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Agriculture in a Global Context: Innovations in Multidisciplinary Experiential Learning in Undergraduate Education

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Colleges of Agriculture provide outstanding discipline specific undergraduate and graduate programs that provide students with comprehensive technical skills. Through strong liberal arts requirements, they also enable students to obtain broad-based general college educations. However, they typically do not provide students with capstone multi-disciplinary and global perspectives on the industries in which they intend to establish their careers. Thus there is a compelling need for Colleges of Agriculture to develop educational programs that meet these important needs.

The *Agriculture in a Global Context* project has four important innovative dimensions. First, it represents a College of Agriculture wide initiative to give students capstone course experiences that integrate knowledge from several disciplines to provide them with a comprehensive multi-disciplinary and global perspective of agricultural industries. Second, it emphasizes experiential learning throughout the entire course curriculum. Third it utilizes distance learning technologies and faculty teaching teams to enhance collaboration between a traditional land-grant institution and 1994 land grant institutions. Fourth, it enhances the quality of agricultural higher education available to Native American communities.

Program Phases

At the request of the Dean of the College of Agriculture at Montana State University, faculty in the departments of Plant Sciences, Land Resources and Environmental Sciences, and Agricultural Economics developed as a pilot project a senior level capstone course. *Follow the Grain* focused on the cereal grain industry from variety development to the consumer in the Pacific Rim, and was taught in the Spring of 1999 as a cross listed senior level seminar course open to all majors. The success of this course spurred faculty to develop the *Agriculture in a Global Context* proposal (which was funded by the USDA Higher Education Challenge Grant program) to establish other international agriculture courses. The courses offered through this project (1) are multi-disciplinary, (2) focus on the importance of the sciences, economics, education, and business to the agriculture industry, and (3) provide students with experiential learning opportunities in the laboratory, in field experiments, on the farm, in rural communities, and in domestic and international distribution, processing and marketing. The following three courses were developed and offered during the 2000-2001 school years:

(1) *Follow the Grain*, a senior level multi-disciplinary seminar course examining the small grains industry, from bench science to international marketing;

(2) *From Gate to Plate*, a junior/senior level multi-disciplinary course examining the beef livestock industry from bench science to international marketing;

(3) *Agricultural Science and Economic Development among Limited Resource Farmers*, a junior/senior level course examining the contributions of the agricultural sciences and social sciences to enhancing productivity and economic development among limited resource farms in the United States and other Western Hemisphere countries. This course utilizes the Participatory Rural Appraisal (PRA) process to evaluate challenges and opportunities in rural communities.

Progress has been made on the second objective of enhancing collaboration in education between traditional land-grant institutions and 1994 land-grant institutions. The State of Montana has seven 1994 land-grant institutions. Each of the three courses has been offered to students at two of the seven 1994 land-grant institutions – Ft. Peck and Dull Knife Memorial College. This has been accomplished through the use of distance learning technologies available

through the Burns Technology Center at Montana State University - Bozeman and at both tribal colleges.

Results

There are three substantive national educational impacts of this project to date. (1) Three innovative model multi-disciplinary courses have been developed for junior/senior level undergraduates that provide comprehensive perspectives on the relevance and role of agricultural sciences and social sciences in major agricultural industries. (2) Effective models have been developed for the collaborative development and delivery of advanced undergraduate agricultural science and social science courses between traditional and 1994 Land Grant institutions. (3) Collaboration between instructors from different science and social science departments in team teaching undergraduate courses has been achieved using effective models. These models are available for review at the project web site aginternational.msu.montana.edu and demonstrate the potential of multi-disciplinary curriculums and their effectiveness.

Future Direction

Students can be reluctant to participate in new offerings that include the expense associated with international travel. Instructors must actively recruit students who would benefit from the experience, allowing for adequate lead time to raise the funds required for the trip. A greater marketing effort would attract students from across the college that might not be familiar with the instructor(s).

One Montana Agricultural Education instructor enrolled in the Limited Resource Farmers course. The instructor stated that the course and international experience was invaluable and beneficial to him as a secondary educator. Future plans include offering an international course and travel experience for secondary agricultural educators, which will provide them with the knowledge needed to incorporate international components into their curriculum.

Cultural issues can have a profound impact on consumer buying patterns. *Agriculture in a Global Context* courses should include a larger cultural and language component to adequately prepare students for the international portion of the course. In turn, this better prepares them to be “global-ready” graduates.

The success of the three courses has spurred interest from other College of Agriculture instructors to develop experiential learning opportunities. A clearinghouse needs to be developed to facilitate the development of new experiential courses and assist instructors with the complexities of group international travel.

Animal Sciences Education Design Team: A Partnership Providing Web-Based Instructional Resources in Livestock and Meat Evaluation

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One of the goals of the Florida Cooperative Extension Service is to identify problems and issues faced by teachers, agents, and leaders throughout the state. Once these issues have been identified, they are classified as a State Major Program and a design team is formed to address them (<http://extensionsmp.ifas.ufl.edu/>). Design teams exist as partnerships between extension specialists, university faculty members, extension agents, agricultural science teachers, and industry representatives. FL 711- Animal Sciences Education is the design team dedicated to, among other things, determining the needs of youth animal science education programs, both formal and informal, and provide teachers, agents, and volunteers with curriculum and instructional resources to teach youth about animal sciences (<http://extensionsmp.ifas.ufl.edu/fl711.htm>).

The quality of instruction provided by agricultural science teachers, extension agents, and volunteer leaders is directly related to the instructional materials for which they have access. A major issue identified by the design team was the lack of quality instructional resources in the area of livestock and meat evaluation that teachers, agents, and volunteers could utilize easily, efficiently, and effectively. Varrella (1989, p. 20) stated, "...there is a wealth of instructional material available to use that will serve many of our needs, if we can only access the material effectively and use it efficiently." Since numerous high-quality resources related to livestock and/or meat evaluation are already available on the World Wide Web, design team members decided to create a web-based resource for use by their clientele. The design team identified two primary goals of this web-based resource:

1. To identify sources of information on livestock and/or meat evaluation that could be used effectively to teach animal science related information to youth.
2. To make such sources of information readily available to teachers, agents, and volunteer leaders throughout the state as efficiently and effectively as possible.

Methodology

The first step in creating this web-based resource was to decide what topics to include. The authors decided to include sections on: terminology, live animal evaluation, carcass evaluation, meat judging, live evaluation practice, and other interesting and useful links. Once the components to be included in the resource were identified, the primary author located high-quality sites currently available on the World Wide Web.

For the live evaluation practice section, the authors took pictures of all the live cattle and hogs used in the Livestock and Meat Evaluation class at the University of Florida during the spring semester of 2001. Once animals had been evaluated live, they were processed and carcass data were collected. Pictures of side and rear views of each animal are included as well as the complete set of carcass data for each animal. This allows users the opportunity to practice their live evaluation skills and then check for accuracy by comparing their estimations to the actual carcass data.

Prior to being assigned a permanent web address, the website was viewed by all members of the design team to check for accuracy and to ensure that the resource accomplished the goals set by the design team. Once approved by the design team, the website was assigned a permanent address and promoted throughout the state.

Results

The web-based resource is currently available to teachers, agents, leaders, and any other interested individuals through a link on the University of Florida Department of Animal Sciences Youth Programs Homepage. Interested individuals who have contacted the design team have been given the web address.

It is the hope of the authors that many teachers, agents, and volunteers throughout the state will utilize this resource in a variety of ways. The resource is designed to be used not only to train competitive event teams, but also to integrate the concepts and skills of live animal and meat evaluation into formal and informal educational activities.

