2004 NAERC POSTERS

A CASE STUDY ON EVALUATING THE GENERAL EDUCATION REQUIREMENTS OF ASSOCIATE IN APPLIED SCIENCE (A.A.S.) DEGREES IN AGRICULTURE

Submitted by:

Dr. Andrew Baker, Project Director, Western Illinois University

Tim Phillips, Educational and Interdisciplinary Dept. Graduate Student,
Western Illinois University

Introduction:

In the fall of 2002, there were 6 Junior Colleges within the state of Illinois that offered an Associate in Applied Science (A.A.S.) Degree in Agriculture. Of those 6 institutions, only 2 of them allowed the General Education (Gen Ed) requirements to be taken within the Agricultural Department. The practice in question amounted to 15 semester hours consisting of math, technology (computer), writing, verbal, science and social science skills.

A RFP was initiated by one of the two Ag Gen Ed Community Colleges in order to determine if this practice still proved to be a viable solution in meeting the goals of the institution. The cost of this RFP project was $10,100. The money was allocated towards student salaries for administering the questionnaire, travel expenses to the 6 A.A.S. Community Colleges scattered throughout the state, phone communications to the current RFP graduate employers, and payment to project reviewers outside of the Western Illinois University Agriculture Department to confirm validity with the survey instrument used to collect perceptual data.

Methods/Procedures:

There were 108 responses collected from the 6 Community Colleges for Table 1, with 103 usable responses. Each survey instrument utilized a four-point Likert-type scale. Sig Value #1 reports the results from the 2 A.A.S. institutions combined (Group 1, N=43) that allow Gen Ed requirements to be met within the Agricultural Department as compared to the other 4 A.A.S. institutions (Group 2, N=60) within the state that the majority of Gen Ed's are taken outside the Agricultural Department. Sig Value #2 distinguishes the RFP institution (N=29) from Group 2. An Analysis of Variance (ANOVA) was the procedure used for validity.

Table 1: Summary of the Results of Current A.A.S. Students

Question 1: Overall, how do you believe your coursework at ____ prepared you for your upcoming internship?

Range of Means (N=6)	Sig Value#1	Mean Ag Gen Ed	Mean Gen Ed	Sig Value#2
3.07 –3.41	0.573	3.34 (STD .57)	3.29 (STD .45)	0.277

2: How well did ____ prepare you with the necessary technical skills in your chosen field upon entering your internship?

2.84-3.38	0.64	3.21 (STD .60)	3.27 (STD .51)	0.351

3: How well did___ prepare you with the necessary writing skills upon entering your internship?

2.78-3.27	0.561	3.11 (STD .58)	3.05 (STD .54)	0.078

4: How well did____ prepare you with the necessary verbal skills upon entering your internship?

3.00-3.31	0.671	3.19 (STD .54)	3.23 (STD . 56)	0.743

5: How well did ____ prepare you with the necessary computer technical skills (email, word processing, etc.) upon entering your internship?

2.61-3.62	0.001	3.51 (STD .50)	3.10 (STD .65)	0.001

6: How well did___ prepare you with the necessary science skills upon entering your internship?

2.96-3.46	0.049	3.38 (STD .58)	3.14 (STD .58)	0.019

7: How well did ____ prepare you with the necessary math skills upon entering your internship?

2.28-3.32	0.508	3.19 (STD .64)	3.10 (STD .67)	0.112

8: How well did ____ prepare you with the necessary social science (human behavior) skills upon entering you internship?

2.77-3.20	0.223	2.85 (STD .57)	2.98 (STD .45)	0.439

9: How well prepared do you think ___ agriculture instructors are to teach writing skills?

2.96-3.38	0.668	3.19 (STD .63)	3.24 (STD .63)	0.794

10: How well prepared do you think ___ agriculture instructors are to teach verbal skills?

3.21-3.48	0.218	3.28 (STD .62)	3.41 (STD .49)	0.102

11: How well prepared do you think ___agriculture instructors are to teach computer technology skills?

2.67-3.62	0.531	3.39 (STD .65)	3.31 (STD .68)	0.032

12: How well prepared do you think ___ agriculture instructors are to teach science skills?

3.26-3.77	0.51	3.51 (STD .59)	3.43 (STD .59)	0.542

13: How well prepared do you think ___ agriculture instructors are to teach math skills?

2.29-3.57	0.711	3.38 (STD .53)	3.33 (STD .69)	0.108

14: How well prepared do you think ___ agriculture instructors are to teach social science skills?

2.92-3.33	0.935	3.05 (STD .58)	3.06 (STD .58)	0.875

15: How well prepared do you think ___ agriculture instructors are to teach their content within their discipline area?

3.57-3.76	0.853	3.70 (STD .55)	3.68 (STD .50)	0.486

Findings:

The variables that possessed significant differences between the 2 groups were the Community College's preparation of technology and science skills among current A.A.S. students. In both variables, Group 1 possessed the greater overall mean score. This would indicate computer skills taught within the agriculture department are meeting the specific needs of the A.A.S. student, more so than the Gen. Ed's department.

Conclusions:

The Project Director feels that based on the results from the finding of this study, the current educational structure of the RFP institution for A.A.S. graduates is preparing successful candidates in the field of agriculture. It is up to this institution on how to view their degree program, either as professional or technical. The findings show that very few A.A.S. students go on to obtain a B.S. Degree, so the need to change general education requirements for transfer is mute.

SPACE ODYSSEY: 2004 SPACE AGRICULTURE IN THE CLASSROOM 7TH GRADE CURRICULUM

Kimberly A. Bellah, Graduate Research Assistant
Shannon G. Washburn, Assistant Professor
Edward W. Osborne, Professor
James E. Dyer, Assistant Professor
Glenn D. Israel, Professor
Emily Rhoades, Graduate Assistant

Agricultural Education and Communication
University of Florida
305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611
Phone: 352-392-0502
Fax: 352-392-9585
Email: kbellah@ufl.edu

Introduction

Preparation of students for standardized examinations in an effort to reassure legislators and administrators that students are achieving at an acceptable level, as well as to ensure continued funding, often focuses on the outcomes of those exams, and phases out teaching students how to conceptualize content and apply it through an experiential setting (Belcher, McCaslin and Headley, 1996). To that end, today's educational system seems to discount Ralph Waldo Emerson's notion that, "*Skill to do comes of doing*."

The Space Agriculture in the Classroom (SAITC) project was derived from a concern that, with a growing urban population, reduced availability of agriculturally sustainable land, and fewer children possessing basic agricultural principles and concepts; the critical need for agricultural scientists, engineers, technicians, and producers cannot be met with highly qualified personnel over the next 30 years.

The goals of the Space Ag in the Classroom program are to:

- Increase awareness of the role and scope of local and national agriculture in the economy and society.
- Increase awareness and excitement in the space program.
- Excite students to learn with an academically sound program.
- Produce better citizens who support wise agricultural and scientific policies.
- Reach a population of students who may not otherwise get this material namely, urban, suburban and under-served populations.

- Train tomorrow's scientists, researchers, agriculturists, educators, engineers and explorers.
- Inspire students to stay close to the earth, and reach for the stars!

Program Phases

Space Ag in the Classroom focuses on helping seventh grade science students better understand agriculture using space agriculture as the context for learning. All curricula are designed to integrate middle school students into the nexus of space flight and into the environment astronauts occupy while on the International Space Station.

Three phases, in partnership with the National Aeronautics and Space Administration (NASA), Office of Biological and Physical Research, and the United States Department of Agriculture (USDA-CSREES), comprise the project:

Phase A: Developed, designed and created sixth grade curriculum materials and teaching resources for distribution to sixth grade science teachers in four states for a targeted pilot program. Materials were sent to 4,000 teachers in Utah, Florida, Alabama and New Mexico to integrate into their curriculum and they provided feedback on the usefulness of the materials.

Phase B: Based on the feedback from the sixth grade curriculum, materials were revised in format and/or in content, then disseminated to additional states as resources allowed. The second year of the project followed a similar creative and distributive process with additional materials for seventh grade. Eighth grade curriculum materials will be developed in the third year.

Phase C: During the three years of the project contract, it is anticipated that as many as 20 states with an Ag in the Classroom program will be included in the distribution of these materials. NASA and USDA will continue as major partners in the creation and revision of curriculum during the project period.

Results to Date

Years one and two of the project were the developmental stage for the sixth and seventh grade curriculums. Educational modules were designed as the reading components for instructional lessons. Detailed instructional plans were developed to assist teachers in integrating more in-depth concepts with student learning activities. Content areas addressed in the current module were, similar to the sixth grade module, crop production, biotechnology, resource recovery, and food safety, with an added area of systems integration in the seventh grade module. An SAITC project website was enhanced to include updated and newly created information to assist teachers and students in teaching and learning about agriculture and the space program. Major project materials were translated into Spanish and posted to the project website.

Future Plans

The third phase of this program will be carried out over the next year. Phase C of the program will target eighth grade students. A third module, complete with lesson plans and

instructional materials, will be produced. This phase will also see the expansion of the program to all other states and will include both agricultural and science teachers.

To date, there were minimal challenges in developing the curriculum. Perhaps the most difficult obstacle was in university members ensuring the materials were age-appropriate for middle grade students. Employing an expert panel of elementary teachers and students to evaluate the pilot materials surmounted this challenge and provided insight for subsequent curriculum development. An additional challenge was in ensuring that teachers returned evaluative information for previous materials integrated into their classes. Allowing teachers to report results electronically minimized this challenge.

Costs/Resources Needed

The program was funded by NASA and USDA to cover costs of instructional materials development, management, delivery, and evaluation. Upon completion of the project, it is anticipated that program materials will be widely available for purchase at cost.

References

Belcher, G., McCaslin, N.L., and Headley, W.S. (1996). Implications of performance measures and standards for evaluation and assessment in agricultural education. *Journal of Agricultural Education.* 37 (4) 1-7.

Emerson, R.W. *Inspirational Education Quotations*. [Online]. Retrieved October 28, 2003, from http://hellam.net.phtml.

National Aeronautic and Space Administration. (1998) NASA Strategic Plan. [Online]. Available: http://www.hq.nasa.gov/office/nsp/

PROJECT FARMBOTS: FABRICATING AGRICULTURAL MACHINERY FOR THE BENEFIT OF AGRICULTURE AND TECHNOLOGY STUDENTS

Thomas W. Broyles
Ph.D. Candidate
Agricultural and Extension Education
282 Litton Reaves Hall
Virginia Tech (Mail Code 0343)
Blacksburg, VA 24061
Voice: (540) 231-8188
Fax: (540) 231-3824
E-mail: tbroyles@vt.edu

Dan Swafford
Agricultural Educator
Christiansburg High School
Montgomery County Public Schools
Christiansburg, VA 24073
Voice: (540) 382-5178
Fax: (540) 381-6112
E-Mail: dswafford@mail.mcps.org

Introduction

The project Farmbots encouraged both traditional and non-traditional agriculture students to pursue careers in agricultural engineering, by engaging them in the hands-on application of robotics technology to agricultural machinery. The project was a collaborative venture between agriculture and technology education students to design and build a robotically-controlled agricultural sprayer. The project also included the development of workshops where agricultural education students build and operate scale models of robotic farm equipment.

The project site was Christiansburg High School (CHS), which serves 1,000 students in grades 9-12. The school is one of four high schools in Montgomery County Public Schools (MCPS) located in the Appalachian Mountains of Southwest Virginia. About 38% of CHS graduates attend four-year colleges while 6% go to trade schools.

CHS agriculture course offerings include Applied Agriculture Concepts, Agricultural Mechanics and Basic Plant Science, Agricultural Mechanics and Basic Animal Science, and Small Engine Repair. Enrollments in these courses average 14-18 students per semester. Typically, students enrolled in these courses perform at or below average in their core academic courses and do not seek post-secondary education.

For the past two years, CHS has hosted an MCPS evening course in Robotics which attracts about 20 students from across the district. The class operates with the goal of inspiring students to learn about opportunities in engineering, science, and technology. The Department of Electrical and Computer Engineering at nearby Virginia Tech collaborated on this course, providing student and faculty mentors for the participating high school students. While the robotics course was open to all MCPS students, participants had come mostly from the ranks of academically high-achieving, college-bound students.

The Farmbots project engaged two disparate groups of students in a collaborative venture to design and build a robotically-controlled agricultural sprayer and to learn about the future of agricultural engineering in the process. Agriculture students were involved in the project throughout the year, while robotics students were primarily involved during the fall and late spring months. In addition to these two groups of students, CHS students in drafting and precision machining also had important roles in designing and fabricating needed parts for this project.

Purpose and Objectives

The purpose of this project was to attract a wider variety of students into agriculture courses and eventually into careers in agricultural engineering. Specific objectives of this study were to:

1. Create modules of instruction dealing with robotic farm machinery which can be used at CHS as well as at other schools within and beyond MCPS;
2. increase opportunity in the agricultural mechanics curriculum for student participation in experiential learning, teamwork, and real-world problem solving;
3. increase enrollment in CHS agriculture classes;
4. increase enrollment of higher-academically-achieving students in agriculture courses;
5. change student attitudes about agricultural mechanics classes;
6. increase the number of students who enroll in both agriculture and robotics classes;
7. increase the number of CHS graduates pursuing study in agricultural engineering;
8. increase interaction among the CHS agriculture classes, Virginia Tech's Biological Systems Engineering Department, John Deere and Company, and Case-New Holland.

