

**Faculty Advising in a College of Agriculture:
An Investigation of Student Needs and Faculty Performance**

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Faculty Advising in a College of Agriculture: An Investigation of Student Needs and Faculty Performance

Introduction/Need

Research touts the importance of academic advising with regard to student satisfaction and retention. Indeed, one of the keys to quality academic advising is meeting the needs of students. As Boers (2001) indicated, the only way to meet expectations of students is to know the exact nature of the expectations. To that end, much research has addressed what type of advising works best, what students need/expect, and what advisors/administrators think about the importance of advising. However, findings vary widely.

Given the importance student-faculty interaction plays in academic persistence, additional research must be conducted. While many institutions believe their academic advising is adequate, what could be done to enhance the advising experiences of students? As Jim Collins' (2001) book, *Good to Great*, states, good is the enemy of great. In order to offer great advising to students, college administrators and faculty advisors must know more about students' needs and preferences.

The purpose of this study was three-fold: 1) assess the importance of academic advising characteristics as perceived by undergraduate students in the College, 2) examine faculty advisors' performance with regard to the academic advising characteristics, and 3) identify factors that influenced students' academic advising needs and satisfaction.

Conceptual Framework

For this study, a modified version of Terenzini and Reason's (2005) model for studying college impact was utilized. The framework takes into consideration a multitude of forces which help to shape students' first year of college and, ultimately, identifies three primary components of variables involved in the study of college impact. The three components include: pre-college characteristics and experience, the college experience, and outcomes. The specific aspect of the college impact model that incorporates academic advising focuses on the institutional environment of the college experience.

Methodology

This study utilized a descriptive correlational design, with an online instrument distributed via email to all students enrolled in the College (N = 1619). The instrument, consisting of three sections, was created and distributed using Hosted Survey in accordance with Dillman's (2004) *Tailored Design Method*. Section one consisted of a modified Borich needs assessment addressing thirty-four academic advising characteristics or behaviors. For each item, students were asked to rate the importance and assess their faculty advisor's performance. The thirty-four items were categorized into four advising constructs, as identified by Cuseo (in press), which included Availability/Accessibility, Counseling/Mentoring, Knowledge/Helpfulness, and Personable/Approachable. Section two addressed academic advising tendencies. Section three included demographic items. To ensure validity of the instrument a panel of experts examined reviewed it for face, content, and construct validity. Additionally, the instrument was pilot tested prior to distribution to address reliability. Reliability estimates ranged from .82 to .94.

Results/Findings

A total of 726 (44.84%) students completed all components of the instrument. Findings indicated that on average, students' primary methods of communication with their faculty advisor are email or face to face. More than 80% of students had met with their advisor at least twice in the past year. In general, most students indicated advising meetings ranging from 6 to 15 minutes or 16 to 30 minutes.

With regard to importance of academic advising items, students identified twenty-six of the thirty-four items as *important* or *very important*. Students rated the Availability/Accessibility construct as the most important ($M = 4.47$; $SD = .52$) (see Table 1). When students were asked to rate the performance of their faculty advisor, the overall rating was positive, with all four advising constructs receiving mean performance ratings of near 4.00 or higher.

Table 1

Perceived Importance of and Faculty Performance on Academic Advising Constructs

Construct	<i>Importance</i>		<i>Faculty Performance</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Availability/Accessibility	4.47	.52	4.36	.78
Personable/Approachable	4.31	.56	4.29	.82
Counseling/Mentoring	4.09	.63	4.05	.91
Knowledge/Helpfulness	4.04	.55	3.92	.91

Conclusions

Based on the importance ratings given by students, it can be implied that nearly all of the items included in the instrument are of importance. Additionally, overall, students are generally satisfied with the academic advising received from faculty advisors within the College. When ratings were compared by student's sex, academic level or undergraduate degree program, few differences were found.

Implications/Recommendations/Impact on Profession

As a result of this study, college administrators and faculty advisors are better equipped to effectively meet the advising needs of students and have empirical evidence regarding what students' expectations are. In addition, this research may serve as a basis for faculty development opportunities relating to faculty advising, since little training is provided for new faculty serving in this capacity. Further research/evaluation should be conducted to continually assess the evolving needs of students and faculty advisors' performance.

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**Agricultural Education Instructors' Perceived Use of Experiential Learning in
Secondary Agricultural Education Programs**

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Agricultural Education Instructors' Perceived Use of Experiential Learning in Secondary Agricultural Education Programs

Introduction/Framework

Agricultural education has advocated the use of experiential learning in programs through FFA, Supervised Agricultural Experience, laboratories, and other class activities (Arrington & Hoover, 1994). However, are the experiences that teachers provide to students being narrowly defined as just an actual experience, or are the experiential learning opportunities encouraging students to think and go beyond just *experiencing* something? Experiential learning theory has been impacted by philosophers like John Dewey who believed that learning through experience requires both knowing and doing (Center for Teaching and Learning, 1996).

Kolb's (1984) experiential learning theory expanded upon Dewey's theory by describing four components that are present in experiential learning. Kolb believed that a person needed to go through an actual experience (concrete experience), reflection (reflective observation), the creating/integrating conclusions for concepts (abstract conceptualization), and application to various situations (active experimentation) for the experiential learning cycle to be of the greatest value to the learner. Kolb asserted that each of these four components should be used to varying degrees based on the situation and the preferred learning style of the learner.

Methods

Following *The Tailored Design Method* from Dillman (2000), a survey instrument was mailed to all (N = 274) secondary agricultural education instructors in an Eastern state. Items on the survey instrument were designed to gather information about instructors' perceptions related to their use of experiential learning in teaching.

Face and content validity of the instrument was examined by a panel of four individuals. These four individuals are considered experts in teaching and learning, including previous study and application of experiential learning skills into classroom teaching. Items for the instrument were developed directly from Kolb's (1984) experiential learning theory. A reliability coefficient of $\alpha = .76$ was obtained using a post-hoc analysis. Responses were received from 104 of the 274 agricultural education instructors in the state for a response rate of 38%. A comparison of early to late respondents was used to control for non-response error (Miller & Smith, 1983). Results of the t-test showed no significant difference in the two groups. Frequencies and percentages were used to describe the teachers' degree of use of experiential learning.

Objective

1. Identify the degree of use of experiential learning, based on Kolb's (1984) model, in secondary agricultural education programs as perceived by agricultural education instructors.

Results

When analyzing the results of the study the researcher found that 75% of the participants reported using experiential learning in their agricultural education programs. As shown in Table 1, 76.9% of the agricultural education instructors reported the degree of use of

experiential learning in their program as *frequently* or *always*; while 23.1 percent of the agricultural education instructors reported using experiential learning *sometimes* or *rarely*.

Table 1
Degree of use of experiential learning in agricultural education programs.

Degree of Use	f	Percent
Rarely	1	1.3
Sometimes	17	21.8
Frequently	38	48.7
Always	22	28.2
Total	78	100

Note: Always = every day; Frequently = 1 to 2 times per week; Sometimes = 2 to 3 times per month; Rarely = less than once a month.

Related to Kolb’s model of experiential learning, 76% of the agricultural educators surveyed reported *frequently or always* using actual experiences in their teaching. Sixty-five percent of the participants *frequently or always* ask the students to draw conclusions based on the experiential learning activity, and 72% of the participants *frequently or always* link the experiential learning to future situations, while 44% of the respondents indicated *frequently or always* giving students the opportunity to reflect on the activity.

Conclusions/Implications/Recommendations

Agricultural education instructors are using experiential learning, but not to the fullest potential. A majority (75%) of the agricultural educators in the study perceived that they incorporated experiential learning into their programs *frequently or always*. However, out of those respondents only forty-four percent reported *frequently or always* including a reflection component into the experiential learning process. Thus, student learning may have the promise of being enhanced through inclusion of all four components of Kolb’s model. Students that learn best through concrete experiences are currently benefiting the most from the agricultural education experience. Seventy-six percent of the respondents reported incorporating an actual experience into the experiential learning opportunities *frequently or always*. Thus, students that learn best through hands-on experiences may have more opportunity to learn the content due to their preferred learning style.

Students that learn best through reflection are not receiving ample opportunities to practice learning through their preferred learning style. Teachers should be encouraged to incorporate each component of the Kolb model (1984) into their learning activities. Further research should be conducted to examine the limitations to incorporating a reflection component into each experiential learning opportunity provided in agricultural education programs.

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**A Two Decade (1988-2007) Analysis of the Inservice Needs of Agricultural Teachers
Based on the Articles Published in the Journal of Agricultural Education**

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A Two Decade (1988-2007) Analysis of the Inservice Needs of Agricultural Teachers Based on the Articles Published in the Journal of Agricultural Education

Introduction

Teachers face many challenges in preparing students for a productive future and a crucial factor in developing successful teachers is correctly identifying their needs (Layfield & Dobbins, 2002). The identified needs should be taken into account while planning inservice education programs. Schunk (2008) stated that “there is no substitute for strong professional development among teachers” (p.273). He further stated that teachers must be updated on the advances in their field. Guskey (1986) stated that good quality staff development is an important component in almost all the proposals for educational improvement. These statements stress the importance of inservice education for teachers and in order for the inservice education programs to be effective, inservice needs of the teachers have to analyzed and synthesized.