Future Plans

The authors' plan to continue to add resource links, additional live animal pictures and carcass data, as well as a new section on carcass evaluation practice to the resource in the future. Each spring semester, the authors plan to take pictures of all of the live animals used in the Livestock and Meat Evaluation class as well as pictures of the carcasses to be added to the website. The authors will also make necessary changes to the website based on user comments as more and more individuals use the resource as part of their instructional resources.

Costs

In terms of costs, the time and effort of the primary author was the only cost associated with the initial development of this web-based resource. Future costs may include monetary compensation to future individuals contributing to the maintenance of the resource.

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“Austin... we have a problem!”

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In the distant past as in the present, the management of the diverse Agricultural Education facilities has fallen to the teacher(s) in that program. Since the late 1980's there has been little or no systematic state-wide effort to review or inspect Agricultural Education facilities. This is due in part to the philosophical change in the Texas Education Agency (TEA) during the 1980's during which “local control” and reduction in TEA administration costs became a major focus.

Before the philosophical change the Texas Education Agency Department Agricultural Education had approximately 18 staff members, ten of these were Area Coordinators and these individuals visited programs consistently. Part of the “visitation” included a review of equipment, facilities, and maintenance procedures.

During the past fifteen or more years these duties have fallen to the administrators of the local campuses. Most of these administrators have no experience in Agricultural Education or Career and Technology Education. Furthermore, most universities in Texas no longer require a Career and Technology or Vocational Education class to receive a principal or superintendent certificate.

Methodology

A stratified random sample of 100 Agricultural Education programs in Texas was selected from the Vocational Agriculture Teachers Association of Texas (VATAT) database of Agricultural Education programs. Ten schools were selected from each of the ten VATAT / FFA areas which created a geographic randomness. To further randomize the sample according to school district size, two schools from each of the five different University Interscholastic League (UIL) classifications were selected within each area.

The researchers developed an instrument from a review of the literature. The objectives of the study required that the data be collected on site by direct observation. Two schools were selected for review in the Tyler area so the researchers could refine the instrument and expectations to each of the items on the instrument.

Each of the schools Agricultural Education Teachers as well as the school administration was contacted concerning participation in the study. The four researchers personally visited and reviewed 94 of the selected schools during the spring and summer of 2000.

This poster will illustrate with pictures and charts the concerns found by the researchers.

Results

The review of facilities gave the researchers an overall impression that the teachers have in general failed to create a positive safety climate within their facilities. The majority of the facilities were neat and orderly but many had major safety concerns including poor arrangement of equipment, improperly stored supplies, improper floor markings, few updated safety signs, poor lighting, improperly marked exits, nonworking fire alarms and improper storage of combustible wastes.

There were concerns with the quality and quantity of personal protective equipment available for use by the students. These include safety glasses, clothing, shields, gloves, respirators, earplugs, respirators, goggles and steel-toed boots. Furthermore, the vast majority of facilities did not have an eyewash nor an emergency shower.

Inadequacies with tools and equipment also existed in that many of the guards and shields for moving to protect students from moving parts were missing or inoperable. Discrepancies in commonly used procedures and repairs to welding, cutting and brazing equipment were identified, as well as, major concerns with electrical, compressed air and environmental safety within these facilities.

Preliminary results indicate that many of the safety concerns could be corrected with little financial burden on local school districts. The most serious concerns were in the span of control of the teacher and with modification of the administrative procedures many of the most common concerns can be mended. These concerns ranged from shop cleanliness, storage, misuse of tools, equipment arrangement, tool room management, chemical and solvent storage and methods of teaching safety.

Recommendations

1. Workshops should immediately be developed for administrators and agriculture teachers concerning safety expectations in Agricultural Education Programs.

2. A manual to help administrators and agriculture teachers identify proper facility organization, equipment arrangement, supply storage, personal protective equipment, electrical safety, environmental controls, compressed air, fire concerns, combustible storage and general shop safety should be developed.

3. Pre-service teacher programs should immediately address safety issues and expectations within agricultural education facilities.

4. This study should be repeated in Texas and other states in an effort to continuously and systematically develop a state-wide and nation-wide.

The researchers understand the reluctance of teachers and state staff to bring attention to the concerns addressed by this and similar studies. Much of the reluctance is derived from the fear that schools will close programs or no longer offer laboratory based classes. Although this is a valid worry the Agricultural Education family cannot allow these concerns to alter our moral and legal obligation to the our students.

Building a Magnet School Network in Rural Communities

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Introduction

Maintaining rural community economic viability, schools, and retaining youth are concerns for many rural areas. The current population shift from rural to urban areas is compounding the issue. One means of keeping young people and adults in rural communities and encouraging people to move from urban to rural communities is to provide high quality, relevant, affordable educational programs on demand. The Mead Agricultural Sciences Magnet School, the first rural magnet school, was created to fill such a void. Now in its third year of operation, the rural agricultural sciences magnet school concept is being incorporated into three other communities.

The purpose of building a rural community magnet school network is to increase the number of young adults living, employed, and investing in rural areas. The objectives are to: (1) incorporate the magnet school model of the Mead Agricultural Sciences Magnet High School into three other communities; (2) design new curricula and redesign existing curricula for distance delivery and compatibility with the four schools and communities; and (3) assess the success of the network for adaptation into other rural communities interested in revitalization.

Program Development

The Mead Agricultural Sciences Magnet School has been in operation since the 1999-2000 academic year. Prior to its inception, the school board and administration were faced with cutting programs and teachers due to declining student enrollment, a state mandated tax lid on school spending, and falling agricultural commodity prices. People in the community were concerned about the survival of their small school. Teachers were concerned about losing their jobs. Parents were concerned about sending their children to schools that may not have the same high academic standards. Schools are the heart of many rural communities, and when their existence is threatened, community members tend to rally around ideas that will keep the doors open.

Several saw an opportunity to work collaboratively with the University's Agriculture Research and Development Center (ARDC) to help "keep students in Nebraska" and involved in the agricultural industry. An administrator explained, "the main goal in terms of the district was to provide an agricultural education program for our students that would prepare them to go into the immediate agriculture industry. (A) Secondary goal was to keep the school open." (Moody & Bell, 2001).

The school district and ARDC were granted seed money from Nebraska Network 21 to study the feasibility of creating an agricultural magnet school (NN21 News, 1998). Administrators, board members, teachers and students visited existing agricultural magnet schools and non-traditional agricultural education programs as well as attended national conferences on educational reform efforts.

During the 1998-99 school year, a student interest inventory was conducted. From this interest inventory, four career pathways were identified: agricultural technology, plant science, agribusiness, and food science. Animal science was identified as another pathway.

Resources

Several key factors in this transformation were: succinct values, broad involvement, collaboration, communication, leadership, resource availability, and a shared vision and subsequent action planning and implementation. Mead had the commitment from the ARDC, school board, and community members and businesses. Also they partnered with university faculty in planning and creating curriculum and programs. External funding from NN21 funded a biotechnology curriculum project, the catalyst for discussion and partnering for a magnet school. NN21 seed money was used to study the feasibility of implementing a magnet school into an existing educational structure. Pioneer Hybrids, and community and small businesses have funded supplies and provided facility updates. A W.K. Kellogg Foundation grant has been instrumental in extending the agricultural sciences magnet network to three additional schools.

Lessons Learned

1. Sense of urgency. To prompt change, a sense of urgency must be created (Nahavandi & Malekzadeh, 1999). In this case, the urgency will prompt change if attached to core values.
2. Community Vision. A community vision requires leadership that empowers those affected to have input in the decisions creating the ultimate vision (Yukl, 1998).
3. Communication. Constant communication articulating the vision of change removes doubts that may surface as the organization proceeds.
4. Program planning and evaluation. Implementing program planning and evaluation allows the school to document its effectiveness and success stories.