Methodology

The project's plan of work included a two-layered approach. The first was the design, creation, testing, and modification of the Farmbot. The second layer, coinciding with the first, was the introduction of instructional modules, events, seminars, conference attendance, and FFA program participation all focused on the future of agriculture engineering and the application of robotic technology to agriculture. These activities were designed to foster student interest and understanding, and to encourage collaboration and interaction among students who might not otherwise work together.

Costs

The primary uses of funds were in the areas of: (a) equipment, materials, and supplies for building and operating the Farmbot; (b) costs for curriculum and events fostering career awareness, collaboration, and recruitment of participating students; and (c) staff and student travel costs for the demonstration of the Farmbot and dissemination of project results.

Farmbot Robotic Tractor	$ 6,800.00
Lego Kits	$ 1,250.00
Equipment	$ 6,950.00
Travel	$ 1,900.00
Stipends	$ 2,600.00
Miscellaneous	$ 4,500.00
Total	**$ 24,000.00**

Recommendations

The researchers recommend that further research be conducted in the following areas: (a) student learning outcomes based on the modules created; (b) determine if the Farmbot program led to higher enrollments in agriculture education courses in CHS; (c) determine if there was an increase in the number of students enrolled in agricultural engineering programs at higher education institutions; and (d) construct a career development event around the building of scale model farm equipment using Lego kits.

EVALUATION OF A LIVESTOCK ETHICS CURRICULUM FOR HIGH SCHOOL YOUTH.

Keli M. Brubaker, Purdue University
Dr. Clinton P. Rusk, Purdue University
Dr. Mark A. Balschweid, Purdue University
Dr. Edmond Pajor, Purdue University

Currently, very little curriculum has been developed to teach youth about ethics in livestock programs. One of the most widely used lessons is a video series, developed by Dr. Jeff Goodwin, which includes "A Line in the Sand", that has been adopted for educational use in all fifty states. Previous research (Goodwin, et al. 2002; Rus, 1997) has shown that an increase in ethical knowledge can result from a livestock ethics video program. Since it is difficult to show any impact with programs that have less than two hours of contact with participants (Barkman, 2002), generalizations should not be made from the results of those previous studies. To gain more contact hours with students, a more detailed curriculum, incorporating the livestock ethics video developed by Goodwin, was developed. The result was a livestock ethics curriculum that requires multiple student contact hours.

The purpose of this study was to evaluate the effectiveness of a livestock ethics curriculum developed for high school students in Agricultural Education classes. The specific objectives of this study were to determine if participants were more aware of the principles involved in making ethical choices when faced with decisions in youth livestock programs; if students better understand the consequences of unethical choices when faced with decisions in youth livestock programs; and if participants will make ethical choices when faced with decisions in youth livestock programs as demonstrated by real life case study analysis.

The livestock ethics curriculum was expanded from a program developed by Dr. Clint Rusk in the spring of 2002. Other ethics programs were also reviewed. The researcher taught the curriculum to 305 students enrolled in eight Indiana High School Agriculture programs. Data was collected using a pre-test/post-test experimental design. The researcher administered both tests to ensure consistent and detailed instructions were given to students. Data from this study were entered and analyzed in the Statistical Package for the Social Sciences (SPSS 11.5 for Windows, 2000). Descriptive statistics were used to analyze data. The McNemar test in SPSS was used to evaluate pre-test/post-test responses.

The results indicate an 18 percent gain ($P<0.05$) in student knowledge of livestock ethics as a result of the curriculum, which is 3.26 correct responses. Scores ranged from 8 to 27 correct answers with a median of 22 and a mode of 23. Table 1 shows the pre-test and post-test scores, standard deviation and percent gain for each site in the study. Eighty-six percent of participants improved their score from the pre-test to the post-test.

Table 1 *Pre-test and Post-test means, standard deviations, and knowledge gain per site*

Site	N	Pre-test Mean (SD)	Post-test Mean (SD)	Net Gain	% Gain
1	43	15.98 (3.8)	18.88 (3.7)	2.90	18.15
2	34	18.67 (2.1)	21.12 (2.5)	2.45	13.12
3	28	18.54 (3.8)	21.61 (3.8)	3.07	16.56
4	29	19.07 (2.5)	22.62 (2.8)	3.55	18.49
5	42	17.74 (3.7)	21.02 (3.2)	3.28	18.49
6	22	17.36 (4.5)	19.68 (5.5)	2.32	13.36
7	45	18.78 (2.7)	22.47 (2.1)	3.69	19.65
8	25	16.44 (3.7)	21.16 (4.1)	4.72	28.71
Total	268	17.82 (3.5)	21.07 (3.6)	3.26	18.30

Overall results from the study were positive. The study found participants increased their awareness and knowledge of the overall principles involved in making ethical choices when faced with decisions in youth livestock programs. The results also indicate that students improved their understanding of the consequences associated with making unethical choices when faced with decisions in the youth livestock program. Participants who are taught the livestock ethics curriculum are better informed and thus more likely to make an ethical choice when faced with a decision in the youth livestock program as a result of the case study analysis. The results do not imply that students will make the right decision in a real life setting.

It was concluded that a livestock ethics curriculum is beneficial for students in high school Agriculture Education classes. Additional research should be done to ensure the curriculum is complete and covers the essential components of a livestock ethics program. Additional research should also be done to determine if students will make an ethical choice when faced with a decision in a real life situation.

References:

Barkman, S. J. (2002). *A field guide to designing quantitative instruments to measure program impact.* West Lafayette, IN: Purdue University.

Goodwin, J. L., Briers, G., & Murphy, T. H. (2002). Measuring the ethical cognition effects of a videotape livestock show ethics education program. *Journal of Extension,* 40 (6).

Rus, D. G. (1997). *Evaluation of ethics perceptions in FFA members.* Unpublished master's thesis, Colorado State University, Fort Collins.

COTTONLINK: MEDIA'S BRIDGE TO THE COTTON INDUSTRY

Susie J.R. Bullock, Jacqui Haygood, Cindy Akers,
Angela Beesley, David Doerfert, Chad Davis, Stacy Stockard
Texas Tech University

Introduction

The cotton industry is responsible for providing the world's most dependable and most inexpensive fiber supply. The livelihoods of many rural communities and large city hubs that serve those communities are directly related to a healthy cotton economy. However, as a result of complex interactions between the globalization of our markets, an increasingly environmentally sensitive public, and our dependence upon advanced technologies, the future of the cotton industry is reliant upon supportive governmental policy. Governmental policy is based upon political support that is affected most directly by public opinion. Given this context, it is essential that we utilize the mass media to empower consumers and voters to make educated decisions based upon sound scientific knowledge and the use of reasoning.

CottonLink is an interactive CD-ROM designed as a reference tool for members of the media. It incorporates state-of-the art tools and techniques into a package designed for delivery of media contacts from every segment of the cotton industry. The goal of this project is to provide a ready source of information and story ideas on a wide range of topics and to offer media-ready university personnel, small, medium, and large-sized producers, ginners, economists, researchers, marketing specialists, textile industry representatives, and consumer specialists as experts on a variety of cotton-related subjects.

Methods

The project coordinating team consisted of the principal investigators and doctoral student. To launch the project, statewide focus group interviews were conducted with key media contacts from across Texas. Concurrently, a combination of qualitative and quantitative techniques were used to solicit information from key stakeholders within the cotton industry. A complete list of key graphic elements, contact numbers, topics and experts on those topics, contact information, photographs, and key graphic elements used most often in communicating the story of cotton were compiled. Macromedia flash software allowed interactive formatting of the resources on the CD.

The final product is a CD-ROM compatible with Mac and PC platforms. The disk includes:

- background on and general information about cotton and the cotton industry;
- links to the major cotton-related sites on the World Wide Web;
- media-friendly experts list of 99 contacts for information on current and emerging cotton-related topics;
- a photo gallery consisting of three sections: logos, portraits, and cotton scenes.

University staff mailed CDs to more than 500 Texas weekly and daily newspapers. Recipients included editors-in-chief, business editors, lifestyle editors, and agricultural editors.
The principal investigators then divided the state of Texas into regions and identified the major daily newspapers in each. The group traveled individually to hand delivered CDs to 30 of the state's major dailies, demonstrating the resources to the media contact whenever possible.

Conclusions

CottonLink now serves as a Portable Showcase for the cotton industry as well as providing valuable resources for the media. Such a resource guide provides a centerpiece around which the cotton community can rally.

Implications and Future Direction

Phases II and III of this three-year research project will result in a print media CD-ROM (targeting newspapers and magazines) during year one, print media and radio CD-ROM (targeting newspapers, magazines, and radio stations) during year two, and DVD (targeting newspapers, magazines, radio and television stations) during year three. We will offer a related Web site as a link to other sites thus adding to the "virtual" cotton community. A CottonLink@ttu.edu e-mailbox provides a method for collecting and responding to media questions and needs.

> Research among members of the media will determine the impact of providing a central source of information about the cotton industry. In the final analysis, we believe that providing such a tool will not only increase the media coverage of cotton, but influence the quality and accuracy of the reporting.

To evaluate the project's impact, researchers will use a news clipping service to assess media coverage. By comparing the quality and quantity of cotton coverage in newspaper clippings collected prior to distribution of the CottonLink CD and after will reveal the impact of providing a reliable source of commodity information for the media

This project is based on a similar project produced by Mississippi State University in 2000, but future research similar to that of Hess (1997) and Hagins (2001) will rely on the Hayakawa-Lowry (Hayakawa, 1940; Lowry, 1985) method of analysis to measure and compare agricultural coverage by the mass media.

References

Hagins, S. (2001). *Associated Press Wire Service coverage of agricultural issues: A content analysis*. Unpublished master's thesis, Texas Tech University, Lubbock.

Hayakawa, S. I. (1940). *Language in thought and action*. New York: Harcourt, Brace and Co.

Hess, A. S. (1997). *Analysis of agricultural literacy information sources: Associated Press wire service*. Unpublished master's thesis, Texas Tech University, Lubbock.

Lowry, D. T. (1985). Establishing construct validity of the Hayakawa-Lowry news bias categories. *Journalism Quarterly, 62*(3), 573-580.

USING Z-SCORES FOR COMPETITIONS

Jack Elliot
Ed Franklin
The University of Arizona

Introduction: Getting a tough judge can ruin your chances of winning (at any level) if there is not a means to equalize scores when 2 or more judges/evaluators are involved in scoring a competition. For example, during research presentations there can be as many as two dozen judges involved in scoring the outstanding research presentation. Similar scenarios exist in many FFA competitions where you have multiple judges and several concurrent sessions. Remember during the last Winter Olympics and the figure skating scoring fiasco? Regardless of the situation, using z-scores eliminates the effect of having a tough or easy judge and provides a mechanism to select the best competitors out of the participants.

Purpose: The purpose of this poster is to demonstrate the appropriateness of utilizing z-scores during competitions.

Major Steps: The guidelines for determining the top award recipients include: minimum of three judges will evaluate each competitor.

1. An agreed upon evaluation and rating scorecard will be used by the judges to evaluate the competition.
2. Each judge will evaluate the same number of competitors, but each judge may not actually evaluate all eligible competitors (a sample rotation schedule is included). It is essential that each judge evaluate as many competitors as possible to reduce interrater reliability concerns.
3. Each judge will provide a total raw score for each competitor evaluated.
4. The raw scores will be computed to z-scores. Each presentation will have three z-scores. The three z-scores will be summed and the winner determined by the competitor with highest z-score total.

The actual steps for calculating and ranking competitors are listed below as it relates to judging outstanding research papers. The same process is used in other competitions and several examples will be shared on the poster.

Outstanding Research Presentation/Paper Calculation Steps (or how to determine z-scores using SPSS):

1. It is absolutely essential to have the judges evaluate as many presentations as possible. Therefore, they are to evaluate in every concurrent session (see attached rotation schedules).
2. Judges are to be identified by number and they become variables.
3. Presenters are to be identified by number and they become cases.
4. Enter raw total scores into SPSS. Do not enter zero for missing and unpresented papers, for papers presented by someone other than the author, or for those papers

presented by non-members. Leave their scores as missing (i.e., with a decimal point). Serious miscalculations occur when converting to a "Z" score if a value (even zero) is entered.

5. Select:
   a. Statistics
   b. Summarize
   c. Descriptives
   d. All judges (variables) and move to variable(s)
   e. Save standardized values as variables
   f. OK - calculations will occur and you will end up in "Output" - return to data
   g. Transform
   h. Recode
   i. Into same variables
   j. Zjudges (these are the newly created variables) and move to variable(s)
   k. Old and New values
      i. Old value = system missing
      ii. New value = 0 (zero)
   l. Add
   m. Continue
   n. OK
   o. Transform
   p. Compute
      i. Target variable (type): zscore
      ii. Numeric expression is to be (type or move): all zjudges added together
   q. OK
   r. Data
   s. Sort cases
   t. Zscore - move to sort by
   u. Descending
   v. OK - this gives you the presenters ranked in order by highest score.