Training institutions look for ways to improve their programs and there are different methods of determining the needed areas of improvement (Borich, 1980). These methods range from a survey to an experimental design (Borich). Journals are very important for educators to disseminate their research findings (Radhakrishna, 1995). The *Journal of Agricultural Education* is one of the premier journals for publishing research and disseminating knowledge in the field of agricultural and extension education (Swafford and Anderson, 2007; Radakrishna, 1995).

Methodology

The purpose of this study was to identify and analyze the inservice needs of agricultural teachers based on the information published in the *Journal of Agricultural Education* over the past two decades (1988-2007) and develop recommendations for future inservice programs. The population of this study included all the articles relative to studies on inservice needs of agricultural teachers published in the *Journal of Agricultural Education* from 1988–2007. A census of all eighteen articles published during that period was adopted. The *Journal of Agricultural Education* was purposively selected as it is one of the important publications in the field of agricultural education in United States. The time period of the past two decades was also selected purposively with a view to concentrate on the most recent studies so the recommendations may be more valid.

Results

The articles were analyzed and the inservice needs as perceived by agriculture teachers were identified. The articles analyzed for this study represented the inservice needs of agricultural teachers in a variety of states across the country: Kansas, Missouri, Virginia, Ohio, Mississippi, Texas, Louisiana, Minnesota, South Carolina, Florida, Georgia, West Virginia and New Mexico. It was found that agricultural teachers perceived that they needed more inservice education on program design and management competencies and in the latest computer technologies than in technical agriculture. In the technical agriculture area, the teachers needed more education in non-traditional areas like biotechnology and mechanical/physical technologies. In program design and management aspects, the agricultural teachers were in need of education specifically focused on establishing and

managing support groups like advisory committees, alumni chapters, FFA chapters; motivating students to learn; writing reports for external funding and administration; and integrating advances in technology into the curriculum.

Conclusions and Recommendations

The results of the study suggest that agricultural teachers have a variety of needs but most of these needs focus on program design and management. It is recommended to modify pre-service, graduate, and in-service education in such ways to address these needs. First, the pre-service curricula should be structured such that it provides more opportunities for students to work with local support groups like advisory committees and alumni groups before they start managing one on their own after taking on a teaching position. Second, a course and/or workshop focused on program design and management and student management should be developed and made a compulsory program component for all students majoring in the agricultural education teacher certification program at the undergraduate and graduate levels. Third, modules on program design and management and student management should be integrated into the regular technical agriculture workshops offered for agricultural teachers. Finally, workshops on the latest computer technologies helpful in enhancing instructional strategies of teachers should be organized on a more frequent basis. End of program evaluation should be conducted to learn the extent to which the agricultural teachers are using the taught concepts in their classes. Since the data collected from eleven states of the United States were analyzed in this study the findings may be used in developing an inservice model which can be used in designing future professional development programs for agricultural teachers.

Implications

Some important implications can be drawn from this study. First, more efforts should be directed toward educating the preservice and inservice teachers on design and management aspects in addition to the technical subject matter content. It is often observed that more emphasis is placed on imparting technical knowledge to the preservice and inservice teachers and this study revealed that this approach doesn't prepare them adequately to tackle their job requirements efficiently. Secondly, there is a need to start equipping the potential teachers with the necessary skills right from their Bachelor's program in a phased manner. This will ensure that they are better equipped to tackle their job requirements. Thirdly, input from the teachers should be taken into consideration while designing inservice education programs so they could actually meet their job requirements. Finally, the results of this study could be applied to the inservice education programs of high school teachers in other disciplines, also.

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**Michigan Youth Farm Stand Project:
Final Evaluation of Program Implementation and Outcomes**

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Michigan Youth Farm Stand Project: Final Evaluation of Program Implementation and Outcomes

Introduction

The Agriculture, Food and Natural Resources (ANR) Career Clusters are comprised of seven pathways that represent the knowledge and skills for agricultural education programs (Office of Vocational and Adult Education [OVAE], 2006). They are serving as the foundation for the development of national agricultural education standards (National Council for Agricultural Education, 2004). Following national trends, the State of MICHIGAN is also using the ANR cluster as a foundation to develop a curriculum framework for agricultural science education, as it represents the diversity of MICHIGAN agricultural education. Currently, MICHIGAN has found success in integrating all of the pathway areas into their revised curriculum except the Food Products and Processing Systems.

According to the CS Mott Chair of Sustainable Agriculture Food Systems, the future of food systems in the state is a niche market with emphasis placed on community foods, value-added products, community sustainable agriculture (CSA), and urban agriculture, to name a few (M. Hamm, personal communication, January 15, 2007). To begin intertwining the future of food production into the classroom, the CS Mott Group developed the Youth Farm Stand Project (YFSP), a program focusing on nutrition education and entrepreneurship. This is one of several initiatives through the CS Mott Group that attempts to tackle the larger question—*Who will feed MICHIGAN?* Joining forces with agricultural education programs, topics of sustainable agriculture, food nutrition, entrepreneur skills, and community foods are being addressed in the agriculture classroom and in MICHIGAN communities.

This abstract reports the findings of the evaluation efforts involving the six groups that participated in the YFSP. It highlights the overall outcomes of the project — focusing on nutritional education, entrepreneurship and community connections.

Theoretical framework

To evaluate the program planning and outcomes of the YFSP, participatory or collaborative evaluation working with the representatives of the CS Mott campus team was conducted (Greene, 1988; Mark and Shotland, 1985). This utilization-focused evaluation procedure was chosen because it allowed collaboration with stakeholders ensuring the evaluation was responsive to the YFSP needs and produced useful information (Patton 1986, 1997). Through the lens of program impact theory certain assumptions can be generated about how changes will impact the outcomes of the project in a causal relationship. It takes into consideration the organizational program plan and the service utilization plan to predict outcomes or impact. The program's service utilization plan details the cycle of engagement between the recipient and the program. The program's organizational plan focuses on the program's resources such as facilities and personnel. This cause and effect model allows evaluating the social changes over time showing the linkage between the proximal and distal outcomes (Rossi, Lipsy, & Freeman, 2006). At the start evaluators need to describe theory to the stakeholders and review assumptions and expectations.

Methodology

The evaluation looked at the planning, execution, and outcomes achieved by the six sites involved in the YFSP for 2006/2007. By utilizing program impact theory procedures, the evaluation was designed to look at how the CS Mott campus team's implementation of the YFSP met the project objectives and the ultimate goal of making youth ambassadors of a healthy food system. The evaluative tools were developed to assess the campus team's work with the individual sites and to evaluate the impacts the program had on developing business skills, promoting nutrition, forming partnerships, and increasing community engagement, while encouraging positive youth development.

An evaluation of the sites and the campus team was completed. The study was qualitative in nature with data collected through content analysis of the site action plans and final reports, key informant interviews from each site, observations taken through site visits, and three focus groups involving the site leaders/coordinators. The design of the evaluation was comprised in collaboration between the campus team and the evaluators; the evaluation was ongoing and participatory as the evaluators provided ongoing analysis and feedback to the campus team.

Findings

Overall nutrition education was met by all sites; however, some sites did not meet a desirable degree of nutrition education in their projects. Further developing the nutritional component and educational requirement of the project is needed to make a greater percentage of people aware of the importance of eating healthy and eating fresh produce. Actively encouraging the sites to do cooking demonstrations and look to their community for nutritional resources to aid their project and educate about eating local, healthy, grown produce is suggested. Starting the nutrition education in the fall and winter ensures the nutrition component is met throughout the project. By connecting with communities for time and resources, sites may have more opportunity to form connections and build a community-based food system. Starting early and connecting with different sources may alleviate transportation woes and procurement issues faced during the project. Allowing youth to make connections should be a priority to ensure the model is youth-driven and provides youth opportunity to build their community network.

Conclusion

The YFSP provided students an individual experience and an opportunity to work with a team on a project enriched in skills and positive interactions with adult mentors. A better understanding of nutrition was experienced by some youth and education in the community was provided. However, increasing community access and education would make the YFSP more of a success and intended objectives would be met. Solving transportation troubles and ensuring the project is driven by youth will ensure youth participation remains constant throughout the project year.

Implications

Other states looking to start a youth entrepreneurship program can look at the YFSP as one model and make adaptations to their framework to suit their program needs. Program impact theory is a good evaluative lens to use in the beginning development stages of a project. It has allowed for a participatory form of evaluation to occur amongst the researchers and the members of the YFSP, providing richer discussion and tangible results.

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**The Relationship Between College of Agriculture Students' Self-Perceived
Interpersonal Communication Styles and Verbal Communication Skills**

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The Relationship Between College of Agriculture Students' Self-Perceived Interpersonal Communication Styles and Verbal Communication Skills

Introduction/Need for Research

Over the course of time, researchers have strived to explain the effect of communication style on student success and leadership. vanLinden & Fertman (1988) described a relationship between leadership and communication when they described leadership as a trait amongst people that allowed them to think for themselves, communicate their thoughts and feelings, and help others to understand and act on their own beliefs. Gardner (1987) stated that communication would be the one "all-purpose instrument of leadership." A National Association of Colleges and Employers (2003) study found that six of the top seven skills desired by employers hiring new graduates were leadership related.

