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Oral Presentation Abstracts

#9

An Internet Agricultural Bank Simulation Game

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The Oklahoma Bank Simulation Game (OBSG) is an experiential learning tool that has been used to teach fundamental economic and finance concepts to undergraduate students at Oklahoma State University and Louisiana State University as well as participants at the Intermediate Banking School hosted by the Oklahoma Bankers Association. Currently, the OBSG is limited to in-class instruction. The purpose of this project is to enhance the OBSG and expand upon its success by developing an Internet version of the OBSG. Making the OBSG available on the Internet will allow the classroom borders to be expanded to other universities and institutions. In addition, there will be the added "real world" experience of making decisions that affect someone abroad or interacting in a more global environment. These benefits will not only accrue to undergraduates but also to extension audiences across the country (e.g. other bank associations across the country). This grant will expose a much larger audience to the key lessons of the OBSG and introduce a better and more realistic competitive environment in which players will compete. The OBSG is flexible enough to be used in any classroom that discusses agriculture and, in particular, production agriculture, agricultural finance, rural economies, and/or agribusiness. Moving the OBSG to the Internet will enhance the game and expand its use, while still adhering to the mission of Land Grant University systems. Initial survey data shows that the Internet version should improve learning.

Key words: banking, Internet, simulation game

#59

Assessing Changes in Intercultural Sensitivity in Students Exposed to Intercultural Experiences within OSU-CASNR Using the Intercultural Development Inventory

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Oklahoma State University

CASNR at OSU understands the importance of students' success in diverse societies and has created a variety of academic programs that foster intercultural experiences for their students. Conferences, short-term international study abroad courses, and language training are thought to promote intercultural learning, which helps students learn to effectively interact in diverse societies. These initiatives expose students to different cultures to increase their understanding of differences (intercultural sensitivity), in order to prepare them to appropriately interact with a variety of people (intercultural competence). Cultural sensitivity can be used as a predictor of intercultural effectiveness and can be measured using the Intercultural Development Inventory (IDI), (Hammer, M.R., Bennett, M. J. and Wiseman, R. 2003). IDI is a valid and reliable instrument designed by Hammer using the Bennett Developmental Model of Intercultural Sensitivity (DMIS) as its theoretical framework. IDI measures a person's orientation toward cultural differences. This study will add to the literature regarding higher education's efforts to assess college initiatives to increase intercultural sensitivity in order to prepare students to become intercultural competent.

Key words: assessment, intercultural competence, diversity

#63

Vee Map: An Effective Assessment Tool for Laboratory Settings

Andrew Thoron and Brian Myers
University of Florida

This assessment tool provides a framework to guide learners through the steps involved in scientific reasoning methods. The Vee Map allows for learners to develop their own inquiry question or one can be provided with the laboratory activity. The Vee Map acts as a scaffolding device following Kolb's (1984) model of experiential learning as it guides learners through the reflective learning process. The Vee Map accomplishes this by connecting lecture/discussion instruction and laboratory instruction through steps which force knowledge level recall. Students are better able to synthesize information when this clear connection between concepts discussed in the laboratory and lecture/discussion components of a course is made. When utilizing the Vee Map, students no longer conduct laboratory activities to just answer questions on a report. Students experiment and form their own conclusions, not try to reproduce the experiment to receive the same answers as their peers or what they read from the book and should be used in place of the traditional lab report when appropriate. The Vee Map contains seven sections that encourage the progression from lower to higher levels of Bloom's (1956) taxonomy. Additionally, an added bonus is the ease of grading the Vee Map as compared to a laboratory report. Studies show less grading time and higher student knowledge gain on unit assessments.

Key words: Vee Map, assessment, laboratory

#68

Development of Swine Science Online for Academic Training of Students in Swine Science

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Iowa State University

The vision of the Swine Science Online program (formally known as Regional Swine Schools) is to ensure that the Pork Industry of the future is led and managed by individuals who have broad educational and production experiences which have prepared them for these roles. The Swine Science Online (SSO) Program offers students the opportunity to participate in fourteen different distance education courses as well as two resident labs and an internship within the swine industry. The SSO courses will be delivered with partnership through ag*idea (an affiliate of the Great Plains Alliance). Partnering with ag*idea means that the SSO program has the great potential to reach the largest number of students possible. Students who attend a university within the ag*idea program are able to enroll at their home institution, pay tuition to that institution, and receive credit for these courses via their home institution. The SSO program is guided with direction from a steering committee which includes College of Agriculture Deans', Animal Science Department Heads and Faculty, and Pork Producer representatives. The curriculum is also being developed by curriculum leaders who are subject matter experts in their fields from around the country. To ensure consistency among SSO courses each course will begin and end on the same date. Learning objectives also provide consistency among courses; each course is required to show how these learning objectives were met. Curriculum leaders are able to share course materials through Microsoft Groove (a file sharing system) to ensure fluidity among courses.

Key words: swine science, distance education

#70

Academic Engagement and Satisfaction: Do Agricultural, Food and Life Sciences Students Differ from Other Students?

Donald Johnson, Donna Graham, and George Wardlow
University of Arkansas

Freshmen ($n = 205$) and seniors ($n = 194$) in a College of Agricultural, Food and Life Sciences

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(CAFLS) were compared to freshmen ($n = 1749$) and seniors ($n = 1341$) university-wide on measures of academic engagement and satisfaction. The academic engagement variables were: (i) level of academic challenge, (ii) active and collaborative learning, (iii) student-faculty interaction, (iv) enriching educational experiences, and (v) supportive campus environment. Data were obtained from the university's Office of Institutional Research and consisted of student responses to the 2005, 2006, and 2007 campus administrations of the National Survey of Student Engagement (NSSE). Freshmen CAFLS students reported a significantly ($p < .05$) higher level of student-faculty interaction than did freshmen students university-wide. Senior CAFLS students also reported a significantly ($p < .05$) higher level of student-faculty interaction than did seniors university-wide. Additionally, CAFLS seniors perceived the campus environment to be significantly ($p < .05$) more supportive than did seniors university-wide. There were no other significant differences between CAFLS and university-wide students. These findings are important given the empirical evidence linking student-faculty interaction and a supportive campus environment to student academic achievement and personal development. CAFLS faculty and administrators should highlight these areas of comparative advantage when recruiting prospective students.

Key words: academics, engagement, satisfaction, students, undergraduates

#80

Student Learning Assessment: Useful or Odious?

Candice Shoemaker
Kansas State University

Many of us in higher education are involved, at some level, with assessment. Many accreditation requirements now include assessment of student learning. At the same time, there has been increased demand for accountability. Unfortunately both have been erroneously referred to as "assessment" and affected how we responded to our administrations requests. At Kansas State University, when the initial request

to prepare student learning outcomes and an assessment plan was made, the overwhelming faculty perception was that it had to do with accountability. This was no different for the horticulture teaching faculty. How were horticultural-trained scientists expected to know anything about student learning outcomes (SLOs), assessment, direct and indirect measures, rubrics, and so on? As with other administrative mandates, maybe if we ignored it or held it off long enough, the issues (like the misguided new administrator) would finally give up and go away. However, as we reluctantly moved through the process of writing SLOs and the assessment plan, implementing the plan, and evaluating the results our perception shifted. The process and components of K-State's undergraduate horticulture program assessment plan will be presented to demonstrate our shift in recognizing "assessment for excellence" as an information feedback process to guide students, faculty members, programs, and schools in improving their effectiveness while "assessment for accountability" as essentially a regulatory process, designed to assure institutional conformity to specified norms.

Key words: program assessment, student learning outcomes

#84

Evaluating and Understanding Attitude Change in Response to "Story" (aka Narrative)

Patricia Grace
Virginia Tech

This presentation will illustrate the use of "story" as an innovative teaching approach. Results of a mixed method pilot study concerning the affect of story on attitude change toward sustainable vs. conventional agriculture will be examined. Growing concerns about food safety, environmental degradation, and decreasing effectiveness of antibiotics has sparked a renewed interest in sustainable agriculture which may effectively avoid some of these problems. Research suggests that agricultural educators may not be well acquainted with nor possess positive attitudes toward sustainable agriculture. It would

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seem a simple task to provide them with appropriate education. However, there is a wealth of research indicating that increased knowledge alone may not lead to desired change. So how do we affect change? A number of researchers have found that there is power in "story." Drama Theory suggests that personal identification with characters and emotional involvement in a story can lead to change. This study asked if viewing the documentary film *Broken Limbs* affected participants' attitudes toward sustainable vs. conventional agriculture. A second research question asked what qualities of the narrative were associated with change. The target audience included eight experienced teachers in a graduate agricultural education program. Attitudes were measured before and after viewing the documentary. Quantitative results showed a statistically significant increase in post-test scores suggesting that "story" could be a useful method when attempting to affect attitude change. Analysis of qualitative data identified "personal stories" as a factor in the effectiveness of *Broken Limbs* by participants whose scores increased.

Key words: sustainable agriculture, attitude change, story, narrative

#85

Students Collaborate with Faculty to Design an Electronic Portfolio System to Measure Student Learning Outcomes and Professional Development

Susan Clark, Ashley Holmes, Erin Griffin, Amanda Eskew, Hannah Goff, Gabrielle Willis, Rachel Miller, Marc Zaldivar, and Melissa Hendricks
Virginia Polytechnic Institute and State University

Undergraduate dietetics students are required to assemble and maintain a portfolio which exemplifies their academic and professional accomplishments. Developments in web-based technologies have initiated a transition from a paper to an electronic portfolio (ePortfolio) which offers flexible content, space, and accessibility. The Dietetics ePortfolio system was designed by a

student and faculty team. This system enables undergraduates to have a multidimensional showcase of achievements and a portable archive of coursework that can enhance a student's marketability when pursuing professional endeavors. Each ePortfolio is generated from two matrices, a student assessment matrix and a portfolio matrix. The assessment matrix includes six comprehensive domains: professionalism and ethics, disciplinary knowledge, multifaceted communication, multidisciplinary teamwork, systematic analysis, and experiential learning. These domains document student learning outcomes that align with the Standards of Education for Dietetic Programs delineated by Commission on Accreditation for Dietetics Education. Designated course assignments are uploaded into the assessment matrix which enables faculty to assess student learning. The assessment of student learning outcomes ensures the quality of the dietetics curriculum, and ultimately allows systematic review of the dietetics program. The portfolio matrix draws from the assessment matrix and allows students to insert images, multimedia, and other versatile evidence of experiences beginning their sophomore year. Throughout their academic tenure, students utilize this dynamic matrix tool to construct the ePortfolio for public distribution senior year. The ePortfolio system engenders cultivation of advanced technology skills where students eventually move to purposeful activities that demonstrate evidence of using higher order critical thinking skills and documents learning. Key words: electronic portfolios, assessment, student /faculty collaboration

#86

Drawing Undergraduates into Scientific Careers

Lisa Hightower, Tracy Irani, Maria Gallo, Ricky Telg, and Brian Myers
University of Florida

Researchers in advanced science have complained that there are few qualified applicants for the growing number of job openings. This may be due to the fact that in higher education many undergraduate students that begin their studies in scientific fields, change majors to non-science

fields within their first two years of college. In response to the need for more trained scientists in the work place in the United States, the Scientific Thinking & Educational Partnership (STEP) program at the University of Florida (UF) developed an online resource for college faculty teaching introductory science courses geared toward undergraduate students called UF Genetics.com. The website highlights genetics research being conducted at UF in an easy to understand way, incorporating humor and fast-paced music and graphics. The site includes videos and print stories that deliver science in an accessible manner, focusing on real-world application. Minority, female, and young research faculty were highlighted to offer a diverse picture of a "scientist." The materials offered students not only an overview of advanced science, but also an exploration into scientific research as a career. A study conducted with undergraduates at UF, found that this model was effective in introducing students to advanced science in a way that was entertaining and they could learn from. The goal of the session is to discuss the UF Genetics.com model as a useful template that could be adapted to scientific fields other than genetics, as well as other educational settings in higher education.

Key words: genetics, science, undergraduates, career choice

#91

Articulation with Community Colleges

Michael Swan
Washington State University

The College of Agricultural, Human, and Natural Resource Sciences at Washington State University (CAHNRS) share with community colleges and other institutions of higher education an interest in facilitating the seamless transfer of students to WSU. Our college faculty cares greatly about the welfare of students and wishes to make this process as barrier-free as possible. A guideline handbook and suggestions are provided to assist WSU CAHNRS and community college personnel that are interested in developing articulation arrangements. Articulation

Agreements between Washington State University and the Washington State Community College System rests upon several assumptions common to successful statewide articulation agreements. The primary assumption is that institutions recognize the professional integrity of other public post-secondary institutions that are regionally accredited for college transfer programs. The general education transfer core is similar to each institution's lower-division general education requirements but is not identical in that specific courses may differ. The underlying concept is that competencies and understandings developed by general education programs as a whole are more important than individual courses; therefore, the block transfer of a core is important. The main focus of the handbook is to develop clear guidelines for transferring into a BS or BA degree in Agriculture with the completion of approximately 72 semester credits at WSU, regardless of location. Articulation agreements are developed under the direction of the CAHNRS Articulation Committee and approved by specific department faculty before being submitted for approval by college and university officials. Agreements are developed, reviewed, and finalized as a collaborative process that is outlined in this document.

#92

Use of Reflective Journaling: Assessing Higher Level Thinking

Thomas Broyles, Jill Casten, and Cory Epler
Virginia Tech

College teachers of agriculture are faced with the challenge of educating students to engage in reflective thinking and to make reflective judgments. Although the process of teaching students to think more reflectively can be difficult and complicated, it remains a primary goal for teachers of agriculture. The researchers sought to synthesize literature and present a theoretical framework for reflective journaling as means of assessment and offer methods for application and assessment within an agricultural teaching context. Reflective journaling applies past and current experiences to future practice and is a basic element of Schön's reflective practice theory. From the literature, researchers suggest

connecting lesson objectives with questions that students answer prior to class. Because students have reflected prior to the lesson, in-class discussion can be used to clarify or further explain the content. Through discussion, students develop critical thinking skills as they engage in course material at higher levels, thus moving students through all levels of Bloom's Taxonomy. Journaling lends itself to flexible methods of assessment. Unstructured, dichotomous assessment makes grading simple, yet still allows students to link concepts to personal experiences. Formal assessment measures depth of comprehension and the student's ability to transfer knowledge. Reflective thinking requires the integration of theory and experience. Simply reading about the concepts and utilizing direct teaching methods does not promote deep learning. Deep learning can be achieved through reflective journaling emphasizing reflective thinking. Not only can reflective journaling assess learning; it also helps agriculture students develop skills in reflective thinking and making reflective judgments.

Key Words: Reflective journaling, assessment methods, higher education

#93

Improving Comprehension and Assessment by Incorporating an Online Tutorial into Traditional Grammar and Mathematics Instruction: A Model from the Agricultural Technology Program at Virginia Tech

Joseph Guthrie and Pavli Mykerezi
Virginia Tech

In the Agricultural Technology Program at Virginia Tech, we have found that many students are lacking proficiency in grammar and math skills despite having adequate grades in these subjects in high school. Therefore, we strive to find innovative methods of instruction and assessment to improve student performance. In our Communications Skills Course, we utilized an online off-the-shelf grammar tutorial from Mindleaders.com that contained instruction, examples, and pre and post skill assessment tests

and integrated it with classroom instruction, creating a hybrid classroom. We gave students a mixture of self-paced learning with instant feedback, classroom instruction, one-on-one instruction, and immediate objective assessment. We found immediate and significant improvement in student comprehension of grammar concepts and ability to apply them. Average scores rose from 61% on pre-tests to 84% on post-tests. Results were so encouraging that the use of online tutorials was extended to the Applied Agricultural Mathematics course, taught by a different instructor, using the same methodology, with similar results obtained in improved comprehension. Assessment from the online tutorials involved a pretest, explanation of material including example questions with instant feedback of answers, and a post test. Following classroom instruction on the topic, students completed the tutorials either on their own or during lab with the instructor. The post test, which was used for the student's grade, was proctored by the instructor. Additionally, students were assigned and assessed on written homework assignments on the same topic areas. Finally, they were given a midterm test which incorporated all the various topics.

Key words: assessment, comprehension, online tutorial, hybrid classroom

#98

Developing Effective Simulation Programs for Agribusiness Classes

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Purdue University

David Barber
University of Florida

Suresh Londhe
South Carolina State University

This presentation will summarize the development of a new simulation game to teach agribusiness management principles. Surveys were conducted with faculty teaching agribusiness

subjects to determine key learning objectives needed from a learning simulation. A second survey was conducted with students who had experience with previous simulation games to determine what features are most important for students to learn from simulations. These results along with prior experience from the investigators are being used to develop a new simulation program that can be used to teach introductory level students basic agribusiness management principles.

Key words: simulation, agribusiness

#105

Assessing Individual and Group Presentations Using Peer Critique, Self-Evaluation and Instructor Feedback Strategies

Awoke Dollisso
Iowa State University

Evaluating individual and group presentations using a combination of peer and instructor feedback as well as self-evaluation helps students improve oral presentations. The purpose of the presentation is to describe a successful evaluation process used in a presentation course. These assessment methods are successfully implemented in 'Presentation and Sales Strategies for Agricultural Audiences' classes at Iowa State University. Students are required to give five presentations (both individual and group) and one poster presentation. Each presentation is critiqued by peers, the presenter, and the instructor. Twenty-five students observe and evaluate each other's presentations using a rubric. By making it clear that ratings are anonymous and by collecting rated rubrics as soon as they are completed, more objective ratings have been observed. In addition to the peer ratings, each presentation is taped for self-reflection. Each presenter is required to: review and analyze peer feedback; watch his/her taped presentation; reflect on the entire presentation experience; and write a one to two page reflection paper on the entire experience. The presentation itself is graded by the instructor alone to eliminate grading bias and to compliment objective

assessment by the audience. Constructive suggestions from peers are encouraged. The reflection papers indicate that students agree with their peers' assessments of their presentations even when they are not rated high. These assessment strategies have provided students opportunities to assess their own performance using feedback from multiple sources. Reflection papers show that students accept the feedback as a constructive educational process.

Key words: presentation, peer critique, feedback, assessment, evaluation, self-evaluation and reflection

#125

AG*IDEA: A Consortium for Teaching Courses across State Lines

Jean Bertrand
University of Georgia

The 2007 HEC grant "Development of a Distance Education Consortium among Southern Universities" propelled the development of AG*IDEA in collaboration with recipients of an earlier HEC grant managed by Kansas State University (www.agidea.org). AG*IDEA is a national consortium and was formed in 2008 as an affiliate of the Great Plains Interactive Distance Education Alliance (GP IDEA). The intent is for participating institutions to form partnerships and offer academic programs and courses across state lines in agriculture and related fields through distance education technology. The consortium is managed by GP IDEA and is governed by a Board of Directors made up of Academic Deans of colleges of agriculture of participating institutions. To date, 28 institutions have sign a Letter of Intent to Join AG*IDEA. Member institutions must agree to the common price principle in which all students enrolling in AG*IDEA courses pay the same fee which is then divided among the teaching institution (75%), the home institution of the student taking the course (12.5%) and AG*IDEA (12.5%). AG*IDEA allows for certificate and degree programs at both the undergraduate and graduate levels as well as course sharing. Current programs offered through AG*IDEA include course sharing for (1) Agriculture Mechanization (graduate and undergraduate courses), (2) Master's degree in Agriculture Education, and Graduate

Certificates in (3) Food Safety and Defense and (4) Grasslands Management. Additional programs are being developed. The HEC grant provides mini-grants for faculty travel to plan academic courses to be offered through AG*IDEA.

Key words: consortium, distance education, AG*IDEA

#135

A New Foundation for Agricultural and Extension Education

Patricia Grace and Rick Rudd
Virginia Tech

Traditionally, Foundations courses in Agricultural and Extension Education have focused on history, current systems, program planning/curriculum development, teaching and learning, program evaluation/assessment, and similar topics. One may argue that all of these areas of study are important – and I would agree. However, recent research into the qualities that enable individuals to perform successfully in the workplace and in the private aspects of their lives involve additional skills, capabilities, and personal characteristics not commonly touched upon in Foundations' courses. In addition, we live in a world that faces serious and ever-increasing challenges for future generations. With these concerns in mind, Rick Rudd and I set out to design and implement a new Foundations course for graduate students. The two main areas in which it differed from traditional courses were in what we termed "The Social Component" and "The Current State of U.S. and World Affairs as They Relate to Agricultural and Extension Education." In the Social Component area (1/4 of the class time) we covered such topics as Emotional Intelligence, Balancing Your Life, research on Happiness, the Kind of Professional Needed (Five Minds for the Future) and the Leadership Challenge. In the Current State of Affairs component (1/8 of the class) we covered Education for Sustainability, Sustainable Agriculture, and what we termed "The Business of Behavior Change." Written feedback from students indicated that many had not been exposed to these topics previously and had

gained significant useful knowledge and skills from their inclusion in the course.

Key words: foundations course, emotional intelligence, sustainable agriculture, balancing your life, leadership, group facilitation

#136

Building, Delivering, and Assessing Undergraduate Curriculum in Socially Responsible Advertising and Promotion of Food, Fiber, and Related Products

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Colorado State University

Donna Rouner, Nancy Rudd, and Jackie Buell
The Ohio State University

Marianne Bickle and Cathy Gustafson
University of South Carolina

The advertising and promotion of food, fiber, and related products (e.g., alcohol, tobacco, and beauty products) are frequently censured for contributing to unhealthy eating behaviors, obsession with appearance/body image, risky sexual behaviors, violence, negative stereotypes, and over consumption. The goal of this project was to develop undergraduate curriculum to foster a socially responsible "way of thinking" about promotion among undergraduates in family and consumer sciences, who will become leaders in the food and apparel industries. Objectives included building partnerships with industry stakeholders, developing curriculum, creating instructional materials, delivering curriculum, and assessing student learning. To inform the curriculum, interviews were conducted with 38 stakeholders. Interviews focused upon the development, regulation, and ethical impact of advertising and promotion. Video clips from the interviews were integrated into narrated PowerPoint® lectures to provide an insiders' (industry) perspective on the challenges and rewards of assuming a socially responsible approach to promotion and to "bring to life" core concepts. The curriculum was introduced in fall 2008, with

a class enrollment of 27. Evaluations of student learning were conducted at the beginning (baseline), midpoint, and end of the course and included quantitative and qualitative components. ANOVA revealed that students' assessments of their knowledge of critical course concepts increased over the course of the semester. Qualitative analyses indicated that students developed a deeper appreciation for socially responsible decision-making as it relates to promotion in their disciplines. Specifically, students noted increased sensitivity about advertising to children; advertising of alcohol and tobacco; and advertising that incorporates violence, sexuality, and idealized body imagery.

Key words: social responsibility, advertising and promotion, curriculum, food, apparel

#141

Impact of Student Self and Peer Assessment on Group Projects

Aaron Lusby
Louisiana Tech University

Common issues with group projects include free-riders and anxiety from high achievers that free-riders will hurt their grades. In four course sections, students submitted peer evaluations of colleagues and themselves by assigning each member a letter grade. From the letter grades, a grade point average from a 4.0 scale was calculated for each student. Students who received 4.0 earned 100% of the project points awarded to the group, while students who received a 3.2 earned 80% of the project points awarded to the group and so on. Students thus had an incentive to participate and could also sanction free-riders. This project examines how often students grade themselves and their peers with less than a 4.0 and how peer evaluations impact project grades and individual grades. Of 107 students observed, 72% received 4.0 evaluations. Of the 13 groups who had only 4.0 peer grades, two groups received As, six received Bs, four received Cs and one group received a D (average score: 81.23%). Of the 12 groups in which at least one student received less than a 4.0 evaluation, three groups received As, six groups received Bs and three groups received Cs on the

project (average score: 83.75%). On an individual scale, one student assigned himself a B, while his peers gave him As, and two students assigned themselves As while their peers assigned them Ds and Fs. Statistical analysis indicates no significant difference between group project averages. It seems that peer evaluations may affect individual grades but not group grades.

Key words: assessment, peer evaluation, self evaluation, group projects

#143

Nutrigenomics for the Study of Disease Prevention and Intervention: A Flexible Online Course that can be Optimized for Effectiveness by Student and Course Assessment

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University of Arizona

Nutrigenomics is the use of genomics and biotechnologies to study nutrition as it relates to nutrient-gene/protein interactions. Understanding how the interactions between nutrients and genes regulate disease pathways may ultimately provide healthcare professionals with the ability to create personalized and optimized diets based on genetically identified dietary needs or restrictions. Because nutrigenomics is comprised of many high technology disciplines there is a great demand for collaboration, training and education in this growing field. To address this demand, we have created a flexible online course that unites Colleges and Centers of Excellence specializing in the individual components of nutrigenomics. The course contains four Units or interchangeable modules including, Introduction to Nutrigenomics, Disease, Bioinformatics and Validation Models and were prepared by experts in their respective fields. Units are comprised of four flexible sub-modules each consisting of one week of course work. Sub-modules include a primer video lecture, reading assignment and interactive animations. To monitor student progress each sub-module contains an online reading assessment of factual knowledge and an online discussion evaluating con-

ceptual milestones. In addition, an end of unit laboratory exercises assesses collective factual, conceptual and practical knowledge. Course and instructor effectiveness is evaluated through on-line unit surveys and University-managed course evaluations. Because of the modular structure, the course can be easily changed or updated following evaluation. Overall a flexible and updatable online course in nutrigenomics has been developed utilizing expertise from multiple universities. Various methods of student assessment and course evaluation are utilized to remodel the course and maximize effectiveness. HEC:2006-38411-17037.

