area youth had an opportunity to participate in a fun, educational program offered at no charge. In addition, they were informed about a topic that many area do not have a chance to learn about – agriculture.

Course evaluations indicated that students enjoyed the assignment, though would have liked additional class time to plan and prepare. Students also commented that while younger students were fun to present to, it might be nice to present to actual agriculture students. Other comments shared by students included: *1) I learned that I do not want to teach junior high. I was pretty much worn out afterwards. I enjoyed it a lot. 2) Even though the students were a bit rowdy and I feel the presentation could have gone better, I enjoyed my time spent planning and teaching the Ag in the Classroom presentation. It was difficult at first to get into the groove, but I can definitely say that I now know what not to do, which is one step closer to learn what to do.*

Future Plans/Advice to Others

Because this was the first year for this assignment (as well as the Orientation course), several small glitches were experienced, including somewhat vague directions, date conflicts, challenges in reserving rooms, etc. In overcoming these glitches, patience, communication and organization were essential. Ultimately, a well-developed instructional plan, enthusiastic community partners, and dedicated students helped make this service-learning project a success. Minor modifications and improvements related to the glitches experienced will be made prior to Spring 2012.

Cost/Resources Needed

It would be possible to conduct this assignment and require students to pay for expenses associated with their presentations. However, a \$500 service-learning grant sponsored by the University was awarded, providing roughly \$50 per group. With funding provided, students were more able to focus on creating engaging, interactive agricultural lessons; some even offered related “take-home items” for attendees. Only \$289 of the \$500 was spent; the average expense per group was \$26. An additional \$53.55 was spent on poster printing for the University’s service-learning showcase. In addition to presentation materials and supplies needed, class time must be allotted for the necessary instruction, group work time, and “trial run” of the presentations for feedback. Depending on the lesson topic, needs of the group, and facilities of the community partners, classroom space must be provided for the presentations as well.

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