By teaching college students how to identify and understand their personality styles, both at school/work and during personal time, educators will be able to increase the confidence they have in themselves and their ability to work with a diverse group of individuals and personalities. It also gives students the ability to identify what personality characteristics cause them stress and how they can deal with this stress. Finally, by identifying understanding their personality styles, students can effectively understand and communicate their strengths and behavioral tendencies to those that they work and deal with on a daily basis.

The purpose of this study was to describe the interpersonal communication styles of college agriculture students enrolled in a verbal communication course at a mid-western university. Specifically, the study pursued the following objectives:

1. Describe students' self-perceived interpersonal communication styles when at work and during personal time.
2. Describe the similarities and differences between students' self-perceived work and personal interpersonal communication styles.
3. Describe the self-perceived interpersonal communication skills at work/school or combination of skills at work/school that were predictive of performance in a verbal communication course.

Conceptual or Theoretical Framework

Billings (2003) and Schmidt (1999) have shown that abilities such as communicating effectively, working on a team and possessing interpersonal skills are qualities that are desired by employers and are crucial to individual success. The Secretary's Commission on Achieving Necessary Skills (SCANS) report (1991) identified skills that are most sought by employers. Among the specific skills identified was informational management which consisted of both oral and written communication skills.

Methodology

The target population for this descriptive-correlational study was students enrolled in a verbal communication course. The convenient sample consisted of 242 students from the fall semesters of 2004 ($n = 47$), 2005 ($n = 54$), 2006 ($n = 63$), and 2007 ($n=78$). Sixteen students failed to complete the data collection instruments; therefore, the usable sample was 226.

The INSIGHT Inventory[®] was used to assess students' self-perceived interpersonal communication styles. The INSIGHT Inventory[®] is a self-reported interpersonal communication inventory and interpretation instrument that contains two identical sets of 32 descriptive adjectives yielding two separate style profiles; one for work/school the second profile describes a person's interpersonal communication style during personal time.

Results/findings

Using Handley's INSIGHT Inventory[®] research (2004), students who were enrolled in a verbal communication course had personality traits that were similar at work/school and during personal time indicating that they are consistent when displaying each of the particular traits that have been identified by this study

Examination of self-perceived personal interpersonal communication styles during personal time revealed students were moderately outgoing when responding to people with mean score ($M = 34.2$, $SD = 8.5$). In pacing their activities, students were moderately steady ($M = 33.9$, $SD = 7.5$). When dealing with details a mean score of 30.6 ($SD = 8.9$) shows that students are slightly precise. Finally, students are slightly indirect in getting their way ($M = 28.8$; $SD = 7.1$).

Object two sought to describe the similarities and differences between self-perceived interpersonal communication styles of the students when at work and during personal time. The data identified that scores in both personal and work/school were similar.

Pearson Product moment correlations were calculated between the self-perceived interpersonal communication styles at work/school and performance in the verbal communications class. A hierarchical multiple linear regression analysis was then used to determine the best interpersonal communication trait, or combination of traits, that were predictive of students' performance in the verbal communications class. When the self-perceived interpersonal communication traits were regressed on the dependent variable, no single certification measure, or combination of measures, were found to be significant in predicting the students' performance in the verbal communications class.

Conclusion/Implications

Although the self-perceived characteristics of students in the verbal communications class were insightful, the two percent variance in performance explained by these four characteristics implies that there are more significant issues that influence performance in the verbal communication course. Because employers have indicated that personal communication is significant to the success of their employees, it is imperative that students in this study continue to evaluate their personal characteristics and understand how to use them effectively.

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**The Integration of Science Concepts into Agricultural Education Programs in a North
Central State**

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The Integration of Science Concepts into Agricultural Education Programs in a North Central State

Introduction

Students face great challenges in finding success in careers or postsecondary education after graduating from high school. More acute problems are encountered by those who dropout, since today's workforce requires high academic and technological skills from its beginning workers. As these challenges are placed back onto the educational system, teachers need to find new ways to challenge students through science, mathematics, technology, and literacy in agricultural education programs. There is a need to integrate academic subjects holistically and seamlessly into secondary programs using the academic content inherent to the context of agriculture.

Theoretical 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). Contextual learning theory emphasizes that learning is nested within interactions with the environment and that the mind of the learner seeks meaning through the interpretation of those interactions (Perkins, 1999). Contextual learning theory provides a foundational guide for the creation of learning experiences that foster deep connections between the concepts that are being learned and how the knowledge will actually be utilized. One way to operationalize contextual learning theory is through the integration of science concepts within the content and instruction of agricultural courses of study to assist learners in meeting and exceeding their academic and career challenges. When enacted contextual learning theory emphasizes the following five tenants: 1) problem solving; 2) utilization of multiple contexts; 3) reflection for self-regulated learning; 4) peer driven synergy; and 5) authentic assessment (Clifford & Wilson, 2000).

The purpose of this study was to describe the integration of science concepts in the form of state science standards into agricultural education programs. The objectives of the study were as follows: 1) to describe the strategies agriculture teachers used to integrate science concepts into the agricultural content and instruction; 2) to describe the extent to which agriculture teachers integrated science concepts into their content and instruction; and 3) to describe the opinions of agricultural educators regarding the barriers to the integration of science concepts into their content and instruction.

Methodology

The target population for this study consisted of current secondary agricultural teachers in a north central state (N = 240). The participant frame was obtained by using a directory of agricultural educators provided by the state educational agency. The participants of this descriptive study consisted of seventy-eight agricultural educators employed fulltime in urban, suburban, and rural comprehensive schools and education centers. Generalization of the findings and conclusions beyond the accessible sample should be done with caution.

In order to construct information useful in addressing the purpose and objectives of the study, an on-line survey instrument with three separate sections was constructed based on a review of the literature. The survey instrument was validated by a panel of five experts for face and content validity. The expert panel included two state CTE specialists and three CTE teacher education

faculty members. A pilot test was conducted with a sample of teachers ($n = 15$) to gain insight regarding the validity, reliability, and usability of the instrument. The pilot yielded the following Cronbach's alpha coefficients: section 1 = .85; section 2 = .88; and section 3 = .81.

A link to the online survey instrument and a cover letter describing the study were emailed to the potential research subjects in an invitation email. Two weeks after the initial contact an additional invitation email containing a follow-up cover letter and survey link were sent to potential participants that had not already responded. Usable responses were obtained from seventy-eight teachers for an overall response rate of 32.5 percent. All responses were recorded within four weeks following the initial invitation to participate.

Results / Findings

The purpose of this study was to describe the integration of science concepts in the form of state science standards into agricultural education programs. The 78 participants in this study had a mean age of 31.2 years ($SD = 9.2$) and had taught an average of 12.8 years ($SD = 8.1$). 32% of the participants were female and 42% of the teachers were FFA advisors. The population of teachers that participated in this study was composed predominately of traditionally certified (82%) teachers who had a Master's degree as their highest degree completed (59%). A majority (62%) of the participants in this study worked in secondary career and technical education centers while the remaining participants (38%) worked in comprehensive secondary schools.

The findings illustrate that the majority of participants (89%) were attempting to implement science concepts into their course content and instruction. Of those implementing science integration the majority (86%) were integrating science concepts at the individual course level of operationalization. Only a small number of teachers (14%) were integrating science concepts through cross-curriculum or programmatic methods of integration. The findings reveal that teachers integrating science concepts using the course level strategy were not implementing complete state standards but rather disjointed science related bits of information. The findings also reveal that those teachers integrating science concepts through cross-curriculum and programmatic methods were implementing entire science standards into their content and instruction. Respondents believed the following were the greatest barriers to integrating science concepts with agricultural programs: 57.9% of teachers felt adequate curriculum materials are not available, 79.5% of teachers stated the integration process takes too much of their time, and 59% of teachers stated that there is a lack of adequate equipment and supplies in their department to teach an integrated curriculum. It is hoped that the findings of this research will assist teacher educators, school administrators, and policy makers to more precisely define the appropriate pathways to assisting agricultural educators in integrating the academic content and knowledge students will need as they transition into their future academic and career challenges.

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Selected Demographics of Missouri Agricultural Mechanics Programs

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Selected Demographics of Missouri Agricultural Mechanics Programs

Introduction

Agricultural mechanics courses are the most popular secondary agricultural education classes offered in Missouri following the two introductory classes (Missouri department of education, 2008.) With the continuing popularity of these classes, research was conducted to determine the size and scope of agricultural mechanics programs in Missouri. Researchers utilized a mailed questionnaire, sent to selected agriculture teachers, to conduct this descriptive study.

Theoretical Framework

Agricultural education laboratories are an essential component of the total secondary agricultural education program (Phipps & Osborne, 1988). In 1987, Shinn reported that the amount of time devoted to laboratory instruction may comprise one-third to two-thirds of the total instructional time in many agricultural programs. The use of school and community laboratories, where students employ “learning by doing” is an integral part of agricultural education programs (Sutphin, 1984). Hubert, Ullrich, Lindner and Murphy (2003) stated “agricultural education programs offer many unique hands-on opportunities for students to develop both valuable academic and vocational skills” (p. 17). Phipps and Osborne also noted that “the primary objective of agricultural mechanics education is the development of the abilities necessary to perform the mechanical activities to be done in agriculture” (p. 306). Johnson, Schumacher and Stewart (1990) stated that students learn important psychomotor skills in agricultural mechanics education and that much of the instruction takes place in the school agricultural mechanics laboratory. Nineteen years had elapsed since the last comprehensive study of agricultural mechanics laboratories in Missouri, so it was considered useful to reevaluate the current size and scope of Missouri secondary agricultural mechanics programs to determine the potential training needs for future agricultural education teachers.