Key words: nutrigenomics, assessment, online course, training, education, disease, prevention

#146

Center for Agricultural/Environmental Experiential Learning

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Lincoln University

Experiential learning is imperative for students in agriculture and environmental sciences. The overall goal of this project was to engage students in experiential learning opportunities as a way of learning that complements and enriches their undergraduate education. The Experiential Learning Center was established and each of the three institutions, Lincoln University (LU), University of Missouri-Columbia (UMC), and Missouri University of Science & Technology (MST) performed experiential training of students by providing them opportunity to engage in hands-on laboratory and field experiments. Under the close guidance and mentoring of faculty, six students participated in the collaborative summer research activities. They had direct access to multi-faceted research equipments and facilities at LU, UMC, and MST. Students were also exposed to a diverse array of other research projects in the areas of agricultural and environmental sciences. All six students successfully completed their summer research projects, with the commitment to continue their research work. Some of the research results accomplished have been published. Students par-

ticipated in establishment of a weather station at the Sanborn Field, a historic long-term research site, in the UMC campus which collects real-time data shown on the Center's webpage (<http://weather.missouri.edu/test>). Also, a field laboratory exercise in environmental monitoring was developed to demonstrate use of automated sensors and dataloggers for students to participate in measuring soil water content using the sensors and comparing the results to time domain reflectometry (TDR) method.

Key words: experiential learning, agriculture, environmental science

#152

Cultivating New Leaders in Global Agriculture: Undergraduate Experiential Learning to Develop Multiple Perspectives

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Iowa State University

To become effective global leaders of tomorrow, today's students in food and agriculture need to understand the complexity of agriculture and solve problems by including the breadth of agricultural disciplines. A model for student experiential learning in an international setting of a developing nation that is focused on global food and agriculture will be presented and includes the multidisciplinary approach to solving problems. Two newly developed study abroad programs for U.S. students, in India and Uganda, include the following goals: 1) to expand the opportunities for developing students' international perspectives through an experiential learning opportunity focused on global agriculture, 2) to develop students leadership skills through successful team-oriented problem solving, 3) to enhance students' abilities to examine multiple perspectives in current issue analyses, and 4) to create a multidisciplinary approach that spans agricultural disciplines, emphasizing the context of real-world experiences. The multidisciplinary approach allowed the students to better understand the multiple perspectives needed to solve real-world problems. For example, students ex-

plored how governments, nongovernmental organizations, universities, and communities addressed rural development issues, but each with their own perspective and agenda. The study abroad programs were piloted in 2006 and 2007 and refined in 2008 with 29 students participating. Undergraduate students demonstrated through their writings, projects, and pre- and post-focus group assessments, a transformed perspective of international development in which they stated that multidisciplinary inputs and multiple perspectives are needed for development and change to occur. Assessment of students' experiences showed an understanding of social change, knowledge of culture, development of sustainable agriculture, and global connections in agriculture.

Key words: experiential learning, interdisciplinary learning, global perspective

#157

Enhancing Participation and Quality of the Undergraduate Experience for Minorities in Food Agricultural Sciences

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University of Georgia

Food and agricultural sciences offer excellent venues for application of disciplines of science, technology, engineering and math (STEM). Enhancing faculty preparation of teaching and experiential learning opportunities in core need areas are the overall goals of this project. The proposed project will enhance the capacity for a cultural shift for sustainable change in the numbers and quality of undergraduates in food and agricultural sciences. Not only will minority students benefit, but also majority students will be better prepared to interact and effectively function in a diverse work place. The project approach is to address barriers to retention of under-represented students in college and specifically in STEM areas. Barriers to college retention include limited family support, inadequate financial resources, and limited role models. Barriers to success in STEM areas may be at-

tributed to a lack of understanding of relevance between content in coursework with application and unexpected difficulty in coursework. We have a plan to increase resources for students and to communicate with students' support network. These include web site, listserv, and face book pages. A laboratory experience with faculty with expertise in core need areas was planned. The criteria and expectations for a research experience for enrolled undergraduates was disseminated. Unique elements of the selection process include required background research by the student and consultation with potential mentors. Students submit a one page proposal in consultation with a potential mentor. Seminars have been conducted and are planned to enhance cultural competency of faculty, staff and students.

Key words: mentoring, experiential learning, retention, cultural competency

#159

Piaget's Stages of Cognitive Development: Have College Students Reached Formal Operations?

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Piaget's Theory purports that Concrete Operations and Formal Operations are the highest stages of cognitive development and that learners reach the uppermost stage by age 15. However, "some students remain at Concrete Operations throughout their school years, even throughout life." Piaget created a series of tasks administered in one-on-one settings. Bakken simplified the process with a paper-pencil instrument. The research questions guiding the study were: Is a paper-pencil instrument valid and reliable to measure Piaget's stages for undergraduates? Does a sample undergraduate class align with previous findings? The Bakken Test (1995) consisted of 21 multiple-choice questions composed of Piagetian tasks. An education class was selected as the pilot test group. The Bakkan instrument was determined to have content validity by a panel of experts, while face validity was determined by a field test with a like

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audience. Undergraduates (n = 19) were found to be 73.7% at the Concrete Operation stage aligning with Cohen and Smith-Golden's (1978) findings that paper-pencil tests of cognitive tasks, "at Metropolitan State College, indicated that more than 75 percent of students entering the college had not reached Formal Operations." Studies comparing different post-secondary populations' should be conducted. Specific teaching strategies designed to develop undergraduate cognitive stages should be studied. Professional development seminars should be taught that assist instructors in teaching their students in ways that both address their current stage of development, while assisting in their further cognitive development.

Key words: cognitive development, Piaget

#165

Student Learning Outcome Comparisons for Online and Traditional Learning Environments

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University of Tennessee at Martin

Sandy Mehlhorn and Stephanie Ivey
University of Memphis

The digital native students in today's classroom thrive on using various forms of media to attain information. As a result, faculty seek to incorporate a variety of educational tools to convey information to students inside and outside the classroom. The use of technology has the opportunity to enhance student learning and give faculty more flexibility in their courses. Two primary educational delivery methods were compared in an introductory engineering course in the fall of 2008: online and traditional. Students (n=50) were surveyed to determine perceptions regarding affinity to online learning to determine a baseline for the course and learning style inventory. All students were given online materials (lecture, video, and assessment) and in class materials throughout the semester. The material was similar in rigor and nature, only the delivery method differed. Data was collected and analyzed to determine if the delivery method impacted student learning outcomes. The online

assessment resulted in a mean score of 80.8 and the traditional assessment mean score was 67.9. Students cited that online lectures and assessment allowed them more flexibility and less stress than the traditional classroom environment. Upon completion of the course, students were surveyed to determine their overall perception of the online learning environment versus the traditional classroom environment. Fifty eight percent of students who had no prior online course experience stated they would take another course with online content if given the opportunity.

Key words: online learning, online assessment

#166

Shifting the Focus to *Learning in Community* to Enhance the Undergraduate Experience

Jannette Thompson, Jan Wiersema, Cynthia Haynes, Steve Jungst, Barbara Licklider, and Suzanne Hendrich
Iowa State University

Meeting the challenges of the future requires not only technical knowledge and skills, but also the abilities to communicate effectively, think critically, and form meaningful working relationships based on mutual trust and respect. Educators must structure learning opportunities that encourage students to develop cognitive and interpersonal abilities that will help them become professionals and citizens who take responsibility for their own learning and the obligation to help others learn. Learning communities can move post-secondary education in this important direction. As developers and facilitators of The Academy for Leadership and Learning, however, we believe both social and academic outcomes of traditional learning communities can be enhanced. Since 2006, we have worked with over 150 students who participated in foundational courses where the focus was on learning in the context of intentional development of community. Students engage individually in self-knowledge inventories, and together with their peers in structured learning activities to allow them to assess their skills as team members. Students identified the following as important for

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their growth: learning about learning; practicing critical reflection and metacognition; engaging in team interactions; and immersion in safe, supportive learning environments. We have uncovered strategies that contribute to development of community, several formative assessments that assist students, and exercises to help students engage in critical self-assessment. The results of our work have implications for administrators: provide resources to develop a community of learners; faculty: set high expectations for engagement and hold students accountable; and students: engage in reflection and metacognition as a habit of mind.

Key words: learning communities, critical thinking, metacognition, reflection, habit of mind

#168

Using an Experiential Learning Process to Meet Course Outcomes

Michael S. Retallick
Iowa State University

When faculty members develop course outcomes, often they design assignments and exams that attempt to measure the extent to which each student meets those outcomes. In an era where student-centered learning and the creation of significant learning experiences are highly encouraged, other approaches may be more effective in developing life-long learning skills. The purpose of this presentation is to describe an approach to teaching a course that utilizes a four-step experiential learning process as a means of realizing the course outcomes. First, students developed a learning agreement, which included a purpose statement, a learning goals statement, and a list of learning objectives for the course. Second, they were required to write micro-reflection papers focused on their experience in the course as it relates to the learning agreement. Third, students developed a comprehensive final reflection which was submitted as part of a final portfolio. Finally, students participated in a professional poster presentation which was attended by their peers as well as faculty and administration across campus. Preliminary evidence indicates that this approach has been effective. There has been an in-

creased ownership of and interest in learning. Student reflections and poster presentations provide concrete evidence that students are achieving course outcomes. In summary, this approach to engaging students and meeting course outcomes provides a venue for involving students in the learning process and modeling the life-long learning process.

Key words: experiential learning, student outcomes

#169

Using the Intercultural Development Inventory to Assess College of Agriculture Undergraduate Students' Intercultural Sensitivity

Mark Russell and Pamala Morris
Purdue University

The Intercultural Development Inventory (IDI^R) is an assessment based on the Bennett Model of Intercultural Development. The IDI^R instrument assesses both the perceived and actual stage of ethnocentric (denial, defense, or minimization) or ethnorelative (acceptance, adoption integration). The intent of this study was two-fold: to establish a baseline profile for students at different years of undergraduate experiences, and to determine if those students choosing to enroll in a group, international travel course to Romania and Hungary are more interculturally sensitive than a contemporary group in an on-campus course. Three populations of undergraduates were studied: the AGR 201, Communicating across Cultures; the ANSC 495 Leadership for a Diverse Workplace; and the Exploring International Agriculture Maymester. All students completed the IDI^R at the beginning of each course. The IDI^R results of the AGR 201 class revealed that 61% of the class was in the Denial/Defense category. The average actual profile was 82 with a 35-point gap between the perceived average of 117 and the actual result. The ANSC 495 actual average was 96 with 35% in the denial/defense category and a gap of 33 points to the perceived average of 129. The average of the study abroad class was 110 and the gap was 40 to the perceived average of 150. AI-

though the study abroad perceived average is significantly different ($p < .05$), the actual profile averages were not different. This study shows that the baseline intercultural sensitivity of all undergraduate students assessed in the College of Agriculture justifies significant development efforts.

Key words: intercultural sensitivity, baseline comparisons

#172

Using Debate in the Online Classroom

Penny Weeks
Oklahoma State University

As universities serve increasing numbers of distance students, faculty continue to explore effective methods of online course delivery. One of the challenges faculty face is effectively adapting traditional methods of instruction to fit online course delivery. In this session, the author will share how she has modified student debate for the online environment. Modified debate has been used by the author for four years in an online graduate-level course offered through the college of agriculture. Distance students are assigned to one of three debate topics. Students participate once as a debate leader and twice as a debate participant. Debate leaders prepare an argument paper and lead an online debate with other students assigned to the same topic. Debate participants encourage debate through online questions and prepare reaction papers after the debate ends. The author simultaneously teaches a face-to-face section of the same course in which the debate is also assigned. Data has been collected during the last two offerings of the course related to the online debate assignment. The author has observed that online discussion activity during the three debates is typically stronger than online discussions throughout the semester with the exception of the opening week of class. Analyses of student work also shows quality of debate resources used by distance students to be generally equal to the quality of resources used by traditional students. In general, the author has effectively modified a traditional classroom activity in which

the distance students react positively and the learning objectives are met.

Key words: distance learning, debate

#173

An Assessment of Higher Order Thinking: True Confessions of a Soil Science Professor

William Weeks and Jeff Hattey
Oklahoma State University

Research shows that college of agriculture faculty aspire to balance their instruction across the levels of cognition, but in practice conduct themselves primarily at the lowest levels of cognition. While faculty generally believe teaching at higher cognitive levels is important, they tend to teach at the same cognitive level as those with less favorable views. Inspired by teaching workshops to elevate the level of higher order thinking in instruction, a soil science professor collaborated with an agricultural education instructor and a pre-service agricultural education to ask an important teaching question: At what cognitive level am I testing? The researchers analyzed exams in an introductory soil science class. The exams covered a period of eight semesters and involved over 600 students. Test questions were analyzed using the Bloom's Taxonomy to determine the level at which assessments were being made. Findings were consistent with previous research. Although the instructor publicly affirmed his belief in higher order instruction, and delivered instruction consistent with higher order delivery methods, assessments were largely in the lower levels of cognition. Additionally, it was found that there was considerable variation from semester to semester in the cognitive level at which students were assessed.

Key words: cognition, soils, higher order thinking

#175

Assessment Strategies to Enhance Teaching-Learning: Outcomes from Two Courses

Rama Radhakrishna, John Ewing, Naveen Chicktimah, and Tracy Hoover
Pennsylvania State University

To teach in the complex and diverse society of the 21st century, we believe in a three-fold approach to teaching—*learning*—acquisition of new knowledge; *application*—transferring that new knowledge to real-life situations; and *reflection*—refining and adjusting content and delivery. This approach offers a unique setting for learners to find the knowledge and skills needed to understand the value of learning and its use in real-life situations. Additionally, teachers need to understand through reflection and assessment that they are providing the knowledge and skills and at the same time correcting themselves to improve teaching. The overall purpose of this presentation is to share two assessment strategies—*RECAP* (**R**-Read/Recall class materials; **EC**-Engage in discussions, and group activities; **A**-Apply what was learned in class via exams, assignments, projects; **P**-Progress/Performance as determined by course grade), where students, selected at random, summarize previous week's class session in the next class session and *Structured Feedback*, where students respond to their level of confidence in learning or not learning the content/topic presented in class. Initial outcomes from the two strategies used revealed that students like it and helped reinforce doubts they had about certain topics. On the teacher side, the use of these strategies helped refine teaching skills, develop mechanisms for providing feedback on a regular basis, and confidence that the students are learning as evidenced by performance and participation. Presenters will share examples of these two strategies and discuss when to use these two strategies to be more effective.

Key words: assessment, outcomes

#176

Strategic Issues: A Critical Component of a Capstone Farm Management Course

Thomas Paulsen
Iowa State University

Many universities are utilizing capstone courses in their baccalaureate programs to assist students to integrate prior technical content knowledge and skills with new information to solve authentic problems in a real-world setting. The Agricultural Education and Studies Department at Iowa State University utilizes a student managed farm as the context for its capstone course for students in the Agricultural Studies major. The purpose of this presentation is to describe a unique learning activity used in this course. The AgEdS 450 course employs various teaching strategies and student learning activities to help students solve real world problems. The student activity that best exemplifies Crunkilton's five components of a capstone course is the Strategic Issue activity. The focus of this activity is for students to work in small groups to examine and research a strategic issue facing the Ag 450 farm in the short- or long-term. Strategic Issues focus on problems that impact all aspects of the farm operation from crop and swine production to equipment, land and labor management and related operational components. Strategic Issues are designed to be interdisciplinary, causing students to draw upon previous agricultural and human resource courses, apply problem-solving and decision-making techniques and address situation specific problems in the farm business. As the culminating activity of the course, the Strategic Issue activity embodies a learner-centered approach to problem solving and decision making helping students transition from their academic programs to the real world of agribusiness management.

Key words: capstone courses, problem solving, decision making, teamwork, farm management

#177

A Student-Centered Approach to Teaching an Introductory, Writing-Intensive Course

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Oklahoma State University

College- and university-level educators continually are interested in curriculum design and redesign, student assessment, instructor evaluation, and course impacts. Using Bloom's taxonomy, new methods of instruction were used to engage students in learning experiences in the prerequisite for upper-level writing courses in the Oklahoma State University agricultural communications program. The prerequisite, Communications in Agriculture (AGCM 2113), is a high-intensity, competency-based course in which students develop grammar, punctuation, and news writing skills. AGCM 2113 course assignments and activities were restructured and implemented during two semesters with two different instructors. Changes included adopting a rough draft system for writing assignments, replacing a one-time project with a semester-long collection of errors in print media, and building skills through small-group activities. Modified course assignments and activities were implemented during spring 2008 and were continued with few revisions during fall 2008 to determine whether perceived usefulness of assignments could be maintained across instructors. Standard course evaluations and online survey evaluations of the course were compared for the fall and spring semesters. Students rated the primary course assignments and activities as "useful" to "very useful." Similar ratings of the overall course, assignments, and activities across the spring and fall semesters demonstrated the effectiveness of the assignments and activities in engaging students across instructors. Participative assignments and activities that promote higher-order application of content provide effective methods for presenting grammar, punctuation, and news writing principles with different instructors, as these assignments and activities are a significant part of the students' overall course experiences.

Key words: experiential learning, agricultural communications course, writing, curriculum, teaching methods

#183

Utilizing Primary Research Literature to Enhance Student Learning Food Science Case Study

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Pennsylvania State University

Critical thinking is a learning outcome in the education standards of food science undergraduate programs approved by the Institute of Food Technologists (IFT). In this presentation, we describe a teaching strategy in a food science course that engaged students in critical thought and critique. In addition, effectiveness of the teaching strategy in enhancing "critical thinking" was also assessed. Fifty-six students enrolled in a three-credit introductory course in food science at a land-grant institution. The course content integrated the critique of five peer-reviewed primary research papers to complement modules in Food Chemistry, Food Microbiology, Nutrition, Food Processing, and Contemporary Issues in Food Science. Each module was presented in a lecture format with anchored textbook material. Students were required to review the assigned research paper for each module between lectures. A set of questions relevant to each research paper was used to guide the out-of-class learning effort. Students were required to complete and submit the assigned questions prior to class discussion. On the day of the class discussion, the instructor(s) presented the salient concepts of the research paper, including, relevance to the module, scientific concepts, research methodology, and elements of critique. Student-led observations served as the basis for discussion and active learning. Following discussion, students submitted written critique on the primary research paper. Students also completed a Bloom's Taxonomy feedback to assess learning in each module. Preliminary findings suggest that incorporating critique of primary research literature into the course syllabus enhanced student learning and promoted critical thinking skills.

Key words: critique, critical thinking, food science, Bloom's taxonomy

#190

Assessing Academic Integrity: Keeping Academic Standards High

Cindy Blackwell
Oklahoma State University

With a generation of students who have come of age cutting and pasting from the Internet, maintaining high academic integrity standards can prove challenging. Educating students about common academic integrity violations and how to avoid such violations to strengthen the value of their education is a lesson not taught often enough in college classrooms. Even if students are taught about academic integrity the lessons are not always followed. Identifying violations of academic integrity can be as daunting as explaining the importance of maintaining high academic integrity standards. Tools such as turnitin.com can assist with identifying plagiarism however concern has been growing over issues with these tools such as ownership of copyright and false positive results. One innovative teaching approach to educate students about the importance of upholding strong academic integrity standards is to demonstrate to students that, beyond collegiate walls, violations of academic integrity become violations of copyright and intellectual property law. Using examples from the news media of people who have overstepped copyright and intellectual property laws allows students to not only understand the severity of the issue, but also the wide range of issues relating to violations. Reading an article about a pianist who falsified recordings or a CEO who copied a management booklet and was heavily fined as well as humiliated, allows students to understand the importance of respecting academic integrity in college as well as beyond. For faculty, the power of Google as a tool to verify violations of academic integrity is also important to understand.

Key word: academic integrity

#194

Undergraduate Education as Preparation for Employment: A Survey of 2004-2006 Graduates

James Knight and Megan Otto
University of Arizona

According to research, "assessment in higher education can provide accountability for public funds, ensure a well-prepared work force, and improve effectiveness of programs." The College of Agriculture and Life Sciences began an annual follow-up study of graduates two years after they had graduated in 2006, and then each year thereafter. The survey was put online as well as "hard copy" to improve the response rate. In addition, specific efforts were employed to account for non-response bias. On an annual basis about 40% responded to the surveys. This annual study examines CALS graduates and their overall satisfaction with the college based on five categories. These categories are: Individual and Instructional Influences, Personal and Professional Development, Family Influence, Personal or Professional Connections, and Job Satisfaction. This report of research presents the combined findings of the 2004-2006 graduates from CALS at the University of Arizona. The findings indicate that 92% were either employed or in graduate school. Of those employed, about 2/3 were in Arizona with 15% in neighboring states and working predominantly in the fields for which they were prepared. Of those responding to the survey, most located their current employment via their own personal networks. Over the three years involved in this study there was a very high level of satisfaction on the part of the graduates with their respective programs but also offered some specific suggestions, which, incidentally, have been implemented by the College.

Key words: follow-up, satisfaction, employment, graduates

#202

Student and Faculty Gender Comparison in Higher Education

Jolene Hamm, Mary Marchant, Joe Hunnings,
and Bill Richardson
Virginia Tech

A study of gender in students and faculty in two sets of traditional disciplines points out a need to investigate the impact of gender compatibility. This study compared the number and gender of students and faculty in certain animal science and family and consumer science/human science disciplines using the Food and Agricultural Education Information System (FAEIS) database. Only those institutions that reported student enrollment as well as faculty data for those disciplines were included in this analysis. The 2007 enrollment data for animal sciences baccalaureate students totaled 12,064 with 71% (n=8,531) females, and 29% (n=3,531) males. The 2007 headcount data for faculty in the same disciplines at these same institutions totaled 850, with 19% (n=160) females and 81% (n=690) males. Thus, female students made up 71% of the enrollment in selected animal sciences disciplines compared to 19% female faculty in those disciplines at the same institutions. The 2007 enrollment data for family and consumer sciences/human sciences baccalaureate students totaled 15,262 with 90.6% (n=13,820) females, and 9.5% (n=1,442) males. The 2007 headcount data for faculty in the same disciplines at these same institutions totaled 791, with 75.4% (n=596) females and 24.7% (n=195) males. The gender compatibility is closer to parity in selected family consumer sciences/human sciences disciplines with female students making up 91% of the enrollment compared to 75% female faculty in those disciplines at the same institutions. Further studies are necessary to examine the extent and impact of this phenomenon.

Key words: gender comparison, higher education

#206

Factors Influencing Choice of Academic Major: An Assessment of First Time Agricultural Students

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Kevin Williams
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Steven Frazee
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Cary Green
Oregon State University

A number of items go into the final decision process of what college to attend and which academic major to pursue for all college students. The phenomena evaluated in this study were factors associated with how incoming college students select an academic major in the agricultural sciences. The target population for this study was identified as first time university students entering into a college of agricultural sciences in fall 2007. The variables explored included student demographics, psychological type, and external influences upon selection of academic major. Data pertaining to student demographics and external influences were recorded in a descriptive questionnaire adapted from Wildman (1997). External factors included three main sections of prior exposure to major, people of influence, and college or departmental factors. For external factors a ten-point Likert-type scale was utilized. Means and standard deviations were used to describe these data. Psychological type was measured by the Myers-Briggs Type Indicator (MBTI®) Form M. Demographic data for this population (N=207) showed a majority of first time agricultural students to be male, White/Non-Hispanic, and from in-state. For external factors, personal work experience, parents, and friendly college atmosphere proved to be the most influential items identified in each of the three external categories. For agricultural students dominant psychological preferences determined by MBTI® were Extraversion, Sensing, Feeling, and Perceiving. The most frequent MBTI® four letter combinations found among participants were

ENFP, ESTP, and ESFP. Recommendations were made for continued research with this audience along with research on additional university agricultural students.