Sample Judge Rotation:

Date/Time	Concurrent Sessions Outstanding Judges - Numbers		
Morning Sessions 10:30-12:00	Session A	Session B	Session C
	Judge 1 Judge 2 Judge 3	Judge 4 Judge 5 Judge 6	Judge 7 Judge 8 Judge 9
Afternoon Sessions 3:30-5:00	Session D	Session E	Session F
	Judge 1 Judge 4 Judge 7	Judge 2 Judge 5 Judge 8	Judge 3 Judge 6 Judge 9

Conclusion/Educational Importance: From an educational standpoint, this process provides a realistic means to learn about standard deviations and statistics. More importantly, however, it aids in selecting the best competitors, regardless of who is judging.

PREPARING SECONDARY AGRICULTURAL EDUCATORS TO BE EFFECTIVE TEACHERS IN THE LABORATORY SETTING

John C. Ewing, The Ohio State University
Benjamin G. Swan, The Ohio State University
M. Susie Whittington, The Ohio State University

Introduction/need for idea or innovation

Conducting effective labs in Agricultural Education is essential to the success of preparing beginning Agricultural Education teachers. In addition, many departments have lost courses related to laboratory education. Thus, this was the rationale for developing Agricultural Education 594, "Conducting Effective Labs in Agricultural Education". Agricultural Education 594 is a laboratory pedagogy class that examines many facets of teaching in a laboratory setting. Learning the fundamentals of organizing and managing an effective laboratory is critical for all teachers, especially those who have never experienced such an environment. A laboratory is no longer simply defined as the "shop". Today's advancement in technology requires that new teachers understand the importance of teaching in different types of laboratory settings such as greenhouses, school farms, agricultural mechanics, and biotechnology laboratories.

Conducting Effective Labs in Agricultural Education grew out of a need to change the current manner in which new teachers are being introduced to the laboratory setting. As reported by Swan and Cano (2003), cooperating teachers in Ohio felt that their student teachers lacked knowledge of agricultural subject matter and discipline skills. Therefore, the study recommended that future teachers become familiar with the various laboratory settings they may experience in the profession. To immerse students in these different laboratory settings, the content of Agricultural Education 594 contains several field trips/learning experiences. All field trips were planned for Fridays so the students are available for two-day trips when necessary. By organizing an academic schedule that ties crucial pedagogy and content together, all upcoming student teachers are afforded the opportunity to participate in these field trips. The course is designed to meet the needs of pre-service teachers, as they prepare for student teaching assignments, and in-service teachers in their first year of teaching.

Specifically, the goal is to provide opportunities for students that allow them to experience the purpose, breadth, and scope of an instructional laboratory in Agricultural Education. Upon completion of the course students will be able to evaluate instructional laboratories, develop an instructional laboratory management plan, devise a plan of action to improve an instructional laboratory, and evaluate student work within an instructional laboratory. Yes, the students will gain much more, but achieving these goals will indicate that progress is being made toward reinstituting the critical laboratory skills required of new teachers.

How it works/methodology/program phases/steps

1. Introduce purpose, breadth, and scope of laboratories in Agricultural Education.
2. Discuss responsibilities of the instructor pertaining to safety, hazards, and OSHA standards.
3. Explore different agricultural facilities including; aquaculture, greenhouse, school farm, agricultural mechanics, and computer laboratories.
4. Examine laboratory management topics such as; discipline, maintenance, and student responsibilities for maintaining a clean environment.
5. Engage in on- and off-campus field trips/learning experiences.
6. Allow students to develop a "wish list" for a newly acquired laboratory.
7. Present a proposal for a selected laboratory design.
8. Evaluate their students' performances in the laboratory setting.

Results to date/implications

To date, the Agricultural Education 594 class has been designed and pilot-taught for one quarter. Continued implementation of this course will occur during spring quarter at The Ohio State University. Trips to an urban agricultural science school, an urban horticulture/greenhouse and landscape school, and an exemplary production rural school are being organized.

Future plans/advice to others

In the future students will be afforded more hands-on opportunities. Extended visits at host schools will allow students to perform micro-lessons in the natural setting with real students. Others implementing a similar course should include this technique, and others, to strengthen the experience.

Costs/resources needed

Travel/Van Rental (2 vans)	(per trip)	$300.00
Copies	(per trip)	$30.00
Honorariums/Host school	(per trip)	$50.00
Total		$380.00

References

Swan, B. G., & Cano, J. (2003). Cooperating Teachers' Perceptions of the Student Teaching Experience. *Proceedings of the 2003 National Agricultural Education Research Conference, Orlando, FL., 381-391.*

EXPLORING STUDENT'S PERCEPTIONS OF GLOBALIZATION AND INTERNATIONAL INVOLVEMENT

Curt Friedel
Graduate Teaching Assistant
Department of Agricultural Education and Communication
University of Florida
310 Rolfs Hall
Gainesville, FL 32607
Ph. 352-392-0502 ext. 223
Fax: 352-392-9585
cfriedel@ufl.edu

Tracy Irani irani@ufl.edu
Nick Place nplace@ufl.edu
Department of Agricultural Education and Communication

Introduction

Globalization of the student's learning experience is a key pathway to preparing a global workforce for agribusinesses (Acker, 1999). However, Moore, Ingram and Dhital found that college of agriculture students were reasonably knowledgeable of international agriculture related to the USA, but less knowledgeable of world agricultural issues (1996). "The rising level of global interdependency" has made it essential that colleges produce graduates with qualities that enable them to be successful working in an international society (Tucker, Hart and Muehsam, 1993).

International programs are critical to the mission and responsibilities of a college of agriculture (Acker & Scanes, 1998). As agribusinesses become more involved in the international marketplace, there becomes a need for an experienced workforce educated on the subject of globalization and international involvement. Colleges of agricultural sciences have responded by requiring foreign language classes, encouraging study abroad programs, and internationalizing curriculum (Moore, Ingram & Dhital, 1996). However, Redmann, Schupp, and Richardson found that college students at a land grant university needed to be more knowledgeable of international agriculture, and that college faculty must develop curricula to meet this need (1998). Although much research has been done concerning students' knowledge of international agriculture, little research exists relating to student's perception of globalization and international involvement. It becomes crucial that we asses

the students' perceptions of these concepts before we continue to develop curriculum to meet the needs of agricultural students.

One way to describe the student's decision to study in another country is a diffusion of an innovation. Rogers explains the innovation-decision process as an individual going through a process of initial knowledge of an innovation, to forming an attitude and making a decision (2003). Roger's model of the innovation-decision process involves starting with the knowledge stage as an individual learns of the existence and gains understanding of the innovation. The individual then moves to the persuasion stage as the person forms a favorable or unfavorable perception toward change. Later, the individual will move to the decision stage which leads to a choice of adopting or rejecting the innovation (p. 169). If students have an adequate amount of knowledge of globalization and international involvement, it becomes necessary to assess agricultural students' perception to continue the innovation-decision process of students subscribing to international experiences and study abroad programs. The terms globalization and international involvement are commonly used in discussions concerning the worldwide market place, but how do students perceive these two terms?

Purpose and Objectives

The purpose of this study is to explore students' perceptions of globalization and international involvement. The specific objectives of the study are to 1) Describe students' perceptions of the terms globalization and international involvement related to demographics such as gender, GPA, and ethnicity; and 2) Explore students' perceptions of globalization and international involvement.

Methods/Results

The researchers prepared and directly administered one instrument for data collection. A sample consisting of students in an agricultural writing class (N=89) were to openly define the terms "globalization" and "international involvement." A mixed research design of qualitative and quantitative methods was utilized to conduct the study. Interpretation of the qualitative data using the constant comparative method (Ary, Jacobs, & Asghar, 2002) involved looking for common themes to define descriptive patterns, and associations and linkages among descriptive levels. Once themes were identified, SPSS statistical software was used to determine descriptive statistics.

Major and minor themes emerged providing distinct similarities and differences found between students' perceptions of globalization and international involvement. Of the 82 respondents, 54 were male and 28 were female. Slightly less than one-third (31.5%) of the males tended to identify international involvement as "Personal interaction pertaining to government, education, religion, and cultural affairs of nations of the entire world," while 29% agreed on "An international community working together for a common goal." Of females, 32.1% recognized international involvement as "A country being involved in international issues, with respect to what other countries are doing." Of the respondents, 12 self-reported a GPA of 2.0-2.99, and 67 self-reported a GPA of 3.0-4.0. With the term globalization, 25.0% of students with a GPA between 2.0 and 2.99 determined the definition as "Creating a world marketplace for beneficial trade," while 25.3% of students with a GPA

between 3.0 and 4.0 determined globalization as "The spreading of an idea and linking the world through communication." Of the respondents, 47 were Caucasian, 16 were Asian, and 7 were Mexican/Latin American. Over one-third (34.0%) of Caucasians identified globalization as "The spreading of an idea and linking the world through communication." However, 31.3 % of Asians identified the term as "Interaction of all countries around the world." Of Mexican/Latin Americans, 28.6% recognized globalization as "People becoming closer, interacting with each other and working as one," and 28.6% defined globalization as "Movement towards a global society and integrating cultures."

It is interesting to note some respondents defined the terms in a negative connotation with 6.7% of respondents defining international involvement as "An outside country interfering with the relations of a foreign country," and 6.7% defining globalization as "One country colonizing and monopolizing the world."

Advice to Others

University faculty must help students learn the complex, interconnected, diverse, and ever-changing global society (Moore, Ingram & Dhital, 1996). University faculty must know students' perceptions of concepts such as globalization and international involvement to complete the decision-making process and influence the participation in an international learning experience. Recognizing that students' perceptions of globalization and international involvement may be related to gender, GPA, and ethnicity can lead to educating faculty to become better prepared as change agents in the student's decision-making process. In turn, this will increase the likelihood for diffusion, with more students becoming aware of global issues and developing competencies necessary for success in the international agribusiness world. "Simply stated, global skills, global perspectives, and global citizenship are now a fundamental prerequisite for success in agribusiness careers" (Acker, 1999).

References

Acker, D. G. (1999). Improving the quality of higher education in agriculture globally in the 21st century: constraints and opportunities. *Journal of International Agricultural and Extension Education,* 6(2), 47-52.

Acker, D. G., Scanes, C. G. (1998). A case for globalizing U.S. colleges of agriculture. *Journal of International Agricultural and Extension Education,* 5(1), 59-62.

Ary, D., Jacobs, L.C., & Razavieh, A. (2002). *Introduction to research in education* (6th ed., pp. 464-490). Belmont, CA: Wadsworth Group.

Moore, E. A., Ingram, P. D., & Dhital, P. (1996). College of agriculture and non-college of agriculture students knowledge about international agriculture and related factors. *Journal of Agricultural Education,* 37(4), 14-22.

Redmann, D. H., Schupp, A. R., & Richardson, W. B. (1998). International agriculture knowledge of graduating seniors in a U.S. land grant university. *Journal of International Agricultural and Extension Education,* 5(1), 35-43.

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

Tucker, S. H., Hart, S. A., & Muehsam, M. J. (1993). Corporate executives express need for better communication between the business world and academia. *Management Research News,* 16(7), 5-10.

A PARTNERSHIP THAT WORKS!

Hoover, T[1]; Heasley, P[2].; Scanlon, D[1].; and Connelly, L[1].
[1]The Pennsylvania State University, University Park, PA
[2]State College Agricultural Science Department, State College, PA

Introduction:

Camp and McLean (2000) examined the curriculum of numerous agricultural teacher education programs across the country and noted significant trends in teacher education. They found that early field-based experiences, agricultural mechanics and methods of teaching agriculture were some of the most valuable components of a successful teacher education program. Exposure to new trends and initiatives in pedagogy and subject matter content are needed to fully prepare future agriculture teachers in an environment where technological change is rapid (Karami, Zamani & Zarafshani, 2003). For these reasons, teacher education programs need to constantly look for ways to enhance the pre-service program to ensure quality experiences and knowledge for their students.

The agricultural education teacher education program at the Pennsylvania State University and the State College Area High School Agricultural Science Program have forged a strong working relationship which benefits all participants and cooperating parties. This collaboration reaffirms the recommendations of the Holmes Group and John Goodlad's National Network of Educational Renewal to develop relationships between preservice teacher programs and public schools. (Hayes, 2002.) This type of partnership provides an excellent opportunity for university students to work in a classroom environment and gain first-hand experience with classroom management, instructional techniques and school-based issues.

Methodology: The agricultural education teacher education program at the Pennsylvania State University and the State College Agricultural Science Program have shared a symbiotic relationship during fall semesters over the past several years. Agricultural education pre-service students develop and teach lessons to State College Area High School agricultural education students as part of *AEE 412- Methods of Teaching Agricultural Education and Environmental Science*. Additionally, students enrolled in *AEE 350, Teaching Methods for Agricultural and Environmental Laboratories* use the State College Area agricultural mechanics laboratory and course. Additionally, State College agricultural science students have the opportunity to take several introductory courses offered by the College of Agricultural Sciences at the Pennsylvania State University utilizing the State College Learning Enrichment Program (Ag Option).

Results to Date: Several benefits have occurred as a result of the collaboration. For the post-secondary students, the exposure to a high school agricultural mechanics laboratory is invaluable. It allows the pre-service students to work in an environment much like one they will someday be teaching in and managing. Additionally, the pre-service students develop

and complete projects and learn how the agricultural mechanics curriculum relates to academic standards in the areas of math, science, and physics.