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Capstone Experience: The Key to a Successful Agricultural Communications Program

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Introduction

Undergraduate students who major in agricultural communications complete courses from a variety of disciplines including areas outside of agriculture. At times, their courses may seem unconnected to each other and unrelated to their ultimate career goals. A capstone course is the best way to bring together the diverse pieces of an agricultural communications curriculum. Wagenaar (1993, p. 209) defined a capstone course as “a culminating experience in which students are expected to integrate, extend, critique, and apply the knowledge gained in the major.” The Association of American Colleges (as cited in Andreasen & Trede, 2000) recommends capstone courses for all academic disciplines. Crunkilton (as cited in Andreasen & Trede, 2000) identified five required learning activities and six educational outcomes for capstone courses. The activities included project and/or case studies, small group work, issues analysis, oral communication, and industry involvement. The outcomes included decision making, critical thinking, collaborative/professional relationships, oral communications, written communications, and problem solving.

How it works

At Oklahoma State University, the first section of an agricultural communications capstone course (AGCM 4413: Agricultural Communications Product Development) was taught in the Fall 1998 semester and has been taught during each fall and spring semester since that time. Average enrollment is approximately 13 students in the fall semesters and 18 students in the spring semesters. Students may take the course only once, and the vast majority of students will complete the course during their final semester on campus.

During the capstone course, students sell, design and lay out sponsorships; communicate with sponsors; search for, write, peer critique, and edit feature stories about students, faculty, and programs in the College of Agricultural Sciences and Natural Resources; design and create feature story layouts; work with high-resolution graphics; and interact with each other to solve problems and take advantage of opportunities. Each aspect involves firm deadlines for completion. Most semesters, the students have produced a 36-page magazine — the *Cowboy Journal* — with 12 full-color pages and 24 two-color pages. The printing costs (approximately \$6,000 per semester) are covered by sponsorship funds raised by the students through sponsorship sales. Quebecor World in Midland, Michigan, prints the publication using “computer-to-plate” technology; all files are transferred electronically from OSU to the Quebecor FTP site.

Results

The capstone experience offers students the opportunity to enhance the knowledge and skills they have acquired in previous classes. One of the strongest assets of the capstone course is the collaboration of students throughout the semester. They learn quickly that teamwork and cooperation are vital to the success of the entire project, just as those skills are necessary in the workplace. They also learn to draw from each other’s strengths and help each other through weaker areas. While students can be overwhelmed by the intensity of a capstone course, the majority of students have responded positively when the course is completed.

Through exit interviews, students have indicated that the capstone course is the most useful course in the curriculum: "I can't imagine completing the agricultural communications curriculum without the magazine class. Capstone courses provide a fantastic, 'real world' finishing touch that pulls everything you've learned together" (S. Greenlee, personal communication, December 8, 1999). Nikki Coe (N. Coe, personal communication, November 14, 2000), co-editor for the Fall 2000 issue of the *Cowboy Journal*, indicated that the capstone class was a great way to use her skills and to produce a product that showcased those skills in an interview. In addition, the *Cowboy Journal* has received several honors from the National Agricultural Communicators of Tomorrow, including the Excellence in Publications awards and the first place magazine awards in 1999 and 2000.

Advice to Others

Agricultural communications programs should include a capstone experience in the major curriculum. As Wagenaar (1993, p. 214) has suggested, a capstone course "gives faculty members the opportunity to work with their majors as junior colleagues in the discipline." The benefits to students are concrete, but the departments and colleges benefit as well from the visibility of the final projects created during capstone experiences. The capstone course would not have to be a college magazine as the *Cowboy Journal* is. The course could focus on other media or use service-learning group projects of smaller proportions, but the experience in problem solving, written and oral communication, synthesis of curriculum, decision making, and critical thinking would remain the same. The capstone experience can be implemented regardless of the agricultural communications program's size.

Resources Needed

The resources needed to implement a capstone course vary depending on the type of project students will produce. In the case of a magazine, it would be best if the department had access to a computer laboratory (preferably with ZIP drives), access to central file-storage space, a high-resolution digital camera, Internet access, desktop-publishing software, and image-editing software.

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Developing Leadership Competence: A Coherent Curriculum for Youth in Agricultural Education

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For years leadership has been at the heart of agricultural education, mainly because of the intra-curricular nature of the FFA in the agricultural education program. The National FFA and several researchers have attested to the value of leadership development as well as the influence of the FFA on leadership (Wigenbach and Kahler, 1997; Brannon, Holley, and Key, 1989; Townsend and Carter, 1983; Ricketts, 1982).

While the FFA is an integral part of the agricultural education program, it is not the only part. Agricultural education consists of a triangulation of practices involving classroom/lab activities, the FFA, and Supervised Agricultural Experience. The FFA, though proven in its ability to produce leadership, is only one point of the triad of agricultural education. As leadership development becomes even more important in a transformational vs. transactional world, the goal of the researchers is to develop a model for a coherent curriculum for leadership competence for the classroom/lab phase of “comprehensive” agricultural education.

To develop a conceptual model for a coherent curriculum in leadership development, the researchers evaluated an array of materials that evaluated and described the construct of leadership. Studies like that of Stodgill (1974), Kouzes and Posner (1995), and Bowditch and Buono (1990) as well as numerous others have discussed the value of leadership, but failed to carry their ideas to youth leadership, which is the primary reason for developing a curriculum model for leadership development for agricultural education.

The Model

The model consists of five construct dimensions, which are: (1) Leadership knowledge and information (2) Leadership attitude, will, and desire (3) Decision-making, reasoning, and critical thinking skills (4) Oral and written communication skills (5) Intrapersonal and interpersonal skills. Each dimension must go through the following stages of instructional design: (1) Awareness (2) Interaction (3) Mastery.

How it Works

Each dimension of the conceptual model will have a curricular unit for each stage. The dimensions will be taught on three different hierarchical levels that engage a higher order of thinking. The stages seek to build on the experience and perception of the students in order to enhance cognition and behavior in leadership development.

Implications

According to Gardner (1993), educational systems and institutions have been scolded for their ineffectiveness to produce leaders. The model for formal leadership training of secondary agricultural education students has the potential to aid in even further leadership development that has been historically associated with agricultural education.

Future Plans

The conceptual leadership model has been used in the Leadership Development in Agricultural and Natural Resource Professions course and others within the department of

Agricultural Education and Communications at the University of Florida. It is also the model that guides the leadership option for undergraduates. The model has been presented at the Association of Leadership Educators Conference, and will be presented at the International Leadership Association meeting in November. The ultimate goal of the research is to develop and implement a coherent curriculum for developing competence in leadership for youth in agricultural education.

Costs/resources needed

Time represents the only costs associated with the conceptual model of the leadership development curriculum. A table and place to plug in a laptop would be preferred so that a running power point presentation of the model could be displayed in conjunction with the poster.

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Engaging the Elite Eight: Arizona's Student Teacher Demonstration Experience

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Introduction

The psychomotor domain of learning is an important part of agricultural education instruction (Newcomb, McCracken, & Warmbrod, 1993) and used extensively in the agricultural mechanic and agriscience classrooms.

Motto of the FFA is "Learning by Doing" (National FFA Organization, 2000)

However, they can be confusing, poorly organized, and frustrating if conducted improperly, or when the student audience is not adequately prepared for them, also the opportunity for student injury or damage to equipment is possible as students are not adequately prepared. (Newcomb et al., 1993). A quality demonstration requires both preparation and presentation in order to be effective (McCormick, 1994).