Key words: academic major, external factors, incoming students

#207

Utilizing Higher-Order Thinking Learning Assessment

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Assessing student learning comes in many forms. Developing evaluation criterion that allows and challenges students to utilize higher-order thinking skills is imperative as educators strive to create informed citizens. In a personal leadership development course at The University of Georgia, the instructors developed a way to measure the acquisition of knowledge and personal leadership growth while challenging students to utilize higher-order thinking. This assessment is in the form of comparative philosophies. At the beginning of the course, students had been assigned to create their own personal leadership philosophy. Instructors then decided to assign another leadership philosophy at the end of the course. The same assignment rubric was utilized, and students were asked to revisit their philosophy and create a new one based on their experience in the course. The qualitative results of this experiment showed an increase in leadership knowledge and integration of course context. Students utilized higher-order thinking skills by assimilating their leadership knowledge and reformatting and reorganizing their original thoughts. Some students first defined leadership by listing qualities of a leader. One student wrote in her first philosophy, "leadership is being able to have good people skills and a commanding presence." Her second definition of leadership changed to leadership as a process; "leadership is a continuous exchange between leaders and followers where leaders must work hard to motivate others to accomplish a shared goal." Other students acknowledged how class assignments and activities changed and influenced their new leadership philosophy.

This type of higher-order thinking evaluation could be modified for other courses.

Key words: higher order thinking, leadership, assessment

#212

Using Senior Portfolios to Assess Student Outcomes

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In social science disciplines, such as agricultural communications, grading rubrics provide a useful method to quantify student work that is more qualitative in nature. Through agricultural communications curricula, students acquire a theoretical knowledge base and gain problem-solving experience in multiple media. To measure students' learning outcomes in these areas, agricultural communications faculty members designed specialized rubrics to assess student work in writing and editing, layout and design, photography, and broadcasting. Faculty then selected communications professionals to evaluate senior portfolios using these rubrics (scale: 1 = "weak performance" to 5 = "excellent performance"). In the past five academic semesters, reviewers have evaluated 82 senior portfolios, each containing at least three news and/or feature stories, three print layout and design samples, three photos, one broadcasting package, and one web site. Student performance as demonstrated through portfolio samples was at least "more than acceptable" ($m = 3.50$ or better on the above scale) for all rubric categories in layout and design, photography, and broadcasting, while writing samples were at least "more than acceptable" in all rubric categories except in the "objectivity" area in spring 2007, which was assessed as "acceptable performance." Following the portfolio reviews each semester, faculty members who teach each media areas use the assessments to update and improve their respective courses. Long-term plans include continuation of this assessment method.

Key words: senior portfolios, learner outcomes, rubric

#225

E-value-mmercials: Sharing Student-Created Broadcasts of Evaluation Best Practices

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University of Georgia

Twenty-four graduate students in a distance-delivered program development class worked in pairs to create brief (3-5 minute), commercial-type skits to introduce the topic of each week's class. The objectives of this project were to: (1) demonstrate the relevance of program development/evaluation knowledge to the professional lives of graduate students and (2) enhance student-to-student and student-to-instructor collaboration. By having to teach course content to their peers, students had to know their chosen topic well enough to make it relevant and engaging. Prior to each team's "e-value-mmercial," presenting students would read an article related to their topic and meet with the instructor over a conference call. The instructor helped broadcasters develop a script and discussed methods for teaching their chosen topic in an "educating" way. Broadcasters presented seemingly dull content related to such topics as assessments, measurable objectives, and data analysis using songs, short movie clips, and humorous acronyms. Once students presented their e-value-mmercial in class, they met to record their broadcast in a sound booth for release to Extension agents statewide. Extension agents and other educators are now able to view the e-value-mmercials online as downloadable movie files. Students indicated that their participation in the e-value-mmercials improved their attitude toward program evaluation and data, helped them think differently about teaching methods, and allowed them to feel more connected to other classmates and their instructor. These findings suggest that participation in meaningful educational skits can enhance collaboration among distance students and illustrate the rele-

vance of evaluation knowledge in teaching and extension activities.

Key words: educational skits, student-to-student collaboration, student-instructor collaboration

#226

Measuring "Good" Teaching: Student Developed Teaching Evaluation Rubrics

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Through their involvement with student organizations, service-learning projects, and academic classes, undergraduate and graduate students often participate in the development of educational programs. Many of these programs are offered to a voluntary audience of participants without ties to a performance standard. As such, the teaching ability of the program facilitator must be considered as it may strongly influence the likelihood that participants will attend subsequent program sessions. Graduate students enrolled in a program development course were asked to create a scoring rubric to measure the teaching ability of program facilitators following a review of literature on andragogy and pedagogy. The objectives of the evaluation rubrics were to: (1) encourage students to think critically about the influence of teaching methods on program effectiveness and (2) allow program facilitators to receive a teaching ability "score" for targeting aspects of their teaching to continue or improve upon. The teaching evaluation rubrics were examined using content analysis procedures. Rubrics rated facilitators based on their effort to get to know participants (by name), organization yet flexibility, appearance, evidence of enthusiasm, and noticeable effort to relate to participant learning styles. From a program participant standpoint, rubrics included components where participants could be rated based on their non-verbals (body language and facial expression), degree of active participation, and level of conversation with the educator. Overall, graduate students with training in program development

believed the teaching effectiveness of program facilitators should be evaluated most heavily based on facilitator connectedness to participants and ability to engage and motivate learners.

Key words: teaching evaluation rubrics, teaching methods, teaching improvement, program development

#227

An Assessment of the Employability Skills of Graduates in Hard vs. Soft Disciplines

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The purpose of this study was to assess the employability skills of College of Agriculture (COA) graduates, in hard vs. soft disciplines, at a southern land grant institution. A secondary purpose was to enhance the current COA curriculum based off of the findings of this study. In all, hard science graduates identified “motivation,” “listening,” and “problem solving and analytic” as the skills most important to their job. Additionally, hard science graduates were most competent at performing “interpersonal relations,” “creativity, innovation and change,” and “organization and time management” skills. In contrast, soft science graduates identified “motivation,” “interpersonal relations,” and “listening” skills as most important to their jobs. Further, soft science graduates were most competent at performing “listening,” “interpersonal relations,” and “motivation” skills. When combining both disciplines’ (hard vs. soft) lists to determine where deficiencies existed, it was revealed current COA curriculum should be enhanced by emphasizing the following skills: “visioning,” “motivation,” problem solving and analytic,” “organization and time management,” and “oral communication,” as all had a mean weighted discrepancy score above .50. It is recommended that COA faculty assess their curriculum and integrate these skills sets whenever applicable to enable graduates to better transfer their learning to industry settings, post-college. Further, this study found COA faculty, either intentionally or unintentionally, were adequately addressing

the following skills: “managing conflict,” “coordination,” and “listening.” As such, because these skills were all regarded as “moderately important” to graduates, they should remain in the curriculum but should not be overemphasized more than what they are currently.

Key words: employability skills, hard and soft disciplines, college of agriculture graduates

#233

Using a Student Team Course Project to Assess Student Learning Outcomes

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The Agribusiness Food Products Marketing course at the University of Nebraska-Lincoln provides students an understanding how farm commodities move through a food systems marketing channel to the final point of consumption by consumers. A strategy to enhance student engagement and to assess student learning was a creation of a Student Marketing Team Project. A marketing team consists of three students. Each student team must create a new food product item and then develop a comprehensive marketing plan to introduce their product into the retail food market. The objective of this innovative teaching approach is to provide a process for students to integrate course materials and classroom theories with the very complex industry of food marketing. Through this process students learn to cooperate and to teamwork together. More importantly, through their group decision making, students learn how to turn theoretical knowledge from classroom lectures/reading assignments into a real world product marketing situation. A project evaluation survey was developed for students to assess their learning outcomes from this project as well as the course itself. Results indicate that students gain problem solving skills, stronger class presentation skills, and a better capability for critical thinking. Upon the completion of this student team marketing project, student survey feedback shared a more positive attitude for the course and a higher level of motivation to succeed in the course.

Key words: student engagement, assess learning, student teamwork

#244

Assessing Outcomes from Multidisciplinary Capstone/Senior Design Classes

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Pre-assessment data from multidisciplinary capstone/senior design classes at three universities are presented and evaluated. The classes are part of a three-university USDA Higher Education Challenge grant on innovation education. Student teams have addressed engineering, business, and communications issues associated with innovative new products in a multi-semester sequence of classes. Most projects involve companies that are interested in introducing new products. This paper will present the qualitative and quantitative data collected from the students at the beginning of the first sequence of the classes. Assessment challenges include simultaneously meeting the assessment requirements of different disciplines, particularly when some disciplines are subject to accredita-

tion reviews. A total of 72 students are enrolled and are completing 16 separate projects. The projects are diverse and include: traditional agricultural machine design, renewable energy, biomedical, environmental management, control, and monitoring, by-product utilization, and a pet product. All of the teams have completed preliminary product reviews and prototypes are being built and tested. Projects at two universities will be completed in May 2009 and the third university will have their projects completed by early June. Our pre-assessment data suggest that students enrolled for a variety of reasons. At the beginning of the classes, the students had a limited view of the innovation process and the roles that people from different disciplines might play in completing a project. Students enrolled in the class to complete degree requirements including their senior design and capstone classes as well as their senior theses requirements.

Key words: multidisciplinary assessment, innovation, capstone class, senior design class

#248

Outcomes Assessment in Animal and Poultry Sciences at Virginia Tech 18 Years of Learning and Improving

Cynthia Wood
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Virginia Tech has been conducting outcomes assessment since 1991. Until recently, VT used a five-year cycle that required departments to spend considerable resources gathering, summarizing and reporting outcomes assessment every two of five years. Data sources used by APSC included employer and alumni surveys, enrollment trends, a university-wide survey of undergraduate degree candidates, and multiple evaluators of student performance. The university is now using a continuous-improvement model that incorporates an online reporting system. Each degree program must develop 1) a mission statement that relates directly to student learning outcomes; 2) specific learning outcomes that may be revised based upon information collected; 3) direct and indirect measures of the learning outcomes; and 4) findings for measures assessed. Some historical measures of student learning will be used but with ques-

tions tailored to match more specifically with APSC learning objectives. Rubrics to assess enhancement of written and oral communication skills and critical thinking and reasoning are being developed to measure student learning within specific courses and student progress during their degree program. Knowledge of basic sciences and contemporary issues will be directly measured by test results assessing student understanding of key concepts. An e-portfolio system is currently being constructed as a tool to assist with assessment of student work over time. Analysis of information collected in this continually on-going assessment process will facilitate a more efficient enhancement of teaching and student learning compared with the historical five-year cycle of assessment.

Key words: outcomes assessment, student learning, e-portfolios

#250

Preparing College Graduates for Success in the Workplace: What the Literature Says

Richard Rateau and Eric Kaufman
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In our increasingly competitive world, college graduates must enter the workplace with the appropriate skills to not only survive but also grow their career. Too many students are graduating from higher education without the required skills to become life-long learners and compete in our rapidly changing world. Higher education, future employers, and graduates must collaborate to better insure graduates have the needed skills for employability and success. The purpose of this review of literature was to examine the knowledge base concerning the employability skills college graduates need for their first professional employment. An extensive literature review generated relevant articles over a twenty year period. Focused searched criteria and snowballing techniques resulted in a total of 54 articles from 26 different publications. The articles clustered around five themes or topic areas: 1) role of higher education; 2) employer needs; 3) employability skills requirement; 4) experience matters; and 5) the need for collabo-

ration between higher education and employer. Various skills, including critical thinking, problem solving and communications, were noted as areas needing improvement in learning outcomes. Gaps in available literature were identified in an effort to assist researchers in focusing their efforts on understanding and assessing the needed improvement in learning outcomes, employability, and success of college graduates in their new careers.

Key words: employability skills, assessment, learning outcomes, success

#251

Are They Prepared? Assessing Students Prior to Lecture

Eric Kaufman and Holly Kasperbauer
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Assessing student learning is a topic of discussion that is continuing to be important in higher education. This is difficult when students come with differing levels of knowledge. Through the use of team-based learning, which is a special type of small group facilitation, instructors can assess students prior to providing lecture, through a readiness assurance process. The purpose of this presentation is to discuss how the team-based learning approach can be used in a variety of courses, specifically focusing on the readiness assurance process. There are five steps for the implementing the readiness assurance process. The first step is assigned reading, which is to be completed prior to class. Upon arrival to class, students take an individual readiness assurance test. The goal is to assess students' understanding of the readings. Once team members complete the individual test, they engage in the same test as a team. Students discuss answers within their teams, without using notes or readings. As part of the team test, students are provided with an opportunity to receive partial credit for answers if they did not choose the correct one initially through an appeals process. After completion of the readiness assurance tests, the instructor provides instruction in the areas where students didn't excel. This lessens the amount of time an instructor spends discussing items that students have al-

ready mastered, thus providing more time for case studies and application exercises. The researchers recommend utilizing this approach in a variety of classes to best use available class time.

Key words: teams, team-based learning, readiness assurance

#253

Use of a Peer Evaluation to Assess Team Effectiveness

Holly Kasperbauer and Eric Kaufman
Virginia Tech

Many students dislike the idea of class project teams, and previous experience offers reason for concern. A common complaint is that one student does all of the work and all group members receive the same grade. This is a frustration for the student who is completing a majority of the work and for the instructor who is trying to engage all students and reward them appropriately. Peer evaluation can improve student motivation and offer valid assessment, but it must be facilitated appropriately. Expectancy theory can guide the peer evaluation process by promoting of three key components: expectancy, instrumentality, and valence. Students must believe that individual effort will lead to acceptable performance (expectancy), performance will lead to specific outcomes (instrumentality), and the outcomes will be personally valued (valence). Instructors' experience with peer evaluation in undergraduate and graduate courses leads to several recommendations. First, students should provide input for the evaluation process. This can be accomplished during class discussion about appropriate criteria for evaluation. The instructor can then compile the responses and put together a rubric for the evaluation. Second, multiple evaluation formats should be included to meet the needs of different learning styles. There should be an opportunity for students to provide anonymous written comments and ratings, with the understanding that the feedback must be constructive. Finally, there should be a process for completing an interim peer evaluation to serve as a checkpoint. This will allow stu-

dents make corrections to personal performance and to learn from the process.

Key words: expectancy theory, peer evaluation

#254

Undergraduate Outcomes Assessment in the Department of Plant and Soil Sciences at Oklahoma State University

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Student assessment plans can provide a framework for measuring student knowledge and skills upon completion of a degree program. The undergraduate outcomes assessment plan developed by the Plant and Soil Sciences Department at Oklahoma State University is designed to measure student performance for six learning outcomes: core disciplinary knowledge, critical thinking, effective communication, ability to use the scientific method to solve problems, professionalism, and satisfaction with initial career preparation and commitment to lifelong learning. Outcomes are assessed using a variety of rubrics. Some were adapted from those used university-wide to assess general education courses and other instruments. Others were developed by our department. Core disciplinary knowledge is measured using a mock professional certification exam given to each graduating senior. Critical thinking and written communication skills are assessed using writing samples from core curriculum courses. Videotaped student seminars are used to evaluate oral communication skills. Internship and research project supervisors are asked to document the research-related activities of students they work with. A faculty committee then evaluates those records for evidence of student ability to use the scientific method. Professional skills are assessed by research and internship supervisors using a predefined rubric. Data from a university-administered alumni survey (which includes department specific questions) that is conducted one and five years after graduation is used to measure initial satisfaction with career preparation and commitment to lifelong learning. Results from each assessment are compiled annually

and used as part of the department's ongoing assessment of program effectiveness.

Key words: undergraduate assessment, outcomes assessment, rubrics

#267

Portfolios: The Use of Authentic or- Performance Assessments

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Virginia Tech

Fine arts and creative writing departments were the first to use portfolios to assess student learning. According to researchers, portfolios were implemented as an assessment method in higher education during the 1980s and have been implemented not only in the fine arts, but in other disciplines within higher education. The purpose of this study was to examine scholarly literature relating to portfolios and develop implications for using portfolios as a means of authentic assessment of agricultural students. Portfolios began as collection of student generated paper artifacts and now with the assistance of technology, portfolios can be created using websites, CD-ROMs, or DVDs. Based on the literature, two categories of portfolios were discovered, process and product. Process portfolios express learning over time, whereas, product portfolios focus on exemplary work of the student. Researchers also revealed several benefits of using portfolios. First, portfolios signify student learning over time. Next, portfolios help develop students' critical thinking skills through reflection. Portfolios allow students to document their learning through increasing skill creativity and judgment. Students make decisions about the organization of their portfolio and which items to include. Finally, student portfolios utilize authentic student work and assist students in setting further goals. The use of portfolios is not the only answer to assessment but is one piece of the equation that should be carefully considered when developing an evaluation schema.

Key words: authentic assessment, portfolio

#269

Beyond Right and Wrong: Making Assessment Work for More Students

Carol Speth and Donald Lee
University of Nebraska

The Plant and Soil Sciences eLibrary, developed with help from CSREES, offers public access to technology-enhanced materials, including animations and practice quizzes. Students in resident and distance sections of a freshman-level Plant Science course use lessons from the eLibrary. Do applications lessons enhance learning and confidence? Which students benefit? Ten survey items and six content items were presented online using Survey Monkey. Students were invited to answer the questions anonymously. The unit on Flowering and Sexual Reproduction includes one Principle and two Applications lessons on: 1) Hybrid Corn and 2) Native Plant Breeding (Penstemon). The content items asked students to transfer their learning about perfect or imperfect flowers and monoecious or dioecious to plants not specifically mentioned. Combining knowledge and survey questions allowed analyses by major, whether they were distance or resident, definition of learning, motivation for learning, previous experience, how much they valued the applications, and how confident they were that they could apply what they learned. For example, of 83 students who agreed to participate, 30% said the application lessons were quite valuable, 63% said they were of some value, while only 7% said they were not valuable or not needed. The 43% who defined learning as being able to apply what they learned did not do better on the content items, but they reported higher mean levels of confidence that they could apply the content in four different settings than the 30% who defined learning as remembering or the 26% who defined it as understanding.

Key words: technology-enhanced learning, learner characteristics, outcomes, assessment

#270

Alternative Assessment Strategies in Mathematics

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University of the Incarnate Word

As mathematics instruction changes from chalkboards and chalk to include technology, cooperative group activities, and an emphasis on problem solving, so too must mathematics assessment change. At the University of the Incarnate Word we no longer rely only on short-answer tests to provide information on students' mathematical progress and proficiencies. New assessment strategies, such as oral presentations, research projects, cooperative group reports, and online assessments provide a more comprehensive picture of student understanding. This presentation will include how the mathematics department addressed the myths of teaching and testing mathematics, our new instructional and assessment practices in mathematics, and our plan for future changes.

Key words: mathematics, alternative assessments

#272

Initiation and Conductance of an Outcomes Assessment Plan in a Diverse Academic Department

Dennis McCallister
University of Nebraska-Lincoln

In response to a mandate from the University of Nebraska-Lincoln's College of Agricultural Sciences and Natural Resources, all academic units in the College initiated outcomes assessment plans in 2006. While all academic units are diverse, the Department of Agronomy and Horticulture was particularly challenged because it encompassed students, constituent groups, and faculty with interests ranging from basic science to business applications. Despite this, Department faculty set out to develop a single outcomes assessment plan for all of our undergraduate programs. The process began with evaluation of our graduates' needs both from an internal (faculty) and external (advisory group)

perspective. Using these evaluations, the faculty identified three areas for assessment: 1. Communicate effectively in written and graphic forms; 2. Describe how plants grow, develop, and respond to their environments; 3. Solve complex, controversial problems by analyzing the key issues involved, acquiring and assessing necessary information, and synthesizing that information into one or more alternative solutions. Next, we designed tools to supply data on which to base the assessment. In some cases, the data consisted of performance by our majors in courses, compared to class averages. More commonly, however, "data" consisted of examples of student work illustrating the range of acceptable performance in a class. Data collection was designed, as much as possible, to rely on materials that were produced as part of the everyday conductance of our courses. Only now, after three years, do we feel sufficiently confident in the quality of our assessment analysis to plan curricular changes.

Key words: outcomes assessment, communication, problem-solving

#273

Describing the Relationship between Brain Activity, Higher Cognitive Teaching Techniques and Student Achievement

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The Ohio State University

Exploring the methods and techniques that are currently being used for examining the relationship between teaching behaviors and student cognition, will inform instruction practice of how findings in the field of neuroscience can be applied to education. The researchers examined what is currently being done at institutions that link student cognition and retention to different teaching techniques such as lecturing, small group activities, role playing, and case studies. Not only were researchers studying factors that focus on teaching techniques used, but also ones that incorporate collecting brain activity that can help teaching instructors understand which activities grab and maintain students' at-

tention during class sessions. Exploring the field of neuroscience could offer a glimpse into the working brain of students and help instructors understand what they need from teachers to learn and retain subject matter content. The literature reviewed in this paper shares what is and what has been done to link neuroscience to education. By understanding the teaching behaviors most prevalent in the field and interpreting those behaviors, instructors can apply the findings in a quest to improve student retention and transfer learning across various environments.

#274

Using Academic Program Assessment Data for Program Improvement

James Graham and Tim Buttles
University of Wisconsin-River Falls

Harnessing data produced through academic program assessment of learning outcomes requires finding ways to close the loop and identify opportunities for improvement. A focus on continuous improvement forms the foundation for repeated cycles of assessment and implementation. The assessment plan for the undergraduate agricultural education major at the University of Wisconsin - River Falls includes direct (PRAXIS II exam scores, certification portfolios, and student teacher evaluations) and indirect (student exit and alumni surveys) measures. Evidence is reviewed at an annual faculty meeting devoted to assessment. Survey and exam score data is summarized prior to the meeting. Part of the meeting is devoted to reviewing select examples of student portfolios and cooperating teacher evaluations of student teachers. The process involves identifying both areas where students excel in meeting program learning outcomes as well as areas where students struggle. Two cycles of assessment have produced a range of program improvements. Minor changes included more clearly identifying approved portfolio artifacts and shifts in the relative emphasis different course topics received. More major changes included working with staff in the Agricultural Engineering Technology Department to revive an agricultural mechanics course for future teachers and the development of a second

teaching methods course. Improvements to the assessment process have also been identified. Keeping a focus on improvement rather than accountability produced program changes with a direct benefit to student learning.

Key words: learning outcome assessment, program improvement

#277

Enhancing Critical Thinking

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Educators are continually striving to enhance critical thinking among their students. However, it can be a struggle in some courses to come up with challenging activities that not only engage the students, but also engages them in deep thought and reflection about the material being presented to them. With the advent of Web 2.0 technologies a new realm of teaching tools has entered the academy. The objective of this study was to explore how using one such new tool such as blogging could effect students' engagement in thinking critically about the materials presented to them. Students enrolled in an introductory agricultural communication course were asked to blog weekly about media coverage of agriculture. This assignment encouraged not only writing skills, but deep analysis of the issues discussed. Students' blog entries were analyzed at the end of the quarter as well as a pre-post test was completed to assess gain in critical thinking skills. Using the UF-CT test results indicated significant increases in critical thinking skills at the end of the course. Since other course variables could come into play, student blogs were also analyzed. It was evident by the quality of entries that students writing throughout the quarter increased in analysis and evaluation skills. While this was a small sample (n=15) findings can not be generalized, but it does shed light on a possible new teaching technique to engage students in to curriculum at a higher level that also captures their intrigue for new technologies.

Key words: critical thinking, blogging

#280

Students' Perceptions of Hands on Agricultural Experience

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The number of students with a farming background enrolled in agriculture programs at the university level continues to decline. Therefore, internships and course labs become even more important in providing students with hands on agricultural experience. This research was conducted to determine the effectiveness of our curriculum in addressing the need for increased hands on experience. Student assessment of the use of the university farms and laboratories and the value of internships was of particular interest. The population for the survey included all students in the Department of Agriculture at the University of Central Missouri during the spring semester of 2008. The useable sample size was eighty-one. The survey instrument was designed to collect information about the students and their attitudes about the current curriculum. Seventy percent of students indicated they have a background in production agriculture. Eighty-one percent feel internships will help them attain their career goals. Eighty-one percent also indicated they prefer hands on learning to lecture based courses. One-third of the students believe we do not take advantage of the university farm, greenhouses, laboratories and other resources. Written comments also indicated a desire for increased utilization of the university farm in the curriculum. Despite the high percentage of students with a background in production agriculture, the results of the survey indicate that most students want more hands on agricultural experience. Based on these findings, the curriculum in our department has been altered to fully integrate the university farm into the courses.