Methodology

The population for this study was composed of all secondary agriculture teachers who were responsible for managing an agricultural mechanics laboratory in 2007 (n=424). Agricultural Education District Supervisors for the state assisted in the identification of the frame. A random sample size of 205 teachers was determined adequate to represent the population (Krejcie & Morgan, 1970).

This study was extracted from a larger research project designed to assess the in-service needs related to agricultural mechanics of Missouri agricultural teachers. The data collection instrument developed by Johnson, Schumacher and Stewart (1990) for a similar study was modified for use with this research. Appropriate methods were used to determine the validity and reliability of the instrument including the use of a panel of experts and a pilot study. Data were collected following Dillman’s Tailored Design Method (2007).

Usable responses were received from 110 Missouri secondary agriculture teachers for a 55 % response rate. An independent samples *t* test indicated that no significant differences ($p < .05$) existed between the early and late respondents based on their perceptions of the importance of, or their ability to perform, each of the agricultural mechanics laboratory management competencies. Since no significance difference was found between the early and the late

respondents, the late respondents were deemed to be generalized to the population (Lindner, Murphy, & Briers, 2001).

Results

Missouri agriculture teachers who manage agricultural mechanics laboratories had taught agriculture for an average of 12 years. Nearly 22 % of these teachers were women. On average, Missouri agriculture teachers received 11.3 university credit hours of agricultural mechanics instruction through pre-service educational programs.

Enrollment in teachers' agricultural mechanics classes averaged 72 students per year with their largest such classes having an average of 16 students. Agricultural mechanics laboratories averaged 2,900 square feet, calculating to an average of 187 square feet per student. The average consumable budget for Missouri agricultural mechanics laboratories was \$2,900 dollars per year with almost \$53 dollars spent per student.

Overall, when comparing the results of the current study against the Johnson, Schumacher and Stewart study (1990), findings revealed that Missouri agriculture teachers are currently teaching more students, in smaller laboratories with less money spent per student on agricultural mechanics laboratory consumables. Teacher experience and the number of university credit hours of agricultural mechanics instruction was considerably less as well.

Conclusions/Implications/Recommendations

Missouri agricultural mechanics programs remain a popular choice for secondary agricultural education students. A greater number of students are enrolled in agricultural mechanics classes than was the case a generation ago. However, when comparing the results of this study to those of the study by Johnson, Schumacher and Stewart (1990), findings revealed that today's teachers are now teaching more students, in smaller laboratories with less money spent per student on agricultural mechanics laboratory consumables. In addition, these teachers have less overall experience and less instruction in agricultural mechanics. Agricultural education faculty, state agricultural education supervisors and local school administrators should offer pre-service and in-service educational programs for Missouri secondary agriculture teachers who are responsible for managing and instructing students in an agricultural mechanics laboratory at public schools to assure that teachers are able to safely and effectively teach in these conditions. Future research should be conducted to determine: the size and scope of agricultural mechanics programs in other areas of the United States, the need for highly qualified, agriculture teachers, to teach agricultural mechanics, in secondary agricultural education programs throughout the United States and a nationally recognized list of agricultural mechanics skill competencies for new agricultural education teachers.

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**State Funded Curriculum Utilization in
High School Agricultural Education Classrooms**

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State Funded Curriculum Utilization in High School Agricultural Education Classrooms

Introduction and Theoretical Framework

With the ever-changing industry of agriculture along with the continuous development of agriculture course offerings in high schools today, teachers continue to struggle for the best method of developing or revising their curriculum to meet state core content standards. According to a recent study (Myers, Dyer, & Washburn, 2005), curriculum development and lesson planning was the third major problem faced by beginning agriculture teachers.

According to Boone, Gartin, Boone, & Hughes (2006), it is known that teachers lack the resources and knowledge to incorporate the subject matter into their curriculum. In one state, a federal grant provided a new resource for agricultural teachers. The Center for Agricultural and Environmental Research and Training, Inc. (also known as CAERT) created a compact disc and on-line database that allows teachers to create lessons, exams, and performance based activities. In addition, CAERT tied the curriculum with the state's core content standards and provided teachers in the state with three years of training on the utilization and implementation of the curriculum.

The theoretical framework for this study lies in the concept learning theory. This theory emphasizes "forming representations to identify attributes" and "generalizing the attributes to create new examples" (Schunk, 2004, p. 196). CAERT provided attributes for teachers in the creation of lesson databases, performance based activities, and assessment development. The teachers that attended the three years of training received the curriculum (cd-rom and online pass-code) and were then, expected to utilize the resource and create their own personal touch within the lessons. Identifying the teachers use of and their opinions toward the state funded CAERT curriculum (compact disc and online), can assist teacher educators in helping pre-service teachers in curriculum development and utilization of the curriculum resources. When the curriculum was first distributed in 2004, experienced teachers embraced the curriculum with enthusiasm and beginning teachers believed it would become a vital tool in establishing lessons (Hopkins & Horstmeier, 2005). Now in 2008, how much are the agriculture teachers utilizing the state funded curriculum in the selected state?

Methods

The purpose of the study was to determine the utilization of the CAERT curriculum among agriculture teachers in a state recently introduced to the compact disc and online resource. The objectives were to identify who was utilizing the curriculum and determine the effectiveness in the five following areas:

1. Classroom Instruction
2. Learning Environment
3. CAERT Evaluation
4. CAERT Training
5. Supervised Agriculture Experience

This study was descriptive in design. The population consisted of agricultural teachers from 1 to 37 years of teaching experience ($n = 137$). The state, in which, the teachers came from have provided three years of training to teachers on the utilization of the curriculum resource. The instrument was hand-delivered by regional representatives within the state teacher association conference, resulting in a 56% response rate. A five-point Likert-type scale (five representing very true and one as not true at all) was the design of the questionnaire. SPSS 16.0 analyzed the data.

Findings

Teachers provided us with inconclusive results when it came to utilizing the online curriculum. However when it came to the teacher's commitment in using the CAERT curriculum compact disc at least once a week, significant results differ within two of the five age groups (50-59 year olds; 85% while 22-29 year olds; 71%). Men were less confident than females in utilizing the CAERT curriculum compact disc, but both believed that the training had been beneficial for understanding the use of the CD ($M=4.02$, $SD=1.06$). This could be identified in the overall confidence in the ability to utilize the CAERT curriculum CD ($M=4.13$, $SD=1.01$). In similar fashion, the majority of the teachers believed teacher educators should be introducing the CAERT curriculum to pre-service teachers ($M=4.06$, $SD=1.07$).

Teachers within the state believed the state funded curriculum would be more beneficial with additional video clips ($M=4.20$, $SD=9.75$) while the current visual aids were slightly helpful to the classroom instruction ($M=3.69$, $SD=1.01$). Feelings were faintly greater than neutral that the curriculum is "up-to-date" with current agriculture trends ($M=3.80$, $SD=.805$). Other neutral views were noticed in the utilization of the CAERT curriculum CD more than other educational resources ($M=3.6$); the CAERT curriculum CD provides hands-on ideas ($M=3.4$); and CAERT provides assessment that matches that of the state mandated assessment ($M=3.6$).

Conclusions, Implications and Recommendations

Overall, the grant funded CAERT curriculum is being utilized by teachers throughout the state in agriculture education classrooms. Research shows that older teachers (rather than teachers within their first seven years) are utilizing the curriculum more than once a week. One reason for the experienced teacher use over younger generations may correlate to the new course offerings and increase of student enrollment in horticulture over the last ten years, but research is a recommendation. It is implied in the research that teachers are beginning to lose their creativity in developing their own lesson and assessments due to CAERT's benefits. With the push that universities should be training student on the curriculum use, additional research will be needed in assessing the pre-service teachers on their understanding of the CAERT curriculum and the methods of utilization. Teachers provided an understanding of their views, but this study could be beneficial for teacher educators if it was targeted towards the administrator's perspectives on department's utilization of the CAERT curriculum. Once teachers have utilized the curriculum for continuous school years, it will be interesting to see if the resource (connected to state core content standards) has served beneficial to student results on the state mandated exam.

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**Student Farms at United States Colleges and Universities: Insights Gained from a Survey
of Their Managers**

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Student Farms at United States Colleges and Universities: Insights Gained from a Survey of Their Managers

Introduction

College and university student farms play an important role in enhancing curricula by integrating research, extension and teaching missions, reinforcing classroom instruction, and improving job training. Student farms are sites of agricultural production and marketing at which students have, through coursework and/or internships, the opportunity to supplement classroom instruction with "real world" experience. The role of student farms in college curricula began decades ago, but recently, their initiation has increased. Despite the increasing presence of student farms, a study of their structure, programming, operating principles and resources had not been completed. Consequently, the development of new farms was hindered, as was learning amongst established farms.