Both university and high school students benefit from the *AEE 412- Methods of Teaching Agricultural Education and Environmental Science* component of the collaboration. Pre-service student have an opportunity for a "real" in-class experience in the development and delivery of lessons to high school students as opposed to conducting "micro-teaching" sessions with their peers. In return, the lesson plans provide the high school students appropriate and current technical information in basic animal and plant science.

State College Area High School agriculture students have also benefited greatly from the partnership. Interaction with Penn State students allows for career exploration, particularly in the field of agricultural education. More importantly, the conjunction of programs allows for the high school students to take additional classes at the University which are more in-depth and are not offered by the high school. Their enrollment in a Pennsylvania Department of Education approved Agricultural Science curriculum and an undergraduate level course allows students to complete both their selected career path as well as maintain membership in the FFA.

Significantly, the early enrollment of the high school students in collegiate level courses is a symbiotic relationship in itself. The exposure to introductory classes serves as an effective recruitment tool for the College of Agricultural Sciences. In addition, enrollment helps to make the transition from secondary to post-secondary education easier for students.

Future Plans: Both programs and departments have shared personnel and have been included on advisory committees for both institutions. This will allow the above efforts to continue and to be improved. Evaluation of these partnerships is in place to ensure that both groups of students receive the highest and most relevant educational opportunities for their career path.

Costs/Resources: The Department of Agricultural and Extension Education at the Pennsylvania State University and the State College Area High School Agricultural Science Program cover any expenses accrued for the AEE 350 and AEE 412 classes. State College High School students cover the cost of their tuition at Penn State University.

References:

Camp, W. & McLean, R. (2000). An examination of selected preservice agricultural teacher education programs in the United States. Journal of Agricultural Education, 41(2), 25-35.

Hayes, M. (2002). Assessment of a field-based teacher education program: implications for practice. Journal of Education, 122(3), 581-586.

Karami, E., Zamani, G., and Zarafshani, K. (2003). Enhancing the teacher's role as a facilitator through action learning. The Agricultural Education Magazine, 76(2), 14-15.

Teacher Retention and Mentoring Activities of the Minnesota Teacher Induction Program

Richard Joerger, University of Minnesota
Matthew Spindlier, University of Minnesota

Introduction

The lack of personal and professional support of beginning agricultural education teachers is a factor viewed to contribute to teacher attrition (Darling-Hammond & Sclan, 1996). Carefully designed mentoring activities, as well as other activities within a quality teacher induction program, are believed to result in higher retention rates quality teachers (Archer, 1999; Fideler & Haselkorn, 1999; Odell & Ferraro 1992). The Minnesota Teacher Induction Program was established in 1999 to provide the support and assistance needed by beginning agricultural educators due to the publicized needs and experiences of beginning teachers. To date, limited information has been disclosed regarding the activities of the Minnesota Teacher Induction Program (TIP). The purpose of this poster is to disclose the underlying theories that inform the program, events of the annual TIP program, and the specific activities of the senior mentors who provide alternate forms of support and assistance.

TIP ACTIVITY	UNDERLYING THEORY	SENIOR MENTOR ACTIVITY
Introduction to Minnesota Teacher Induction Program (TIP) at the Minnesota Agricultural Education Summer Conference.	**Anticipation/ Fantasy:** *At this time many beginning teachers are in the anticipation mode and are excited about the upcoming classroom teaching experience. They have a feeling that they will be difference makers, it is this excitement that carries the new teachers through the first few weeks of school (Moir, 1990)*	Become acquainted with new teachers in attendance. Initiate relationship-building activities (Greiman, Walker, Birkenholz, 2002). *Date: July.*
TIP Summer Seminar for Entry-Level Teachers		Senior mentors attend and become more acquainted with new teachers and start to become aware of their teaching and advising concerns (Greiman, Walker, Birkenholz, 2002). Additional knowledge of their teaching situations is developed and mentors start to prepare plan for supporting and assisting. *Date: July*
TIP Pre-School Mentor Visit		Mentor meets at the school of teachers to further develop relationship, provide assistance in organizing courses, identifying teaching materials and supplies, determining mentee needs, and scheduling subsequent visits. *Date: August*
Mentor Onsite Observational and Support Visit I	**Anticipation/Survival:** *School life is overwhelming the beginning teachers. They are learning as much as they can while constantly on the go. The teachers can only focus on the day-to-day grind of their activities. Though most of their time is consumed by planning and development, the teachers maintain a high level of energy and hope (Moir, 1990).*	The day is spent in mid to late September with protégé in classroom and laboratory observing teaching and advising activities. A preconference is conducted, observation of instruction is made, and discussions led by the teacher are completed. Senior mentor listens, provides a lot of supportive behaviors, and continues relationship building. Ideas for improving instructional and advisory roles are discussed. *Date: September*
TIP Fall Teaching Seminar	**Survival (Cont'd)**	The workshop consists of professional development topics from the literature, FFA information from state personnel, and group discussions. The discussions allow for the teachers to work together along with the mentors to find solutions to difficult problems in their work. This provides both a type of functional and psychosocial support (Kram, 1985). *Date: September or October*
Mentor Onsite Observational	**Disillusionment:** *Teachers begin to question*	The mentors listen to the needs of the beginning teachers

and Support Visit II and III	*their own competence and commitment to the profession. There is a realization that they are not as effective as they wanted to be. Classroom management is often a major issue and personal life crises often arise due to the extended focus on work (Moir, 1990).*	and provide psychosocial support school and personal concerns and opportunities. This often takes the form of counseling and role modeling as forwarded by Kram (1985). *Date: October, November, &/or December*
TIP Winter Teaching Seminar	**Disillusionment / Rejuvenation:** *A rise in the general attitude of the teacher. They have had a bit of a breather and some time to organize their work and personal lives. Focus changes to long-term planning, curriculum development, and teaching strategies (Moir, 1990).*	The workshop guides the teachers towards the rejuvenation phase. Content focuses on needs for in-class strategies of instruction and program planning as indicated by Joerger and Boettcher (2000). Small group discussion is used to boost morale and focus on additional skills and strategies. *Date: January*
Mentor Onsite Observational and Support Visit IV and V	**Reflection:** *Teachers reflect on their successes and challenges. They begin to think about a variety of possible changes and usually have a more solid vision of the future (Moir, 1990).*	The mentors and teachers have a greater degree of familiarity and trust. The results of mini-instructional and programmatic improvement efforts are discussed. Ideas for the future are shared and explored. *Date: February through May*
TIP Wrap-up Seminar	**Anticipation:** *Planning instructional ideas for the upcoming year is a major focus. Teachers are reinvigorated with hope and energy (Moir, 1990).*	Teachers reflect upon their first year together and discuss ideas they have for changing what they have done in the past. Program evaluation information is gathered for the purposes of strengthening the TIP program. *Date: May/June.*

References

Archer, J. (1999). New teachers abandon field at high rate. *Education Week, 18(27),* 1-21.

Darling-Hammond, L. & Sclan, E.M. (1996). Who teaches and why. Dilemmas of building a profession for twenty-first century schools. In J. Sikula, T.J. Buttery, & E. Guyton (Eds.*), Handbook of research on teacher education* (2nd ed., pp. 67-101). New York: Macmillan.

Fideler, E., & Haselkorn, D. (1999). Learning the Ropes: Urban Teacher Induction Programs and Practices in the United States. Belmont, MA: Recruiting New Teachers.

Greiman, B.C., Walker, W.D., & Birkenholz, R.J. (2002). The Induction of novice teachers: A study of first-year teachers in Missouri. *Proceedings of the 29th National Agricultural Education Research Conference.*

Joerger, R. & Boettcher, G. (2000). A description of the nature and impact of teaching events and forms of beginning teacher assistance as experienced by Minnesota agricultural education teachers. *Journal of Agricultural Education, 41(4),* 104-115.

Kram, K.E. (1985). Mentoring at work. Boston: Scott, Foresman and Company.

Moir, E. (1990b). Phases of first-year teaching. California New Teacher Project. California Department of Education (CDE). http://www.newteachercenter.org/article3.html

Odell, S. J., & Ferraro, D.P. (1992). Teacher mentoring and teacher retention. *Journal of Teacher Education, 43(3),* 200-204.

A SURVEY OF PART-TIME FARMERS IN THE YOUNG FARMER ORGANIZATION

Donnie Mann
Toombs Co. High School

Maynard Iverson
University of Georgia

John C. Ricketts
University of Georgia

Introduction

Successful farmers depend upon the use of a scientific information base to make managerial decisions. This information base is being rapidly propelled by the use of technology. To assist farmers in integrating the technology into their operations, a delivery system of agricultural educators, extension agents and industry representatives work cooperatively to achieve this function.

Extensive capital outlays and relatively low returns on investments have forced substantial numbers to engage in farming on a part-time basis. This is of particular interest, as conflicting schedules often do not allow part-time farmers to devote the same intensity of management as full time farmers. Because of size, part-time farming operations often do not appeal to industry representatives leaving them to rely heavily on the services of young farmer education programs and their instructors for the latest in information and methodology. In the past, young farmer curriculums and their changes have relied heavily on empirical data obtained from advisory committee recommendations with little or no scientific data from participants in the programs. This poster was designed to report the demographic characteristics of part-time farmer enrollees in the Georgia Young Farmer Education Program; and to present their opinions about curriculum needs and organizational activities.

The mission of Young Farmers is meant to be all-inclusive, but the plight of the part-time young farmer is many times overlooked. In 1991, Birkenholz and Maricle found that 837 Young Farmer Chapters existed and that there were 18,856 members. Five years later, Carpentier and Iverson (1996) found that 35% of NYFA members were actually part-time farmers. When studies like Bruening and Radhakrlshna (1993) report the greatest educational needs of young farmers to be corn, swine, beef, and soybeans, one must ask the question; How Effective is the Young Farmer Organization for part-time farmers? This poster will outline Georgia efforts to identify the effectiveness of the Young Farmer Organization for part-time farmers.

Methodology

A descriptive study was used to secure data from a random sample of part-time farmers enrolled in the Georgia Young Farmer Education Program. Each program was provided with survey instruments to be completed by randomly selected part-time enrollees. Participants at young farmer activities were also randomly sampled. Descriptive statistics were used to analyze the data. This data will be presented in hopes of convincing other

Young Farmer organizations in other states to consider the growing and significant population of Young Farmers who are part-timers.

Findings

Respondents were generally middle aged, worked full-time jobs off the farm, had sixteen years of farming experience and had an average of two years of college. Their farming operations consisted of enterprises, which did not require intensive labor and management. They were active participants in the young farmer program; however, they did not feel the program's leadership, contests and awards programs were meeting their needs. Programmatic details will be outlined in the poster.

Implications

Non-traditional members (part-time farmers) of the Young Farmer organizations are not having their needs met. This particular sector of agriculturalists is a growing and significant population. Failing to educate and develop this group of farmers would mean leaving out key producers of America's food, fiber, forage, and forest industry. This study should call on Young Farmer organizations in Georgia and around the country to stop the bleeding. Young farmer membership is declining. Is it because part-time farmers are not considered?

Future Plans

Recommendations for meeting the needs of part-time farmers included additional research of both part-time and full-time farmers enrolled in the program. The mission and objectives of the Georgia Young Farmer Education Program should be reevaluated to reflect those needs with curriculum and organizational activities implemented to achieve the mission of GYFEP and NYFA.

Costs/Resources Needed

There are no costs associated with this presentation.

References

Birkenholz, R. J., & Maricle, G. L. (1991, Winter) Adult education in agriculture: A national survey. *Journal of Agricultural Education*. 19-24.

Bruening, T., & Radhakrlshna, R. (1993, Fall). Education resources used and needed by adult/young farmer instructors: A national assessment. *Journal of Agricultural Education*. 41-48.

Carpentier, D. R., & Iverson, M. J. (1996). Characteristics of members in the National Young Farmer Education Association. *Journal of Agricultural Education, 37* (1) 41-47.

GOT TECHNOLOGY? PREPARING PRESERVICE TEACHERS TO BE TECHNOLOGY SAVVY PROGRAM MANAGERS.

Amanda McClure and Anna Ball
University of Illinois at Urbana-Champaign

Introduction

The secondary agricultural educator is the administrator, leader, implementer, and evaluator of a total program for career education and student leadership development (Hedges, 1997). Competence in instructional technology could serve as a key to assisting secondary agricultural educators in successfully implementing and managing programs. Research in agricultural education indicates that beginning teachers of agriculture need training on the use and incorporation of instructional technologies within their classrooms. While agriculture teachers have been found to value the use of information technology, they have been noted as possessing, "inadequate general software and specific knowledge and skill." (Kotrlik, Redman, Harrison, & Handley, 2000, p.26) Preservice teacher preparation programs in agriculture nation wide have been challenged to provide adequate training regarding instructional technologies for future agriculture teachers (Garton and Chung, 1996; Kotrlik et al., 2000). Further, electronic portfolios have emerged as a nationwide trend in Colleges of Education for preparing preservice teachers in the use of instructional technologies (Glen, 2002). Therefore, it stands to reason that the electronic portfolio should be incorporated into preservice teacher preparation programs in agriculture as a method for experiential learning regarding the use of instruction technologies.