Key words: internships, hands on learning

#282

Use of Popular Literature in a Floriculture Production Course to Introduce Concepts of Plant Conservation, Industry Internationalism, and Consumer Motivations for Plant Purchases

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Crop production is typically taught in biological science-based courses with lecture plus lab format. Introducing students to social science topics such as issues surrounding plant conservation, industry internationalism, and consumer motivations for plant purchases was the objective of including a reading, reflection writing, and discussion assignment of popular literature in an upper-level undergraduate horticulture production course. During spring 2006 and 2007 semesters, students enrolled in the course HORT 625 *Floral Crops Production and Handling* (4 credits) at Kansas State University were assigned the book *Orchid Fever*, which relates a factual but entertaining account of the international orchid industry. A pre- and post-assignment survey was administered to students to evaluate their changes in perceptions because of the assignment. Student gains for all assessment items were highly significant, indicating that the assignment was successful at introducing the intended concepts grounded in social science. Specifically, students indicated familiarity with international laws that govern plant commerce, developed an opinion about plant conservation, learned how the same plant is used differentially across cultures, and understood motivations that drive consumers to purchase ornamental plants. In addition, students strongly indicated that the in-class discussion was a critical part of the assignment, that the assignment was more interesting than they had initially thought it would be, and that the assignment should be included in future offerings of the course.

Key words: crop production course, student learning outcomes

#283

AG*IDEA – A National Distance Education Alliance for Agriculture

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The Heartland Distance Education Alliance was funded in 2005 with a SERD Challenge Grant to establish a four-state consortium to rapidly develop and deliver high-priority collaborative distance education programs needed in the food and agricultural sciences. Four Midwestern agricultural colleges comprised the Heartland Alliance with educational programs in Food Safety and Defense, Grassland Management, Agricultural Mechanization and Agricultural Education. These programs range from course sharing to certificate programs and master's degree program. In 2006 the Heartland Alliance began operating under the auspices and guiding principles of the Great Plains Interactive Distance Education Alliance (Great Plains IDEA) which provides the infrastructure needed to share courses, including a common price (tuition and fees), revenue distribution model, common student database and other needed activities for a multi-institutional alliance. In 2007, several agricultural colleges in the southeastern United States received a SERD grant to develop a similar alliance. Communications between the two groups led to combining the groups into one national distance education alliance for agriculture, AG*IDEA. Twenty-eight colleges have joined the alliance and new programming areas are under development. Through AG*IDEA, faculty from member institutions share and blend their exper-

tise to develop new degree and certificate programs. To propose a new program, participating faculty submit a concept paper to the AG*IDEA board outlining the proposal and justification for the new program. Final approval requires a full curriculum proposal, an assessment plan and a business/marketing plan. Further information on the alliance can be obtained at www.agidea.org.

Key words: distance education alliance, distance education programs

#284

From Classroom to Community: Enhancing Graduate Education through Service Learning

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Virginia Tech

Slowly, silently, yet surely, there is a paradigm shift occurring in the structure of graduate education programs to include community engagement components. This transformation is in response to the demands for professionals who are engaged citizens with a deeper cognitive connection to both the discipline and the community. Research suggests courses that incorporate a service learning component with traditional curriculum address this need by allowing students to apply content learning to real world community issues. The purpose of this presentation is to discuss the pedagogical value of an innovative teaching approach in a graduate level course with an embedded service learning component. When designed properly, many educators find these unique developmental opportunities provide mutually beneficial gains for the student, university, and community. Grounded in experiential learning theory and the citizen scholar model, outcomes of engagement in these activities provide a holistic approach to the required 21st century leadership skills including critical thinking, problem solving, team building, communication, and reflection. During the fall of 2008, graduate students, in the course "Theoretical Foundations of Leadership," participated in projects with a goal to improve a real situation in a local agricultural community organization through applied leadership concepts and skills. Through the use of an appropriate needs as-

assessment, students were responsible for identifying leadership needs, developing alternative options, implementing appropriate solutions collaboratively with the organization, and evaluating outcomes of their efforts. As a result of these efforts, both students and agricultural organizations showed significant improvements in their learning and application of leadership concepts.

Key words: service learning, graduate education, community engagement, needs assessment

#285

Key Strategies for Implementing Extension Programs in Urban Public Schools: A Philadelphia Science Based Program

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The Pennsylvania State University

No Child Left Behind (NCLB) and other educational reform legislation has made it virtually impossible for extension educators to access the public school system to target urban youth. While understanding educational reform is important, it is equally important for extension educators to reach urban audiences with meaningful programs. Extension educators are now challenged to identify ways in which they can obtain access to urban audiences in the public school system. In Pennsylvania, the need for integrated pest management (IPM) education has been recognized by the Department of Education and the need for effective IPM curricula in urban areas has been more pressing since the recent passing of the state academic standards for Environment and Ecology. In recent years, schools have been increasingly using interdisciplinary methods to educate youth on multiple subject areas within the context of one topic. Using IPM philosophy to educate urban youth allows teachers to address biology, ecology, agricultural sciences, mathematics, and communication skills at one time. In order to bridge the gap between learning and real-world application, an urban IPM school program was developed. This extension-based pilot program was developed to meet the needs of urban youth in inner city Philadelphia. Early results show urban youth are more likely to acquire skills and content knowl-

edge when activities and content are directly related to their environment; teachers are much more likely to integrate new "activities" in their curriculum when they are able to see the direct benefit to the youth as it relates to their overall growth and development and the NCLB standards.

Key words: NCLB, extension, urban IPM

#288

Students Performance and Reflection on a Study Abroad Program in a Developing Country

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and Cason McInturff
Abilene Christian University

Study abroad programs provide critical intercultural understanding and enable students to expand their global outlook. The department of Agriculture and Environmental Sciences (A&E) at Abilene Christian University developed an experiential learning course that focuses on the application of agricultural and environmental techniques in a developing country. The course offers students a unique opportunity to participate in a study abroad program (SAP) in Las Palmas, Southern Honduras. It comprises three components: problem solving projects, a daily student travel journal and a reflection paper. In May 2008, eight students enrolled in this course and spent two weeks in Honduras. The students worked on three different projects. The first project involved selection and planting of six different tropical forage legumes to evaluate for smallholder dairy production in Honduras. In the second project, students analyzed dairy production records to recommend practical management tips for improving milk production. The third project was construction of a water system for rural farmers of Honduras. Assessment of student performance was based on the three course components. The project component of the course gave the students an opportunity to apply their scientific knowledge to solving some of the agricultural and environmental problems that are unique to developing countries. While any student involved in a study abroad program may increase their cultural awareness, this par-

tical course had a unique dimension to it as it took place in a developing nation. This presentation highlights student performance and experiences in the Honduras SAP.

Key words: study abroad, developing country, agriculture

#290

Communicating with Advisees: An Assessment of Students' Communication Styles and Implications for Advisors

Amy Smith and Bryan Garton
University of Missouri

Faculty advisors counsel and advise a wide range of students with diverse needs and expectations. How do you know that you are truly providing what each one needs? And, can you enhance your advising based upon individual student needs and preferences? A recent study explored students' advising needs and faculty advising performance at a mid-western college of agriculture ($n = 726$). The study sought to identify factors contributing to student advising needs. One factor assessed was students' personality/communication styles in academic or work settings as measured by the Insight Inventory®. The Insight Inventory® measures behavioral preferences on the following traits: Getting Your Way (Indirect: Direct), Responding to People (Reserved: Outgoing), Pacing Activity (Urgent: Steady), and Dealing with Details (Unstructured: Precise) using eight items to assess each trait. The trait that yielded the highest mean score was Pacing Activity ($M = 35.26$; $SD = 8.54$), and lowest mean reported was for the Getting Your Way trait ($M = 29.29$; $SD = 7.43$). Results indicated that the largest proportion of College of Agriculture students can be classified as "slightly direct" on the Getting Your Way trait (27.66%), "very outgoing" regarding Responding to People (31.40%), "very steady" with Pacing Activity (34.72%), and "moderate" with Dealing with Details (27.11%). Knowledge of such preferences and categorizations allows for flexing, or adapting, communication styles between indi-

viduals and can improve or enhance communication between advisees and advisors.

Key word: faculty advising, distance education

#292

Using Student Evaluations to Assess Teaching Practice

Eric Kaufman
Virginia Tech

Ann De Lay and Wendy Warner
Cal Poly, SLO

Vargas (2001) noted the influence of student evaluations in assessing the teaching performance of faculty members. Student evaluations can be used for multiple purposes. Retention, promotion, and tenure committees may consult these evaluations during the completion of faculty reviews. Other faculty may utilize the responses to inform the modification of a course or their reflection on teaching. The objective of this study was to review the student evaluation forms used at various institutions. Twelve faculty members in Colleges of Agriculture across the nation were contacted and asked to submit either a hard or electronic copy of the student evaluation form approved by their respective institutions. Directed content analysis was used to analyze the forms using seven principles of good practice in undergraduate education identified by Chickering and Gamson (1987) as a framework. The principles most commonly supported by individual questions on the evaluation forms included: "encourages contacts between students and faculty," "emphasizes time on task," "communicates high expectations," and "respects diverse talents and ways of learning." Very few questions supported the principles of "develops reciprocity and cooperation among students" and "uses active learning techniques." Questions found on the evaluations which did not align with the principles included those related to instructor enthusiasm, the instructor's use of technology, overall rating of instructor's effectiveness, the student's overall rating of course, and student learning as a result of the course.

Key words: student evaluations, teaching performance, teacher reflection

#298

The Moments We Miss: Using Facial Reader Software as an Educational Research Tool

Tiffany Drape, Donna Moore, and Rick Rudd
Virginia Tech

The constant use of technology has changed the way students engage in their educational classes. With constant access to the Internet, students are no longer learning the same way they did ten years ago. How long is too long to lecture, go over notes, or work on a hands-on activity? These questions were raised at Virginia Tech and are being explored in the Department of Agriculture and Extension Education. A Teaching and Learning Laboratory (T&L) was constructed in 2008 to examine students as a learning group, study how they learn, assess their engagement levels, their attention spans, and determine how educators can tailor curriculum in agricultural education to meet the needs of our learners. The lab is equipped with five cameras, microphones, three InfaRed (IR) ports, a SmartBoard system, DVD Recording system, Lavalier microphone, and Polycomm system. The second portion of the T&L Lab is the control room equipped with seven DVR systems, each holding 250 GB of space, a control panel to operate each camera, and a computer to upload data, edit video, and conduct data analysis from the data gathered in the laboratory. The graduate students in the teaching and learning program are using the lab to look at the factors of instructor organization and enthusiasm to determine if these factors affect how students perceive the instructor and the content of a lesson. We are able to use the data collection and analysis software to help enhance our profession and maintain rigor of our academic offerings and research capabilities.

Key words: technology, integration, software

#299

Sustaining the Impact of Communications Skills Development

Eric Kaufman and Richard Rateau
Virginia Tech

Employers consistently cite effective oral communication skills among the top criteria for success of new hires, but often find candidates unprepared in these skills. Research also indicates that students with poor oral communication skills and increased communication apprehension (CA) are linked to lower academic performance and higher college dropout rates as compared to other students. The purpose of this study was to assess the sustainability of learning outcomes and improvements in students' CA levels. During 2007 and 2008, undergraduates at [State]'s land grant universities participated in a required skills based class specifically designed to reduce CA while improving presentation and public speaking skills. Students' CA levels were measured using the Personal Report of Communication Apprehension as developed by James McCroskey. Assessments were completed at the beginning of the term (pre-test), end of term (post-test), and a delayed test approximately six months after completion of the course. Previous research clearly supports reductions in student CA levels as statistically measured pre-test to post-test. The new delayed assessment allowed researchers to verify if declines in CA levels were maintained over time. Statistical analysis of the data shows reductions in students' CA levels were sustained. The findings are significant and support continuation of the communications course for undergraduate students of agriculture. CA reduction strategies have broad applications and positive benefits to the student and their future. The researchers recommend that all college instructors incorporate CA reduction strategies into their curriculum. The results will be a more confident and better prepared graduate entering the workforce.

Key words: communication apprehension, learning outcomes

#300

Assessing Student Perceptions about their Multi-Cultural Competencies at the Beginning and End of a Degree Program

Kimberly Williams, Catherine Lavis, Greg Davis, and Candice Shoemaker
Kansas State University

In response to horticultural industry needs and a university-wide focus on infusing multi-cultural competencies into curricula, faculty in Horticulture at Kansas State University included diversity issues as a programmatic student learning outcome and developed a strategy to introduce and assess them in our curriculum. During their first semester, freshmen and transfer students enroll in HORT 190 *Pre-Internship in Horticulture* (1 credit) and complete a pre-program survey that includes items regarding their perceptions about diversity issues and openness to diversity; multi-cultural competencies are introduced in this course. The same survey is administered at the end of the HORT 190 course. During the reporting phase of their required internship experience, HORT 590 *Horticulture Internship* (2 to 6 credits), students reflect on their real-world experiences associated with diversity issues in the workplace. At the end of their degree program, students respond to the same survey items as in the pre-program survey so that a change in their perceptions can be assessed. Comparison of results from pre- and post-course HORT 190 surveys for fall 2007 and 2008 indicate that student openness to diversity and student perceptions about most diversity issues remained unchanged over the semester; however, students did report a perception of increased knowledge about diversity in the horticultural workplace. When results from two cohorts of students, those graduating in December 2006 and spring 2008, were compared to cohort responses from HORT 190 pre-course surveys in fall 2002 and fall 2004, respectively, results again suggested that little gain was made in infusing multi-cultural competencies into the horticulture curriculum. These data provide a basis for revising our efforts to accomplish student learning outcomes associated with diversity pro-

gramming.

Key words: assessment, diversity issues, multi-cultural competencies

#304

Using “Clickers” to Create Active, Engaging, and Deep Learning Critical Thinking Environments in the Classroom

Gary Bailey
North Carolina Agricultural and Technical State University

This presentation will demonstrate the use of Student Response Technology (“clickers”) to create active learning environments in the classroom. Participants will use RF responders to experience a teaching module designed to teach first-year general education students how to calculate standard deviation (or determine deductive logical relationships) and solve real-world problems using standard deviation as a descriptor of a data set (or deductive logic applications in real life settings). One pedagogical thesis of this workshop is that student response devices actively engage students in deep-process learning in the classroom. The method demonstrated here does not employ responders for typical pre- and post-lecture quizzing. Instead, the class presentation is centered on active-learning questions. Student engagement is facilitated and enforced by the use of the responders. Critical thinking skills are directly engaged and developed by the questions and enforced student engagement. Deep-process learning is facilitated by guiding the students to construct concepts for themselves. The module being demonstrated exemplifies a teaching session designed for University Studies 130 Analytical Reasoning, one of four foundation courses required of all first-year students at North Carolina Agricultural and Technical State University, a land grant institution and HBCU, and one of the 16 member institutions of the University of North Carolina. NCATSU’s general education program is designed to prepare all first-year students for beginning study in their majors by developing transferable, soft skills. UNST 130 focuses on the development of students’ understanding of the nature and meaning of evidence based rea-

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soning.

Key words: active learning, deep process learning, student response technology, clickers

#307

Making Assessment Work for You: Assessing the Effectiveness of Your Own Teaching

Dixie Reaves and Terry Wildman
Virginia Tech

Many departments require faculty to utilize standard evaluation forms to assess teaching of individual courses at the end of each semester. How effective are these evaluations? Who utilizes the data that are collected? What do teachers learn from these evaluations and how do they use that knowledge? Do students take the evaluations seriously? What is the alternative? The University Committee on Evaluation of Teaching at Virginia Tech conducted an online survey of Virginia Tech faculty to determine their perceptions of the Student Perceptions of Instruction (SPOI) evaluation form, the form that is supported at the university level. Eighty-three percent of faculty strongly or somewhat agreed that SPOI are valuable sources of information for instructional improvement, while 71% agreed that faculty members give careful consideration to the data they receive. Forty percent agreed that the instrument provides adequate information to help improve teaching. Fewer (33%) agreed that students give careful consideration to their completion of the forms. Eighteen percent indicated that they used a department-specific form. Eight focus groups yielded a number of faculty concerns about evaluation of teaching, with an emphasis on the peer evaluation process. There is general agreement that assessment of teaching quality is important: results can be used for self-improvement, in annual faculty evaluations, and as part of the promotion and tenure process. However, improvements in the teaching evaluation process are warranted. Suggestions for assessment that can augment standardized evaluation forms will be provided, and participants will be asked to share success stories from their own departments.

Key words: teaching evaluation, peer review of teaching

#308

Worth of the Individual: Biblical and Economic Paradigms for Enhancing Academic Advising

Robert O. Burton Jr.
Kansas State University

One of the three courses of action recommended by Kansas State University's Advising Enhancement Task Force is "cultivate a university culture that is favorable to effective academic advising." "Worth of the individual," was identified as an important attitude associated with the recommended university culture. The purpose of this paper is to conceptually address the question: Why are people valuable? As a Christian Economist, I will use two sources to address the worth of the individual: 1) Biblical Christianity and 2) Economic Theory. What potential exists for paradigms from these two sources to enhance academic advising at a pluralistic university? The focus on Christianity and economics is not meant to ignore the contributions of other religions and social sciences; however, the author is an agricultural economist who has some knowledge of Christianity. The Bible teaches that people have value because of creation, redemption, and potential productivity. Economic theory teaches that people have value as members of society, as long-term investments, and as a source of utility. The biblical paradigms provide strong incentives for Christians to value individuals. Cultivation of a university culture based on Biblical Christianity would likely enhance advising at a Christian university and would also likely enhance advising by Christians at a pluralistic university. However, it is not realistic to expect non-Christians to adopt and apply the Bible. The economic paradigms based on the individual as a member of society and as a long-term investment would likely appeal to some economists; but could be unacceptable and even offensive to people who do not want to value individuals based on their contribution to society and their monetary value. The utility maximization paradigm is the most useful at a

pluralistic university, because it allows diversity and inclusiveness. A person's utility maximizing behavior allows people to incorporate the attitudes and actions associated with biblical and economic paradigms discussed in the paper, as well as, attitudes and actions favorable to valuing individual's that are beyond the scope of this paper. Having a utility function that causes people to value individuals could be a criterion for selecting people to serve as academic advisors. **Note:** The views expressed in this abstract are my own and are not intended to express the views of Kansas State University.

Key words: individual, value, advising

#315

A 50th Birthday Party for Valuable Chickens: Awareness and Conservation of Random Bred Poultry Stocks

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Robert Renema and Douglas Korver
University of Alberta

Capturing and maintaining public interest in agricultural issues that do not have an immediate real connection with food consumers can be a challenge for ag educators. An example of this is rare breed conservation. The University of Alberta maintains random bred populations of three lines of commercial broilers, including one that was initiated in 1957. In 2007, a high profile "birthday party" for these chickens was arranged to celebrate the strain's longevity. Specific objectives were to raise public awareness of the valuable genetic stocks that were being preserved at the University, and to recognize the contributions that Canadian poultry geneticists have made to the development of modern poultry stocks. Six geneticists who contributed in some way to preserving the random bred populations or in developing them initially were invited to participate in a celebration ranging in content from stories by the reminiscent geneticists, to extension relating to research con-

ducted locally with the random bred strains, to an impressive birthday cake. A successful public relations effort resulted in three local radio interviews, one television interview, and coverage in local print media. At least seven news agencies picked up the good news story that these strains can be used to measure genetic progress and to salvage traits which may unintentionally disappear from commercial populations that have undergone many generations of selection for performance traits.

Key words: ag awareness, community, public interest, genetic preservation

#316

Connecting Researchers with the Agricultural Community through the Performing Arts

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Alberta Agriculture and Rural Development

A creative and educational approach to communicating science information to a community of 150 egg producers was developed. The event, titled "CLUCK – The Science behind the Hen House Doors," involved drama, music and commentary to deliver science information about laying hen housing, physiology, husbandry and the future of the industry. This program was initiated to connect with poultry producers, the majority of whom had minimal secondary and post-secondary education. Furthermore, most of the audience had very restricted access to information delivered through popular press or electronic means. To support the live show information presented, handouts written in producer-friendly language received a 92.4% approval rating. Evaluations of the event with categories of excellent, good, okay, or poor indicated that 93% of the audience felt that the event provided good or excellent entertainment value and 98.9% of the attendees felt that the program provided good or excellent educational value and that they would attend a similar event in the future. Producers identified science topics and issues that they would like more information about in this new forum plan. By all accounts the event was a success with comments such as "Congratulations, I would have never predicted

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this to be such a success! Good call! We all learned something,” or “Good job, after 12 years as a producer I learned a lot.” A DVD has been produced and small vignettes are being prepared to be posted on the Internet. Examples of format and information of the program and producer feedback will be presented.

Key words: community, performing arts

#317

Evaluating Integrity of the Teaching/Learning Environment

Mark Headings
Ohio State University- ATI

In order to maintain a high level of integrity in the educational process, it is imperative that all parties involved adhere to high standards of honesty and authenticity. The objective of this investigation was to collect and analyze student input regarding the issues of honesty and cheating in school. Students were asked for responses to a brief set of questions which were subsequently compiled and analyzed to determine average response values. When students were asked whether they have ever cheated in school, an average of nearly three-fourths of them indicated they have done so. Likewise, when asked what percent of students they think cheat in school, the average response was that 62% (nearly two-thirds) do so. Responses also indicated that although a surprising number of students admit to cheating in school, and believe many other students do the same, most do not believe it is okay to cheat or lie and also believe there are consequences later even if they don't get caught doing so. Instructors can certainly offer ideas why students elect to take short cuts and steal information from others without expending the effort to work for it themselves; however, it may be useful to ask those students who admit to cheating why they chose to do so. The information gathered could be useful in addressing the issue of integrity of the teaching/learning environment. That is a topic for further investigation.

Key words: integrity, honesty, cheating, teaching/learning

#318

Developing Recruitment Strategies: Student Evaluations of Marketing Materials

Kelsey Hall, Stayton Bonner, Lori Dudley, and Megan Mitchell
Texas Tech University

Studies have evaluated materials used to recruit potential college students. This study's purpose was to discover what materials and techniques attract students to enroll in the Department of Agricultural Education and Communications at a southwestern university. The Theory of Planned Behavior was used to explain students' intention to choose a major. Three focus groups with 15 undergraduates from the department discussed reasons for choosing their major, sources of information, and preferences for recruitment materials. Researchers with qualitative experience reviewed the moderator's guide. An agricultural background and experience in speaking competitions influenced participants' selection of their major. Parents, high school agriculture teachers, and 4-H advisors were influential individuals. It is recommended that the department send materials to agriculture teachers and Extension professionals. Since University Day, livestock shows, and campus visits with faculty were sources of academic major information, the department and college should continue participating in these events. Participants liked the color and layout of the department's brochure but wanted photos of students demonstrating skills. Participants preferred to receive a department pen as a recruitment item. Some participants thought a personal letter should be sent with a brochure to those who contact the department. Previous studies recommended having a reply card, a newsletter, and campus visit schedule sent with personal letters. The literature review and focus groups effectively discovered these recruitment items for the department: a brochure, personal letter, reply card, campus visit schedule, newsletter, or a pen. Agriculture colleges can adopt this method to discover effective recruitment materials for their departments.

Key words: college recruitment, focus group methodology, marketing

#321

Agricultural Communication Program Evaluation using a Focus Group

Chris Morgan
University of Georgia

Academic programs are preparing students to enter specific career fields, but how do faculty know if their graduates are meeting the needs of stakeholders? One method is to use a focus group to engage program graduates in a discussion about current competencies and skills needed by students entering the career field. In this study, the focus group technique was used to determine the competencies needed by agricultural communication program graduates so they are properly equipped for their career. A conference call with alumni was conducted to gain insight into the current competencies graduates need. A cross section of older and recent graduates was purposively selected to represent managers that may be hiring current graduates and new entrants to the career field who are cognizant of the skills which are most needed. Participants stated the following competencies were important for graduates to possess: writing skills, in particular magazine writing skills, public speaking skills, an internship or other career-type experience, a solid understand of new media and Web 2.0 technology, a broad agricultural background, an understanding of policy, especially as it applies to agriculture, and marketing. In addition, a strong work ethic was desired in graduates. The information gathered will be used to evaluate an agricultural communication program by comparing the competencies revealed in this study to the competencies currently taught in course. This method of program evaluation may be useful to other disciplines desiring to evaluate their curriculum as well.

Key words: agricultural communication, focus group, program evaluation

#331

Preparing Students: The Discussion of Diversity Inclusion and Cultural Competence in the Classroom

Keyana Ellis
Virginia Tech

You hear the word diversity and you cringe; at the word cultural competence, you may wince. However, the need to effectively discuss diversity in an educational context is clear and even required to help students to make sense of both their discipline and the world. Yet, still in agricultural education, and ultimately every discipline, challenges emerge in addressing diversity due to the sensitive nature of the topic. National initiatives identify the support for educators to adopt unique teaching approaches to improve the success of students enrolled in agricultural and related sciences programs. This support is designed to prepare these future professionals for their participation in tomorrow's demanding workforce, which will indeed include a diverse, global set of employees from intricately varied backgrounds. The educational and social implications of neglecting the appropriate discussion of diversity in the classroom, through the angles of inclusion and cultural competence, present our students with a total disservice- the potential to not be able to thrive productively through collaborative relationships. Many educators express the need for both tools and the know-how to carefully inject diversity into their curriculums to provide for meaningful learning. The researcher looked to find innovative, yet effective, methods to tackle the present challenges in discussing diversity inclusion and cultural competence. Through content analysis of documented approaches, the following themes developed: the teacher's role; historical and contemporary context; integrated link to content; social responsibility; discovery and exploration; critical analysis through connecting student's lived experiences and perspectives; and reflection.