Theoretical Framework

Within agriculture, use of practical, experience-based learning opportunities has been underused (Mayer, 1980). Recommendations to shift agricultural curricula to an experiential learning approach (Francis et al., 2001b; Knobloch, 2003), and specifically incorporate farm-based experiences (Parr et al., 2007; Steiner and Vogel, 2005; Trexler et al., 2006), have been made by many. Student farms are a prime example of one way in which to incorporate experiential learning into curricula.

College and university student farms have been in operation for over a century. Farms vary greatly in size and focus but a common thread is their role in providing students with the opportunity to gain valuable skills through a range of learning opportunities including coursework, major and certificate programs, continuing education, internships, and volunteering. Despite increasing presence of student farms, comprehensive research has not been conducted regarding their operating characteristics. This information would benefit schools aiming to establish a farm, as well as farms currently operating. Therefore, the purpose of this study was to describe the current status of student farms at colleges and universities in the United States.

Methodology

The study was conducted as a census of student farm managers at colleges and universities in the United States. Potential subjects were listed on The New Farm website's Farming for Credit Directory. A manager for each farm was determined and contacted by email to request a list of five other student farms of which they were aware were currently operating. Responses were added to the original list, yielding 80 college and university student farms, whose managers served as the frame for the study.

The researcher-designed questionnaire contained 36 quantitative and qualitative items designed to help gain a better understanding of the current status of U.S. college and university student farms. Content and face validity were established using a panel of experts. Data were collected using Dillman's (2000) tailored design method. A pre-notification postcard was sent to subjects, followed by an email notification, and two reminder emails including the survey link. Zoomerang™ online survey was used to administer the questionnaire which was posted from April 17-29, 2008. Response rate was 62.5 percent.

Results

College and university student farms exhibited great diversity in the number of students involved, size, and operating budget. A variety of programming options, including volunteering, courses, community activities, internships, field days, and research, were offered by student farms. Courses offered and program associated with student farms were most commonly related to sustainable and organic agriculture. In course and internship experiences, students were most commonly offered the opportunity for hands-on experience.

Undergraduate students provided the highest proportion of farm labor, followed by staff and volunteers. Undergraduate involvement was evaluated as most important in farm operations, followed by staff, faculty, and community member involvement. Undergraduates received the most significant value from the farm, in addition to the university, college, department, faculty, and community each receiving higher than moderate value.

Student farms most commonly produced vegetable crops and operated on organic principles. They were primarily located at land grant universities and liberal arts colleges in the eastern United States and on the west coast. A large majority of institutions at which farms were located offered courses in agriculture, while a slight majority offered major programs in agriculture. Over half of farms were established since 1990.

On average, student farm managers believed their student farm to be operating successfully. In addition, managers agreed the farm plays a role in attracting students to attend their college or university.

Implications and Recommendations

Student farms serve an important role in a range of educational settings, including at institutions lacking major programs and courses in agriculture. Because a diverse audience of students can benefit from involvement, student farm opportunities should be available to all students. A variety of programming options offers the potential to attract involvement from the greatest number of students. Hands-on experience, the opportunity most commonly offered to students in farm courses and internships, is a component lacking in most college courses. These real-life opportunities for skill-development and application of knowledge are valuable and serve as an important supplement to classroom-based instruction.

Involvement of various groups is needed for successful operation of student farms. Students provide the majority of the work effort, yet for learning opportunities to be most effective, assistance from knowledgeable faculty and staff members is necessary.

While student farms were commonly associated with sustainable and organic agriculture programs and courses, valuable learning opportunities exist, and should be offered, in a variety of disciplines. The greatest proportion of farms operated using organic principles, yet operating on varied principles potentially offers the greatest educational experience by allowing students to compare and contrast differing production practices.

Benefits of student farms extend beyond simply helping students. Universities, colleges, departments, faculty, and communities also received substantial benefit, and these factors need to

be considered in making decisions regarding support and resources devoted to student farms. One significant benefit, the student farm's ability to attract students to attend a college or university, needs to be capitalized upon by promoting the work of the farm and opportunities for involvement in various settings, including the recruitment of students.

Regardless of size, budget, and number of students involved, student farms are operating successfully. By continuing research in this area, farm success will be promoted and development of new farms facilitated.

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**Becoming the Teacher of Best Practices:
A Pre-Service Teacher Self-Assessment**

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Becoming the Teacher of Best Practices: A Pre-Service Teacher Self-Assessment

Introduction/Need for Innovation or Idea

It has been the question for some; “How do you create the perfect teacher?” Developing the perfect high school agricultural teacher is of no exception. Teacher educators continue to find new avenues of preparing and assessing pre-service teachers to be the most effective teachers. Research indicates good instruction, advising, professionalism, teacher relationship, and personal characteristics to be effective cooperating teachers (Roberts, 2006). In addition, it has been noted (Roberts & Dyer, 2004) that 40 characteristics in the areas of instruction, FFA, SAE, community relations, marketing, professionalism/professional growth, program planning/management, and personal qualities help in identifying expert agricultural teachers.

The purpose of this pre-service teacher self-assessment was to provide pre-service teachers with a tool for each to identify their perceived strengths and weaknesses as teachers. Then, based upon identified strengths and weaknesses, teachers develop professional growth plans in becoming a stronger teacher and leader in the classroom. In addition, the self-assessment informs the cooperating teacher and teacher educator with a roadmap of the most efficient direction of focus for the success of the pre-service teacher’s classroom experience.

How it Works/Methodology

During the summer of 2007, individuals (high school students, college students, teachers, professionals, retirees, etc.) from across a state and campus responded to one simple question, “What qualities does a great teacher possess?” The purpose of the question was to understand individual learners’ perceptions regarding the characteristics of expert teachers. Through a convenience -sample via telephone, classroom, email, and blog sites, individual learners provided feedback on the question. Learners varied in age (twelve to sixty-four years), location, and background all for a total number of one-hundred and eighty-two ($n = 182$). Learners chosen were at random to generate a variety of perceptions from their observations of teaching and learning.

In order to narrow the responses to a more focused and helpful self-assessment, a collection of accountability standards from the Indiana, Kentucky, Georgia, and North Carolina’s Department of Education was gathered. A list was developed of all the accountability standards; striking the duplications. After creating the list, a matching took place of question responses and accountability standards.

Following the completion of the matching, the creation of six core components in order to become a teacher of best practices was founded. The core standards that arose were: professional self, planning & reflection, student motivation & engagement, assesses & communicates learning results, ethically fair & honest, and becoming a systemic leader. The creation of a self-assessment, consisting of a five point Likert-scale, for the pre-service teacher was developed based upon the six core standards. In addition to the self-assessment, the creation of a hexagon matrix (each point representing a core standard) was developed in order to help the pre-service teachers visualize the strengths and weaknesses of their teaching.

Provided to the pre-service teachers at the beginning, middle, and end of the student teaching experience was the self-assessment and matrix. Pre-service teachers and cooperating teachers analyze the matrix (the results from the self-assessment) then develop growth and professional needs.

Results to Date/Implications

- Following one semester of implementation, the university has identified new areas of need in the course objectives while preparing agricultural education pre-service teachers. For example, pre-service teachers evaluated themselves high in the area of planning and reflecting which contributes to the vast amount of time and effort placed on developing a quality lesson. Teachers evaluated themselves as low performers in “assesses and communicates learning results”. As a result, the agricultural education department is dedicating an entire lecture, prior to student teaching, on the subject matter.
- Helped pre-service teachers garner their initial perceptions and identify where they need to be, which consisted of a combination of perceptions and standards.
- Cooperating teachers have expressed their appreciation in providing a system that enables them to focus on specific areas of growth in their pre-service teachers. In fact, cooperating teachers utilized the self-assessment on their own teaching.

Future Plans/Advice to Others

As students and education change, so does the responses to the ripe old question, “What qualities did your favorite teacher possess?” These responses and the change in state’s standards of accountability for teachers will force a continuation of research to keep the self-assessment and matrix up-to-date. Future plans for the pre-service teacher self-assessment is to create more thorough questions to help provide a more focused professional growth area for pre-service teachers and to help the university in creating instructional strategies that will prepare students for the educational setting. The university will keep an ongoing commitment to this project.

Costs/Resources Needed

The cost for the production of the pre-service teacher self-assessment is limited to the copy fees and the time spent training cooperating teachers and university coordinators how to administer and disseminate the matrix for the benefit of the pre-service teacher. Resources needed consist of the self-assessment/matrix, the pre-service teacher, the cooperating teacher, the university coordinator, and a professional growth plan.

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**Engaging Community Volunteers to Establish a Teaching and Learning Center in
Horticulture**

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Engaging Community Volunteers to Establish a Teaching and Learning Center in Horticulture.

Introduction/need for innovation or idea

The Horticulture Center being developed at Illinois State University covers twelve acres and “supports horticultural instruction, scholarship, public demonstration and outreach” (Illinois State University, 2007). The master plan for the site includes green certification, a main building with classrooms and conference room, greenhouses, a wind turbine, solar arrays and space for research plots as well as a series of themed or featured gardens including a Viburnum Walk, Prairie space, wetland and pond gardens. Currently, a Children’s Garden (including a “green roof” playhouse), the Viburnum Walk, research plots, and one of several themed gardens are in place. This year’s themed garden features a Nutraceutical Garden which focuses upon plants used for medicinal and nutritional purposes.