Acceptable teaching practices include the introduction of the lesson followed by the Three Step Method:

- C Demonstration by the instructor
- C Practice by students; supervision by the instructor
- C Application of motor skills

This followed by an evaluation of the student's level of competence in performance.

Methods

Demonstration topics for the University of Arizona' AGTM 100 course, "Principles and Practices of Agricultural Mechanics" are developed to provide students with the necessary instruction to coincide with instructional units taught in laboratory sections. Agricultural Education student teachers are assigned a competency skill to demonstrate to AGTM students utilizing the three-step demonstration method during the fall semester.

The student teachers met with faculty for two class periods to understand the theory of the demonstration method of instruction, learn their assigned competency, and to practice their demonstration before student teacher peers. Student teachers would introduce the skill to the AGTM 100 class. Their introduction includes a presentation of the tools and equipment required to complete the skill, a demonstration of the procedure and the safe use of the equipment or tool required to master the skill, call upon a student from the class to repeat the steps and demonstrate the skill, and finally, answer questions.

The faculty observed and evaluated each demonstration using a prepared evaluation form. The evaluations were shared one-on-one with each student teacher following the completion of their demonstration. Strengths and weakness were discussed as well as suggestions for improvement. A focus group interview with student teachers was conducted after all eight completed their demonstrations to assess attitudes, perceptions of performance, and to gain feedback for improving future student teacher training experiences.

Results and Conclusions

Eight agricultural education student teachers were provided with the opportunity to develop and utilize the demonstration method of teaching during their on-campus pre-service experience in the instructional area of agricultural mechanics prior to their semester-long student teaching experience. Student teachers expressed satisfaction with the experience and confidence in teaching the topic to secondary students. They readily admitted hesitancy about their topic, but agreed that proper instruction, modeling by the faculty, and time to practice and receive feedback contributed to their success. Recommendation made was to videotape the demonstrations for student teachers to review and evaluate.

Implications

Student teachers feel more confident in themselves in presenting demonstrations to students, as well the AGTM 100 class benefited from the instruction provided by the student teachers as they felt less intimidated by other students performing the task and providing guidance while the course instructors looked on and evaluated the demonstrations. This practice should be integrated into other student teacher-preparation programs where laboratory classes such as agriscience and agricultural mechanic technology are part of the regular undergraduate curriculum.

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E-Record Books for Supervised Agricultural Experience Programs: An Information Management Tool for the 21st Century

Larry Ermis, John Dillingham, Texas A&M University
Craig Edwards, University of Georgia

Introduction/Need for Innovation/Background

Experiential learning has long been an instructional method used to facilitate student learning in agricultural education. Often, these experiences have resulted from the student's Supervised Agricultural Experience (SAE) program (Camp, Fallon, & Clarke, 1999). Traditionally, students have been encouraged to document or "record" significant events related to their SAE. These data also provided the information used by students to complete applications for degrees and awards made available through the FFA. Camp et al. (1999) identified the factor "complete records are maintained by the students" (p. 167) as one of the most important guides for conducting an "effective" SAE. Frequently, the need to maintain "complete records" has manifested itself in students using some form of a record keeping journal. Usually, this has been a paper or hard copy "record book." However, Murphy and Terry (1998) stated that "computer-based telecommunications technologies" (p. 35) such as "electronic communication, information, and imaging technologies will improve how we teach in agricultural education settings" (p. 34). Yet, Harper (1993) posited, "We cannot expect students to learn the latest technologies without having active involvement" (p. 10). To this end, the Instructional Materials Service (IMS), Department of Agricultural Education, Texas A&M University in cooperation with the Texas Education Agency (TEA) and the Texas Engineering Extension Service (TEEX), has developed a web-delivered record book. This electronic record book is available to students and teachers—any time, anywhere, and any place—provided they have access to the Internet and a web browser.

In 1998, teachers and TEA personnel formalized the need to improve and update the existing record book. It was decided that a revised book should reflect *General Accepted Accounting Principles (GAAP)* and *Farm Financial System (FFS)* procedures, and include the essential data necessary for students to complete an application for the National FFA *American FFA Degree*. During the 1999-2000 school year, more than 4500 newly revised record books were distributed to 33 Texas and three out-of-state departments participating in a pilot test. National FFA and TEA staff provided assistance during the development process as well. TEEX personnel developed a "prototype" web-delivered e-record book based on the newly revised hard copy "template." Following input from stakeholders about alternate delivery methods to the traditional paper format, and after further exploring web-delivery options, it was decided to develop fully a web-delivered electronic record book.

How it Works

The web-based, e-record book will be made available online. Depending on anticipated annual need, "user" (student) subscriptions (e-record books) will be provided on a departmental basis; subscription will include data storage and archival options. System access will require both a "user id" and a password. Teachers will serve as on-site "administrators." After requesting their department's annual subscription(s), teachers will be provided user identifications and passwords to assign to individual students. Instructors will have the option of obtaining additional subscriptions throughout the year, and will have the online capability to access and evaluate their students' e-record books, view school account information, and add/delete students as needed. The TEEX and the Computer Information Services (CIS) at Texas A&M University will provide technological expertise and the server space necessary to support database management and the archiving of students' records. A linked "Contact IMS" e-

mail address is available to all users of the e-record book, and a LISTSERV has been provided to answer teachers' questions about record keeping, the newly revised record book, and the online e-record book.

Implications and Future Plans

A web-delivered record keeping system, one that has been designed and customized to meet the needs of students conducting a SAE program, should provide students and teachers with significant opportunities to acquire and use computer-based telecommunications skills (Murphy & Terry, 1998). Moreover, because acquisition and mastery of these skills will take place within the context of a ubiquitous program component (i.e., SAEs), potentially, all students could benefit. Pragmatically speaking, the web-delivery system will accommodate either PC or Macintosh platforms, which may further increase its potential for use; yet, besides a web browser, there is no requirement for locally-installed software or the concomitant need for updating. Also, because of the nature of web-delivered technologies, any future system changes should cause minimal disruption in service when compared to other electronic alternatives such as replacement diskettes or CD-ROM upgrades. After additional developer beta testing, the e-record book will be pilot tested in the spring of 2001. Trial subscriptions will be made available to university agricultural education departments, state and nationwide, for use by pre-service teachers and teacher educators. General availability is expected to begin in the 2001-2002 school year. Moreover, the next anticipated system upgrade will provide users with the capability of generating completed FFA Degree applications from the data stored in their e-record book(s).

Resources Needed

Users must have Internet access and a web browser. The CIS host site at Texas A&M University server requirements include a Windows NT Server (v. 4.0 or higher) with the Microsoft IIS web server (latest version) installed, Allaire's ColdFusion Server Enterprise Edition application server (v. 4.5 or higher), and Microsoft's SQL Server (v. 7.0 or higher).

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Feel the Burn! **Electronic Portfolios in Agricultural Education**

Robin L. Peiter, Matthew T. Portillo, Jamie Liston
Oklahoma State University

Teaching portfolios are being used in teacher education programs providing students with a personal tool for reflecting on their teaching ability, knowledge and understandings. Hurst, Wilson, and Cramer (1998) defined portfolios as reflective summaries of self-reflected artifacts, representations of teaching credentials and competencies, holistic views of teachers and documentation for strengthening interviews. Artifacts typically include the teacher candidate's resume, personal philosophy statement, professional goal statement, self-reflections, examples of lesson plans and unit plans, current grade report, and letters of recommendation. The artifacts are compiled by the teacher and placed in a binder. However, problems exist regarding portfolio binders. Teacher candidates perceive the portfolio to be costly to produce. In an interview, it is awkward to utilize and difficult for the administrator to examine in the time allowed (Irby & Brown 1998).