Key words: diversity inclusion, cultural competence, workforce preparation

#332

Team Exams: Learning Teamwork through Experience

Andrew Barkley
Kansas State University

Team examinations were administered in two courses during the past year: Honors Principles of Agricultural Economics, and Intermediate Microeconomics. The purpose is to provide an experience that promotes development of effective teamwork, and high levels of learning. This paper explores the motivation, implementation, and outcomes of administering team examinations in a college classroom. Students were randomly assigned to teams of four students. Each team was given four oral examinations during the semester, where each team member answered different questions about course content. The four individual grades are summed for the team grade, and each student receives the team grade. Team exams comprised thirty percent of the total grade in the course. Team exams created a high degree of uncertainty and stress among students prior to the first exam. For almost all students, this is a new experience was far outside of their "comfort zone." After the first team exam, however, most students realized the benefits of the examination format. These benefits include working together on a shared goal, camaraderie, the ability to interact with the instructor during the exam, and higher levels of learning and achievement. Some students struggled with their grade being determined by other team members, and under prepared students bore the consequences of lowering the team grade. Overall, a majority of students concluded that team exams provided a superior learning environment than individual written exams. Both benefits and costs of team exams will be assessed, with strategies for maximizing student learning, development, and growth.

Key words: team exams, assessment, effective teamwork

#336

How to Teach the Experts: Lessons in Using Information Technology to Teach Globalization in your Classroom

Amanda Evert and Ed Zweiacher
Redlands Community College

It is our belief that every aspect of students' agriculture education should have a global connection. At Redlands Community College in El Reno, Oklahoma, the Division of Agricultural and Equine Sciences has endeavored to improve students' educational experiences and future career successes by injecting lesson plans designed to improve agricultural students' competencies in communications, technology, and international studies. In our program students have learned to use popular Internet technologies such as YouTube, Facebook, Twitter, and Second Life for practical agricultural industry projects. Unfortunately, we cannot send everyone on a study abroad trip. By utilizing available technology, we can give students a firm foundation in global markets, societal issues, cultural differences and relationship building. Our traditional college students are generally very savvy operators of technology. Yet, convincing students that there is a world of knowledge available beyond what they can find by conducting a Google search is a challenge facing many educators. Teaching students to successfully mine the resources available to them is necessary to the success of our future society at a regional, national, and global level. All courses in the Agriculture and Equine Sciences Division have added communications, technology, and international components between the spring of 2005 and the spring of 2009 semesters. Examples of some of the core classes impacted include Animal Science, Agricultural Computers, Plant Science, Equine Science and Agricultural Communications courses. Through these classes, 100% of our graduates gain experiences with the latest in agricultural technologies and international developments while completing their course work.

Key words: global education, Internet technologies

#339

Raising Awareness of Industry Topics in an Equine Science Seminar

Kari Turner
University of Georgia

There appears to be a lack of understanding of important controversial equine issues within students. As future animal science graduates, these students need to have an understanding of the topics currently being discussed in the industry. An equine science seminar course incorporated debates and letter writing to increase critical thinking, and thus awareness of certain topics. Students were given a pre- and post-course survey to evaluate their position on several topics. For a few topics the students were placed into groups to debate positions opposite of their initial views. For other topics the students were randomly assigned to a position. If the student was not placed into a debate group for that particular topic than they were required to develop five relevant points pertaining to the topic. Students were also required to send letters to the United States Congress, encouraging politicians to vote one way or another on bills pertaining to horse slaughter. They also were required to submit a second letter to the person/organization of their choice, expressing their opinions. Post-survey results revealed that students' awareness of the topics was increased. Viewpoints on several topics were changed ($p < 0.06$), and most dramatically within the topic in which they were assigned sides opposite their views ($p < 0.01$). Students felt they were qualified to let their opinions be heard, and knew of ways in which to voice their opinions, both of which were not true at the beginning of the course ($p < 0.01$). The use of debates appears to be effective in raising awareness.

Key words: raising awareness, seminar course

#340

Using Student Learning Outcomes in Course Design and Implementation

Candice Shoemaker
Kansas State University

Student learning outcomes (SLOs), if written well, can guide an instructor in all aspects of a course from preparing lectures, to defining assignments, to writing exams. Additionally, SLOs can guide students as they participate in lectures and labs, do assigned readings, and study. Three to five SLOs were written for each of seven units for the Principles of Horticultural Science course, the foundation course for all horticulture majors. Specific strategies were implemented by the instructor to reinforce the SLOs throughout the semester. A pre- and post-assessment was given to the students enrolled in the course in the past three fall semesters to determine if the SLOs were being met. The assessment was a list of 50 statements reflective of the student learning outcomes. The students were asked to indicate how confident they were in being able to do the statement on the day of the test (5 = very confident to 1 = not confident at all). The pre-assessment was given on the first day of the semester and the post-assessment was given on the second to the last day of the semester. The average pre-assessment scores showed the students did not feel confident in being able to do any of the 50 items. By post-assessment, students were approaching being very confident in being able to do six items and confident in being able to do 22 of the items. Questions about the SLOs were also included in the teacher evaluation survey given at the end of each semester. The process, results, and implications for course design will be presented.

Key words: student learning outcomes, course development

#343

Analyzing the Academic Profile of Students Utilizing Peer-led Study Groups in Undergraduate Animal Science Courses

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Peer-led group tutoring has been identified as a best practice approach to increase retention and graduation for disadvantaged undergraduate college students. This study examined the extent of student participation in peer-led study groups and analyzed the academic profile of students who voluntarily participate in peer-led study groups. Twenty-two classes derived from five courses over ten years were selected for peer-led instruction based on prior student course performance, enrollment, and rank. Faculty and staff selected peer instruction leaders based on past academic performance in the course. Statistics were performed using SAS. Students in the Associate of Applied Science program (technical degree) attended an average of 2.2 ± 3.3 study sessions vs. 1.8 ± 3.1 for Associate of Science (transfer) students. There was no statistical difference in study group participation between: males vs. females; first generation vs. non- first generation students; low incomes, moderate, and above income; and students with documented disabilities vs. students without disabilities. Students with grade averages, $GPA \geq 2.0$, were more likely to attend study sessions 2.3 ± 3.4 compared to students with $GPA < 2.0$, 1.1 ± 2.3 . Study session attendance for both groups ($GPA \geq 2.0$, $GPA < 2.0$) was positively correlated with course grade ($r = 0.20$, $p < 0.001$), ($r = 0.17$, $p < 0.05$) respectively. Attendance was positively correlated with GPA ($r = .19$, $p = < 0.001$) only for students with $GPA \geq 2.0$ suggesting those students most needing tutoring are less likely to attend the study groups.

Key word: peer tutoring

#344

An Assessment of Student Perceptions to a Controversial Course in Animal Agriculture Taught Online

Laura White and Dale Layfield
Clemson University

In a time of economic challenges, colleges and universities are rapidly pursuing innovative instructional delivery mechanisms that will meet needs of a diverse clientele base. Through use of online delivery, summer coursework for many of the working traditional land-grant college students is now a viable option. Seventeen students in the Department of Animal and Veterinary Science enrolled in a summer 2008 web-based course, Contemporary Issues in Animal Agriculture. Primarily, the nature of this course was to engage students in debates of animal science-related topics via discussion boards. The objectives of this study were to assess student perceptions and comfort levels toward discourse of controversial issues in an electronic environment. Students reported that they were "very to extremely comfortable" ($M = 4.75/5$) giving their opinion in a discussion board format. The same findings were revealed when students were asked if they were more comfortable in this format than had the course been taught in a classroom. Further, students said they would recommend that the course be offered in an online format in the future ($M = 4.75/5$). Students may be more comfortable with controversial issues when not debating face-to-face with peers and instructors. In addition, open-ended responses to other questions were collected. From the positive reactions of the students and the magnitude of their efforts, this course is deemed a success and plans are underway for future use of this venue. The instructor is also considering additional Web 2.0 tools that will enhance the discourse levels of the students.

Key words: distance education, animal science, student course perceptions

#350

Math Training for Agricultural Economists Program

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University of Kentucky

Key words: math literacy, technology-enhanced learning, problem-based learning

The growing gap between undergraduate curriculum and requirements of graduate programs, the lack of math skills stand in the way of successful progress for many Agricultural Economics students. We describe a newly developed program at the University of Kentucky and supported by the HEC USDA grant Math Training for Agricultural Economists Program. The program was designed with two main goals in mind: to help graduate students to develop the necessary math skills, and to address common cognitive problems they have, such as *cognitive overload* and *contextual understanding*. The program consists of four separate components: online math modules, Boot Math Camp, a theory class (covers static and dynamic optimization), and an application class (focuses on incorporation of math techniques in the economics analysis). The primary innovation factors are the online (technology-enhanced learning) and application (problem-based learning) components. The online component includes a comprehensive set of modules (from basic calculus to dynamic optimization) that contain a concise overview of the theory, applications of the theory to the specific economics problems, solution algorithms for typical problems, and examples of solved problems. At the end of each module, individualized problem sets are created by drawing randomly from an extensive bank of problems. An online automatic grading system provides immediate feedback on completed problem sets. The application class is designed to overcome a contextual understanding of basic and more sophisticated math techniques. The initial assessment of the program (students' grades and evaluations) suggests that this new approach is highly effective.

Poster Abstracts

#1

Defining a Global Learning Environment in Higher Education: A Case for the Global Seminar Projects

James McKenna and Tamara Savelyeva
Virginia Tech

The global learning environment (GLE) was defined in the Global Seminar Project (GSP) to address the issues of change in higher education under the pressure of globalization. A combination of constructivist theory and a deep learning concept provided the framework for answering the following questions: What project components make the course global? and in what ways does Global Seminar contribute to deep learning? Three forms of data collection, including in-depth, open-ended interviews of 20 GSP's instructors; 11 direct observations of the GSP classroom; and analysis of GSP's written documents and artifacts. The research findings brought about two co-dependent understandings of the GLE as a conceptual and practical model. Applied to an educational practice, GLE forms a constructive and participatory model: shifting from mass-production knowledge to genuine quality education based on the values of teachers.

Key words: global learning environment, deep learning

#66

Networks of Communication among Students in a College of Agriculture Course

Don Edgar, Leslie Edgar, and Timothy Killian
University of Arkansas

In today's higher education classrooms, students can readily access information and communicate with their peers through diverse formal and informal means. These student interactions can aid in knowledge acquisition and immediacy

to their peers and occur anywhere and at any time; whereby proximity being non-essential. Constructivism emphasizes the creation of understanding through experience. Furthermore, it has been explained that students constantly create knowledge through personal experiences. Social interactions have been espoused as affecting behavior. These interactions must be recognized as tying experience to learning. Social network analysis (SNA) focuses on understanding the nature and consequences of links or ties between individuals and/or groups. This longitudinal study consisted of all students from the fall 2008 semester at the University of Arkansas (N = 117) enrolled in an introductory college of agriculture class. Data were collected at the beginning and end of the semester from all registered students. A researcher-developed instrument was used to assess interaction(s) between students and self reported technology skills. This study defines how networks change for incoming freshman and what implications the networks had on teaching and learning. It further evaluates their perceived technology skills and means of communication. When examining data of initial networks formed, a huge discrepancy of detailed networks is seen. Although commonly seen in courses of this type, data from this study will be used to validate those thoughts and evoke practices to encourage more social learning processes.

Key words: communication, social networking, learning, interactions

#69

Utilizing Background Knowledge Probes: What do Students Know about Safety in the Mechanics Laboratory?

Ann Marie VanDerZanden and Michael Pate
Iowa State University

University instructors are faced with the ongoing challenge of how to balance time demands. The allocation of teaching time for course material is one such burden. Background knowledge probes are classroom assessment techniques that have been suggested to help teachers de-

termine the most effective starting point for a given lesson and the most appropriate level at which to begin instruction. An experimental course, *Methods for Teaching Agricultural Mechanics*, utilized this assessment technique to determine students' level of knowledge regarding safety in agricultural mechanics as a means to focus formal instruction towards students' safety knowledge deficiencies. Six of the eight students enrolled in the course participated in this study. Prior to beginning safety instruction a background knowledge probe consisting of 41 safety questions was given to students. Of the 41 questions, the seven related to safety equipment, safety color codes, safe laboratory attire, safe working conditions, and how to interact safely while working in the laboratory were answered incorrectly by one or more students. After a week of instruction, the same probe was given to the students. Results showed improvement of student knowledge regarding these prior deficiencies, however, two students showed new deficiencies in safe welding practices. With the exception of this one question, students improved their overall knowledge regarding safety in agricultural mechanics. Specifically addressing the deficiencies seen in the background knowledge probe was beneficial to student learning.

Key words: knowledge probe, pre-test, post-test, classroom assessment

#73

Using Action Learning Sets to Assess the Effects of Entrepreneurship Programs on Students' Entrepreneurial Behaviors

Kiumars Zarafshani
Razi University, Iran

Cultivating an enterprise culture is one of the highest priorities in Iran's higher education system. Whatever their outcomes are, previous studies have shown that entrepreneurship courses can develop an entrepreneurial mentality among students. This qualitative research aims at providing an analytical understanding of the influence of entrepreneurship courses on entrepre-

neurial behavior as perceived by entrepreneurial educators in College of Agriculture. We chose to address entrepreneurial educators instead of students to obtain an assessment of such programs' impact. We thus conducted 12 action learning sets with five entrepreneurial educators, which provided us with two types of data: First, a description of curricula design, teaching strategies and pedagogical approach; second, an evaluation of the perceived influence of entrepreneurial teaching among 36 students who have taken the entrepreneurship course in College of Agriculture. The purpose of the action learning set was to establish an interactive environment in which each educator shares their evaluative judgments with one another. Even though we did not have a control group, the results from action learning sets strongly suggest the effectiveness of entrepreneurship program on behavioral level. For example, during action learning sets, educators described how their curricula design, teaching strategies, and subject matter motivated students to start-up a business. Moreover, the action learning sets made it possible for entrepreneurial educators to collaboratively assess entrepreneurship programs and thus became a cooperative learning opportunity for all educators.

Key words: Action learning sets, entrepreneurship education, agriculture, mentality

#74

Preparing the Undergraduates to be Successful in Research

Sha Li, Yong Wang, and Yujian Fu
Alabama A&M University

In the summer of 2008, the Department of Natural Resources and Environmental Science at Alabama A&M University (AAMU) conducted an REU program (Research Experience for the Undergraduates). This program provided a good learning opportunity for the undergraduate students various universities to work on researches in science subjects of natural resources and environmental science. Students experienced the learning activities in field experiences, quantitative statistic methods, and qualitative lab methods to collect and analyze data to draw findings by using cutting edge technologies. The unique-

ness of this REU program on the AAMU campus is that the majority of the student participants were minority students, and there were also two high school students recruited. The students' research presentation displayed that they were very successful in research design, data collection and data analysis. The descriptive statistics data and the open question survey indicated that both faculty and students showed high satisfaction about the research results and their attitudes were very positive toward the REU experience in terms of acquisition of the subject knowledge, research skills, social network, self-image, and the increased confidence in pursuing higher degrees in natural resources and environmental science. The REU experience also contributed to the faculty/staff's better understanding of how to teach minority students to conduct scientific research successfully and how to attract more undergraduate students into the disciplines of agriculture, natural resources and environmental science.

Key words: undergraduate research

#82

Windward Community College Plant Biotechnology Graduates – Accomplishments and Contributions

Ingelia White
Windward Community College

Agribiotech companies in Hawaii need highly trained and skilled biotechnologists. Windward Community College has developed and has offered an Academic Subject Certificate in Plant Biotechnology (ASC-PB) since 2002. The program is supported through USDA-CSREES-SERD grants. A total of 26 credits are required to receive the certificate. The graduates are prepared for careers in biotechnology, bioprocessing entrepreneurship, and transfer to higher degree institutions, majoring in disciplines such as agribiotechnology, horticulture, biology, pharmacy and pre-medicine. Hands-on learning and research training are accommodated through campus biotech facilities: the Tissue Culture and Plant Biotech Facility, the Kuhi La'au – Tropical Plant and Orchid Identification Facility, the climate-controlled greenhouse, and the Bioproc-

essing Medicinal Garden Complex. Collaborative research, training, and mentorships have also been established with research institutions and biotech companies to facilitate immediate employment. An average of seven ASC-PB graduates are produced per year. Forty-five percent of graduates have entered the plant biotech workforce, 67% have transferred to higher degree institutions, and 33% have become bioprocessing entrepreneurs. The total number reflected is higher than 100% due to graduates engaging in multiple roles, e.g. student as well as biotech employee. Six undergraduate student research papers have been published in scientific journals. In addition, the first in a series of Ethnopharmacognosy booklets containing student research projects have been published.

Key words: plant biotechnology, pharmaceutical, nutraceutical, ethnopharmacognosy, bioproducts

#83

Student Perception on Virtual Office Hours (VOH)

Kimberly Moore
University of Florida

Ways to increase student/instructor interaction in web and distance education courses include the use of email, chat rooms, phone conversations, and virtual office hours (VOH). I define a VOH as synchronous contact between the instructor and a student using computer based microphones/cameras and a communication software program. My objective was to survey student perception on the use of VOH in my web course Retail Florist Shop and Garden Center Management. Students enrolled in the spring 2008 and summer 2008 sections were asked to complete a five question survey (76% response rate). Student responses to the survey questions were ranked and the rankings were analyzed using ANOVA. All students surveyed agreed that contact between the instructor and student was either very important (5.0) or important (4.0). The preferred methods for interacting with professors were email (4.0) and chat rooms (3.0) while phone was the least preferred method (1.0). The students rated their experience with VOH as excellent (4.0) or above average (3.0).

The students who rated their experience as average or OK also were the students who had trouble logging into the virtual office or had trouble with their camera/microphone (spring 2008). When asked to compare their experience in the virtual office to a traditional office meeting, students remarked that they enjoyed the virtual office (4.0) or that it was similar to traditional office meetings (2.0). Students did not think that the technology interfered or hindered their learning experience. From these preliminary surveys, it appears that in addition to email and chat rooms, the use of virtual office hours give instructors another venue for interacting with students in web courses.

Key words: web courses, interaction, technology

#88

Taking the Profession to New Heights

Amy Smith and Misty Lambert
University of Missouri

Have you ever found yourself tossing tennis balls, building bridges, handling toxic waste, or climbing 60 feet into the air while at a professional conference? If you attended the 2007 North Central American Association of Agricultural Educators, the answer may be "yes." As the conference host, the University of Missouri aimed to incorporate recreation and social activities with a primary goal of educating through experience. Participants were provided opportunities to explore and create knowledge using all their senses. In addition, they were asked to reflect on their learning and its application - a critical piece of experiential education. Faculty, graduate students, and trained university employees from the host institution facilitated the activities. They supervised the experience and led debriefing discussions. Facilitator guides, were provided for all participants, which outlined the objectives, group size, time required, supplies needed, physical setting, process, variations, debriefing questions and references. Four hours were allotted for the experience. Sixty-six faculty and graduate students attended the conference, with nearly all participating in this professional development session. All attendees seemed to enjoy the opportunity to interact with one another. Comments were expressed by par-

ticipants regarding the innovativeness of the activity. Participants benefited from experiencing new learning activities that they could use at their home institutions. It is recommended that future conference planners seek to incorporate similar offerings. Not only would such offerings expand the leadership development opportunities for attendees, they would also present an opportunity for socialization while engaging in discipline-related activities.

Key words: experiential learning, professional development

#89

Job Satisfaction and Teacher Efficacy among Agricultural Educators

Rebekah Epps, Ryan Foor, and Jamie Cano
The Ohio State University

An individual's beliefs in competence play a major role in factors of job satisfaction. Teachers who believe in their ability to positively influence students are generally more satisfied. However, when a certain teacher leaves the profession, a level of job dissatisfaction is implied. It is necessary to understand factors related to job satisfaction and teacher efficacy. The objectives of this study were to describe secondary agricultural educators' demographic characteristics; describe the level of job satisfaction and teacher efficacy; and determine the relationships between the demographic characteristics, job satisfaction, and teacher efficacy. Membership of the National Association of Agricultural Educators served as the population for the study. A random sample of 361 individuals was drawn based on an alpha level of .05. Data were collected in two waves resulting in a 49% response rate. The researchers controlled for non-response error. Overall, agricultural educators were satisfied with their jobs. In terms of teacher efficacy, agricultural educators possessed a high level of teacher efficacy. Negligible and low relationships were found between the demographic characteristics and job satisfaction and teacher efficacy. Substantial relationships were found between job satisfaction factors and teacher efficacy factors. The strong relationships between job satisfaction and teacher efficacy factors pro-

vide insight to factors related to teacher retention.

Key words: teacher efficacy, job satisfaction, secondary agricultural education

#90

Statewide Community College Soils Curriculum

Michael Swan
Washington State University

The primary goal of the Agriculture Center for Excellence is to support the Agricultural Industry in the State of Washington by enhancing the agriculture and agriculture-related educational programs offered at Community Colleges and Technical Colleges. By developing partnerships with key industry members and economic development agencies in the Agricultural Industry, the Center develops innovative training programs that help meet the emerging training needs. This includes the expansion/strengthening of existing programs and creation of new program options to meet the education and training needs of an industry that now includes rural, urban and related agriculture dimensions. In 2006, the ACE held several meetings where discussions were held with 25 faculty from ten community and technical colleges (CTCs) across the state about courses that were common across many degrees and disciplines. Basic Soil Science was identified as one of those courses. A follow-up meeting was held with instructors in the Soils programs at the CTCs and Washington State University personnel. At this meeting, the faculty identified several core topics which they felt needed to be included in any soils course taught in the college system in the State of Washington. They also felt that it was important for a course in Basic Soils to have a laboratory component to the instruction. They developed a list of laboratory topics that they felt should be covered when instructing a course in Basic Soils. (The Basic Soils Manual and Outline will be made available during the poster session and will be made available free of charge to participants via a download.)

#96

Preparing Future Secondary Agriculture Teachers to Teach Students with Learning Disabilities

Paula Faulkner
North Carolina Agricultural and Technical State University

Connie Baggett
The Pennsylvania State University

Agricultural education has evolved from a once "strictly for farmers and rural persons" program to a more diverse, multicultural program. As a result, the enrollment of students with disabilities has increased and the expressed needs of pre-service teachers to receive additional support for teaching students with learning disabilities. This study examined the practices covered in pre-service programs to prepare pre-service teachers to teach students with learning disabilities. The objectives were: 1-What professional/personal experiences do teacher educators and pre-service teachers have relative to working with students with learning disabilities? 2-What practices do teacher educators cover in pre-service programs to prepare pre-service teachers to teach students with learning disabilities in secondary agricultural education programs? and 3-What practices do pre-service teachers receive in pre-service programs to teach students with learning disabilities in secondary education programs? A purposive sample of agricultural education teacher educators and pre-service teachers were selected for the study. Survey instruments were developed to collect data. Descriptive and inferential statistics were used to analyze the data. The study revealed that both groups reported cooperative pairs/groups as the most covered instructional technique and extended/extra time as the most covered accommodation in pre-service programs. Pre-service coordinators ($p=.062$) and teacher educators ($p=.02$) whose programs received accreditation from their State Department of Education and NCATE covered more accommodations. It is recommended that teacher education programs designate one faculty member as the special education contact for the program and provide in-service and/or pre-service training for pre-service teachers during

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and upon completion of their pre-service program.

Key words: teacher education, special needs, students with learning disabilities, agricultural education

#104

Collaborative Development of Global Fiber, Fabric and Related Products Industry based Problem-Solving Modules for Undergraduate Curricula

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This three-year project addresses the growing need for problem-solving from a global perspective within the fiber, fabric and related products manufacturing and distribution workforce. The project is being conducted through collaborative partnerships among faculty at three U.S. institutions and faculty at collaborating institutions in Thailand, Australia, and Russia, as well as industry and trade representatives in the collaborator countries.

We are currently in Phase II of this three-phased project. Phase I involved the collection and analysis of data from interviews conducted with industry professionals within the US, Russia, Thailand, and Australia. As will be discussed in the presentation, input from participants was sought regarding the skills and abilities needed by graduates, and, in Phase II, is currently being used to shape the design of globally-based learning opportunities and projects that will take the form of modules to be introduced across the fiber, fabric and related products curricula.

Phase III will conclude the project with implementation of the modules and assessment of module content relative to the project goals. Integrating cutting-edge web-based instructional technologies, the modules are being designed to bring courses up-to-date by infusing research based on relevant industry issues, and in a manner that addresses the inherently global nature of these issues. Project objectives were developed to be interrelated to ensure that the products and results of the project are relevant to industry needs and will prepare the future workforce through breadth and depth of exposure to real world industry issues and challenges requiring global problem-solving skills.