During the year, a number of public events were held to provide opportunities for community participation. Some of these events included elementary school fieldtrips, Ag in the Classroom tours, and specific events such as the Annual Autumnal Festival, Prairie Planting College for Youth class, and the Children’s Planting Party (Illinois State University, 2008).

One of the challenges to operating a Horticulture Center as an educational facility is the capability to get the required work done to maintain and operate the gardens when seasonal and budget considerations do not permit a large full-time staff. Volunteers are university and community members who make a commitment to the Horticulture Center and serve in one, or more capacities, as Horticulture Assistants, Special Activities Assistants, Special Events Assistants, and Education Assistants.

Extension and FFA continue to effectively utilize volunteers. Boyd (2003) cites The Independent Sector noting that volunteerism in the US had increased by over 17% since 1995. More recently, US Department of Labor statistics show that between 2003 and 2005, volunteerism held steady and then saw a slight decline in 2006 and 2007.

How it works/methodology/program phases/steps

The Horticulture Center Coordinator began recruiting in 2006. Started in late 2005, the Horticulture Center utilized students until fall of 2006 when the first volunteer was identified. Initial recruiting occurred via word-of-mouth and by the March of 2007, the inaugural class of seven volunteers had been recruited and attended the orientation meeting and training. Of those seven, four were active for the 2007 season. In 2008, those returned, four more volunteered for a total of eight, of which six were active. These active members were supplemented by a number of temporary volunteers, (many were family or friends recruited by the volunteer staff), who assisted with specific tasks or events.

Formal Volunteers completed an information sheet and were provided a handbook and attended an orientation meeting early in the spring. During the season, email was used to maintain communication with volunteers and a set schedule was used for most regular activities. Volunteers normally worked two evenings a week, plus Saturday mornings during June, and one evening a week and Saturday morning during the later summer. At all times volunteers were

under the directions of the Horticulture Center Coordinator. Additional time was contributed during special events, and individual members often contributed additional time on specific tasks as assigned.

Educational field trips were utilized to bond the group, build camaraderie and provide a chance for the group to learn additional skills and gain insight into the horticultural field. These trips have included tours of gardens, historical sites, and nurseries.

Results to date/implications

The use of volunteers to date has been deemed successful by the coordinator, administration and the volunteers themselves who enthusiastically promote the Horticulture Center. Their efforts have helped accelerate the expansion of the Horticulture Center gardens and programs.

The number of hours contributed per month to date in 2008 range from 1 to 90, with an average of 20. United States DOL (2007) data indicate that the median number of hours contributed per year is 52, ranging from 92 (age 65+) to 36 (25-34 years of age). Volunteers at the ISU Horticulture center range from students to retired.

A summary of the data provided on the information sheet volunteers complete prior to their experience provides insight into the demographic make-up of the group, as well as the motivations to volunteer. Of the 10 volunteers who provided feedback, 60% were female, half had a high school education with the rest having either a BS degree or higher. Six of the 10 were employees of the university and had previous volunteer experience. Those experiences covered a wide range of groups, such as Habitat for Humanity, religious organizations, Sierra Club and the National Audubon Association. Research by the US DOL(2007) indicates that most volunteers do so for only one organization and that 36% of volunteers do so for religious organizations, 26% for educational or youth organizations and 13% worked for social or community service organizations. This suggests that targeted recruiting efforts may be a logical approach. Indeed, the same study indicates that nearly 45% of volunteers became involved because they “were asked”. This also suggests that the current participants may play a significant role in engaging future volunteers. The primary reason listed for begin a volunteer was service (6) followed by being outdoors and learning (5 each).

Future plans/advice to others

The use of volunteers will continue and be expanded. Additional follow-up studies may also yield additional insight into the motivation of those individuals who volunteer at the center and provide guidance in future recruiting efforts. A more formalized recruitment and training program is also envisioned.

Costs/resources needed

Costs are minimal for the volunteer program. In fact, many of the volunteers also financially contribute to the center. Resources include the tools needed for the volunteers to complete their jobs successfully and to provide support for activities such as the field trips.

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A Framework for Linking Evaluation Questions to Program Outcomes

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A Framework for Linking Evaluation Questions to Program Outcomes

Writing focused evaluation questions is a very challenging task. Even more challenging is linking evaluation questions to outcomes. Evaluators, researchers, faculty, and staff spend considerable time and resources to develop evaluation questions. Description of the program, its intended objectives and what key stakeholders want to know about the program are critical to developing evaluation questions. The purpose of this innovative idea poster is to provide a roadmap for linking evaluation questions to program outcomes. First, the poster describes the key components involved in developing evaluation questions from the start to the end. Second, it describes a logical, sequential framework for linking evaluation questions to program outcomes (short-term, immediate, and long term outcomes), highlighting how it is expected to work, what should be done and utilization.

A clear understanding of the program and its objectives is a critical first step in developing evaluation questions. Such understanding will help write focused evaluation questions. A second critical step is to know why you are doing this evaluation. In other words, what is the purpose of the evaluation—program improvement, program justification, generating new knowledge and theories. Develop a clear purpose for evaluation by involving stakeholders and other program staff. Figure 1 provides a roadmap for linking evaluation questions to program outcomes.

Once you generate a clear purpose, the next step is framing evaluation questions. In general, you can frame questions in two forms: 1) process (formative) and outcome (short-term, immediate, and long term outcomes) questions (Langmeyer, 2008). Process questions help answer how well are we doing what we set out to do? Are we implementing activities as intended in order to get the results we want? Examples of process questions are: 1) Are key components of the program in place? 2) Is appropriate staff/volunteers in place and possess the necessary skills? 3) Do we have the right mix of activities? and 4) Are we reaching the intended target audience?

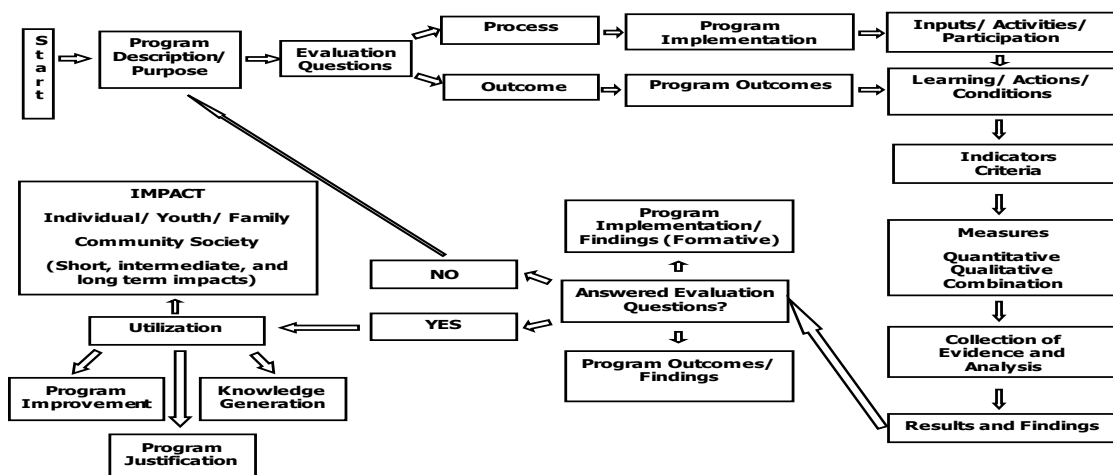


Figure 1. Schematic Description of Linking Evaluation Questions to Program Outcomes

Outcome evaluation questions address how the program activities relate to changes in KASA (knowledge, attitude, skills and aspirations) and behaviors of participants. In other words, it helps measure program effects on participants. In this phase, decision regarding the type of questions--- KASA and behavior changes should be made. Both process and outcome evaluation questions help

determine activities needed to achieve the intended outcomes. Do the learning activities (workshops, demonstrations, etc.) bring about the KASA and behavior change in program participants? Figure 2 provides a summary of process and outcome questions and their use in evaluation. As you write KASA questions, keep in mind the scales of measurement the indicators, methods of data collection and analysis, and criteria to determine program success.

Evaluation Questions	What it Measures	Why useful	Methods
Process	How well the program is working? Is it reaching the intended people?	Identifies early on any problems that occur in reaching the target population Tells how well the plans developed are working Allows for making adjustments before the problems become severe	Quantitative Qualitative Combination
Outcome	Helps measure immediate changes brought about by the program Helps assess changes in KASA	Allows for modifications in terms of materials, resource shifting, etc. Tells whether or not programs are moving in the right direction	Quantitative Qualitative Combination

Figure 2: Summary of Process and Outcome Evaluation Questions

Findings/results should indicate whether or not the evaluation questions were answered. It is very important to link the results to the criteria to determine the success of the program. If the results were found as expected, then you have to decide on what should be done next, that is, utilization. As suggested by Patton (1997), Chelimsky (1997), and Weiss (1988), utilization can occur in three different areas: program improvement, program justification (accountability), and knowledge generation. See Figure 3. If the results were not as expected, then the program staff should re-examine the purpose, evaluation questions, activities conducted, resources expended, and also determine what went “wrong” or “what was not done.”