An alternative to the traditional portfolio is the electronic portfolio. Electronic portfolios document video, photos, and text available within one form of media. According to Sheingold (1992), through using technology to store student portfolios, we can make their work portable, accessible, and more easily and widely distributed. We can also replay performance works anytime. A research study by McKinney (1998), showed creating electronic portfolios allowed students to be reflective, and participants viewed the experience as positive and useful.

How it Works

In Spring 2000, the Agricultural Education Program at Oklahoma State University secured funding through the OSU Assessment Office to hire a Portfolio Assistant to aide Agricultural Education Teacher Candidates with preparation of student portfolios. Additionally, the Portfolio Assistant was assigned the responsibility of piloting an electronic portfolio. A goal was established that in Fall 2000 every teacher candidate would have an electronic portfolio to supplement his or her paper portfolio. Teacher candidates developed their own template and submit artifacts in the form of videotapes, lesson plans, goal statement, philosophy statement, Supervised Agricultural Experience policy statement, grade report and resume. After obtaining the template and artifacts, the portfolio assistant then organized and recorded the information on a compact disc for each teacher candidate. Numerous disks are burned as it is low in production cost and easy to duplicate. In the interview setting, the teacher candidate could leave the compact disk with the administrator. The advantage would be the administrator could view another dimension of the teacher educator's credential, and by leaving the electronic portfolio with the administrator he or she may view the electronic portfolio at a later date and in more depth.

Results to Date

The Agricultural Education program at Oklahoma State University has seen direct benefits by having its teacher candidates complete an electronic portfolio. All students in the Fall 2000, Spring 2001, and Fall 2001 student teacher classes developed templates and submitted materials to be recorded in the document. Artifacts demonstrated were a resume, grade reports, lesson plans, philosophy statements and goal statement, photos and 15 second video excerpts from their teaching experience. The portfolio assistant utilized a html format in creating the electronic portfolio and burned it onto a compact disk. Teacher candidates also submitted a paper portfolio as part of their certification. The electronic portfolio should not replace the written portfolio; rather it should supplement it.

Costs/Resources Needed

Several resources are needed to effectively produce an electronic portfolio. Multi media equipment needed, including costs, are: a video capture card (\$300), scanner (\$200), computer, and compact disks. Other expenses associated with this project are the undergraduate assistant's office space and salary estimated at \$400 a month.

Future Plans/Advice

Many aspects to electronic portfolios have been learned through this process. Although some problems have been encountered, the majority of the project has been extremely positive. Some teacher candidates do not have the technology available or the knowledge gained to create the documentation. Therefore, the undergraduate assistant's role is viewed as a vital aspect in creating successful electronic portfolios. Future plans include enhancing teacher candidate's computer skills, as the electronic portfolio would force students to learn a new program and adapt to others available. In reality, the portfolio binder could be minimized, even eliminated, leaving a compact disk with the administrator to review many times allowing him or her to chose the best candidate for the job.

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The ILLINOIS LEADERSHIP Initiative: A Proposed Leadership Certificate Program for the Students of the University of Illinois at Urbana-Champaign

Annie Hernandez
University of Illinois at Urbana-Champaign

Two years ago, the University of Illinois at Urbana-Champaign brought together a core group of individuals from all colleges within the university to develop a campus-wide philosophy of leadership. This philosophy is the foundation for the ILLINOIS LEADERSHIP Initiative and the basis for the series of leadership skills and attributes that serve as the programming efforts of the initiative. These skills and attributes focus on four stages of leadership development for a student: Self Development, Interpersonal Development, Organizational/Group Development, and Transitional Development.

This past year (2000-2001) five working committees were established to forge ahead on various fronts concerning the initiative. These included: Marketing, Academic Integration, Recognition, Program Curriculum, and Assessment. The products of the Academic Integration and Recognition committees will be the focus of this proposal. The charge of the Academic Integration committee was to explore ways to integrate leadership development into the curriculum, investigate linkages between curriculum leadership development and co-curricular opportunities, and pursue feasibility of an undergraduate minor in Leadership. The role of the recognition committee was to consider ways to recognize students who have participated in the Illinois Leadership Initiative and pursue creation of a leadership portfolio for students to chronicle their personal leadership development. The link between these two committees is evident and with the hope of having some kind of academic leadership framework available to students by the Fall of 2002, the feasibility of designing a certificate program was evident. Immediately, the search for certificate programs and portfolios used nation-wide ensued. From these and committee ideas, a proposal was made to the full initiative committee with the attendance of the Provost and Vice-Chancellor of Student Affairs at the close of the Spring semester of 2001.

How It Works

A Leadership Certificate is seen as an integral part of the implementation of the ILLINOIS LEADERSHIP Initiative. The certificate will allow students involved in various aspects of the initiative the opportunity to “package” their experiences into tangible evidence of their commitment to develop personal leadership skills as part of their University of Illinois experience, regardless of their academic field of study.

As for program management and leadership, there will be a coordinating committee at the campus level that will be responsible for the overall operation of the program, a program leader within each college that will participate on the Campus Certificate Group, and faculty and staff from each college that will be coaches and mentors to student participants.

To complete and earn the Illinois Leadership Certificate, a student must fulfill the following four components:

1. Participate in CORE leadership programs/conferences/workshops.
 - a. Complete all four CORE Programs that have been and will be created and offered through the Office of the Vice Chancellor of Student Affairs. The programs will be directly linked to the four stages of leadership development: Self Development, Interpersonal Development, Organizational/Group Development, and Transitional Development. The first two CORE programs, Insight and

- Intersect, have been developed, piloted, and revised. The third program curriculum has been proposed.
- b. Complete at least two of the CORE programs, and participate in a LeaderShape Institute or a leadership development program sponsored by another organization or in three workshops from inside or outside the university.
2. Complete academic course work related to leadership development.
 - a. Complete a minimum of three courses from regular UIUC course offerings that have at least 75% of the topics related to the Illinois Skills and Attributes.
 - b. Complete a minimum of six courses from regular UIUC course offerings that have 25-74% of the topics related to the Illinois Skills and Attributes.
 3. Participate in Group/Team activities.
 - a. Participate in two organizations for at least one semester, contribute to the goals of that organization, observe the leadership efforts, document the leadership “lessons learned” and include those observations in the Leadership Portfolio.
 - b. “Organizations” include student organizations, civic engagement opportunities within the community, internships or part-time jobs, and faculty research projects.
 4. Complete a Personal Development Plan and Leadership Portfolio.
 - a. The Personal Development Plan will be completed with a coach or mentor and will include at least four major improvement objectives. Two will focus on personal improvement and two on activities from component three.
 - b. The Leadership Portfolio will demonstrate that the certificate candidate has learned and grown by participating in the program, as it is a compilation of their work accompanied by reflections on the importance of each element included. Given the ILLINOIS LEADERSHIP Skills and Attributes, candidates would provide evidence of their mastery of at least one skill in each of the four major skill areas.

Future Plans

Since the Leadership Certificate has been proposed, the other initiative committees have examined their role and taken action. For example, the creation of a Leadership Center that will house the certificate program is now a goal for the Fall of 2002. This academic year, the Academic Integration and Recognition committees have been charged to propose a minor in Leadership studies to complement the certificate and to continue identifying classes that could fulfill the academic course component. In the future, faculty and college buy-in of the ILLINOIS LEADERSHIP Initiative and Certificate program will be essential to ensure students campus-wide are aware, motivated, and involved. Therefore, representation from all colleges must be present on initiative committees and financially in collaboration with Student Affairs. The Illinois Leadership Initiative is in its infancy but as the implementation of Initiative ideas such as the Leadership Certificate Program occur, the development of leadership skills and attributes within students will be positively impacted.