Key words: global learning, fiber industry, fabric industry, workforce

#107

From Problem Solving to Problem-Based Learning: Exploring Theories, Approaches, and Strategies

Jolene D. Hamm and Thomas Broyles
Virginia Tech

Previous researchers have identified problem solving as a key component for the development of a productive functioning member of society and through exploration of the literature a foundation for the implementation and assessment of the problem solving approach emerges. The researchers provided an exhaustive review of the literature describing the problem solving approach, the theoretical basis of problem solving, current research, and the need for additional research in the area of assessment. From Newell and Simon's cornerstone research in problem solving, foundation strategies such as heuristics, insight, and trial and error were developed. The implications of problem solving research manifest in the present day strategies of generate and test, means-ends, analogical reasoning, brainstorming, discovery learning, and the incorporation of those strategies into problem-based learning. Knowledge acquisition, expert interaction, and how a problem is defined are the three mechanical concerns for the usability of problem solving strategies. Problem based learning is an educational approach that can incorporate pre-

sent day problem solving strategies. Problem based instruction affords educators an opportunity to provide students with a guided experience to solve ill-structured problems. Due to problem based learning being context specific, having no right or wrong solution, and based on knowledge and skills acquisition, problem-based learning allows for the implementation of diverse domains and for development of critical thinking skills. Thus, problem solving can be synthesized in the classroom through the use of problem-based learning and incorporation of problem solving strategies based on the learning context.

Key words: problem solving, problem based learning, assessment, strategies, theory, approaches

#108

Learner-Centered Approach: Enhancing Student Learning through Assessment

Thomas Broyles and Jolene Hamm
Virginia Tech

Learner-centered approach (LCA) although not a theory gathers techniques from other theoretical categories such as cognition, metacognition, and motivation. Critics argue that LCA builds on other theories, there is no provision for evaluative assessment, and assessment using this pedagogy is subjective. The purpose of this study was to describe learner-centered approach, discuss the theoretical basis, and discuss current research in the area of assessment. From this exhaustive literature search, findings conclude that learner-centered pedagogy focuses on teacher instructional styles and incorporates the students' insight into cognition. Furthermore, this approach values student perceptions and understand that students have individual differences including coming from various backgrounds which includes learning. In LCA, assessment is meant to enhance student learning and provide feedback. Two common methods are self-assessment and peer assessment both assist the learner in development of analytical and critical skills. The implications show that when teachers effectively use this approach they treat the student as a cooperative partner in the learning process. Additionally, there must be

close examination of the needs of the learner based on learning style and the need for assessment of both the learner and the learning. From this, educators develop learning experiences more, allow for student innovations, create learning climates, examine feedback with a critical view, and make changes accordingly. In summary, a key factor in learner-centered pedagogy is that both the instructor and pupil learn from tasks and assessment used in learning and engagement, and assessment changes from an evaluation to an additional learning measure.

Key words: learner-centered, assessment, pedagogy

#109

Preparing Global Ready Leaders in Agricultural and Life Sciences

Charlotte Emerson and Kirby Barrick
University of Florida

This grant was designed to help CALS students further develop leadership skills. During the spring 2009, thirty exceptional academic students will be selected after applying for CALS LI (College of Agricultural and Life Sciences Leadership Institute) through: an initial nomination ballot, submission of a resume, two letters of recommendation, and a personal interview. Beginning in fall 2009, these students will have an opportunity to prepare to become top leaders in their professional field or industry of study, through this new leadership program, CALS LI. During the 17-month program, CALS LI will allow students to analyze their personalities and leadership styles. With close guidance from a personal mentor, group and workshop experiences, leadership modules, a 50 hour practicum, and non-credit classes, students will move beyond the academic study of leadership development, into a real life application of leadership theories. After completing all program requirements students will receive a certificate of completion and further their global learning experience by attending a Capstone/Travel trip to Central America. CALS LI will begin its first cohort fall 2009. The program will be administered by H. Charlotte Emerson, program director, Dean R. Kirby Barrick, co-director, and Terrie Robinson, program coordinator.

Key word: student development

#112

The University of Georgia Agrosecurity Certificate Program: Current Events Activated at the Undergraduate Level

Nicholas Hill, Sarah Workman, and
Ronnie Silcox
University of Georgia

Agriculture and food account for more than 12% of the US gross domestic product and 16% of U.S. employment. As a result, agriculture is one of the critical infrastructures of the nation and Homeland Security Presidential Directive (HSPD-9) requires protection of this sector. The potential economic impact of malicious use of biological pathogens in the agricultural sector suggests an increasing likelihood of their use. In 2008, the University of Georgia received funding through a USDA-CRSEES Higher Education Challenge Grant to develop a curriculum designed to provide students with: 1) a broad overview of U.S. agriculture and food including the plant, animal and food industries; 2) a basic understanding of emergency management, resource policy and homeland security programs related to agriculture and the food industry; 3) an understanding of terrorism and terrorist organizations, specifically as they relate to agrosecurity; and 4) global issues related to agrosecurity. Three courses are required to complete the Certificate: Terror in the Food Supply, Agricultural Incident Response, and a capstone Agrosecurity Seminar. Internships with Homeland Security (State or Federal) are encouraged to help develop communication and problem-solving skills. Student interns were placed in 2008 and evaluated by employers for feedback. Although the Certificate program is in its infancy, state (emergency management and response) and federal agencies (Homeland Security, USDA-Animal and Plant Health Inspection Service) are requesting assistance in filling vacant positions. There are over 1,200 vacancies in Homeland Security and APHIS retirements represent 50% of their work force over the next five years.

Key words: agrosecurity, certificate program, homeland security

#114

Instructional Delivery: Implications for Teaching Generation Y in the Food, Nutrition and Agricultural Sciences

Norma Dawkins, Ralphenia Pace, and Zhiliang Huang
Tuskegee University

Learning is a complex process involving the development of conceptual understanding therefore; teaching Generation Y students presents it challenges. This generation lives, and thrives in a technological world. Consequently, to capture their attention and focus, the learning environment must respond with modern high speed technologies that will improve student learning outcomes. Therefore, engaging students in problem-based activities using these technologies is a practical approach for course fundamentals. The aim of the current presentation is to highlight students' research utilizing modern high speed technologies. Undergraduate and high school students, during their summer internship were involved in several research projects designed to provide exposure in food, nutrition, and agricultural sciences. Selected projects were: 1) Methods for measuring dietary and body fat ; 2) Chemical differences among dietary fat; 3) Dietary intake of African- Americans and implication for cardiovascular disease; and 4) Texture Analysis of Selected Foods: Implication for the Food Industry. These projects exposed students to computer-based software for dietary analysis, gas chromatography, Bio-impedance, Smart-Trac System [This system uses a combination of microwave and nuclear magnetic resonance (NMR) technology to provide test precision to 0.01% without the use of hazardous solvent in minutes], and texture technology. In summary, the projects addressed the needs of generation Y students by introducing innovative modern high speed instrumentation approaches to students for solving research questions related to food and nutrition. Furthermore, the pro-

jects exposed students to scientific and technical fundamental aspects of food, nutrition, and agricultural sciences, in addition to serving as a recruitment tool.

Key words: technology, generation Y students, research, instrumentation

#115

Workshops Increase Awareness of Agricultural Bioinformatics at Virginia State University

Glenn Harris
Virginia State University

Recent advances in technology and research have resulted in enormous amounts of genetic information being generated by molecular biologists and genomics researchers. This has resulted in a growing demand for bioinformaticians, making them one of the fastest growing sectors in agricultural biotechnology. Here we describe recent progress in enhancing bioinformatics training at Virginia State University, specifically toward the three objectives of this project 1) to increase student awareness of the field of agricultural bioinformatics, 2) to establish an online Bioinformatics Resource Center, and 3) to ensure that educators from VSU, other HBCUs and local high schools have the bioinformatics resources and training they need to prepare students for careers in modern agricultural sciences. A technology-enhanced learning approach was applied to bioinformatics-themed workshops for students and educators. Brief before-and-after assessments indicated the effectiveness of the workshops in increasing awareness of and stimulating interest in the bioinformatics field. The work outlined here will allow Virginia State University to be better prepared to recruit and train students to meet the changing demands of the agriculture workforce.

Key words: bioinformatics, workshops, biotechnology

#132

Big City, Big Country Road Show: An Innovative Approach to Recruiting Inner-city Youth into the Agricultural Sciences

Cindy Akers
Texas Tech University

Cash Berry
Howard College

Gary Wingenbach
Texas A&M University

The Big City, Big Country Road Show is an innovative college recruitment program targeting underrepresented, inner-city high school students with no agricultural background. The program focuses on agricultural communications topics with activities in crisis communications, digital photography, news writing, digital video production, and Web design to broaden students' knowledge of possible agricultural careers, thereby increasing their interests in pursuing post-secondary degrees in the agricultural sciences. The purpose of this research was to measure the differences in students' knowledge gains in agricultural communications topics after two instructional treatments (self-directed versus guided). A purposive sample (n = 25) was derived from three national workshops in summer 2008. Inner-city high school students in El Paso, Atlanta, and Chicago spent one week studying five online agricultural communications modules, followed by a self-administered 12-question quiz. The following week, project directors presented guided instruction in the same five topics, followed by a 12-question knowledge quiz, with six questions repeated from the self-directed quiz. Students made significant knowledge gains in their understanding of digital photography and news writing concepts following specific guided instruction in those topics. Students also made significant gains in their understanding of Web design concepts when measured on all 12 quiz questions. The Big City, Big Country recruitment project is helping change underrepresented, inner-city high school students' knowledge and perceptions of agricultural careers. Continued emphasis on active promotion of agricultural science careers to underrepresented urban youth is needed to ensure increased diversity of

the agricultural workforce, especially as it pertains to USDA career tracks.

Key words: urban youth, recruitment, agricultural knowledge, agricultural communications

#134

Selected Urban High School Students' Perceptions about Agricultural Careers and General Agricultural Knowledge

Gary Wingenbach, Elisabeth McCann, Belay Begashaw, Lawrence Wolfskill, Lauren Rouse, James Lindner, and Tracy Rutherford
Texas A&M University

Lacey Frazee
American Museum of Agriculture

Would high school students from inner-city metropolitan areas with no agricultural background change their perceptions about agricultural careers and/or their general agricultural knowledge following a two-week agricultural crisis communications workshop? The workshop focused on agricultural communications topics such as crisis communication, digital photography, news writing, digital video, and website design to help students change their perspectives about career opportunities in the agricultural industry. The purpose of this research was to measure the influence of workshop participation on students' perceptions of careers attainable with an agricultural degree and their general agricultural knowledge levels (self-reported and tested). A purposive sample ($n = 25$) was derived from three national workshops (El Paso, Atlanta, and Chicago) in summer 2008. Significantly more students perceived careers such as Web designer, photographer, chemist, loan officer, engineer, and landscaper as viable careers after participating in the workshop. Information technology careers addressed in the workshop produced statistically significant differences between students' pre- and post-test data, highlighting information technology as a critical factor for career consideration. Significant differences in perceived knowledge indicated that student's perceived they knew more about agriculture as a result of the workshop. The number of students who perceived they had "more knowledge" than

their peers increased by 43.5% from pre- to post-workshop settings. However, comparison of their pre- and post-workshop tested agricultural knowledge levels revealed no significant differences. Future research should include a variety of assessment methods, both before and after workshop participation.

Key words: urban youth, recruitment, agricultural careers, information technology

#137

Educational Collaborative on Sustainable Environmental and Agricultural Management

Steven Safferman and Luke Reese
Michigan State University

The Educational Collaborative on Sustainable Environmental and Agricultural Management (ECOSEAM) has the objective of educating students on high priority agricultural and rural environmental issues not comprehensively taught in their MS degree and undergraduate design courses. Programming for professionals seeking continuing education is also being developed. Designers and operators are increasingly being called to work at the rural/suburban interface yet few formal education opportunities exist. Specific class topics include agricultural air emissions, animal manure management and engineering, decentralized wastewater engineering and cluster systems, and suburban/rural watershed interface modeling. Classes are facilitated self-study and cut across multiple disciplines and institutions and include hands-on activities with mentoring from practicing professionals. Extensive use of technology enables participation among universities and distribution of curriculum materials to qualified instructors throughout the country. Initial ECOSEAM partners are Michigan State University, The Ohio State University, Purdue University, Central State University, and Stephens Consulting, LCC. The collaboration allows for pooled resources and material development by practicing professionals and researchers in the field. Multiple stakeholders will evaluate the resource and impact will be surveyed based on changed practices resulting from course completion. Lessons

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learned include the importance of developing content in parallel with the first time the course is offered and the need for detailed logistical planning due to the complexity associated with multi-institutional programs. Both led to the adopted ECOSEAM model; curriculum content distributed, without cost, to qualified instructors to use in new self-study facilitated courses or for incorporation in existing courses.

Key words: agricultural and environmental engineering college education, multi-institutional collaboration, facilitated self-study, environmental rural/suburban interface

#138

Assessment of Short-Term Study-Abroad Experiences

Thomas Kuzmic
Oklahoma State University

Qualitative assessment of experiential learning in a 16-day study-trip to Honduras over a ten year period demonstrates marked growth by student participants in cultural awareness, sensitivity, and ideology. Journals maintained by participants throughout their experiences and written self-assessments submitted afterwards, gauging the extent to which students perceived that they fulfilled course objectives delineated by the instructor, as well as their own personal objectives crafted prior to the study-trip, were subject to content analysis. Students consistently cited a broadened sense of a more realistic and altruistic global view as they came to recognize and understand dramatic differences in life and living in a developing nation, in stark contrast to their abundant and comfort-oriented lifestyle in the USA. Further, students gained first-hand comprehension of the necessity and nuances of living in close attachment to the land and its resources to fulfill basic needs, and gained an appreciation of the tenuous balance between survival and prosperity for people living in poverty in tropical ecosystems where agricultural and natural resource opportunities are limited by low technology and a web of social, economic, and political constraints. Components of the experience that contribute to its success include eight weeks of pre-trip classes

that lay a theoretical foundation; a role-playing exercise in sustainable community development; hands-on, service-learning activities with Honduran farmers, workers, NGO leaders, and land managers in rural villages, on hillside farms, and in homes, schools and workplaces, during the trip; and opportunities for ecotourism pursuits, adventure, and cultural interaction throughout the experience.

Key words: assessment, study-abroad, cultural ideology

#140

Certificate Program in Organic Agriculture at the University of Georgia

Anish Malladi
University of Georgia

Organic agriculture continues to be a rapidly growing sector. A certificate program in organic agriculture was initiated in 2006 at University of Georgia (UGA) to address the growing student interest in this field, and to train students as qualified individuals with knowledge and experience in organic production. As part of this program, an interdisciplinary team was assembled and four new courses were developed to provide an understanding of, and practical training in various aspects of organic production such as fertility, pest and disease management, economics of organic production, ethics of sustainability and understanding of organic agricultural systems. An undergraduate research project or an internship at a local organic farm is mandatory to complete the certificate program. A two-acre plot at the Horticulture farm (UGA) was developed into a certified organic farm and is being extensively utilized for demonstration of organic production, for hands-on organic farm experience, and for undergraduate research projects. Additionally, a community-supported-agriculture program was initiated in the fall of 2008 to enable utilization of the produce grown at the organic farm. The program has successfully graduated two students and currently has 27 students enrolled in it. Graduating students presented their research project or internship experience at the organic agriculture seminar. The program has greatly increased general awareness of oppor-

tunities and challenges in organic agriculture among students. It continues to attract students from varied disciplines and is emerging as a truly inter-disciplinary program at UGA.

Key words: agriculture, organic certificate

#144

An Internal Evaluation of Agricultural Extension and Education Department at Islamic Azad University in Ilam Province in Iran

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Institutions of higher education in agriculture are required by the Ministry of Science, Research and Technology in Iran to undertake self-evaluation in order to enhance the quality of their programs. To respond to this self-reflective process, Islamic Azad University in Ilam province designed an internal evaluation through administrative data, the questioning of students and graduates, and the holding of moderated interviews with lecturers and students. A random sample of 125 undergraduate and 12 graduate students along with a census of lecturers (N = 5) participated in this qualitative study. An open ended questionnaire was used to collect data. Data were analyzed using qualitative techniques such as content analysis. Results indicated that students were somewhat satisfied with their programs. However, they were not satisfied with their faculties' competencies in some agricultural skills and abilities. Although lecturers in Department of Agricultural Extension and Education were satisfied with their job compensations, they rated department resources somewhat weak in providing professional development programs. The result of this study has implications for university policy-makers. If the Department of Agricultural Extension and education in Ilam University is to create employable students, an annual internal evaluation process is a key to such a challenge.

Key words: internal evaluation, content analysis, agriculture, self-evaluation, content analysis

#145

Deployment of Basic Meat Science Curriculum Topics and Standards Instrument

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Clemson University

This was a Delphi study and the purpose of this study was to develop basic meat science topics and standards for secondary agricultural education. The Expert panel was made up of meat science faculty and the Delphi panel was composed of members from academia, industry and top ten meat FFA Career Development Event Coaches. Two Delphi rounds were used to develop the survey instrument. The modified Delphi started with an outline of basic meat science topics developed by expert panel from 16 university basic meat science syllabi. The Delphi panel added or deleted topics, topics were consolidated into an outline, and a Likert-type scale was added. Topics with a mean < 2.5 were removed. Standards were added to each topic, standards were combined, and a Likert-type scale added. Initially 136 standards were reduced to 100 by removing duplicate, similar, and those not clear. Agricultural education teachers from six southern states were asked to validate each standard using a Web-based survey using 4 = high, 3 = moderate, 2 = low, and 1 = not a priority.

The study found 17 topics (38%) having moderate to high priority with a mean > 3.0, eight (32%) topics having low priority with a mean of < 3.0 but > 2.0, and none of the topics were rated not a priority. All topics had a SD ≤ 1.0 confirming a high level of agreement among agricultural education teachers, giving a basis for developing a basic meat science curriculum for secondary agricultural education.

Key words: Delphi, curriculum, education, standards, topics

#149

Relationships of Learning Styles, Grades, and Educational Preferences

Mary Lehman
Longwood University

The classic literature suggests that students with different learning styles should have distinct preferences for different educational activities. However, few studies have provided data for preferences in contemporary college students. During a three-year study in an introductory biology course, Gregorc learning styles were compared to self-reported educational preferences on a 19-question survey. This study also further investigated trends from a previous study that suggested a relationship between grades and satisfaction with a cooperative learning project. Dominant learning style categories and learning style numerical scores were not correlated to most self-reported educational preferences on the survey. The Concrete Sequential (CS) learning style was correlated to preferences for clearly organized, structured lectures and the use of workbooks or lab manuals. The Abstract Sequential learning style was correlated to a preference for problem-solving activities. Course grades were significantly correlated to a survey question about group projects, with a trend for students with higher grades to dislike group projects. High achievers also reported a significantly greater dislike of computer-assisted studying modules. Abstract Random scores were significantly negatively correlated to grade in the course. This finding may be course and instructor specific. Only the trends for the CS learning style are in agreement with previous literature. The link between grades and dissatisfaction with group projects is in agreement with results of a previous study from this course.

Key words: learning styles, group projects, grades

#151

Developing Future Agriculture Leaders through Intensive On-Campus Experiences

Joey Mehlhorn, Scott Parrott, Timothy Burcham, and Philip Smartt
University of Tennessee at Martin

Today high school students are faced with many career opportunities outside of the agriculture field. It has become increasingly more important for agricultural programs to aggressively promote agriculture as a career choice among traditional agricultural students (micropolitan) as well as the growing field of non-traditional students (metropolitan). Students can be influenced to pursue agriculture as a profession, if they have a positive understanding of the agricultural industry and what it has to offer students. In 2004, the University of Tennessee at Martin initiated an academic enrichment program for junior and senior students in Tennessee high schools known as the Tennessee Governor's School for the Agricultural Sciences (TGSAS). Student participants spend five weeks on campus enrolled in classes and completing applied research projects. The program has mentored and trained 180 students in the past five years. It is important to assess the effectiveness of this program to determine if students are responding positively to the experience. It is hypothesized that students who are engaged through the program are more likely to pursue a career or training in agriculture. Survey data from all previous student participants (n=180) has been analyzed to determine the perceptions either positive or negative in relation to pursuing a career in agriculture. Additional post program data has also been collected on students regarding actual career choices (ie. college major, employment) since completing TGSAS. Data indicate that students perceived the TGSAS educational experience positively and the program did influence career decisions among students.

Key words: career development, experiential learning, student perceptions

#153

Action Research Methods to Assess Service Learning: The Uganda Primary School Garden Case Study

Gail Nonnecke, Kevin Saunders, and Steve A. Freeman
Iowa State University

Intentional assessment of student learning provides important support for program improvement, strategies for enhancing student learning, and evidence of learning outcome achievement. Qualitative methodology used to assess student learning by U.S. food and agriculture undergraduates in a global service-learning program will be presented. The service-learning program is conducted in Uganda and comprised of Iowa State University and Makerere University students and faculty in which the bi-national team develops food and agricultural educational programs and projects and implements them in a primary school setting. Effective qualitative methods will be outlined including prolonged engagement (building trust with participants, understanding the culture), triangulation (using multiple data sources and methods), peer review (data analysis and debriefing with peers external to the program), and thick descriptions (direct quotes of participants to support deep understanding). Analysis of student reflection journals, pre- and post-experience focus groups, interviews of international partners, and student poster presentations demonstrate impact on students' understanding of social change, knowledge of culture, ability to connect sustainable agricultural practices with societal issues, application of service learning experiences to address global problems, and development of future career goals. The methodologies used to assess student learning in this global program can be easily adapted to other agricultural classrooms to more deeply assess student learning.

Key words: service-learning, scholarship of teaching and learning

#158

Describing Teaching Techniques for Assessing Student Cognitive Retention

M. Whittington and Whitney Beck
The Ohio State University

Researchers recommend that teachers create learning situations that teach students at higher levels of cognition, and further research be conducted on the effect of teaching methods to student attitude and long-term and short-term content knowledge retention. The objectives guiding this descriptive case study were: (1) to describe the amount of time the teacher spent using specific group teaching techniques and specific individualized teaching techniques and (2) to describe student immediate, short-term, and long-term cognitive retention. This study included one teacher teaching a three-week unit of instruction on Animal Science to a freshman Ag Science I class. The time spent using each of the teaching techniques was recorded, and cognitively weighted unit exams were used to measure student cognitive retention. Students took the unit exams immediately following the unit (immediate), 42 days following the unit (short-term), and 182 days following the unit of instruction (long-term). The teaching techniques used, in order from most frequently used to least frequently used, were student notebooks, lecture, discussion, information sheets, cooperative learning, supervised study, and demonstration. The long term cognitively weighted test scores decreased by 0.83 percent from the immediate cognitively weighted test scores. The minimum test score difference from immediate to 182 days was a loss of 13%, and the maximum test score difference was a gain of 17%. Further research recommendations include designing a study observing multiple teachers at multiple interval data collection points.

Key words: teaching techniques, assessment, cognitive retention

#167

Developing Responsible Learners: Expectations and Accountability are Critical

Jan Wiersema, Cynthia Haynes, Steven Jungst, Janette Thompson, Barb Licklider, and Suzanne Hendrich
Iowa State University

In many college courses students succeed by memorizing facts and principles, but solving ill-defined problems of the future requires critical thinking and continuous learning. As developers and co-facilitators of The Academy for Leadership and Learning, our ultimate expectation for students is that they become responsible learners—students who take charge of their own thinking, actions, and ultimately, their own learning. Every learning opportunity we plan has that outcome in mind. Although students identified many factors that contributed to their growth as learners, our session focuses on three: confronting their current paradigms of learning, experiencing learning-centered activities that either confirm or refute those paradigms, and being held accountable for the thinking necessary to resolve any resultant cognitive dissonance and to apply new learnings to life. Participants in our session will have the opportunity to confront their own beliefs about learning, participate in a learning-centered activity, and discuss the model of a responsible learner we use with students. For the rest of their professional lives students will be required to make choices about their thinking and their actions. Those choices will have consequences, both intended and unintended. In other words, as professionals, students will be held accountable for their thinking and for what they do. Implications for educators focus on holding students accountable for deep learning even when students do not like it. Students know it makes a difference. When faculty persist, so will students, and as they hold themselves accountable for learning they **can** become the citizens and professionals the world needs.