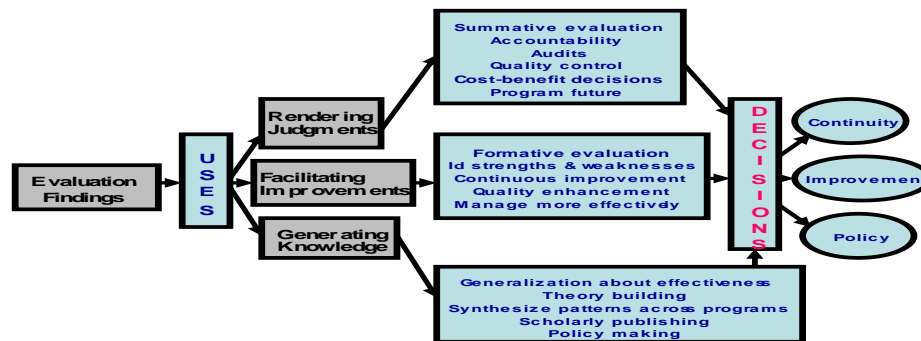


Figure 3: Primary Uses of Evaluation Findings

In summary, asking right evaluation questions will help focus your evaluation, set objectives, anticipate problems, make needed improvements, and manage resources wisely. Further, evaluation questions should reflect a thorough understanding of the program operations, its intentions, and the target audience. Consider the following general tips provided by Wortley (2008) and Radhakrishna (2007) to develop evaluation questions: 1) Is it important to your program staff and stakeholders? 2) Does it reflect the purpose? 3) Will it provide the needed information/data you need to make program improvements? And 4) Can it be gathered using available resources. Finally, consider program evaluation upfront. One important strategy is to integrate program evaluation into the program development process.

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**An Undergraduate Peer Teaching Approach to
Portfolio Development Across the Curriculum**

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An Undergraduate Peer Teaching Approach to Portfolio Development Across the Curriculum

Introduction

As senior students complete their undergraduate education, evidence of qualifications and skills obtained for entry level positions is important for both the students and the academic unit. One method to achieve this is a portfolio. A portfolio is a reflective self-portrait of the learner (Wright & Barton, 2001, p. 69). More and more students are preparing portfolios to document their academic preparation while in college.

This project utilized undergraduate peer teachers to introduce electronic portfolios throughout the agricultural and extension education (AEE) curriculum. Thus, students were able to learn with and from each other without the course instructor in the vicinity, which is how peer-assisted instruction is defined by Boud, Cohen, and Sampson (1999). According to Pascarella and Terenzini (2005) peer interaction with content matter positively impacts knowledge and skill development in college.

Four undergraduates were recruited to work with undergraduate Agriculture and Extension Education majors in two courses that are concurrently instructed during the Winter Quarter: Introduction to Agricultural and Extension Education, and Senior Seminar in Agricultural and Extension Education.

The Plan

The Autumn Quarter served as the design phase. During the design phase, course instructors and the undergraduate students selected as Portfolio Coaches meet on a weekly basis to discuss portfolio goals, learn the software that would be used, and pilot test the program. The students utilized *Folio21*®, a standard electronic portfolio format supported by the career services office of the college of agriculture.

The Winter Quarter was the implementation phase. During the implementation phase, the peer teachers held regular office hours to provide one-on-one assistance to the students as they developed their electronic portfolios. Additionally, students prepared and delivered instructional lessons during class sessions of the selected courses. At the end of the implementation phase, evaluation occurred with feedback from the course instructors, the undergraduate peer portfolio coaches and the students in the classes.

Results to Date

The four peer teachers spent seven class hours instructing students about *Folio21*®, held regular office hours making instruction assistance available for an additional 40 hours in the 10 week quarter. Peer teachers consulted with 22 students a total of 36 times resulting in 40 completed electronic portfolios. Students' portfolios included their professional resumes, philosophy of teaching, philosophy of experiential education, units of instruction, lesson plans, extension programs of work, samples of their scholarly writing, photos, and digital videos. Students keep their portfolios on the college's career services website and can give any potential employer access to view their accomplishments.

All students in the two courses left with enduring evidence of their scholarly achievements as they complete their degree and prepare for their careers in agricultural and extension education.

Looking Ahead and Advice to Others

Electronic portfolios will be continued to be used in the department in the foreseeable future. Employers are increasingly having higher expectations of technological capabilities of future employees.

In the future, more effort will be made to align electronic portfolios of teacher candidates with local, state, and national standards. Additionally, as the students become more familiar with the *Folio21*®, there will be less need for peer coaches. Peer coaches are, however, highly recommended for initial implementation of new technology in a program.

Costs/resources needed:

Costs were congruent with costs associated with the instruction of any undergraduate course. The software was provided by the career services offices of the college of agriculture. Additional costs included stipend funds for undergraduate peer portfolio coaches amounting in \$3,000. These funds were acquired through a UFTP grant.

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Planning an Agricultural Education Program: A Real World Experience

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Planning an Agricultural Education Program: A Real World Experience

Introduction

Iowa State University offers a senior level course on *Planning Agricultural Education Programs* (AGEDS 401/501) that is required of all students who are preparing to become high school agriculture teachers. The content of this course is consistent with Wilson, Camp and Balschweid's (2006, p. 74) "proposed framework for an agricultural education pre-service program planning course". The AGEDS 401/501 instructor was interested in teaching the course in a way that was more meaningful to students by emphasizing real world application of the content. A program planning class project conducted at Cornell University (Moore, 2005) provided inspiration for development of a project appropriate to Iowa that was authentic, service-oriented, and applied an experiential learning process (Roberts, 2007). Such course projects might contribute to the TeamAgEd (n.d.) effort to "create new programs in communities not yet served by agricultural education and FFA and to strengthen the quality of current programs".

Methodology

The instructor for AGEDS 401/501 identified a high school principal who was interested in adding an agriculture program to their career and technical education course offerings. The principal agreed to cooperate with the AGEDS 401/501 class. In return, the instructor agreed to work with AGEDS 401/501 students to (1) gather needs assessment data from key community stakeholders, (2) design a customized agricultural education curriculum, (3) prepare recommendations related to effectively utilizing a local FFA chapter, (4) prepare recommendations on how to develop appropriate supervised agricultural experiences, (5) prepare recommendations on forming and utilizing a program advisory committee, and (6) present recommendations at a school board meeting or in another appropriate forum suggested by the principal.

Five undergraduate and two graduate students were enrolled in AGEDS 401/501 and they collaborated with the instructor in creating the class project. The project directly accounted for 25% of the course grade. The project was integrated throughout the course and was aimed at accomplishing the course objectives while allowing student choice about areas they wanted to focus on more intently. A committee structure was devised with each person chairing a committee, and serving on two other committees. Committees included: (1) student interest, (2) demand for skilled employees, (3) curriculum and articulation, (4) FFA, (5) SAE, (6) advisory councils, (7) overall management and presentation. The first six committees were responsible for preparing a written technical report and an oral presentation. The reports served dual purposes of teaching the class about the focus area and serving the need of the cooperating school district for technical assistance in preparing an Iowa Department of Education program approval request. Each committee received feedback from the instructor and other students and revised their materials in preparation for the final report. The overall management and presentation committee was responsible for integrating the committee reports into a final portfolio that included an executive summary and a videotaped presentation.

Results

Committee activities and related outcomes included:

- Identification of agricultural subject areas that were most interesting to 292 (75%) students in grades 7-11 in the cooperating school. This was accomplished through an Institutional Review Board approved survey.
- A detailed demographic and economic profile of the communities surrounding the cooperating school. This profile demonstrated the significance of agriculture and the need for agricultural education at all levels.
- A curriculum plan based on student interest and the community profile. The proposed curriculum included six courses – Introduction to Agriculture, Natural Resources, Outdoor recreation, Agricultural Business, Animal Care and Health, and Agricultural Economics.
- A plan to articulate the Agricultural Economics course with a local community college.
- A list of possible placement, entrepreneurship, research, and exploratory supervised agricultural experience programs consistent with the proposed curriculum.
- Short term and long term goals for the agriculture program related to SAE.
- Directions for chartering a new FFA chapter and recommendations for FFA activities related to the proposed curriculum.
- Recommendations for establishing and utilizing a program advisory committee.
- A team presentation at the cooperating school involving the school administration, and representatives from the area education agency, the local community college, and the Iowa Department of Education.

Student evaluations for AGEDS 401/501 averaged 7.57/9.00 (scale 1-9 with 9 being best) for the program planning course and 7.43/9.00 for the instructor. When compared to the previous semester the course evaluation was .26 points lower and the instructor evaluation was .73 points lower. As a supplement to the standard course evaluation, students were asked to provide feedback on the course project. They offered suggestions for improvement but overall indicated that it had been a success. Positive comments about the project included:

“All of the pieces fit together to make a valuable experience”.

“Taught me a lot in regards to what goes into an ag program”.

“It was useful in learning the material and really applied experiential learning concepts in the classroom”

Future Plans/Advice to Others/ Resources Needed

Plans for AGEDS 401/501 are to pursue more student-centered, authentic, service-oriented, and applied experiential learning processes in the future. The project created an extraordinary level of student effort because they were genuinely concerned about assisting the cooperating school. We learned that such projects require instructor and student flexibility. We also learned that some students experience uneasiness with freedom and shared responsibility for pursuing course objectives. The course project required no additional resources. Supplies and transportation costs were similar to previous semesters and were simply applied to the course in different ways.