Integration of Agriculture/ Environmental Science and Academic Education through Collaborative Proposals

Thomas Bruning, Xiaorong Shao
The Pennsylvania State University

One of the problems facing secondary education is the separation of academic and vocational education, which has been seen as a major factor contributing to the failure of preparation of students either for the workplace or for college. Teahen (1996) specifies that vocational educators have been criticized for promoting overly specific training while academic educators are blamed for providing instruction that is neither participatory nor connected to the real-world's requirements (Teahen, 1996). As a result, the graduates schools turn out usually lack problem-solving abilities, higher-order thinking skills, communication and employability skills that are all crucial for work in today's fast-changing society (Lankard, 1992). To seek new approaches to improve secondary education, many educators believe that the integration of academic and vocational education is a solution, in which students can be better prepared to work and learn, and to use their hands as well as their minds.

Purpose and Objectives

Integration is an abstract concept for most undergraduate students. Proposal writing is equally confusing and mysterious for many students and some teachers. At the same time, both of these conceptual abilities are increasingly important to Career and Technical Educators. At Penn State University, we have enhanced a senior-level teacher preparation course to include both of these concepts. To turn theory into effective educational practice, we developed a new approach to teach students integration and proposal writing.

The purpose of this project was to prepare undergraduate students for innovative ideas and practices, and promote a sound environment for integration education in secondary schools. The objectives included:

- C Identify and explain integration and how to use this concept in a secondary school in Pennsylvania.
- C Explain how to write a proposal to integrate academic theory and vocational practices.

Procedures and Methods

The course: *Effective Laboratory Development for Agricultural and Environmental Science* (AEE 418) was taught in the fall semester 2000 for students preceding their student teaching internship in the spring 2001. The students were required to develop an integration proposal with their cooperating teachers, academic teachers and the principal of their school. Students were first taught the basic principles of integration and then they were required to find at least 10 publications that further explained integration through library and Internet research. During proposal writing, students were also required to visit their schools several times and to determine the school culture, procedures used at the school, and to learn more about their students. The next step was to systematically teach students how to write their proposals. In each class session, students learned about the contents of each section of the proposal then they wrote that section. Week by week students developed a proposal that could meet the requirements of the RFP that was handed out with the syllabus.

To enhance the realism, quality, and purpose of proposal writing, all students competed for \$400 mini-grant dollars-for each proposal. Students were informed that each of their budgets for proposal could not exceed \$400 – unless they could generate matching local school district resources. Students were highly encouraged to seek their cooperative and academic teachers,

other students and virtually anyone (other than professional proposals writers) to help them write and develop their proposals. Students were encouraged to develop a collaborative team project.

Upon completion of proposal writing, students were required to present four copies of the final proposal with all participants signed-off on the cover sheet. Students were also required to give a presentation of their proposal as their class final. Each proposal along with a score sheet and the original RFP were sent to three professionals that were knowledgeable about integration and agricultural education programs. The scores were averaged and a matrix was developed to determine the eight winning proposals. During the spring of 2001, the students were required to implement their proposals at their student teaching site. Students and all participants were sent letters of congratulations and were asked to confirm their acceptance. Seven out of eight projects were carried out.

Results

Seven themes involved in the integration projects included: Language arts in agricultural education; Raising wetland awareness in the community through integration project; Land-mapping using global position system (GPS) technology; Learning with live tree specimens; Groundwater flow model; Hydroponics and Interpretive trail. The integration projects covered many subjects taught in secondary schools. These included English, mathematics, physics, biology, geometry, environmental science, horticulture, agriculture, animal science, plant science and computer science.

The results achieved by the project are very positive and encouraging. First, the implementation of the project has generated better understandings conceptually and practically about proposal writing and integration education. Second, the implementation of the project was able to generate more funds and collaborations from the local schools. One school allotted an extra \$780 for a project. Another student's project "Interpretive trail" was incorporated into a \$120,000 grant. Third, the integration activities provided student teachers with an active learning environment, which has increased their interests and motivation for a purposive and challenging learning opportunities. Students now have a clear idea of the process and benefits of proposal writing. Moreover they also have a practical and stronger knowledge base regarding the use of integration in secondary schools. While some students were not funded, all received the same education and they now should have a better idea of what it will take to develop a winning proposal as they enter the professional ranks.

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Licensure in Education for Agricultural Professionals (LEAP)

Gary Moore
North Carolina State University

Introduction

“In the next ten years we need to recruit 2.2 million teachers”

Former Secretary of Education Riley

American education is facing a serious shortage of qualified teachers. Agricultural education is one of the fields with a teacher shortage. Fifty-five high school agricultural education departments closed in 1998 because no teachers were available (Camp, 2000).

Traditional teacher training programs in agricultural education have not been able to supply the number of teachers needed in the field for at least the past two decades (Camp, 2000). Jack Welch, former CEO of GE said, “When the rate of change outside exceeds the rate of change inside, the end is in sight.” The LEAP program is an “outside” approach to attacking the agricultural education teacher shortage.

LEAP could be described as a non-traditional teacher certification program in agricultural education for non-traditional students. LEAP is a web-based, teacher certification program in agricultural education. The target audience is individuals who have baccalaureate degrees in agriculture and natural resources who are ready for a career change but because of family, work or accessibility issues cannot go back to the university full-time to become certified to teach. The program is available nationwide and is delivered through the Internet. North Carolina State University is the lead institution but the University of Arizona, the University of Missouri, the University of Delaware, Washington State University, Fort Valley State University and Wayne State University are involved in the consortium.

How it Works/ Methodology/ Program Phases/ Steps

A formal application process is required to be admitted to the LEAP program. The minimum admission requirements are listed below:

- C The applicant must possess a baccalaureate degree in agriculture, natural resources or closely related field from an accredited institution of higher education.
- C The applicant must have 2.5 GPA on all collegiate level work.
- C The applicant must submit an essay detailing why he or she desires to be a teacher.
- C The applicant must submit three letters of recommendation that focus on the applicant's character, work ethic, academic ability and suitability to becoming a teacher.

After the student is admitted to the program, he/she will complete 24 hours of course work. The required courses are listed below along with the individuals involved in their development. The first group of courses are available over the Internet.

- AEE 500 - Agricultural Education, Schools and Society (3 hours). Pat Barber and Richard Bacon, University of Delaware – Gary Moore, NCSU
- AEE 503 - Youth Organization Management (3 hours). Jim Dyer, University of Missouri – Barry Croom, NCSU
- AEE 522 - Occupational Experience in Agriculture (3 hours). Curtis Borne, Fort Valley State – Gary Moore, NCSU
- AEE 528 - Instructional Design in Agricultural Education Jim Morrison, Wayne State University – George Bostick, NCSU or

AEE 529 Curriculum Development in Agricultural and Extension Education (3 hours). Beth Wilson, NCSU

AEE 535 - Teaching Agriculture in Secondary Schools (3 hours). Jim Knight, University of Arizona; Mike Swan, Washington State University—Jim Flowers, NCSU

AEE 641 – Practicum in Agricultural and Extension Education (3 hours). This is a teaching internship that is equivalent to student teaching. Some live classroom observations are made but many of the classroom observations are accomplished using Digital Video Cameras (webcams), PCs and NetMeeting software.

Adolescent Development (3 hours) and Educational Psychology (3 hours) – Students may complete these courses from any college or university.

Students who successfully complete the program receive a class "A" teaching license from the state of North Carolina. A North Carolina teaching license is recognized in 49 states.