The overall purpose of this project was represented by addressing the following educational question: **What is the impact of utilizing electronic portfolios as an experiential learning tool on the knowledge, skills, efficacy, and integration of technologies used as program management tools for preservice teachers of agriculture?**

Program Phases

This program was implemented at a large Midwestern land grant university in the fall of 2003. The participants were 11 preservice teachers enrolled in a Pre-Internship Seminar in Agricultural Education, which met once a week for 50 minutes throughout the semester. At the beginning of the semester each participant was given a questionnaire evaluating their current knowledge and disposition towards specific instructional technologies. The questionnaire was reviewed by an expert panel to ensure validity, and pilot tested to check reliability. The knowledge based items had a reliability of .70 and the disposition based items had a reliability of .85.

An electronic portfolio technology block was implemented during the last six sessions of the course. During each session of the block a new technology tool and assignment was presented to the participants. Emphasis was placed on how this new technology could be used as a program management tool. The technology tools and assignments issued are listed in Table 1.

Table 1

Technology Tools and Assignments Addressed During the Technology Block

Technology Tool	Assignment
HTML editors	Create an electronic portfolio using Microsoft Publisher.
Desktop publishing	Create an informational brochure about SAEPs using Microsoft
Online resources	Create a Trackstar Module
Digital imaging	Include a digital photo of yourself in the electronic portfolio.

Participants were instructed to include the assignments completed during the course as artifacts in their electronic portfolio, which also contained their résumé, teaching philosophy statement, and any other relevant information needed for state teacher certification. During the last session of the course, participants were required to submit the electronic portfolio and complete an open-ended response questionnaire.

Results to Date

Results derived from the knowledge/disposition questionnaire guided the development of the curriculum for the technology block. Seventy-three percent of the participants indicated that they had little or no ability using web design software and that they had little or no ability using instructional software. Ten out of the eleven participants indicated that they wanted to learn more about technology.

The free response questionnaire given at the conclusion of the program provided insights into the participants' perceptions about the technology block, their knowledge about technology, and barriers they believe will hinder the use of technology while student teaching. 100% of the participants stated that the technology block better prepared them to manage an agriscience program, and that they planned to use technology when they student teach. Student's perceived large class sizes and lack of time and resources as likely barriers to utilizing technology while student teaching.

Future Plans

This project will continue while the participants are student teaching. Each preservice teacher will be video taped while teaching, and will have the opportunity to edit this video at the end of the semester. The participants will be encouraged to include this video clip in the electronic portfolio. Furthermore, participants will complete electronic portfolios by adding artifacts and reflections regarding student teaching experiences. At the conclusion of the program participants will have the option to post the electronic portfolios on the World Wide Web, so that potential employers can view it. A final instrument will be administered to determine whether or not participants adopted technology while student teaching.

Costs/Resources Needed

This project was funded by the U.S. Department of Education as a part of the Preparing Tomorrow's Teachers to Use Technology (PT3) Program. The value of the grant totaled $6,000 to be used towards salary and equipment. The following items were purchased for this project: a laptop computer, scanner, and digital cameral. In addition to these purchases, $3,000 of the budget was used to fund a graduate student for two semesters to serve as the technology curriculum designer and instructor. Other resources needed included, a

digital camcorder, appropriate software including Microsoft Office, student access to computers and the Internet, and access to a server to post resources and portfolios on the World Wide Web.

References

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

Glenn, A.D. (2002). *Emergence of technology standards for perservice teacher education*. Retrieved June 1, 2003, from http://www.ncrel.org/tech/standard/

Hedges, L.E. (1997). *Anticipation and preparation: A teacher's survival guidebook*. Columbus, OH: Ohio Agricultural curriculum Materials Service.

Kotrlik, J.W., Redmann, D.H., Harrison, B.C., & Handley, C.S. (2000). Information technology related development needs of Louisiana agriscience teachers. *Journal of Agricultural Education*, 41(1), 18-29.

FOOD, LAND, AND PEOPLE: RESOURCE FOR AGRICULTURAL LITERACY

Mark A. McJunkin **David Agnew**
Co-Directors of Arkansas Food Land and People
Arkansas State University

Introduction: Project Food, Land & People (FLP) is a non-profit educational organization created, in 1988, to meet the need for educational resources appropriate for K-12 that promotes a greater understanding of agriculture, the environment and the interactions with people. FLP, after working with professionals in education and agriculture from all across the U.S., pilot tested their curriculum. Their goal was to have a high-quality, objective and easily-integrated curriculum dealing with the complexity and interdependence of people with the environment and agriculture. The curriculum uses the subject areas of food, land, and people to facilitate learning in basic math, science, and social studies. The traditional k-12 curriculum in most schools is lacking in significant content related to the food production and processing, and it's impact on people and the environment. Concurrently there is great emphasis placed on the schools to increase learning in math and science. FLP meets these two critical needs as identified by educators, professional agriculturists, natural resource specialists, and provides a common ground for support in the dissemination of balanced and objective learning resources.

The FLP preK-12 educational materials and educator training will:

Provide objective and high-quality materials that specifically address agriculture.
Identify and explore linkages and relationships between the environment (including air and water quality, soil erosion, solid waste management and natural resource use), agriculture (food and fiber production, sustainability, biotechnology and land use), and human needs (food and fiber distribution, food safety, celebrations and nutrition).

Be supplementary and teach skills and concepts that teacher are required to teach.

Be interdisciplinary with the basic subject areas of math, science, social studies, language arts and more, and enable educators to pull multiple subject areas together in one lesson.

Contain enough background information, teaching aids and methodology to be taught without the need for additional support.

Actively engage students in educational experiences that increase knowledge and positively affect attitudes, not merely offer information.

Be based extensively on teacher input.

Complement existing materials with which many educators are already familiar.

How it works
Individuals or groups within a state are urged to form a state coalition of people and industries interested in the shared concern for agriculture and the environment and their

impact on people and society. The coalition in turn provides guidance and financial support through fund raising for the initial licensing fee of $3500. With the fee comes the right to train teachers and purchase and distribute the FLP curriculum in the state. This control is to ensure adequate support for the effort and that proper training is provided to educators prior to use of the curriculum. The initial fee covers the travel cost of bringing two FLP trainers to the state to conduct a two-day, 16-hour facilitator-training workshop. The FLP curriculum is also provided to each facilitator. The facilitators in turn train teachers to use the curriculum in the classroom. One of the state goals is to have one or more facilitators in every county of the state. The Agricultural Education Program in cooperation with the College of Education at Arkansas State University holds the state license for FLP in Arkansas. A representative from each college is identified as the co-director for the Arkansas FLP. This provides both the Colleges the opportunity to conduct in-service education activities for teachers of all types. The FLP training can become part of the pre-service or in the in-service program through either college. The efforts to disseminate the FLP curriculum in the state are guided by input from the coalition. The coalition represents a cross section of people and industries in the state which are committed to mission of agricultural and environmental literacy.

Results and Implications

As of this date 2.6 million youth in 27 states have been taught with lessons from the FLP resource guide. Twenty thousand teachers have participated in workshops where they became familiar with and learned how to integrate the FLP educational materials into their everyday curriculum. Arkansas is in the early stages of implementing this curriculum. Arkansas will be holding their state facilitator's training in April of 2004.

There is a logical justification for Agricultural Education programs to be involved in the dissemination of this curriculum. The cooperative effort between two colleges benefits both and strengthens relations with other educators, both on and off-campus, while meeting a need for math and science education.

Costs/ resources needed

FLP activities are supported mostly by volunteers and contribution of educators, businesses and professionals with an interest in agricultural and environmental literacy. The cost of conducting workshops is for the most part borne by the state coalition or participants. Each state coalition is responsible for raising the money for the operation of the FLP activities. The coalition assists in developing industry and individual support in the form of both time and money to accomplish the FLP goals in the state.

DOES SECONDARY AGRICULTURAL EDUCATION CURRICULUM PROMOTE HIGHER-ORDER THINKING SKILLS?

Jon Derek Mitchell
M. Craig Edwards,
Oklahoma State University

Introduction/Rationale

The only constant in life is change. American agriculture and agricultural education have not escaped this fact. Secondary agricultural education was developed to teach young men new practices of production agriculture; over time, it has evolved into a scientifically-based discipline with multiple career opportunities open to all students (National Research Council, 1988). Increasingly, many of these jobs require that one have a greater knowledge of mathematics and science coupled with an inherent need to solve problems and to think critically. However, does the curriculum used to teach and prepare secondary agricultural education students promote the acquisition and practice of higher-order thinking skills in substantial ways?

The acquisition of higher-order thinking skills by students, whether in the context of secondary agricultural education or in other courses of study, should be an ultimate aim of any discipline. Moreover, agriculture is a career field heavily dependent on its practitioners' abilities to recognize, relate, and synthesize numerous scientific, mathematic, and technological principles and concepts simultaneously. Embedded in these skills is the need to think critically and to solve problems, behaviors undergirded by higher-order thinking. Curriculum and related learning materials are essential to the success of all learning experiences. So, determining whether teaching resources are designed to support instructors in their efforts to facilitate student learning that has high potential for students acquiring and practicing higher-order thinking skills is important.

Purpose/Objectives

The purpose of this project was to review selected agricultural education curriculum for the promotion of higher-order thinking skills. Objectives included the following: 1) Analyze selected curriculum produced by the Curriculum and Instruction Materials Center (CIMC), Division of Agricultural Education, Oklahoma Department of Career and Technology Education (ODCTE) for evidence of promoting higher-order thinking skills: learning goals and objectives; student learning activities; assessment and evaluation exercises. 2) Summarize and report findings to CIMC curriculum writers, ODCTE staff members, secondary teachers, and university faculty involved in agricultural education in Oklahoma.

Methodology

A systematic content analysis of CIMC curriculum material comprising the Agricultural Education I animal science units (beef cattle, dairy cattle, goats, horses, poultry, sheep, and swine) was conducted. Bloom, Engelhart, Furst, Hill, and Krathwohl (1956) developed the

concept of a two-tier scheme of thinking behaviors—lower-order and higher-order thinking skills (LOTS; HOTS)—that included six distinct levels (i.e., Bloom's *Taxonomy*). Bloom et al. hypothesized that specific "action verbs" connoted the level of thinking implied by the learning objective, learning activity, assessment exercise, etc. Newcomb and Trefz (1987) modified Bloom's hierarchy from six levels to four: remembering (knowledge), processing (comprehension, application, and analysis) creating (synthesis), and evaluating (evaluation). The Newcomb and Trefz model was used to categorize components of the animal science units by thinking skill level depending on action verb(s) employed to describe the student behavior, activity, or outcome.

Results to Date/Implications/Future Plans

Percentages for the levels of thinking skills (Newcomb & Trefz) were calculated for each instructional unit and then summarized. (The poster will present findings graphically by using bar graphs and pie charts; comparisons between units will be demonstrated as well.) Analysis revealed that the horse unit promoted the largest percentage of HOTS; 30 percent of the unit objectives were written at the creating and evaluating levels. Its student assignments also indicated the second largest percentage of HOTS (~50%). Overall, the horse unit excelled when compared to the others. Conversely, the poultry unit promoted the smallest percentage of HOTS regardless of unit component analyzed.

The units' student examinations were comprised of multiple choice, true/false, and matching questions. None of the units promoted HOTS on the written test portion of their assessment components. Questions emphasized the recall of facts and figures found in the student information sections but failed to promote critical thinking or problem solving skills.

If instructors are challenged to "think about the objectives they write, the questions they ask, and the test items they construct" (Eggen & Kauchak, 1994, as cited in Ball & Washburn, 2001) for the purpose of helping students better acquire HOTS, then they should be using student learning resources that assist them in promoting such skills. The results of this study will be presented to CIMC curriculum writers and to ODCTE staff in an attempt to encourage the development of more curriculum material promoting HOTS. In addition, findings will be shared with teacher education faculty at Oklahoma State University, and with secondary agricultural educators through pre-service and in-service education activities.

References

Ball, A.L., & Washburn, S.G. (2001, Nov.-Dec.). Teaching to think: Practical application of Bloom's taxonomy. *The Agricultural Education Magazine*, *74*(3), 16-17.

Bloom, B. S., Engelhart, M.D., Furst, E. J., Hill, W.H., & Krathwohl, D.R. (1956). *Taxonomy of educational objectives - handbook 1: Cognitive domain.* New York: David McKay Company, Inc.

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

Newcomb, L.H., & Trefz, M.K. (1987). Levels of cognition of student tests and assignments in the college of agriculture at The Ohio State University. *National Association of College Teachers of Agriculture Journal, 31*(2), 26-30.

SIXTH GRADE BUSINESS / EDUCATION PARTNERSHIP: A CREATIVE PARTNERSHIP TO GIVE TODAY'S YOUTH A STRONGER FUTURE

Douglas G. Morrish
Illinois State University

The history of business/education partnerships has included the creation of the partnerships to foster school and community relationships, provide hands-on training for students, and supplement curriculum (Clark, 1992). Schools, both past and present, were faced with educational reform measures to ensure the diverse student population was trained for higher order thinking and reasoning skills required in a knowledge driven economy and society (Lankard, 1995).