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Rural Schools Association of New York State

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Rural Schools Association of New York State

Introduction

The Rural Schools Association of New York State (RSA) was founded in 1978. It was recognized that the 400 small and rural school districts of the state had special needs and concerns. RSA is housed at Cornell University. The College of Agriculture and Life Sciences has a long history of support for rural New York, and it allows the RSA to draw on this rich resource base to help address the needs of rural schools.

How Does It Work/ Methodology /Program Phases

- a. How Does It Work - A Board of Directors representing ten zones within the state governs the RSA. Member districts within each zone select one to three directors depending on the number of member districts within the zone. Additional board members are appointed by RSA affiliate organizations such as CALS, the Farm Bureau, and the Grange. RSA has a paid staff of three: Executive Director, Deputy Executive Director, and Office Manager

- b. Methodology - The Board of Directors meets on three occasions during the year: November – a two day retreat that includes a business meeting, April – a business meeting, July – a business meeting held in conjunction with the Annual Conference of the association. The Board operates with a committee structure that includes an Executive Committee, Legislative Committee, Member Services Committee, Policy and Long Range Planning Committee, and a Research Grants and Member Surveys Committee

- c. Program Phases - The RSA Board of Directors identified 6 organizational goals that guide the work of the association. They include: 1) Strong Advocacy for unique rural needs and concerns. 2) Initiating research pertinent to the needs of member districts along with the dissemination of the research findings. 3) Conducting an Annual Conference concerning the broad issues facing RSA members. 4) Serving as a clearinghouse for information and expertise on issues related to small and rural school districts. 5) Promoting communication among members and with the public. 6) Connecting the resources and research capacity of Cornell with member districts.

Using these goals as a framework for action, there are specific program phases that guide the work of the association:

- (1) Annual Retreat - This is a two day event held in November of each year. An appropriate speaker/researcher is identified to discuss pertinent rural school issues, and action plans are created to address these issues.

- (2) Advocacy Day – Representatives from the Board of Directors convene in the State Capital in mid-March to meet with the elected officials to discuss legislative issues as outlined in the Annual RSA Position Statement.
- (3) Annual Conference - Conducted in mid – July of each year, it is theme based with a focus on key issues facing rural schools. For example, this year’s theme features networking and partnerships to strengthen rural schools. The program includes two keynote speakers, nine workshop sessions, an update on Cornell research initiatives, and student oratorical contest winners from FFA.
- (4) Membership Survey - An Annual Survey of the membership is conducted in August of each year. Data from the survey helps to shape the Annual RSA Position Statement and influences the work plan of the association.
- (5) Response to Member Requests – Throughout the year, RSA provides consultant assistance to member school districts. This work includes school merger studies, Superintendent searches, and workshops as requested

Results to date/ implications

RSA has 270 member districts; 70% of all eligible districts in NYS. The high participation can be attributed to the support the association provides its members. For example RSA partnered with the Magellan Foundation to offer a series of workshops related to dropout prevention. More than 1000 educators participated in 17 workshop programs across Upstate New York. RSA worked with the NYS Legislative Commission on Rural Resources to establish the Rural Education Advisory Committee; another vehicle to serve the needs of rural schools.

Future Plans/ Advice to Others

The most pressing issues for New York State rural schools are linked to outmigration and declining enrollment. Our focus will be on helping local school districts cope with this new reality. For those considering the creation of an association in their states, consideration should be given to the following: a) Identify a local college offering agriculture and life science programs that have an interest in working with rural schools. b) Connect with the National Rural Education Association. c) Identify local and state elected officials with an interest in rural issues. d) Work with partner organizations such as the Farm Bureau and the Grange e) Organize an advisory panel of well connected individuals to help in the creation of a business plan.

Cost/ Resource Needs

The success of the New York State Rural Schools Association can be attributed to its close affiliation with the Department of Education in the College of Agriculture and Life Sciences at Cornell. This partnership provides a solid foundation on which to build. RSA has a modest budget of \$180,000 supported by membership dues, and other revenues from the RSA annual conference and consultant work provided by staff.

References

- a. National Rural Education Association
- b. State Farm Bureau
- c. State Grange
- d. Other State Associations

**Revisiting the Senior Capstone Experience:
*Developing Cooperative Professionals***

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Revisiting the Senior Capstone Experience: *Developing Cooperative Professionals*

Introduction

In 1990, committees for academic affairs across college began the process of implementing two curriculum changes for all degrees. First, a set of guidelines was prepared for a third writing course in each major required for graduation. At approximately the same time, the academic committee also recommended that a five credit senior capstone course be enacted with the rationale that students would experience an integrative learning environment tying together their previous course and degree experiences. Thus, the five credit AEE 630 capstone course for Agriculture and Extension Education majors was born. In 2007, after reviewing previously collected student feedback, the academic unit determined that the capstone was not operating at the course's potential. Therefore, a new course structure was designed wherein students would meet as a whole on Tuesdays and split in to specialization area specific lab sections (formal and non-formal) on Thursdays to prepare students as much as possible for their post graduation plans. Within this new course format, it was determined that the cooperative learning pedagogy would be implemented. Thus the holistic course objectives, or *Enduring Understandings*, which are those things that (a) have enduring value beyond the classroom, (b) reside at the heart of the discipline, (c) require uncoverage, and (d) offer potential for engaging students”(Wiggins and McTighe, 2000), for the teacher candidates that complete AEE 630 are as follows. The candidate will be able to: (1) Successfully expand/enhance a professional network of peers and colleagues in order to communicate ideas effectively in solving problems they may face as professionals based on professional ethics; (2) Expand professional practices/dialogue in preparation for careers in agricultural and extension education, including developing a professional portfolio exhibiting their personal philosophy of education; and,(3) Critically analyze issues impacting agricultural and extension education from state, national, and international perspectives.

The Plan

The pedagogy for the class will involve cooperative learning. Course work is designed to achieve the five characteristics of cooperative learning as identified by Johnson and Johnson (1999) including: positive interdependence; face-to-face interaction; individual and group accountability; interpersonal and small group skills; and group processing. The entire course structure will be designed to provide the opportunity to achieve and maximize those characteristics in this capstone course. Problem-solving through cooperative learning will be accomplished by solving real problems (Lancelot, 1944) through reflective practice (Schon, 1989). The real problems to be solved will be gleaned from the 630 student's collective field experiences located in school communities across the state. These previous field experiences provide students first hand knowledge and intrinsic need to determine solutions.

Results to Date

The instructors have pilot tested the course concept in 2008 and for 2009 have conducted a 5 “G” analysis as prescribed for cooperative learning by Tschannen-Moran & Woolfolk Hoy (1999). The 5 “Gs” are: Group, Goals and Tasks, Getting There, Guiding the Process, and

Glimpsing Backward, Glimpsing Ahead.

Group- This group or cohort of students should be at the same cognitive development level. The hope of the instructors is that all students have achieved Piaget's formal operation status (Wadsworth, 2004). As these students will all be of senior standing, they will have a similar base of course work and experiences which should normalize their readiness for new challenges. One concern of the instructors is over-familiarity as opposed to not being familiar enough with each other. To address this concern, instructors will attempt to integrate all specialization areas in the group composition for the issue campaign. Those students who are not expert in a skill area will be grouped with those that are.

Goals & Tasks- The specific goals of the class are described previously in the introduction. Cooperative learning techniques will be used to assist in the further development of the professional network through analysis of a specific issue via the issue campaign course project.

Getting There- The central task of the course will be the issue campaign proposal. Students will have the opportunity to confer as a team and select the issue their campaign will be centered upon after the second class session. Aspects of all issues will be addressed indirectly in other class sessions leading up to the class presentation sessions. A class session will be provided as independent work session to allow group members to reflect and work cooperatively. The final session will be an issue fair where all students in the department, guest speakers from the course, faculty and other strategic partners will be invited to attend to see the displays and speak to the students about what they have learned and experienced regarding their issues. The class sessions prior to student presentations will incorporate smaller cooperative learning structures in order to facilitate the development of group camaraderie and skills. The shorter time frame learning structures will allow for the instructor to analyze group dynamics on a routine basis and their potential for future success.

Guiding the Process- First, cooperative learning structures will be implemented early and often during the initial course sessions. This will allow the instructors to witness group dynamics and also provide a training ground for cooperative work skills as needed. Instructors will be able to adapt as necessary or needed to ensure class success. Next, eight unique artifacts of learning will be due through the course. If a group is not meeting expectations, instructors will have time to intervene and redirect in order to ensure student and course success. Finally, upon the completion of each class session students will be expected to participate in a web based discussion about the content of the session. This will hold individual accountability higher and allow for instructors to assess gains towards cognitive goals.

*Gazing backward, Glimpsing Ahead-*The key to the reflective practice of the instructors is to keep in sight the course holistic objectives. Keeping the course goals previously described in mind will allow for instructors to make the necessary adjustments through the course. Additionally, a mid-quarter and end-of-quarter course evaluation will be conducted in order to ensure the course is operating as efficiently and effectively as possibly. Looking ahead, some challenge may exist in the issue selection process. It is the hope of the instructors to be

able to provide enough information to get to where we need to be on topics chosen, but also have students feel buy-in or ownership in the issue they choose or select.

Costs/resources needed:

Costs are congruent with costs associated with the instruction of any undergraduate course.

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