Key words: responsible learners, expectations, accountability, metacognition, cognitive dissonance

#170

Assessing an Animal Sciences/Anthropology “Role of Animals in Societies of the World” Interdisciplinary Honors Course

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Purdue University

Kate Kanne
Northwestern University

Stephen Damron
Oklahoma State University

This course is an introduction of the importance of animals in various cultures and societies of the world. We will share the syllabus, assessment methods, and effectiveness of this interdisciplinary course. The disciplines related to anthropology, agriculture, and biology are integrated as we explore the societal tensions and current issues surrounding animal-human interactions. Factors which influence the role of animals in society are physical and biological adaptations of animals and the role of traditions, culture, religions, geography, climatic, and socio-economics. Films, written articles, and mostly guest presenters from a wide variety of disciplines and media are used to deliver content in this course. Faculty in animal sciences and anthropology as well as graduate students from different cultures and countries share their research and experiences. Assessments include quizzes, exams, study question guides, reflective narrative reports, and two term papers with peer and third party reviews. Students are evaluated also on the presentations of the Use and Society and the Current Issue papers. Student engagement is an integral part of the assessment. We have found that exposure to unknown topics and extreme uses of animals helps to draw the students out of their comfort zone and realize that they can improve their writing and their breadth of other cultures through their interest in animals. This course has opened our minds to collaborating beyond our perceived borders and identified assessment methods that challenge the students and improve their learning.

Key words: interdisciplinary, writing assessments, anthropology, animal sciences

#174

Strategies for Linking Course Objectives and Class Activities to Learning Outcomes

John Ewing, Naveen Chickthimmah, and Rama Radhakrishna
Penn State University

Teachers and educators are challenged to develop learning outcomes for courses they teach. This challenge has increased in recent years because of lack of measurable learning outcomes documented in courses taught. The overall purpose of this presentation is to share strategies for linking course objectives and class activities to learning outcomes using examples from three different courses. The courses were taught by three different instructors in two different departments. The courses varied in terms of enrollment, content, and instructor experience. The following strategies were adopted to link objectives, activities and learning outcomes: 1) decide on what competencies/skills that enrollees will acquire as a result of taking the course, 2) determine instructional activities that help acquire the competencies/skills; think of Bloom's taxonomy as a framework to decide on activities, 3) develop measures (tests, critiques, presentations, etc.) to assess outcomes and decide on indicators that provide evidence for documenting outcomes, 4) collect outcome data to determine whether or not students attained needed skills/competencies, 5) share with students up front how these strategies work and expectations, 6) review results by activity to determine what worked and what did not work, 7) use the results as a "lessons learned" to improve course offerings in future. Finally, reflect on the experiences to further improve the courses. The approach we have used has helped us understand how this linkage works. In addition, it has helped address assessment questions in relation to strategic planning issues at the departmental and college levels.

Key words: objectives, learning outcomes

#182

Describing Student Cognitive Retention in an Animal Science Unit

Jeremy Falk, Whitney Beck, and M. Whittington
The Ohio State University

Teaching a unit of instruction that results in students gaining very little knowledge is of great concern to educational researchers. It is hard to justify spending valuable class-time on content that may soon be forgotten. The objective guiding this case study was to describe student immediate, short-term, and long-term cognitive retention of ninth grade students enrolled in an Ag Science I class. This is one objective of an ongoing larger line of inquiry where the researchers studied one teacher who taught a three-week unit of instruction on Animal Science to a freshman Ag Science I class. The students completed the final unit exam immediately after the unit (immediate retention), 42 days after the unit (short-term retention), and 182 days after the unit of instruction (long-term retention) was taught. A cognitive weight was applied to the exams to provide differentiation of questions that engaged students at higher cognitive levels. Each student's cognitive retention score was calculated by multiplying the student retention of content score (final exam test score) by the cognitive weighting of the exam. The long term cognitively weighted test scores decreased by 0.83 percent from the immediate cognitively weighted test scores. The minimum test score difference was a loss of 13% and the maximum test score difference was a gain of 17%.

Key words: cognition, cognitive retention

#188

USDA Scholars Program – Innovations in Undergraduate Research

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Virginia Polytechnic Institute and State University

Virginia Tech's 2012 Strategic Plan places high priority on increasing undergraduate research.

The USDA Scholars Program coordinates Human Nutrition Foods and Exercise (HNFE) undergraduates in a research experience that includes working in laboratories with faculty, weekly group meetings, and workshops on grant writing, scientific presentations and publications. Seven USDA Scholars, selected from a total of 27 applicants, took part in the summer 2008 program, the first of three years funded by a USDA Higher Education Challenge Grant, with matching money from HNFE, the College of Agriculture and Life Sciences, the Fralin Life Sciences Institute and the Provost's Office. An annual multi-institutional symposium 'The USDA Scholars Symposium on Obesity, Nutrition and Health' was initiated on August 8, 2008, with participants from the University of Pennsylvania, Penn State University, the University of Michigan, Davidson College and Virginia Tech, who hosted the symposium. Undergraduate research was featured in the symposium. Elected by scholar peers, a USDA Scholar presented the results of his summer research to all participants. An afternoon poster session featured all undergraduate participants showcasing their research projects. Concurrent afternoon sessions on research ethics, mentoring, and a tour of research labs concluded the symposium. The USDA Scholars receive credit during the summer for two required courses in their HNFE program. This frees up space in the subsequent academic years for the scholars to incorporate enriching experiences, continued research, and elective coursework. The 2008 USDA Scholars Program increased HNFE undergraduate research participation by 69% over the prior two years. Upon completion of the program, six of the seven students have continued working in research laboratories for the 2008/09 academic year. The 2008 USDA Scholars mentored their peer group of HNFE undergraduates in freshmen to senior level courses, impacting over two hundred students in the fall 2008 semester. Ten students will be participating in the 2009 USDA Summer Scholars Program, culminating with the 2nd annual 'USDA Scholars Symposium on Obesity, Nutrition and Health' symposium, hosted by the University of Pennsylvania.

Key words: undergraduate research, peer mentoring, departmental curriculum

#191

Achieving Institutional Sustainability through Student-Coordinated Efforts

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New Mexico State University

Student efforts coordinated through university organizations can have a significant impact on institutional policy. Additionally, involvement in student organizations can augment skills acquired in the classroom. Members of the Organization of Aggie Students Inspiring Sustainability (OASIS) at NMSU were responsible for all aspects of planning and hosting a World Café (WC) networking event for the University's designated 2009 "Year of Sustainability." The WC technique brings together diverse groups to increase the quantity and quality of conversation about important issues, including institutional sustainability. The daylong event concluded with a survey (n=51), and more than half of the respondents identified the opportunity to network with a diverse group as their "favorite" aspect of the day. However, increasing diversity of the participants was most cited for improving WCs in the future (16%). Ninety-six percent of participants surveyed felt the day was a good use of their time and would like to be invited to related future events. Twenty percent of the participants described the day as "inspiring." Event attendees (n=95) included the NMSU president, faculty, staff, and administrators, local politicians, farmers, students (23%), K-12 teachers, community leaders and organizers, non-governmental organizations, and local business owners. Since the event, the University has made concrete steps toward achieving institutional sustainability, the majority with which the students have been involved. Based on these experiences, we outline the successes and roadblocks to student organization engagement in university-level action, and hope this process can serve as a model for similar efforts on campuses across the U.S.

Key words: World Café, student involvement, year of sustainability

#192

Teaching Computer Aided Design vs. Teaching Computer Aided Drafting

Michael Reinert
Iowa State University

Landscape design educators should consider a change in perspective concerning the use of computer software in the landscape design process. Traditionally, computer software was used only for drafting and only to represent two-dimensional design output. Today, several pieces of design software exist that can aid in the design process as well as the output process. While several pieces of drafting software were created for the landscape industry, all of these products are based on the AutoCAD model, an industry standard for many years. Design software is based on the SketchUp model and this model was used for the creation of Realtime Landscaping Architect, landscape specific design software. These new pieces of design software assist the designer with parts of the design process not available with drafting software including spatial analysis, collaborative design, and three-dimensional walkthroughs of the completed design. Drafting software remains an important part of the design process used for the creation of landscape construction documents and plans. Landscape design educators consider the use of landscape design software to potentially enhance the design process beyond simply representing design output.

Key words: landscape, design, software, drafting

#193

Academic Success of Majors and Non-Majors in Animal Science Courses

Kyle Stutts, Marcy Beverly, Alisha Bullion, Stanley Kelley, Matt McMillan, and Lesley Rakowitz
Sam Houston State University

The objective of this study was to compare the performance of animal science majors with that

of non-majors in animal science courses. Data were collected on 928 students for two 16-week semesters in undergraduate animal science courses at Sam Houston State University. Data collected included attendance, gender, classification, and major field of study. A course grade prediction model was determined using these variables and correlation coefficients between these variables were calculated. Animal Science majors accounted for 56.6% of the sample which included Pre-veterinary Medicine and Wildlife Ecology majors. Non-majors accounted for 43.4% of the data set which included Agriculture, Agricultural Business, Agricultural Mechanization, Horticulture and Crop Sciences, and all other majors. Non-majors (9.1) had a higher ($P < .01$) average number of absences than animal science majors (8.3) in these animal science courses. In addition, a negative correlation existed between number of absences and final course grade, and between major field of study and final course grade. These correlations indicate that students with a higher number of absences or students that were non-majors typically obtained a lower final grade in the course. However, there was no difference ($P > .05$) in final average course grade between animal science majors (80.37) and non-majors (80.06). Even though non-majors had a higher number of absences than majors, and a negative correlation existed between number of absences and final course grade, these data indicate there was no difference in performance of majors and non-majors in animal science courses as measured by average final course grade.

Key words: academic success, major vs. non major success

#195

An Undergraduate Summer Research Internship and Mentorship Program in the Agricultural Sciences

Justin Moss
Oklahoma State University

The goal of this project was to create an undergraduate summer research internship and mentorship program in the agricultural sciences with collaboration between Sheridan College (SC),

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Little Big Horn College (LBHC), and the University of Wyoming (UW). The objective of this project is to increase high school student recruitment to the agricultural science programs at SC and LBHC. Students in Wyoming and Montana were recruited and hired by an advisory group of faculty from each institution and local agricultural industry representatives. Eleven graduating and three incoming high school seniors were hired in 2008. Four students identified themselves as Native American (three female, one male) and 10 students as Caucasian (six female, four male). Interns were teamed with a faculty mentor and were responsible for creating a research proposal based on their interest in agricultural science. Students implemented their research at UW, collected and analyzed data, then presented results during a summer internship research symposium held at Sheridan College. At the conclusion of the 2008 program, four students decided to attend SC and major in agricultural science; four students decided to attend LBHC and major in agricultural science; one student decided to attend UW and major in agricultural science; one student decided to attend UW and major in engineering; and one student decided to enter the military. Of the three high school seniors, one plans to major in agricultural science at SC while two plan to major in pre-medicine at UW. The project will be repeated in 2009.

Key words: internship, mentorship, undergraduate research, recruitment, agricultural sciences

#196

Is a Mentoring Program Worth the Investment?

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University of Central Missouri

Donald Scott
University of Central Missouri - MCCE

Mentoring programs are often key mechanisms for bringing new professionals up to speed. Anecdotal data provide insight on mentoring programs potential effectiveness, but assessing long term impacts on instructor retention is less studied. The University of Central Missouri's

Center for Career Education, and the Missouri Department of Elementary and Secondary Education invested in a two-year, state-level mentoring program for novice career educators in agriculture, business, family and consumer sciences, and trade/industrial education. Through a unique partnership, this program provides more in-depth training in content-specific instructional practices, student discipline, and classroom management. The intended program impact is improving instructional effectiveness while providing support systems for novice instructors; the added bonus being improved job satisfaction and retention. Retention is the focus of the first phase of this longitudinal study, which included all participants in the 2006 and 2007 mentoring cohorts (n = 228) and a comparison to non-participants (n=276). Additionally, interviews were conducted with 20 program participants to investigate perceptions of connections between mentoring program experiences and their decisions to stay in teaching. Program completion data was obtained from the program director, and current employment status was obtained from the state data reporting system. Findings include quantitative results showing a 33% higher retention into a third year of teaching of mentoring program participants than non-participants, and qualitative results showing a perceived connection between their staying in teaching and their mentoring program experiences. Data collection is ongoing, with the addition of the 2008 cohort and continued tracking of the initial cohorts.

Key words: assessment, mentoring, teacher education

#197

Assessing Student Global Competency: Building a Global Ready Graduate

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University of Memphis

Joey Mehlhorn
University of Tennessee at Martin

Our economic prosperity is linked to the broader global economy. As a result, it is important for

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students to actively engage the international community and develop an understanding of the international marketplace. Today, less than 1.2% of agriculture students in the U.S. participate in study abroad programs. Many students have little knowledge of the important role that international markets play in the U.S. agricultural economy. The importance of globalization will impact the future employment patterns for agriculture graduates. Students who lack global competency will be at a disadvantage in the agriculture job market. Three student populations were surveyed to assess their global competency level through an extensive survey instrument. Two student groups were selected from courses with direct international content and one control group was selected from a course without international content. Data was collected and analyzed for the following areas: student demographics, willingness to pay to develop international competency and cultural perceptions. The students who were enrolled in courses with international content were more likely to view working in another country favorably. They also reported a higher average willingness to pay for international competency through dollars and increased course work. Results also showed an overall difference between student cultural perceptions based on whether they resided in a metropolitan area versus a micropolitan area. Efforts to increase global competency among micropolitan students is needed. In addition to the initial survey data, successful study abroad and travel study programs will be analyzed for student success, ease of entry, and budget requirements.

Key words: global competency, intercultural perceptions, travel study

#201

Applying the Lesson Study Method in an Advanced Teaching Methods Graduate Course: An Innovative Teaching Approach for Linking Application to Theory

Jeremy Robinson
Oklahoma State University

The purpose of this project was to allow graduate students the opportunity to experience the constructivism theory as it related to teaching in a formal or non-formal setting by use of the lesson study method. Students were grouped into pairs or trios to accomplish this task. Depending on interests and the areas of specialization comprising their team makeup, students identified a common "theme" in which they would research, construct a lesson plan for, and eventually teach. Once the theme was identified, students selected an age or class of students to teach and contacted the respective lead-instructor to set up a time to visit about their lesson and secure two teaching dates. At the end of each weekly class session, students worked to incorporate theory and methodology in which they had previously been exposed. Students were required to design their lesson plans by integrating at least two different subject areas and four different teaching methods. Students taught the lesson twice. Modifications to the lesson plan were made after the first teaching experience. The following lesson "themes" and students were selected: dairy science – 9th grade agricultural education students; soil science – 8th grade agricultural education students; professional communication tactics – undergraduate agricultural communication students; international agriculture – College of Agriculture graduate students; and identifying and using canola – high school agricultural education students. Additionally, the following subject areas were integrated: math, science, English, history, geography, and health. Lastly, students employed the following teaching methods in their lessons: modified lecture/question-answer-discussion, demonstration/simulation, brainstorming, case study, and role play.

Key words: lesson study method, advanced teaching methods course, innovative teaching approach

#205

A Relationship between Assessment Time and Student Performance?

Kevin Williams
Oklahoma Panhandle State University

Gary Gregory and John Rayfield
North Carolina State University

The purpose of this preliminary evaluation was to determine if a relationship existed between student performance on three separate course exams and the amount of time spent in taking each exam. This study was conducted during a one semester offering of a three hour livestock and poultry industry class designed for students seeking a two-year Associate of Science degree at a land grant university. The primary hypothesis was: students who required less time to complete course exams would perform higher on those exams. Overall 83 students participated in this research. Each of the three exams administered was identical in number of questions asked, format of questions, and the arrangement of those questions. The content covered in each exam tied directly to course objectives and was unique to each exam. Time in number of minutes was recorded for each student completing each of the three exams and was used as a grouping variable. Results collected from each of the three exams did reveal students in group one, who utilized the least amount of time in exam completion, did perform markedly higher than all other groups. With exams one and two, group two also performed higher than the remaining group who required more time in testing. Conclusions from this study were drawn that higher performing students were more familiar with course content and could more quickly grasp what specific questions were asking. Recommendations were made for continued research in this area with additional courses and an increased number of semesters for data collection.

Key words: assessment, exams, time, student performance

#223

Integrating Environmental Education into the Curriculum

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Kentucky State University

We have undertaken a comprehensive plan to integrate environmental education into the University curriculum by incorporating environmental topics through faculty mini-grants as incentives. We have also formed a collaborative partnership with area schools to assist them in implementing an environmental education program. The primary goal of the faculty mini-grants program is to improve environmental literacy for all KSU graduates, especially those who plan to become teachers. These mini-grants are part of our efforts to institutionalize environmental education at KSU; they will be used to create or support coursework that provides in-depth, cross-disciplinary instruction that is ecologically sound and promotes responsible civic actions toward the environment. A collaborative partnership was also formed in 2007 with area schools to assist them in implementing an environmental education program. Forty-two teachers participated in the first week-long summer workshop. We focused on stream ecology principles, human impacts, field methods, macroinvertebrate identification, data analysis, and Shannon Diversity. Fifty-two teachers attended the 2008 workshop. The primary focus of the second year workshop was to investigate habitat fragmentation and invasive species using GPS and GIS technology. Participants learned the use of hand-held GIS devices to map invasive species, measure remnant forest patches, and plan corridors for habitat connectivity. We have established an Environmental Center on a 300 acre nature preserve that serves as an outdoor classroom for these activities. In order to ensure adoption into classroom curricula, we are conducting follow-up workshops and providing the necessary equipment and support to the participating schools.

Key words: environmental education, stream ecology, habitat fragmentation

#224

Technology Training: An Exploration of the Interest of Agriculture Faculty

Misty Lambert, Rebecca Lawver, and Robert Terry, Jr.
University of Missouri

This study sought to assess the use of technology by applied social scientists (N = 46) in a college of agriculture and determine their interest in faculty inservice related to that topic. The faculty members were asked to evaluate 36 tasks in which instructional technology is used, indicating their level of competence in performing that task as well as their interest in learning more about performing the task. Faculty were most competent in “communicating to individuals or groups with electronically written messages (e.g. email),” “conducting searches of materials available on the internet,” “word processing of documents,” “searching for journal articles,” and “creating presentation graphics (e.g., Power Point®).” Faculty were most interested in learning about “creating presentation graphics (e.g., Power Point®),” “searching for journal articles,” “creating websites and web pages,” “creating information graphics,” and “providing students online access to grades and course materials (e.g., Blackboard).” Cohen’s D was calculated to determine effect size differences among means and to identify those areas that should be the primary focus for faculty development and inservice programs. Two areas of emphasis identified as having a large effect size were “producing custom audio/video recording,” and “creating websites and web pages.”

#230

Instructional Models and Learning Styles within the College of Agricultural Sciences at Colorado State University: Survey Results

Dara Booher, Dennis Lamm, Karen Kaminski, Kris McKay, and Ken Barbarick
Colorado State University

Improving the teaching-learning process at higher education institutions requires knowledge of students’ learning needs and how well they are met by the utilized instructional models. This study evaluated active and passive learning styles to assist College of Agricultural Sciences (CAS) instructors at Colorado State University in understanding learning needs and to aid in future instructional design. Surveys were distributed in fall 2008 to students and instructors in

the four undergraduate departments within the CAS to gather information regarding classroom experiences, learning and teaching preferences, instructional perceptions, and suggestions to enhance classroom environments. A total of 611 students and 28 instructors were surveyed. Results revealed the instructional models currently being implemented in CAS classes are adequately meeting the needs of undergraduate students; however, the students requested more active instruction. Of the surveyed students, 73% (442) tended to prefer active learning. Students who preferred active learning assessed they had a higher level of achievement ($p < .05$) and less associated difficulty ($p < .05$) with active instruction. Practical Application, Demonstrations and Hands-on Opportunities were suggested by students as areas of possible future classroom enhancement. When asked to identify important classroom aspects, 57% (350) of students and 75% (21) of instructors identified Practical Application as one of the most important aspects in classroom learning. Instructor results revealed time and class sizes as the largest barriers to implementing active instruction. Of the instructors surveyed, 60% (15) utilized active instructional models one to two times per class period, usually through practical applications, exercises and problem sets, and discussions.

Key words: active, passive, learning style, instruction, college classroom, learning preferences, instruction preferences, agricultural classes

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University of Puerto Rico and USDA/CSREES/HSI Educational Grants: An Undergraduate Research Program, Six Years of Success

Abner Rodriguez and Elide Valencia
University of Puerto Rico

In 2003 and 2005 the College of Agricultural Sciences at the University of Puerto Rico, Mayagüez Campus (CAS-UPRM) was awarded two USDA Hispanic Serving Institutions (HSI) grants. These two projects targeted top-level under-

graduate students and through a mentor, guided each of them in a research topic focused on environmental and molecular biology issues related to agricultural sciences. During six years of operation, forty-eight students have been recruited for research training on topics regarding the integration of agricultural, environmental, and molecular biology sciences. Thirty-three of those students completed their BS degree while the remaining fifteen are still active students. Twenty-four of our former participants were subsequently accepted to attend graduate or professional schools. At this moment three of those students have finished their MS program, two obtained their DVM degree, and one is a JURIS doctor. The other nine former students are actively working in federal and state agencies or private industry. Our students have presented 52 research abstracts in eighteen regional, national or international scientific meetings. All the participating students write a research reports that is published in the annual "CAS-UPRM-HSI, Proceedings Undergraduate Research Program." Four students are also co-authors of three peer-review journal articles published in the Journal of Agriculture of the University of Puerto Rico and the Journal of Waste Management. Our students have also won awards at national and international professional meetings. First, second, or third places in competitive presentations have been achieved by ten of our participants students in the annual scientific meeting for undergraduates organized by the CAS-UPRM, and another five did so in the 2006, 2007, and 2008 annual meetings of MANRRS. Our project was also awarded honorific mention by the organization "Excelencia in Education" in 2008. These projects effectively addressed the target area: student experiential learning.

Key words: undergraduate students, research program

#245

Using a Three-Tiered Course Evaluation: A Case Study of a Junior and Senior Level Course in International Agriculture

Kathleen Kelsey, James Haynes, and Timothy Kock
Oklahoma State University

The role of the evaluator is integral to successful curriculum design and instructor preparation. The poster concept offered will serve as an evaluation guide for post secondary coursework and instructor effectiveness through an International Programs in Agricultural Education and Extension course at a major Southern Land Grant Institution. Traditionally this course has been taught by tenured faculty members at this institution, and until recently held an enrollment of more than 100 students. Multiple changes in the department have necessitated that this course be assigned to a graduate student working on a Ph.D. in the area of Extension Education and International Development. The focus of this evaluation was to determine if the quality and rigor of the course was being upheld. The evaluation focused on the effectiveness of the instructors' teaching methods and how conducive it was to student learning, if the course objectives were being met, and what the actual student perceptions were of the course. Three sources of data were collected using a triangulation mixed-methods approach to establish validity and reliability. Tools used to obtain the findings included historical documentation, peer-assessment, and student focus group discussion. Based on the findings, it was concluded that course objectives were being met; however, issues were present concerning instructor effectiveness and it was advised that motivational teaching methods be employed to motivate students and enhance learning.

Key words: longitudinal course evaluation, peer assessment, student assessment

#247

Alternative Assessment in Applied Science Courses

Bonnie Walters and Sylvia Kehoe
University of Wisconsin-River Falls

Traditional assessment methods of exams and quizzes are often used to determine students' content knowledge and understanding. These

assessment tools are more affective for some learning styles and preferences than others. As students with a wider range of learning styles and preferences enroll in higher education, assessment methods need to change. Alternative assessment methods have been successfully integrated into three applied science courses: (1) Science of Food, (2) Principles of Nutrition, and (3) Agricultural Biochemistry. Assessment methods used in these courses to supplement exams and quizzes include application papers, creative diagrams and models, and project options for the final exam. All three assessment approaches allow students to choose the specific example or format used to demonstrate understanding of course content. Student engagement in the alternative methods varies each semester. Digestive system diagrams and models from the Principles of Nutrition course range from simple posters to elaborate three-dimensional models constructed from recycled materials. The percent of students choosing the project option for the Agricultural Biochemistry final exam ranged from 15% to 75%. Grading rubrics guide instructors to provide consistent evaluation and maintain a focus on the content, not presentation, of each assignment. The alternative assessment methods described have shown to be effective tools for measuring student understanding of course content. Grading the alternative assessments does require additional time and effort. Even though these assessment techniques demand more of instructors, the rewards in student learning far outweigh the costs.

Key words: alternative assessment

#249

Leading Ag to a Promising Future: Understanding the Leadership Development Needs of the Agricultural Community

Keyana Ellis, Eric Kaufman, Holly Kasperbauer, Richard Rateau, and Laura Stacklin
Virginia Tech

Agricultural professionals face challenges in the form of commodity markets, regulatory requirements, changing demographics, agricultural illit-

eracy, natural resource depletion, and economic survival. Agricultural communities need more leaders to effectively address such impacting situations. Future success of the industry depends on grassroots leaders who are facing these challenges daily. In response to this need, a variety of agricultural leadership programs have been developed. However, many of these programs are based on the Kellogg Farmers Study Program model from the 1960s, and the model most appropriate for agricultural professionals today may be considerably different. During 2008, a team of researchers and program planners conducted focus group sessions with representatives from [state]'s agricultural community, with the goal of assessing the leadership development interests and needs of that community. The findings suggest that a leadership development program is needed and should focus on three areas: 1) knowledge of the changing industry; 2) relationship building across industry sectors; and 3) practical, transferable skill development. The skill areas of interest include creative problem solving, political advocacy, and communication. In terms of program structure and delivery methods, focus group participants were strong advocates for experiential learning. As one participant noted, "There's always that difficulty in taking what you do in the classroom, when you do a little exercise, and getting back to using it in your job." The findings of this study lead to important recommendations for further research and practice.