In an effort to encourage students to value their classroom learning and stay in school to achieve the goals they set for themselves, McLean County Community Compact has sought to develop business/education partnerships since 1989. This is known as the Sixth Grade Business/Education partnership. Each year over 2200 McLean County sixth graders are exposed to real-world situations and learn of the business first hand through field trips, guest speakers, experiential learning activities, and projects. The partnership lasts 6 to 8 weeks in duration.

Methodology

Active committee members of the Sixth Grade Business/Education Partnership and the University of Illinois Extension work to coordinate the connection with businesses and McLean County sixth graders. For the purpose of promoting agriculture awareness, the committee contacted the Agricultural Education Department of Illinois State University. The committee then assigned the department a class of Sixth Graders in a local school of McLean County, and it was the responsibility of the coordinator to contact the teacher to set up the schedule, events, and activities to be distributed to the Sixth grade class.

Prior to meeting with the teacher of the Sixth Grade class, the agricultural education coordinator determined how many students were enrolled in the AGR 190 "Introduction to Agricultural Education" course, a course required for teacher certification at Illinois State University. The coordinator had ideas to assign each pre-service student or a group of pre-service students to participate in microteaching or the teaching of a series of agriculture lessons to the Sixth Grade class. This activity allowed pre-service students to gain the required amount of clinical experience hours, as well as, early experience in classroom management, lesson planning, and pedagogical theories.

Results

School administrators, teachers, students, parents, and business leaders agreed that the Sixth Grade Business/Education partnership completed a niche for the preparation of students that no other curriculum has filled (McLean County Community Compact). Businesses and community organizations were able to share their extensive knowledge of

the firm and actually see the results of their efforts. Similarly, the agricultural education department at Illinois State University benefited from the partnership by making the Sixth grade students aware of agriculture and what is going on around them, as well as, using this as a recruitment tool for the future student population in the department. Teachers supported the program and stated that the structure was highly effective, and it emphasized to students the importance of a good education and allowed the students to see the application of the curriculum in the world of work.

It is the hope of the author that many school administrators, teachers, and University agricultural education coordinators utilize something similar to the McLean County Community Compact to allow K-12 students to become more aware of agricultural education and University pre-service students to gain experience with lesson planning and classroom management planning techniques in an actual classroom of primary and/or secondary students.

Future Plans

The author plans to continue the business/education partnership with the McLean County Community Compact each semester of the school year. Even though the "Introduction to Agricultural Education" course is only taught in the Spring, the partnership will be a good early field experience opportunity for pre-service students closer to the student teaching semester. Efforts will be made to expand the timeline and update/change curriculum throughout the course of the business/education partnership depending on the demographics, age, and background of the K-12 students.

Costs / Resources

In order to make the business/education partnership effective, the agricultural education coordinator must work closely with the partnered teacher to determine what materials, supplies, or resources are needed. A slight cost may be absorbed by the agricultural education department or business for the printing of curriculum and/or other materials utilized. In the future grants and external funds could be utilized to help fund the partnership. No anticipation of funding problems in the future is foreseen by either the business or the education partner.

References

Lankard, B. A. (1995). *Business/Education partnerships*. ERIC Clearinghouse on Adult Career and Vocational Education, Columbus, OH. (ERIC Document Reproduction Service No. ED 383 856)

Clark, T. A. (1992). *Collaboration to build competence: The urban superintendents' perspective*. Eric Review 2 (2), 2-6.

McLean County Community Compact (2003). *Sixth grade business/education partnership handbook: A creative partnership to give today's youth a stronger future.* Bloomington, IL.

COMPUTER-BASED LABS IN AGRICULTURAL SCIENCE AND TECHNOLOGY EDUCATION

Linda Newsome, Donald M. Johnson, and George W. Wardlow
University of Arkansas

Introduction

Agriscience curriculum can be reinforced and enhanced by incorporating hands-on activities. The addition of this element affords students the opportunity to discover useful applications for concepts and principles presented in class. An innovative way to integrate these activities is the use of computer-based laboratories (CBL).

The understanding of science concepts requires problem-solving skills and the use of CBL's does much to enhance those skills and deepen the understanding of the subject matter being taught (Howard, McGee, Shia, & Hong, 2001). Another study indicates that the use of computer technologies increases students' interest in the subject matter (FitzPatrick, 2001).

A CBL connects an interchangeable series of probes and sensors to a data logger that in turn is connected to a computer. The probes and sensors are measurement devices that, depending on which one is being used, measure or monitor variables such as temperature, relative humidity, oxygen levels, or any other measurable unit. The software utilized in these activities plots the raw data onto a graph and can perform statistical analysis on the data.

One major advantage to conducting activities/experiments with CBL is that data is displayed in "real-time." This means that changes in the experiment are plotted on the computer as they occur. This important feature lends more meaning to the activity because students are able to immediately observe the results of natural changes or any manipulations they may perform during the experiment. Using manual measuring devices does not afford this valuable benefit and can dilute the overall effect of the activity since students have to first collect all the raw data and then plot and analyze the information after the fact. By the time the information is processed, students may forget what the change in data is reflecting in the actual experiment.

Another characteristic that makes the use of a CBL desirable is that an instructor is not limited to experiments or activities that neatly fit into one class period. Some experiments may require a longer period of time in order to collect a sufficient amount of data for analysis. With a CBL, once the experiment is set up, the probes will continue to send readings to the data logger and the computer will continue to plot the data until it reaches programmed stopping time. An example of this kind of experiment would be measuring levels of oxygen and CO_2 during photosynthesis and respiration. This experiment would require extended periods of light and dark along with many measurements. Normally, having students actually take these measurements would not be feasible; yet, a CBL adds flexibility to the kinds of hands-on activities a teacher is able to incorporate.

In addition to the added versatility of longer time periods, a CBL also make previously difficult measurements easy. For example, one can use a magnetic field sensor to measure the field near a current-carrying wire or a turbidity sensor to measure the turbidity of freshwater or seawater samples. The use of these sensors allows students to focus on "what" they are measuring instead of being worried about "how" they are measuring. In addition, the accuracy of measurements is greatly improved.

Methodology

Phasing in a CBL into an agriscience program is a fairly easy process. Data loggers are compatible with existing educational technology. Most schools, if not the agriscience program, have computer laboratories. The data loggers use a simple USB port hookup that connects to the computers already in the school. All equipment, including the data logger, is marketed as an individual unit. Therefore, if desired, as few as one data logger and one probe or sensor can be utilized in the classroom. On the other hand, an entire computer lab can be equipped with data loggers and a large variety of sensors and probes. A teacher is able to individualize a CBL to fit the objectives and lessons in his or her course(s). Students are able to use the CBL in groups if a lab with multiple units is set up, or can view an experiment on a screen if only one data logger is used in conjunction with a projector.

Costs/Resources

The cost of implementing this kind of technology greatly varies. A number of companies manufacture and market data loggers, accompanying software, and sensors and probes. Prices on the data logger range from $59 to $500. For the purposes of general classroom use, the economically priced data loggers work well. Depending on the specific sensor or probe being purchased, these devices can range anywhere from $7 to $220. Examples of probes and sensors available include pH sensors, magnetic field sensors, voltage probe, and titration drop counter.

Results to Date

Data loggers are incorporated into the technology courses in the Department of Agricultural and Extension Education as an avenue to teach underlying mathematical and physical science principles. For example, Hooke's Law is taught by using a force sensor in conjunction with a data logger to determine the relationship between stress and strain of a beam. A course in surveying utilizes hand-held survey-receivers that are modified data loggers and allow one to upload special coordinates in three-dimension. Students in these classes have displayed increased motivation and interest in the subject matter. In addition they have more opportunity to demonstrate the application of principles taught in the classroom. Some of the exercises
developed have been demonstrated to math and science educators as part of a workshop on CBLs. They showed a genuine interest in incorporating this technology into their classroom.

Future Plans

There are numerous potential benefits to teachers and students in agriscience programs where this technology is being employed. There is a push in education to incorporate technology in the curriculum and ensure that students are prepared to become a part of a

technological society. An agriscience program that utilizes a CBL reflects a goal that indeed does prepare a student to be technologically adept. This potentially benefits students by increasing interest and deepening understanding of underlying math and science principles as they apply to agriculture.

References

FitzPtrick, S. (2001). Students' Experiences of the Implementation of an Interactive Learning System in Their Eighth Grade Mathematics Classes: An Exploratory Study. Paper presented at the National Convention of the Association for Educational Communications and Technology.

Howard, B.; McGee, S.; Shia, R.; & Hong, N. (2001). Comptuer-Based Science Inquiry: How Components of Metacognitive Self-Regulation Affect Problem-Solving. Paper presented at meeting of the American Educational Research Association.

GEARING UP FOR SAFETY: A COMPUTER-BASED APPROACH TO TEACHING AGRICULTURAL SAFETY

Robbie R. Ortega, Purdue University
Roger L. Tormoehlen, Purdue University
William E. Field, Purdue University
Mark A. Balschweid, Purdue University
Krisanna Machtmes, Louisiana State University

Introduction

Based off of the Federal guidelines for youth employment certification, *Gearing up for Safety: Production Agricultural Safety Training for Youth* uses high quality pictures, colorful graphics, video clips, and 3-D animations to teach the subject of tractor and agricultural machinery safety. Users of the program can learn tractor and agricultural machinery safety, general farm safety, and general first aid tips in the CD-ROM/World Wide Web's eleven interactive chapters. The new curriculum is based upon a set of critical core competencies developed by the researchers and an expert panel of various stakeholders chosen for their personal interest and expertise in the areas of agricultural safety and agricultural education. A comparative field test between the computer-based curricula (CD-ROM and WWW) and a traditional instructor-based curriculum was conducted in the fall of 2002 with six and twelve month follow-ups conducted in the spring and fall of 2003 using six geographically diverse Indiana high school agricultural science and business classrooms.

Methodology

Field testing was conducted using 166 subjects, ages 13 to 19, in six high schools geographically dispersed throughout the state. The schools were chosen to provide geographical diversity and for availability of adequate computer facilities. All participants were coded to ensure confidentiality. To ensure a random test population and to eliminate biases, each class was randomly divided into one of three educational strategy groups: CD-ROM, World Wide Web, and traditional method of teaching. Subjects were administered a participant questionnaire, an attitude/behavior survey, and a knowledge-based pretest prior to assignment in an instructional method. After completion of all course units, both the computer and the traditional groups were given a post knowledge test and a post attitude/behavior survey. The evaluation was conducted over a period of seven days at five of the sites and in five days in one school operating with block scheduling. Five chapters of the computer curriculum were chosen for the comparative field test. These chapters were selected as the contents most closely matched the required training topics prescribed by the Fair Labor Standards Act: Hazardous Occupations Order in Agriculture (U.S.D.O.L., 1984).

A six and twelve month follow-up were used to determine whether students retained the information over a longer period of time. The researchers went out at six months to

distributed the knowledge based test and the attitude/behavior survey with the teachers distributing the twelve month surveys

Results to Date

A one-way ANOVA was run to determine whether the means for all three instructional methods were equal, based upon randomization prior to and post instruction. The calculated F-value that resulted from the analysis of the pretest equaled .833 with a P-value of .437. The calculated F-value that resulted from the posttest analysis equaled 1.552 with a P-value of .215 and the F-value that resulted from the analysis of the six month follow-up equaled .377 with a P-value of .687. This P-value for all tests exceed the .05 for statistical significance, concluding participants in the three instructional method groups had similar mean scores on all test given to them. Results from the twelve month follow-up are still to come.

Mean scores from the pretest to posttest were as follows with the net gain obtained after instruction.

	Instructional Strategy		
	CD-ROM	**Web-based**	**Traditional (control group)**
Number of participants	60	51	55
Average pretest score	27.75	27.61	26.09
Average posttest score	34.00	32.94	35.02
Average gain	6.25	5.78	8.93
Percent knowledge gain	22.52	20.93	34.23

Means scores from the posttest to the six month follow up with the net loss are as follows.

	Instructional Strategy		
	CD-ROM	**Web-based**	**Traditional (control group)**
Number of participants	45	39	40
Average posttest score	34.33	32.72	36.28
Average 6-month	32.20	31.00	31.13
Average loss	-2.13	-1.72	-5.15
Percent knowledge loss	6.20	5.26	14.20

* Note only those with matching sets from posttest and six month follow-up calculated

Future Plans

Though designed for middle school and high school aged youth, the program can be used with a variety of other audiences. Plans for a low literacy version of the curriculum are also in the works which will increase the audience the program can reach. Future testing with students who are enrolled in a tractor certification is also being planned. Release of the program for retail is scheduled for late Spring or early Summer of 2004.

References

U.S. Department of Labor. (1984). Child labor requirements in agriculture under the Fair Labor Standards Act (Child Labor Bulletin no. 102). Washington, DC: U.S. Government Printing Office.