Results to Date/ Implications

The official launch date for the LEAP program is January of 2002. However, the program is already up and running. Because of the demand for this program, the consortium members accelerated their course development efforts and students have already been admitted to the program. Currently 24 students are enrolled in two LEAP courses. Of these 24, 13 have officially applied and been admitted to the LEAP program. The others are in process. The “average” student in the program has a mean undergraduate GPA of 3.09 and has been out of college for nine years. The most common undergraduate degrees are agricultural economics and dairy science. The current LEAP students have undergraduate degrees from Auburn, Ferrum College (VA), North Carolina State, Penn State, Purdue, Southeast Missouri State, Tarleton State, Maryland, Massachusetts, Wisconsin, and Western Carolina University. It is anticipated that the enrollment will double or triple within the next year.

Future Plans/ Advice to Others

Universities who currently have agricultural education programs who desire to get involved with this program are welcomed.

Costs/ Resources Needed

The development of this program was made possible by a \$75,000 grant from the American Distance Education Consortium. It is anticipated that tuition revenues will make the program self-supporting.

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Missouri Summer Technical Institutes: Professional Development for Agricultural Educators

Weston D. Walker, Robert J. Birkenholz, Gordon V. Laboube
University of Missouri-Columbia

Agricultural technology is always changing and as a result, agriculture teachers need opportunities to update their knowledge and skills. However, agricultural educators are busy with numerous responsibilities including teaching several different courses, supervising SAE programs, and coordinating FFA activities. In addition, agriculture teachers desire graduate credit and professional development.

Program Description

Through a joint effort, the Missouri Vocational Agricultural Teachers Association (MVATA), the Missouri Department of Elementary and Secondary Education-Agricultural Education Section, and Missouri agriculture teacher education programs have worked together to address the issues faced by practicing agricultural educators. The summer technical institute program was designed to provide Missouri agricultural educators with opportunities to develop and enhance in-depth, high quality, and state-of-the-art technical information and skills. This is an on-going program in which summer technical institutes for agricultural instructors are conducted in an intensive one-week format during each June or July. One primary concern for each technical institute is to promote conducive learning environments by utilizing quality facilities and technical experts, relevant to the content addressed. In addition, enrollees can earn CEU (Continuing Education Unit) credit administered by MU Direct or enroll for two hours of graduate credit in AgrEd425–Inservice Course in Agricultural Education.

Program Objectives

1. Demonstrate and promote the integration of academic concepts into agricultural education.
2. Integrate technology (agribusiness and educational) into the educational process for agricultural educators.
3. Emphasize the need to promote an understanding of ‘all aspects of the industry’ and entrepreneurship among agricultural educators.
4. Improve the technical knowledge of agricultural educators in the respective subject areas.
5. Develop and enhance the technical competence and skills of agricultural educators in the respective subject areas.
6. Incorporate high-tech knowledge and skills into local agricultural education programs.

Results

Offerings – Missouri agriculture teachers had the opportunity to develop knowledge, skills, and abilities in the technical areas of:

- Agricultural Power Technology – *Diamond Engines, Lenexa, Kansas.*
- Large Project Construction – *Carthage, Chillicothe, and Farmington Agricultural Education Programs.*
- Meat Science – *University of Missouri and Southwest Missouri State University Meat Laboratories and faculty.*
- Greenhouse Operation and Management – *Hummert’s Greenhouse Int’l, St. Louis, Missouri.*

Involvement – A total of 117 agriculture teachers enrolled in eight technical institute sessions. Enrollment was limited to 10-25 participants per technical institute on a “first come, first served” basis. Total graduate credit hours awarded through the summer technical institutes were 196, in addition to 78.2 hours of Continuing Education Units.

Participant Evaluation Comments

- *Fun and educational*
- *Excellent, very enjoyable, a quality experience*
- *I learned more in one week than in four years of teaching*
- *Top of the line, it was great*
- *Excellent class, had a great time working with other agriculture teachers from across the state*
- *Good balance of theory and practice*
- *This is the best course I have taken in years*

Funding

Revenue

Institute Registration Fees:	\$18,000
Graduate Credit Fees:	16,818
Industry Donations:	<u>8,400</u>
Total Revenue	\$43,218

Expenses

MU Direct Management Fee:	\$8,000
Instructor Stipends:	6,000
Continuing Education Units:	375
Industry Donations:	8,400
Industry Subcontracts:	8,130
Direct Expenses:	2,300
Provost’s Office:	2,343
MU Direct:	1,171
Program Coordination:	<u>6,499</u>
Total Expenses	\$43,218

Providing an Urban Experience for Agricultural Teacher Preparation

Pauline Dicke, Roland Peterson
University of Minnesota

History of the Partnership:

The partnership began in 1989, the same year the Chiron Middle School began operation. The “Ag Ed” program at the University of Minnesota became an early partner. The program has evolved over the years, but is still founded in Chiron’s original vision of providing students with community-based learning. The agricultural Education partner works to meet the goals set forth by Chiron Middle School. These include:

- student growth
- hands-on, experiential learning
- innovative curriculum
- developing mentor relationships

This has been a win-win situation for both institutions. Hopefully it will continue well into the future.

How the Partnership Works:

All science students in the Chiron School are given the opportunity for an enhanced learning experience at the St. Paul Campus site. The features of the program include the following:

- C Chiron students are paired in groups of 4 or 5 and matched with a college student, generally an Agricultural Education major, who serves as a teacher and mentor.
- C A science experiment is developed. This experiment revolves around broad areas of agriculture and mirrors one of the concepts being taught in the Chiron science classroom for that semester.
- C A scientific experiment is conducted. Together the group recognizes a problem and forms a hypothesis. Next, the group conducts their experiment once the procedures they will follow are laid out. Once all of the trials are finished the group will make their final conclusions and record their final results.
- C A short paper is written. This highlights the scientific process used and the results discovered.
- C Science fair display boards are assembled. These lay out the experiment and show the recorded results. In addition a short presentation is prepared.
- C Group presentations are given on the final day of class in front of members of the faculty in the Division of Agricultural, Food and Environmental Education Department. In addition, there is a celebration to recognize the accomplishments of all students.
- C Display boards are put on display in the Chiron Middle School for other students, teachers and parents to see.

The Purpose of Our Partnership:

“This is one phase of the Chiron students’ science experience. At the St. Paul campus site, students use the context of agriculture to make the principles and concepts of science real.

Agriculture dominates the economy of Minnesota and also touches the lives of every citizen in the state (through food systems, natural resource systems and much more.) By teaching science in an agricultural context, University of Minnesota students and Chiron students are able to make education real. This principle of experiential learning is important in any subject. In addition, this program is an important signature of both programs, making each a unique experience for their students.”

*Dr. Roland Peterson
AFEE Department Head*

Advantages of the Program

This is a unique program for both Chiron and the U of MN. Therefore, this partnership gives all participants a very unique opportunity.

Chiron Students:

- C Receive experiential learning and gain a greater understanding of science & the environment
- C Develop problem solving and decision making skills
- C Understand and value human diversity through the mentoring/mentored relationship
- C Develop teamwork skills
- C Identify science and agriculture connections in many real life situations

University of Minnesota Students:

- C Are provided an opportunity to teach and realize the special values of their efforts
- C Experience the benefits of a mentoring relationship
- C Have an opportunity to work in a “non-traditional” agricultural education setting.
Components of this experience include:
 - an urban school setting & extensive experience with a diverse population of students
 - a middle school setting
 - an integrated experience with science
- C Understanding how to set up, work through and present a science experiment
- C Learn how to use the context of agriculture with a core subject area

Cost of the Program

Minneapolis Public Schools provides \$20,000 to the U of MN. This supports a 50% graduate student at the Master Level.