EXTENDED DAY AND EXTENDED YEAR ON-LINE REPORTING SYSTEM

John C. Ricketts, University of Georgia
Frank Flanders, Georgia Department of Education

Introduction

George W. Bush and *No Child Left Behind* called upon all states to set high standards of achievement and create a system of accountability to measure results. Although the President of the United States was speaking of achievement in science, math, and reading, professionals in Agricultural Education should incorporate the same principles of accountability. The strength of Agricultural Education and its students in Georgia is not of concern, but tight budget times foster questions about the sustainability of Agricultural Education programs in Georgia. The "extended day" and "extended year" benefit allows agriculture teacher's to carry out the "Total Program" of Agricultural Education and to make a salary that would rival anyone in the school system. The student develop that is generated from teachers on "extended day" and "extended year" is the answer to *No Child Left Behind* and many other problems in schools, but one legislative vote could annihilate it all.

Agricultural Education in Georgia needed a way to document the countless hours spent outside the walls of the classroom. Such a venue would provide data to substantiate "extended day" and "extended year," but also tout the viability of Agricultural Education in the state of Georgia. This poster describes the need and function of the *Extended Day and Extended Year On-Line Reporting System*.

How it Works

The *Extended Day and Extended Year On-Line Reporting System* allows all agriculture teacher activities beyond the regular school day to be categorized. Teacher-constructed categories of activities are SAE, FFA Leadership, CDE, Community activities and Professional improvement. Once a teacher selects a category, a list of specific activities is displayed for the teacher to further categorize their activities. The system also allows for tallying activities by category in the form of daily, monthly, or yearly reports. The *Extended Day and Extended Year On-Line Reporting System* provides a picture of how agriculture teachers spend their time (ie: SAE, CDE practice), which is one of the most valuable tools a teacher, administrator, or lobbyist of Agricultural Education could possess. The system provides the number of students the teacher works with on "extended day" hours as well as community and industry contacts by category. The online system provides for faster filing of reports with totals that are always available in a MS Access database. It also provides an electronic means of submitting reports to local, regional and state staff. Teachers seem more apt and willing to file reports in this manner. Administrators are also able to quickly view who has submitted reports and who has not. Access is secured with a username and password. Teachers also have the option to print reports for systems that want to keep a hardcopy. A detailed description of the *Extended Day and Extended Year On-Line Reporting System* will be in the poster, and presenters will demonstrate the use of the system.

Implications

The *Extended Day and Extended Year On-Line Reporting System* provides concrete data to the Department of Education, legislators, and those interested in incorporating Agricultural Education in their school system about how funds for extended day and year are spent. An interesting factoid resulting from the reporting system is that agriculture teachers in Georgia have averaged working at least twice the required hours, which makes the return for tax dollars expended a great bargain for the taxpayer. The system gives state and regional staff concrete data on which to base who should be funded for extended day/year. This is a great tool in times of budget shortfalls. The implications speak for themselves when there is a justification for expenditures. Additionally, agricultural education researchers in Georgia now have a venue for analyzing the economic impact of student-teacher interactions in our field. Not only does the system cause teachers to be accountable, it allows change agents to improve programming.

Future Plans

The system was unveiled at the Summer Teacher's Conference in Georgia. As of January 5, 2004, with just over half of the teacher's reporting, Georgia agriculture teachers had made 9,460 total contacts related to Career Development Events (CDEs), 27,833 total contact hours related to Supervised Agricultural Experience (SAE), and 34,608 total extended day hours. Future plans involve soliciting 100% participation in the system by agriculture teachers in the state. Future plans will also entail perfecting the system. Currently, problems are associated with browser compatibility, security of passwords, reports that must be printed in landscape format, editing lines versus deleting lines, folks who click submit more than one time, and firewalls. Development of the following tools are currently underway: The ability to automatically mail new passwords to teachers; The ability for teachers to change address and phone information; Giving each teacher the ability to download excel spreadsheets with all of their report information; Totals at bottom of printed reports; The ability to save to a teacher computer.

Costs/Resources Needed

The *Extended Day and Extended Year On-Line Reporting System* has been developed by the State Curriculum Specialist. UGA students also assist in maintaining the system. There are also some costs associated with implementation of the system such as teacher training.

References

Please visit the Georgia Agricultural Education Website to find out more about the reporting system. http://aged.ces.uga.edu/

TEAM LEADERSHIP: A NEW APPROACH TO AGRICULTURAL TEACHER EDUCATION

John C. Ricketts
Assistant Professor
University of Georgia

James Woodard
Director of Agricultural Education
Georgia Department of Education

Introduction

This poster seeks to share with Agricultural Educational professionals across the country the benefits of a team approach to agricultural teacher education. Georgia's Agricultural Education vision is "to be a premier learning system that delivers agricultural, environmental, and leadership education programs and services." This vision is being realized, and school systems across the state want a piece of the action. In the last four years, 57 new agricultural education programs have been added in the state of Georgia. School systems are still chomping at the bit to add additional high school agricultural education programs, and the requests for middle school programs are phenomenal. The University of Georgia and the Georgia Department of Education have formed a leadership team to ensure that there is enough "qualified" and "certified" agricultural education teachers to completely accomplish these purposes. The poster outlines a variety of ways in which the Leadership Team works together to sustain the phenomenal growth, top-notch quality, and realization of the Georgia Agricultural Education vision.

Methodology

The specific goals of the programmatic partnership between the University of Georgia and the Georgia Department of Agricultural Education are to:

(1) Create an abundance of agriculture teachers, who are "competent" and "ready" to teach, and
(2) Ensure that those teachers are successful in their first year on the job. (The Leadership Team believes that a successful teacher is one who possesses a degree of credibility, confidence, competence, and who has a contract at the end of their first year of teaching.)

To accomplish these basic goals the University of Georgia welcomes and encourages active participation from the Georgia Department of Agricultural Education in the preparation of pre-service teachers. The State Department of Agricultural Education provides funding and teachers for apprentice teaching workshops. They also provide help in identifying the best sites for apprentice teaching experiences and by supporting and providing a venue for supervising teacher training. The leadership team also works together to develop curriculum, host FFA events and activities, identify teacher needs, and to offer continuing education opportunities and workshops for current teachers in the different areas of technical agriculture and pedagogical methods. This partnership is even solidified by the locality of the entities; University faculty work alongside state staff on a daily basis in Athens and Tifton to make sure that Agricultural Education continues to thrive.

Implications

The partnership gives Agricultural Education in the state of Georgia the opportunity to:

1) Ensure that the teacher training curriculum is aligned with what is structured through the state agricultural education curriculum.
2) Provide our staff with an introduction to who the new teachers are, meaning that the state staff knows who the new teachers are even before they graduate.
3) Provide teacher training staff with ample opportunities to assist in recruiting.
4) Focus on building competence in pedagogy first and technical expertise later (after they determine the community needs of their program).
5) Build on the concept of the total program of agricultural education.
6) Involve pre-service agricultural educators in the state program of Agricultural Education prior to graduating.
7) Provide more assertive recruiting by state staff.
8) Ensure that everyone is on the same page in terms of goals and objectives of Agricultural Education in Georgia.
9) Connect teachers, state staff, and university faculty with research opportunities to improve Agricultural Education.
10) Connect teachers to more opportunities for graduate education.

Future Plans

The Leadership Team plans to continue its innovation and collaboration to accomplish its vision. In fact, they are in the joint process of completely overhauling the pre-service teacher preparation program. Every technical agriculture class will be specifically taught for teachers. Currently students take "Forestry for Teachers" and "Entomology for Teachers" courses, but the leadership team is attempting to get this practical pre-service curriculum in place for all technical agriculture courses. This spring, a "Greenhouse Production for Teachers" course will be added to the line-up. Soon each technical area will have a course "for teachers." Additionally, the Leadership Team of Georgia Agricultural Education is in the process of developing a venue for student articulation from high school agriscience to the College of Agricultural and Environmental Sciences at The University of Georgia. The State Department of Education and The University of Georgia will set up a program of research, campus visits, and online-tutorials that students will have to complete to get a certificate of Advanced Agriscience, which is endorsed by the university and the state.

Costs/Resources Needed

Working together as a Leadership Team of Agricultural Education is actually more efficient and less expensive than working separately. The benefits have buried any costs that would be associated with the Team Approach to Agricultural Teacher Education.

References

http://aged.ces.uga.edu/vision.htm

THE STUDENT TEACHER/ COOPERATING TEACHER RELATIONSHIP: A CASE STUDY

Jennifer Smith
M. Susie Whittington
The Ohio State University

Introduction/ Need for Idea or Innovation

Student teaching is the capstone of the undergraduate experience for Agricultural Education majors seeking licensure. Student teaching marks the beginning of the senior year at The Ohio State University. After all this time, students finally put into practice what they have been learning. How exciting!

"Understand that the most important aspect to student teaching," according to Edwards and Briers (2001), "is the influence of the cooperating teacher on the student teacher." Student teachers are going to spend many hours and days with this individual in a mentoring role. Therefore, if your relationship is weak, the result of student teaching will be less than positive.

A research comparison of both student teachers and cooperating teachers, showed that the relationship that is built between the two is the most important element of the student teaching experience (Briers, Edwards, & Harlin, 2002). This component of student teaching out- ranked in importance other factors such as: classroom and laboratory instruction, supervised agricultural experience programs, student leadership development, and school and community relationships. Therefore, it makes sense as one looks toward the student teaching experience, to focus on the day-to-day experience with the cooperating educator. Following are eight steps student teachers can take to successfully build rapport with your cooperating educator. In this case study, these steps were necessary for building the desired student teacher/ cooperating teacher relationship.

How it Works/ Methodology/ Program Phases/ Steps

1. Be proactive and show initiative (Do not expect them to tell you how to do everything)
2. Be punctual
3. Do not be afraid to ask questions (You will never know all the answers)
4. Be willing to share your thoughts for improvements (Productive criticism); however do not try to change them or their programs
5. Smile (It is contagious)
6. Be energetic (If you are not excited about being a part of the educational process, why would anyone else be)
7. Use the principles of teaching and learning in the classroom
8. Listen and observe (Be willing to be mentored)

Results to Date/ Implications

To date I have been working as an undergraduate teaching assistant for Dr. Susie Whittington. My duties allow me to assist with next year's student teachers during their preparation. Therefore, I have been able to offer my experiences as a fresh look at what the student teachers are going face.

Future Plans/ Advice to Others

In the future, I would like to incorporate student lunches prior to the student teacher selecting their schools/ cooperating teachers. Instead of student teachers deciding their placement options on potentially unimportant variables, student teachers get the opportunity to meet one-on-one with the cooperating educators before strings are attached.

Costs/ Resources Needed

Not Applicable

References

Briers, G., & Edwards, M., & Harlin, J. (2002). A Comparison of Student Teachers' Perceptions of Important Elements of the Student Teaching Experience Before And After an 11-Week Field Experience. Journal of Agricultural Education, 43 (3), 72-83.

Briers, G., & Edwards, M. (2001). Cooperating Teachers' Perceptions of Important Elements of the Student Teaching Experience: A Focus-Group Approach WithQuantitative Follow-Up. Journal of Agricultural Education, 42 (3), 30-41.

DAWGS GONE SOUTH

John E. Uesseler
University of Georgia

John C. Ricketts
University of Georgia

Ray Herren
University of Georgia

Introduction

The need to expand the opportunities to recruit and train individuals into the agricultural education profession is a common goal of universities and colleges across the country. A primary way to increase the growth of the profession is to offer new opportunities in innovative ways and in different locations, which can partner in training agricultural educators. Georgia is the tenth largest and fifth fastest growing state in the country. With currently 175 high school and 30 middle school agriculture programs, 57 of these new in the last four years and 40 additional requests for new middle school programs, the need to increase the growth of these agricultural education programs to counter the growth of the state, increase agricultural literacy and reach thousands of students who do not have the opportunity to study agricultural education is immense. The development of the new Agriscience and Environmental Systems and Agricultural Education undergraduate majors at the University of Georgia, Tifton Campus were organized to meet those needs. There has been a growing need to reach out to potential agricultural educators in the southern part of the state and to increase the bank of qualified and well trained individuals to fill the numerous agricultural education opportunities.

Methodology

Discussion between the University of Georgia in Athens and the University of Georgia in Tifton, along with requests from industry brought about the need to increase the opportunities for agricultural students throughout the state. The opportunity to utilize research faculty to teach agricultural and environmental sciences provided the resources to implement an Agriscience and Environmental Systems major at the Tifton campus. Further analysis of the program also offered the opportunity to increase the Agricultural Education program at the University of Georgia by reaching out to students in the southern region of the state who are interested in pursuing agricultural education as a career. In addition, this program expansion will offer the chance to alleviate overcrowding in the major on the Athens campus as well as build a deeper pool of qualified applicants from which to build the agricultural education program.

The large Coastal Plains Research Unit, along with an agreement between the University of Georgia and Abraham-Baldwin Agricultural College, will increase the possibilities of offering more practical classes from which the students can build a diverse and technical background to assist them in teaching agricultural sciences in the classroom. The faculty member in charge of the major at the Tifton campus will be an integral member of the University's Agricultural Education faculty, drawing on the same resources as the members on the Athens campus. Responsibilities for student teacher observations will be shared between faculty members from both campuses.

Implications

If the University of Georgia Agricultural Education program is to supply a sufficient number of qualified graduates that will supply the agricultural education profession, it must continue to expand by offering opportunities that will increase the number of potential completers of the program. With the goal of an additional twenty to thirty undergraduates in the program, the University will continue to fulfill the needs of the profession not only in the state of Georgia, but also potentially impacting the shortage of agricultural educators' nationwide.

Future Plans

The new majors offered on the Tifton campus will serve as a model for the expansion of other programs currently offered exclusively on the Athens campus. The University of Georgia in Athens is growing exponentially. Space is always a limiting factor affecting the growth of the University. The success of the Agriscience and Environmental Systems and Agricultural Education majors on the Tifton campus will open numerous doors for the expansion of University programs in light of the overcrowding that the University is currently experiencing.

Costs/Resources Needed

The major cost to the University System will be the addition of an Agricultural Education faculty member along with the associated supplies necessary for conducting the major. However, the awarding of a grant from the Board of Regents will be used to off set some of this cost. A power source for a laptop slide show would be helpful for the poster session.

References

The U.S. Census Bureau Website: http://www.census.gov

VIRGINIA GOVERNOR'S SCHOOL FOR AGRICULTURE: DID IT MAKE A DIFFERENCE?

Dennis W. Duncan, Virginia Tech
Tom W. Broyles, Virginia Tech

Introduction

Faculty, staff, and administrators at Virginia Tech offer a four week residential program during the months of July and August. The College of Agriculture and Life Sciences (CALS) serves as the administrative unit and host College. CALS also works collaboratively with the colleges of Liberal Arts and Human Sciences, and the Virginia-Maryland College of Veterinary Medicine with the Virginia Governor's School for Agriculture (VGSA). The VGSA is designed to provide fieldwork, develop laboratory skills, and provide an intensive educational foundation for careers and further education in the area of agriculture. The School's mission is to provide hands-on, cutting-edge scientific and academic instruction to future leaders and scientists to develop their understanding of the scope, opportunities, challenges, and both academic and scientific rigor of the broad fields of agriculture and natural resources.

The VGSA is intended for a highly selective group of rising juniors and seniors in public, private, and home schools throughout the Commonwealth of Virginia. In order to apply for admission to VGSA, students must be identified as gifted in their local school. Home schooling students must apply through the local public school serving their geographic areas. Students apply for admission and are screened at the local level based on a limited number of nominations allocated to the school division. Students selected for nomination by their local schools are submitted to the Virginia Department of Education for a second round of evaluations.

Each student attending VGSA selects a "major". Majors include agricultural economics, animal science, food science and nutrition, veterinary medicine, and plant science. Students in a given major completed one specialized (in-major) course not open to other students. The specialized course was designed to provide more in-depth exposure to the disciplines related to that major. Students also take "core" courses in the agricultural sciences and "elective" courses in areas such as GIS/GPS, food safety, genetics, biotechnology, and leadership.

Purpose and Objectives

The purpose of this study was to determine if participation in the Governor's School had in fact changed the students' perceptions of agriculture, and, if it had broadened their skill base in the agricultural field. Specific objectives of this study were to:

1. Identify demographic profiles for each student from the 2003 class ;

2. identify if the Governor's School had affected their perceptions of agriculture and natural resources;
3. identify skills students had gained from participating in the Governor's School;
4. identify reasons why students would encourage fellow students to enroll in the 2004 Governor's School.

Methodology

At the conclusion of 2003 Governor's School, each student was asked to complete a questionnaire that consisted of three sections. For this study the researchers used only section three. Section three consisted of thirteen questions, nine of which were used to identify demographic data for each student. Three open-ended questions were used to identify the following: (a) how has the Governor's School for Agriculture affected your perceptions of agriculture and natural resources; (b) list the 3-4 most important skills you have gained from participating in the Governor's School for Agriculture (i.e. plant propagation, use of a clinometers, Photoshop, etc.); and (c) please list reasons why you think students should enroll in the 2004 Governor's School for Agriculture.

Results

The 2003 VGSA class consisted of 87 students. Sixty-three percent were female; 94% were between the ages of 16 and 17; 45% lived in a suburb, 22% in a town or city, 19% from a rural area and 14% lived on a farm. Only 20% indicated taking a high school agriculture/horticulture course; 22% are/were an FFA member; and 19% are/were a 4-H member.

A random sample of student comments concerning how the VGSA had affected their perceptions of agriculture and natural resources are as follows: "It made me more aware of how agriculture affects us"; "It made me realize agriculture is more than pigs and cows"; "Greater appreciation for agriculture"; "I have more respect for farmers and producers"; and "It has made me more interested and aware of the business in Virginia and world wide".

The following is a random sample of skills that students gained from participating in the VGSA: plant propagation; use of spectrophotometers; knowledge of conducting a research project; budget management; microbiology applications; food safety; and scientific writing.

Students were asked to list reasons why students should enroll in the 2004 VGSA. Results included: "Once in a lifetime experience; "Great way to learn college level material"; "Gain knowledge"; "It's a lot of fun"; "Open up the mind to new possibilities"; Culture diversity"; and "Gives you a chance to participate in a wide variety of fields related to agriculture."

Recommendations

The researchers recommend that more land-grant institutions implement similar programs for the following reasons: (a) has the potential to expand ones knowledge and perceptions of agriculture and natural resources; (b) provides students the opportunity to explore the vast

arena of agriculture on a college campus with a diverse population of faculty and fellow students; and (c) can serve as an excellent recruiting tool for colleges of agriculture.

FLORIDA ASSOCIATION OF AGRICULTURE EDUCATORS: IN FOCUS FOR THE FUTURE

Wendy Warner, Graduate Student
Shannon Washburn, Assistant Professor

Agricultural Education and Communication
University of Florida
310 Rolfs Hall
P.O. Box 110540
Gainesville, Florida 32611
Phone: 352-392-0502
Fax: 352-392-9585
Email: warnerw@ufl.edu

Introduction

"Developing as a well-rounded professional in any field requires a level of familiarity with and commitment to its professional organizations. Participating as an active member in these organizations will provide you with a variety of opportunities to grow professionally and personally, obtain access to pertinent information related to agricultural education in general and to your field of expertise, and develop associations with professional educators." While this excerpt from the Agriculture Teacher's Manual (p. 23-3) may do little more than point out the obvious, the value of professional organizations is too often neglected or misunderstood by the members those organizations were designed to serve. For a number of years, this has been the case for the Florida Association of Agricultural Educators (FAAE). A rapidly declining number of dues paying members, as well as diminished participation among members necessitated a recent re-examination of the purpose of the FAAE.

A July, 2003 reorganization of the FAAE Board of Directors resulted in a new focus to emphasize the value of FAAE to current and potential members. In an attempt to gain additional support from agriculture teachers across the state, the status quo of the FAAE needed to be examined. The objectives were to:

- Assess the present concerns of agriculture teachers in Florida.
- Evaluate teachers' perceived role of the FAAE.
- Implement a plan of action to encourage all agriculture teachers to join the FAAE.

Methodology

A questionnaire was developed by agriscience teachers in cooperation with agricultural education faculty members at the University of Florida. The purpose of the survey was to determine:

- Current teacher membership in professional organizations.

- Target audiences, long term and short term issues to address in the future.
- Individual teacher commitment to the growth of FAAE.
- How the organization could effectively support teachers in the future.

The survey was administered to 210 agriscience teachers who were in attendance at one of the six FFA Area Leadership Schools held across the state. Responses were received from 193 agriscience teachers.

Results

Membership in Professional Organizations

- 57% had paid FAAE dues the previous year, 32% had paid NAAE dues, 42% had paid FACTE dues, and 10% had paid ACTE dues.
- 35 teachers cited cost as the major deterrent to joining professional organizations. FAAE dues in 2003 were $15.00.

Audiences and Issues to Address in the Future

- Over 78.8% of the teachers felt that the most important purpose of the FAAE should be to secure favorable legislation. Other key purposes included to provide a unified voice for Florida's agricultural education professionals, support current teachers and encourage their continued success in the profession and provide a vision and leadership for agricultural education in the state.
- The most critical long term and short term concerns were funding issues. The most frequent open-ended responses dealt with issues such as: state funding for high school and middle school programs, salaries for teachers and allocation of Perkins funding. Teaching contracts and supplements, legislative issues, curriculum requirements, the future of agriculture education in public schools, and recruitment and support of quality teachers were also recognized as pertinent issues.
- Teachers identified legislators, school administrators, district administrators, and guidance counselors as individuals or organizations that could have the greatest impact on the success of agriculture education.

<u>Teacher Commitment to the FAAE</u>

- 67% of the teachers indicated a willingness to assist the organization in addressing important issues facing the FAAE.
- 61% of the teachers supported an increase in current dues to help the organization in addressing significant issues.

FAAE Support of Teachers

For the FAAE to be of assistance to agriculture educators, teachers identified the following items as priorities for the future:

- Lobby to protect the future of agriculture education.
- Be vocal and visible.
- Improve communication. Keep teachers informed.

Another result was that a visioning session was held that included a total of 27 teacher representatives, state staff and university faculty. This group utilized the results from the questionnaire to redirect the focus of FAAE. An additional outcome was the development of

a mission statement and purposes for the association. The new mission statement states, "FAAE is an organization of professionals dedicated to providing visionary leadership, advocacy, and service for agriscience educators"(R. Philpot, personal communication, January 28, 2004).

Future Plans

FAAE board members set an agenda for the future that includes:

- Initiation of an active legislative campaign and communication of efforts to current and potential members.
- Creating promotional materials for the organization.
- Developing an active membership campaign.
- Re-thinking the way dues are collected and new teachers are encouraged to join.
- Planning social events that will bring the Florida Agricultural Education family together.

References

National FFA Organization. (1998). Agriculture teacher's manual: A guide to local programsuccess for preservice, new and experienced agriculture instructors. Indianapolis, Indiana: National FFA Organization

AN ANALYSIS OF STUDENT CONFIDENCE IN TAKING AN OBJECTIVE AGRICULTURAL MECHANICS EXAM

Dr. Avuthu Reddy and Dr. Mark Zidon
University of Wisconsin Platteville

Abstract

Introduction/need for idea for innovation/purpose/objectives

Equipment, Structures and Power Systems is an introductory agricultural mechanics course required of all agriculture students at this university. The confidence of students in such a course varies a great deal. There is no difference in grades given to women compared to men. The confidence of women, however, appears to be much lower then that of men, particularly at the beginning of the semester.

The purpose of this project was to determine if students gain confidence in test taking as they gain knowledge of a subject area. More specifically, it was to determine if women can gain confidence at the same rate as men in the class. Agricultural Mechanics was selected as a subject because of the range of backgrounds with which students enter the class.

How it works/methodology/ program phases/steps

A pre-test has been given for several years to determine the knowledge base of students entering the class. Likewise the same exam was given as a post-test at the end of the semester. During the Fall 2003 semester, students taking this pre-test and post-test were required to include a confidence level for each of the 23 true/false questions and 27 multiple choice questions. This confidence was the level of probability the student felt each option (T or F; A, B, C or D) could be the correct answer. Exams were scores two ways; first, by the traditional right/wrong method, and second, by multiplying the student level of confidence attached to the correct answer.

A weaknesses of the traditional scoring method is that it does not reveal anything about the student's degree of confidence or the understanding of the subject matter. Whereas in the probability judgment method each student can express his degree of belief about possible correct choice by assigning a probability value to all or most of the choices based on his degree of belief of correctness.

This alternative assessment procedure compared to standard or traditional methods of scoring true and false and multiple choice type test can provide useful information regarding student's confidence and the level of understanding of the subject matter.

The probability judgments will be evaluated by computing mean probability or Brier score (Brier,1950). The Brier score and its decomposition provide various metrics related to the performance of these probability judgments. The Brier score considers both calibration and

resolution of these probability judgments. Calibration refers to the concept of reliability i.e. if a judge is well calibrated, over the long run, for all propositions assigned the same probability, the proportion that are true is equal to the probability assigned (Yates 1990). Resolution refers to the sorting capabilities i.e. ability of the judge to sort occasions of concern into sub-collections for which the frequency of occurrence is either very high or very low. Both the calibration and resolution will measure the degree of bias (over or under confidence) and sorting capabilities (correct versus incorrect).

This study tested the following hypothesis:

1. There is a significant improvement in the knowledge level of the students by taking the course.
2. There will be low bias and the high confidence scores for the students that earned high overall grade point average. Stated otherwise the 'good' and 'bad' students have significant differences in their confidence and in the comprehension of the subject matter.
3. There is significant gender bias in the True/False as well as multiple choice type test formats. Several research studies on multiple choice format of the tests led to the conclusion that there is unfairness to certain groups of the students that experience gender, cultural and test anxiety.

We will also measure the degree of correlation between two scoring methods, the traditional scoring method and probability judgment method. We also will test for the degree of correlation between the final grades and the test scores of alternative assessment procedures on the pre and post-tests.

Results to date/implications/ recommendations

Findings indicate that there was no significant difference in scores between the two methods of scoring the pre-test. However, in the post-test, the two methods of scoring were significantly different. Brier scores to describe the characteristics of student confidence are currently being analyzed.

Future plans/advice to others

The pre-test and post-test will continue to be used in this course. It is not recommended that teachers use student confidence scores to assess student knowledge. The student and teacher time spent does not justify any increase in results. The researchers intend to continue assessing confidence and seek to determine the value of student confidence as it relates to employers and others.

Costs/resources needed

This project did not require additional direct costs. It did, however, require considerable time on the part of the teacher to analyze the exams.