The Teaching College Course: A Faculty Development Program to Enhance Teaching Quality in the College of Agricultural, Consumer, and Environmental Sciences at the University of Illinois at Urbana-Champaign

A.L. Hernandez, R.K. Barrick, S.J. Schmidt, P. Buriak, C.J. D'Arcy, J.B. Litchfield
University of Illinois at Urbana-Champaign

Introduction

Faculty members at research-based institutions have been extensively trained in their research discipline and are expected to establish and maintain successful research programs. Most of these same faculty have received no formal preparation in teaching methods, yet are expected to become effective teachers. This is an unrealistic expectation that often leads to use of ineffective teaching practices and frustration for both teachers and students. This does not have to be the case; faculty can become effective and empowered instructors by learning how to teach. This is the precise reason The Teaching College Course was developed by five senior College of Agricultural, Consumer, and Environmental Sciences (ACES) faculty members at the University of Illinois at Urbana-Champaign (UIUC). The overall goals of the course are to improve the quality of the participant's instruction for the purpose of enhancing student learning, and to develop and foster an active teaching community for dialogue and sharing best practices, similar to the communities that have evolved in the research and outreach missions of UIUC.

How It Works

The Teaching College is a ten-week course held in the Fall that to date has enrolled up to 26 faculty members, teaching associates, and selected graduate students that are nominated by their respective department heads. The class topics, which incorporate theoretical and practical information, include learning styles, learning theories, course development and levels of cognition, conducting effective lectures, discussions, and laboratories, active learning, out of classroom instruction, reflective teaching, assessment of faculty teaching and student learning, self assessment by teaching portfolios and teaching philosophy statements, and instructional technology. During each class session there is dinner served and time for interaction and discussion with colleagues about individual progress and specific classroom concerns. Throughout the semester, each participant develops a teaching portfolio and completes a peer observation. As resources, each participant is given two textbooks on teaching and access to the course website (WebCT). In addition, graduate students who complete this course have the opportunity to attend eight one-hour seminars on University governance and write a short paper for 0.5 units of credit during the Spring semester.

Results to Date

Since its inception in the Fall of 1997, 101 participants have completed the Teaching College Course. From participant responses to the end of the semester survey, the following topics/activities, in decreasing order of significance, have been listed as follows: Reflective Teaching (20%), Course Development and Cognition Levels (12%), Active Learning (11%), and Learning Theories (10%). Ninety-three percent of the participants reported that their teaching and learning processes improved as a result of the Teaching College Course and fifty-two percent of the participants responded that they began using a variety of teaching methods and active learning tools in their classroom. The main reason this increase occurred was because participants now realized they needed to reach a variety of learners in their classroom, based on the learning styles and learning theories sessions. As one participant stated, "I also learned that not everyone learns like I do. The learning styles section [of the course] made it clearer to me that I need to incorporate different teaching methods to accommodate different learners, and the

section gave me some practical ideas about how to do that.” Another participant responded, “The biggest way my teaching has changed is that I am more aware of whether my students are actually learning or if I am just teaching.” Suggestions made for program improvement are considered and implemented if found valid. Ninety-seven percent of the participants indicated they were satisfied or very satisfied as a learner during the Teaching College Course.

Future Plans

As for the future, the number of participants will remain stable due to continual college turnover. The course content will be continually updated and improved. Teaching College reunions have been and will continue to be one way past participants can renew and establish cross-class relationships. Another way the teaching community is facilitated is by each participant having continued access to the rich repository of information found in the course website.

Resources Needed

The Teaching College Course has received financial support from the College of ACES, the Teaching Excellence Endowment, the Warren K. Wessels Academy of Teaching Excellence Fund, and four consecutive Provost’s Initiative on Teaching Advancement (PITA) grants from the UIUC Teaching Advancement Board. Due to the overwhelming success this course, funding has not and should not be a problem in the future.

The Texas New and Returning Teacher Program

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Introduction

The agricultural science teacher of today faces many challenges while performing her/his duties. The rigorous academic demands of the agri-science program are further compounded by additional activities that occur both inside and outside the classroom. Curriculum changes, classroom management, course scheduling conflicts, Supervised Agricultural Experience Programs and competitive FFA activities are just a few of the areas teachers must deal with on a regular basis. It is difficult for an experienced teacher to be successful in these and other aspects of the agri-science program and even more so for a teacher with little or no experience.

Successful completion of a university-level agricultural education certification program is not a guarantee that a beginning teacher is well prepared for the agricultural science teaching profession. The student teaching experience provides adequate real-life opportunities, but it does not expose a future educator to every possible situation that will be encountered during their career. The fact that many teachers in general leave the teaching profession before their fifth year is indicative of the difficulties and challenges presented by the field of agricultural education, and education in general. Unfortunately, many do not have a professional support structure that fosters encouragement and assistance (McGregor and Lawver, 1997).

The New and Returning Teacher Program was initiated in 1996 as a statewide program designed to assist new and returning agricultural science teachers in Texas with understanding, coordinating, and conducting well-rounded agriscience programs. Developed by the Agricultural Education and Communications Department at Texas Tech University, in conjunction with other state teacher educator institutions, the program is funded by a grant received from the Texas Education Agency. The methodology utilizes an annual workshop, a mentoring program, and state-of-the-art technology to provide distance education opportunities for those who have chosen agricultural science and technology as their profession.

Positive feedback through evaluations has been received on the general program itself. Beginning teachers have found the annual workshop, held in conjunction with the Texas Agricultural Science and Technology Professional Development Conference, very beneficial to their beginning needs. The mentoring program, designed to place a new teacher with an encouraging role model, has proven successful for those participating.

Although positive benefits from the program has prompted continuation, the Texas New and Returning Teacher Workshop is currently being restructured. The utilization of the mentoring program has not been consistent by those participating. Initially, the program was designed to deliver a monthly videoconference to beginning teachers via the Trans-Texas Videoconference Network (TTVN). Due to the rigorous activities and nature of Agricultural Science Teachers, consistent scheduling to meet the needs of all participants could not be achieved.

Program Structure

Previously, the methods used to achieve the objectives of The New and Returning Teacher Program consisted of an annual workshop, a mentoring program, and utilization of state-of-the-art technology to provide distance education opportunities. Due to positive responses concerning the program, the previous methodology will be used and modified. Future

workshops at the Texas Agricultural Science and Technology Workshops will stay consistent with the previous.

The mentoring program will mirror the concept previously used; however, more teachers will be identified to serve as mentors. This will provide new teachers access to questions and concerns from a larger, thus more available, pool. Frequent communication between teachers and mentors will continue to be pushed in addition to scheduled conferencing time. Mentors will also be encouraged to initiate contact between themselves and new teachers.

Delivery of workshops, relevant information, and discussion of upcoming events via teleconferencing has proved to be inefficient. Agricultural Science Teachers are characterized with complex activities and schedules. Identifying a schedule appropriate for every teacher in the program has proved unsuccessful. Frazee (2001) discovered 83.94% of Texas Agricultural Science Teachers have immediate access to the Internet. Texas schools are consistently adding and updating Internet access with high-level connections. Because of this resource, delivery of relevant information and upcoming events will be presented with an updated web site. As technology progresses and diffuses among Texas schools, video conferencing and workshops will be achieved via the Internet.

Evaluation

The Texas New and Returning Teacher Workshop will continue evaluation utilizing current techniques. Surveys will be conducted yearly at the Texas Agricultural Science and Technology Teacher Conference. Because these surveys are often mistaken with the workshop only and not the entire program, comments and suggestions will be received through the web site and E-mail. Although it is often considered invalid, vocal responses and feedback from participants will continue to be analyzed and considered.

References

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