Key words: needs assessment, leadership, leadership development, agriculture

#268

Internship Assessment: Should We Use Student and Employer Input for Course Review?

Kevin Donnelly and Dana Minihan
Kansas State University

The 2008 CSREES review of the Department of Agronomy at Kansas State University indicated a need to tie assessment to curriculum review and revision. The Department has a very structured internship program and in 2008-09 it was revamped to include outcomes assessment.

Employers evaluated students on meeting pre-internship written learning objectives, rated performance on work skills, gave input on suggested curriculum changes, and provided informal communication during on-site visits and at recruitment activities. Students evaluated their internship experience in categories matching departmental learning outcomes and provided input on skills they felt needed more emphasis in the curricula. Employers viewed K-State students as efficient, organized, dependable, considerate, and relating well to others and would like to see increased oral and written communications incorporated into courses. Through their written comments, students generally felt the internship experience supported departmental learning outcomes. To enhance the program, students would like coursework to include more current practices and provide hands-on experiences. Internships provide a powerful tool for attaining outside review of curriculum through its products – our students. Formalizing the process has provided useful assessment data to use in recommending changes to agronomy courses and curricula. Data from this project have been provided for ongoing curriculum review in the Department.

Key words: agronomy, internship, course review, curriculum review

#271

Evaluating Life Skills Gained at a State 4-H Horse School

Kari Turner, Jennifer Brown, and Dennis Duncan
University of Georgia

Educating children to develop multiple leadership skills has long been a concern of parents. These leadership skills, most commonly referred to as leadership life skills, may be delineated into seven categories and include: responsibility, relating to others, spirit of inquiry, decision making, public speaking, maintaining records, and building self-esteem. Researchers have found that 4-H youth programming can serve as an effective means to developing life skills in its members. In addition, researchers have found that youth working with animals is a remarkable contributor to the growth of life skills. Therefore,

the following question was used to direct this study: Do parents expect their children to gain leadership skills necessary for future endeavors by participating in the [State] 4-H Horse School? Parents were asked to rank ten statements related to life development skills their youth may gain while attending the Horse School. The four highest ranking like skills that parents perceived their youth gaining as determined by mean scores were: assume responsibility for their learning experience (M=4.74, SD=.45), be self-disciplined when working with their horses (M=4.74, SD=.45), encourage self-confidence in youth (M=4.72, SD=.50), and encourage youth to gain valuable teamwork skills (M=4.64, SD=.5). According to the findings of this study and previous studies, youth participation in 4-H activities serves as an effective means of developing leadership life skills.

Key word: evaluating, leadership, 4-H, youth, teamwork

#275

Assessment of Student Perceptions of the Impact of Horsemanship Courses

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Southern Utah University

Assessment of curriculum is important for continuous improvement and appropriate planning for future programming. Limited information has been obtained regarding the effectiveness and potential of the horsemanship program at Southern Utah University (SUU). The objective of this study was to assess the personal and educational impact of horsemanship courses on students at SUU. A survey was developed that included 19 Likert items with five response levels. The survey was distributed to students enrolled in horsemanship courses during three consecutive semesters. A total of 163 students voluntarily completed the survey, which included students of various riding experience, majors, and class standing. Students expressed their strongest agreement with items related to gaining new knowledge ($P < 0.01$), followed by items related to providing personal benefits. Students also agreed the horsemanship courses helped

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them develop skills and had a favorable impact on their education at SUU. In fact, 98.8% of students agreed or strongly agreed they would recommend the courses to others, and 47.1% of students even indicated the horsemanship program had influenced their decision to attend or remain at SUU. More than one-third of students also expressed interest in an equine science degree. We conclude from the survey results that horsemanship courses have a favorable impact on students through personal and educational value, and they strengthen the educational experience at SUU.

Key words: assessment, equine, horsemanship course

#276

Perceptions of Agricultural Science Courses as a Viable Option for High School Science Credit

Dwayne Pavelock, Doug Ullrich, Danell Woolery, and Stanley Kelley
Sam Houston State University

In 2007, the Texas State Board of Education and the Texas Education Agency modified science and math requirements for high school students. These current requirements require students to complete two additional core credits of science and math; however, no new course options were made available. The affect these changes will have on Career and Technical Education is hard to predict. The purpose of this study was to determine the perceptions of educational specialists regarding agricultural science courses as a viable option for satisfying secondary science credit. The target population for the study included both science and career and technical education specialists at each of Texas' regional education service centers, as well as the board of directors for the Science Teacher Association of Texas. Findings from this study revealed that professionals viewed the agriscience Texas Essential Knowledge and Skills (TEKS) as important for achieving secondary science credit. They strongly believed teachers should have a degree from a four-year university and complete a teacher education program at that level. No general consensus was found regarding what needs to be done so

that career and technical education courses, such as agricultural science, can become a viable option for satisfying high school science credit.

Key words: agricultural science, agricultural education, high school agriculture

#278

Linking Levels of Bloom's Taxonomy to Course Levels and Class Standings

Rama Radhakrishna and John Ewing
Pennsylvania State University

Teachers are challenged to provide learning experiences and opportunities that enhance students' critical thinking. However, teachers tend to ignore this linkage in developing course objectives and learning outcomes. The purpose of this poster presentation is to link levels of Bloom's Taxonomy to course levels (001, 101, 201, 301, 401) and/or class standings (freshmen, sophomore, junior, senior). An understanding of this linkage will help: 1) develop course objectives and/or outcomes that facilitates critical thinking, 2) determine type of questions to be asked in class lecture or in exams, 3) determine sequencing of lessons from basic recall information to higher order thinking (analysis, synthesis, evaluation) as course levels progress from introductory to advanced, and 4) measure learning outcomes to see whether or not students are learning at higher cognition. For example, for freshmen or lower level courses, teachers should engage students in basic recall strategies and slowly increase the complexity of learning experiences, assignments and tests. Such strategies will provide a sound foundation of basics and adequately prepares students as complex subject matter or topics are taught in the next course level or when students take junior/senior level classes. The poster will illustrate strategies for linking Bloom's taxonomy levels to higher order thinking. Additionally, teachers should consider the maturity level of students, complexity of subject matter taught, learning experiences, and the amount of time to be spent on each learning activity. In summary, it is believed that students exposed to this type of linkage and

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sequencing will demonstrate higher levels of thinking.
Key words: Bloom's Taxonomy, cognition, sequencing

#279

Fabrication, Safety, and Demographics of Agricultural Mechanics Project Show Participants

Dwayne Pavelock and Doug Ullrich
Sam Houston State University

The Houston Livestock Show and Rodeo (HLSR) Agricultural Mechanics Project Show is the largest organized, competitive display of agricultural mechanic projects in Texas. Students participating in this agricultural mechanics project show experience perhaps the most culminating capstone opportunity by seeing their learning and productivity evaluated by industry experts. The primary purpose of the study was to assess fabrication-related aspects and basic safety practices of participants. Various demographics related to ethnicity, gender, career aspirations, and extra-curricular activities were also obtained. Eight hundred fifty survey instruments were distributed, and a 39.4% response rate was achieved. Descriptive statistics were used to analyze the data. Regarding the location of project fabrication, 16% indicated some fabrication occurred at a business in the community. Almost 96% (95.7%) indicated the project was constructed entirely by students, and 92% responded that fabrication occurred primarily in an agricultural mechanics class; however, almost 11% (10.8%) indicated that non-Ag Mech students provided assistance. The data also revealed that 97.9% of the participants believed they received constant supervision while working in the shop, and 93.1% were required to score a "100" on a safety exam prior to working in the shop. While almost all (98.2%) were required to wear eye protection while working, less than 60 percent (59.6%) were required to wear hearing protection, and only 63.2% received CPR and/or first aid training prior to working in the shop. A little more than one-half (50.3%) do not show non-Ag Mech projects, while 68.13% intend to pursue a career in agricultural mechanics.

Key words: agricultural science, agricultural education, high school agriculture, agricultural mechanics, safety

#281

Community-Based Learning and Food System Study The Potential of Integrative Engagement

Yona Sipos and Art Bomke
University of British Columbia

Community-based learning (CBL), including community-based research (CBR) and community service-learning (CSL), is increasingly heralded as an ideal approach to post-secondary engagement with complex, real-world issues. Here, we report and reflect on opportunities and considerations of incorporating CBL into post-secondary food system study. We present the case of the UBC-based Community Food Assessment Project (CFAP) in the Faculty of Land and Food Systems (FLFS) at the University of British Columbia, Canada. Each year, approximately 200 students in multidisciplinary teams learn about and participate in community food system assessments across the province of British Columbia, spanning urban, suburban and rural regions, through integrative, action-oriented, community-university partnered projects. CBL projects have focused on slaughterhouse policies, foodshed mapping, benefits of community gardens and food system education. Since 2006, mandatory, team-based CBR and optional, individual CSL have been instituted into the course; in 2008, 82% (160/196) of students opted to pursue CSL as part of their course requirement. A full 74% (111/150) of students agreed or strongly agreed that their understanding of food systems and food security improved through CBL, and 77% (115/150) agreed or strongly agreed that their projects were valuable for the community or organization. We compare student results to insights from community partner interviews. We share a preliminary guide to transitioning large classes, with and without a food system focus, to CBL. Such transition, and ultimately transformation, requires a desire to engage, adaptive capacity and some dedicated resources.

Key words: community based-learning, food system study, post-secondary, engagement

#284

From Classroom to Community: Enhancing Graduate Education through Service Learning

Keyana Ellis, Eric Kaufman, and Richard Rateau
Virginia Tech

Slowly, silently, yet surely, there is a paradigm shift occurring in the structure of graduate education programs to include community engagement components. This transformation is in response to the demands for professionals who are engaged citizens with a deeper cognitive connection to both the discipline and the community. Research suggests courses that incorporate a service learning component with traditional curriculum address this need by allowing students to apply content learning to real world community issues. The purpose of this presentation is to discuss the pedagogical value of an innovative teaching approach in a graduate level course with an embedded service learning component. When designed properly, many educators find these unique developmental opportunities provide mutually beneficial gains for the student, university, and community. Grounded in experiential learning theory and the citizen scholar model, outcomes of engagement in these activities provide a holistic approach to the required 21st century leadership skills including critical thinking, problem solving, team building, communication, and reflection. During the fall of 2008, graduate students, in the course "Theoretical Foundations of Leadership," participated in projects with a goal to improve a real situation in a local agricultural community organization through applied leadership concepts and skills. Through the use of an appropriate needs assessment, students were responsible for identifying leadership needs, developing alternative options, implementing appropriate solutions collaboratively with the organization, and evaluating outcomes of their efforts. As a result of these efforts, both students and agricultural organizations showed significant improvements in their learning and application of leadership concepts.

Key words: service learning, graduate education, community engagement, needs assessment

#286

Who's Leading the Way?: Connecting Collegiate Student Organizations to their Leaders

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The Ohio State University

Anna Ball
University of Missouri

Students in colleges of agriculture learn the technical and professional skills desired by employers through a variety of experiences. Involvement in student organizations has been linked to the development of leadership qualities. Furthermore, student organizations in colleges of agriculture have been studied for the purpose of describing what those organizations provide. The purpose of this study was to examine the relationship between the characteristics of student organizations in colleges of agriculture and the characteristics of those organizations' positional student leaders. The population consisted of positional leaders of student organizations in colleges of agriculture within institutions created by the 1862 Land-grant Act. A stratified random sample was taken from the population. Participants completed an online questionnaire with questions seeking to describe the characteristics of the organization and specific characteristics of the participant, including the amount of time the student spent each week on organizational activities and responsibilities, as measured in hours. The independent variables in the study were the characteristics of the undergraduate student organizations, as well as the time spent by the positional leader. The dependent variable was the organizational leaders' characteristics. Study results showed that 60% of positional leaders are female, almost half are seniors, and the majority have grade point averages above 3.0. Positional leaders who spend more time on organizational activities and responsibilities tend to have a lower grade point average. Student organizations that plan more

programs tend to have more female positional leaders. The results raise implications for undergraduate student involvement in collegiate organizations.

#287

Learning Outcome Based Online Assessment

Ronald Hanson and Rosalee Swartz
University of Nebraska-Lincoln

The Department of Agricultural Economics at the University of Nebraska is in its fourth year using an online assessment management system, Program Excellence through Assessment Research and Learning (PEARL). This system features documentation of institutional, college, and department mission statements and learning outcomes. The first objective of this presentation is to demonstrate how the PEARL system functions, complete with progressive stages which include planning, feedback/response on planning, reporting of results, and feedback/response regarding the results. PEARL review is conducted by cross-college faculty teams. In addition to feedback at multiple stages, the PEARL system enables departments to learn from other departments' "best practices." The second presentation objective is to share the process and materials the Department used to move assessment from indirect methods to one that involves both indirect and direct methods of determining students' levels of outcome based learning. The Department identified outcome based learning opportunities (course based) and student performance to be evaluated. In addition, it developed and tested an outcome learning based scoring rubric to evaluate student work. In fall of 2009, the University of Nebraska is implementing a learning outcome based comprehensive education system which requires that for courses approved as meeting one of ten learning outcomes, student work be evaluated to demonstrate learning. This presentation will outline the progress the Department made in its assessment process which puts it in an ideal position to meet requirements of both the University's comprehensive education and assessment systems.

Key words: online, best assessment practices

#289

Got Ag Courses?

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Penn State, Altoona

Recruiting students is vital to the success of college academic units including the agricultural sciences. The Pennsylvania State University is a multi-campus system comprised of the larger University Park campus with twenty additional smaller campuses located throughout the Commonwealth. While few agricultural classes are offered at the smaller campuses, in 2006 Penn State Altoona, with 4,000 students, took the initiative to not only increase the number of agriculture classes offered but also include them as general education courses that could fulfill a degree requirement for all students. Prior to this time, one ag-related course was offered per year averaging 35 students. Today, Penn State Altoona offers multiple sections of five agriculture courses averaging 125 students each semester. Students have a better understanding of issues affecting agriculture through research and class discussions plus the opportunity to network with faculty and deans from University Park who are incorporated into the classes as guest lecturers. Having non-agricultural, and often inner-city students enrolled in said courses, introduces agricultural issues and potential careers to a greater audience. This enhanced awareness has contributed to the increase in agriculture major enrollment at Penn State Altoona. Overall, agriculture major enrollment at Penn State Altoona has increased from 68 students in spring 2006 to 116 students in spring 2009. Eighty-nine students from fall 2006 to spring 2009 have changed to agriculture from science, human development, business, and English. The new agriculture classes offered and an increase in Ag Club activities have sparked an increase in campus advisors referring students to agriculture majors.

Key words: recruitment, non-traditional audiences

#293

The Elements of a Two-Year Equine Degree Program: A Delphi Study

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University of Wyoming

Chris Morgan
University of Georgia

Equine degree programs at two-year colleges are increasing in popularity yet there is little research describing the elements these programs should contain, which is a foundation for evaluating current or proposed programs. The purpose of this study was to determine the components necessary for an effective two-year equine degree program. The Delphi technique was used to gain consensus among instructors of equine programs at two-year public institutions located in western states offering an Associate's Degree in an equine science area. The results of the study suggest that an equine program needs support from the institution and the industry to be successful, have well qualified faculty, and a defined area of focus. Due to the diversity of the equine industry it is important that colleges determine an area of specialization and develop the courses, equipment, facilities and objectives to address that focus area. The top ranked program objectives were to prepare students to successfully compete for employment and to develop the skills needed to work in the equine industry by utilizing hands-on experiences and applied study. An interesting finding was the objective participants ranked lowest was preparing students to transfer to a four-year institution. Additional studies should be conducted to determine if the components found in this study are the same for institutions in other regions of the country and to identify objectives for specific equine courses. The information from this study may benefit two-year institutions by establishing a framework to use when implementing new equine programs or evaluating existing programs.

Key words: Delphi, equine, two-year

#296

A Case Study of Students' Perceptions of the "Transfer Zone" at Oklahoma State University

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University of Georgia

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Oklahoma State

Many institutions have implemented programs to facilitate the transition and integration of transfer students into their new environment, and Oklahoma State University College of Agriculture is no different. To assist students during their transition process the Transfer Zone learning community was established by the college in the pursuit of facilitating the integration of students into the academic and social climate of a four-year institution. The purpose of this case study was to evaluate this learning community by describing the transfer students' perceptions of the Transfer Zone using Tinto's (1975) model for integrating transfer students into a four-year institution. The study found the Transfer Zone learning community did not meet the needs and expectations of the students. It was perceived by students that the Transfer Zone did not contribute to their academic success, social integration, or involvement with clubs and organizations. Based on the findings of the study the researchers made several recommendations that included: improvement of living situations, faculty involvement, mentors, and structured group sessions. Additional research should be conducted in a longitudinal nature to shape the programming to meet the needs of future transfer students. In addition, specific goals for the Transfer Zone should be established and measured annually. Follow-up with participants that withdraw from the program early or do not return for the second year should be conducted to determine if the Transfer Zone could have helped to facilitate their retention.

Key words: learning community, case study, transfer students

#297

Entomology for Educators: Assessing Changes in Confidence, Motivation and Knowledge Base of Science Educators, Using Classroom Responder Technology

Carmen Greenwood and Jack Dillwith
Oklahoma State University

Entomology for educators is a newly developed course at Oklahoma State University designed to provide secondary science education majors, and educators currently working in the field with resources needed to use insects in the classroom. Insects provide an ideal system for illustrating a wide range of biological science concepts. They are inexpensive, readily available to educators, easy to rear, with proper instruction, and less regulated than other live specimens. Educators completed a series of 17 modules designed to enhance their knowledge base, confidence level and motivation to use insects as a model for science education in the classroom. Knowledge base, confidence, and motivation levels of the educators were assessed prior to and immediately after completion of the course. Assessment of changes in motivation and confidence levels of the science educators was based on Keller's ARCS model, named for the four components related to the learner's motivation: attention, relevance, confidence and satisfaction. An electronic classroom response system (CPS) was used for assessment and to solicit feedback throughout the course. Self-assessed confidence levels increased over 57%, motivation levels increased by 10%, and knowledge base performance increased by over 80% in some cases. The results of this study represent the first presentation of this course in the fall of 2008. Entomology for educators will be offered (and assessed) in the fall of 2009, with feedback from 2008 incorporated.

Key words: science education, assessment, entomology

#305

Poinsettia Production for Cultivar Trials Provides an Experiential Learning Opportunity

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Virginia State University

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University of Illinois

Student experiential learning opportunities are outcomes of the Mid-American Poinsettia Cultivar Trials conducted at Kansas State University, the University of Illinois, and Virginia State University (www.ksre.ksu.edu/poinsettias). At each location during fall 2008, students in traditionally-taught plant science and horticulture courses produced poinsettias that were part of the industry-sponsored cultivar trials. Various aspects of poinsettia production and marketing were covered throughout the semester using lecture and lab formats. Student learning outcomes were quantified using a survey with self-reported scores (Likert-type scale of 1 to 6 where 1=strongly disagree and 6=strongly agree) in response to a series of written statements. The same survey was given at the beginning and end of the semester. A total of 37 students across locations completed both the pre- and post-course surveys. Scores showed greatest increases with regard to confidence in being able to produce a high quality poinsettia crop and familiarity with poinsettia cultivars and their traits, and showed moderate increases related to some specific crop production practices. Scores increased least with regard to marketing considerations such as consumer preferences. Results at three universities suggested that experiential learning opportunities during production of a wide variety of commercial poinsettia cultivars yielded positive learning outcomes despite the differences in teaching methods used.

Key words: crop production, student learning outcomes

#306

Making Assessment Work for You: Assessing Communication Skills

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Virginia Polytechnic Institute and State
University

Most faculty would agree that communication skills are critical for today's college student. The question is, where do students gain such skills? Is it the role of each department to provide discipline-specific communication skills, or should the English and Communication Departments on campus be responsible? How does one assess students' communication skills? Prior to 2005, Virginia Tech had a "writing intensive" (WI) requirement, whereby students had to take one in-major course and one other course that had been approved as WI by the University Core Curriculum Committee (UCCC). In order to be approved as WI, the course had to meet a specified set of criteria, including the number of pages written and the number of times revision was allowed. The university has since moved to a broader communication requirement, ViEWS: Visual Expression, Writing and Speaking. Upon implementation of the ViEWS requirement, departments were tasked with "proving" to the UCCC that their graduates, by virtue of the courses taken in their curriculum, would meet the objectives of ViEWS. The approaches to fulfilling the ViEWS requirement varied greatly by department. Ideally, departments identified specific learning objectives for each communication component and created specific assessment techniques to measure learning outcomes. If designed appropriately, data could be used not only for internal documentation, but also to meet external accreditation or reporting demands. At a time when accountability and documentation are increasingly required, examples of well-designed ViEWS programs can be helpful to other departments that are struggling with the ongoing need for quality assessment.

Key words: communication, accountability

#310

Enhancing Citizenship in an Introductory Animal Science Class through Inquiry Based Experiences with a Campus Aboriginal Community

Laura Clark, Alex Pasternak, Erika Strande,
Dana Penrice, and Frank Robinson
University of Alberta

The major student project component of an introductory Animal Science class provided students with the opportunity to communicate an agricultural message to the general public through an evening of student presentations. While keeping the structure and framework of the project the same as previous "There's a Heifer in Your Tank" projects, the fall 2008 term was asked to develop topics around the relationships between the agriculture of today and the ties between animals and aboriginals in the past. Students were asked to communicate a minimum of ten science points based on their topic and to deliver them in a creative manner in a public forum involving 4.5 minute music and drama-enriched presentations. Aboriginal professors and elders associated with the University of Alberta advised students and mentored them through project planning. Topics ranged from a comparison of grazing techniques, to the use of the carcass, to the evolution of manure as a fuel source. Students were required to think critically about the implications of agriculture on societies of the past as well as today. An influential guest speaker from the Aboriginal community provided a keynote lecture the evening of student presentation. This process engaged the aboriginal community in a dialogue around agriculture, while providing animal science students with an unconventional learning opportunity. Examples of projects and student testimonials will be presented.

#314

Guided Inquiry Active Learning Strategies in Veterinary Medicine

Cheryl Bailey
University of Nebraska-Lincoln

Students in the Veterinary Medicine 2+2 program at UNL come from a variety of undergraduate institutions. Teaching molecular biology to veterinary students provides the challenges and opportunities of combining discipline-specific relevance with a high level investigation while working with a population of students with varying preparedness. Guided-inquiry active learning strategies can address these challenges and opportunities. First year veterinary students are provided with 60 base pairs of DNA sequences from genes of veterinary interest as found in *Animal Genetics*. Students are guided through active learning gene model activities and then through bioinformatics web-based programs to find complete gene sequences, proteins sequences, and protein structures. Literature and general web searches provide cellular mechanisms, specific reactions, and whole organism relevance of mutant and normal protein sequences. Students work in groups to produce a final poster that explains the particulars of the genetic sequence, mutations of veterinary interest, cellular pathways, and phenotypes of veterinary interest. This experience culminates with a poster presentations to interested undergraduates, graduate and veterinary students, and faculty. Genes explored regulate hair length in cats, double-muscle phenotype in cattle, tenderness in beef, and deafness in dogs to spider-lamb syndrome. Student assessment results and examples of guided-inquiry active learning are presented.

Key words: active learning, guided inquiry, veterinary medicine, molecular biology

#320

Developing an Inter-Disciplinary Studies Degree in Renewable Energy Doing More with Less

Kevin J. Bacon and Dave G. Hunter
Western Illinois University

Students enrolled in an honors course expressed an interest with the wind energy industry. From this interest, a survey course in wind energy was developed. As student interest in renewable energy expanded, a bio-fuels focus was added. The wind industry is rapidly expand-

ing in many parts of the country, particularly Illinois which already ranks in the top three states in ethanol production. A key challenge, especially for the wind industry, has been recruiting a trained workforce that wants to live in rural areas. Based on student interest and feedback from industry and government, a three-track interdisciplinary degree has been developed at Western Illinois University. Track one focuses on Public Policy, Planning, and Management. Track two is Wind Technology, and track three emphasizes Bio-energy Technology. Each track has been developed to facilitate the Illinois Articulation Agreement with community colleges. The degree involves faculty from multiple colleges and departments. Since a framework for granting interdisciplinary degrees already existed, there was no additional requirement for state approval allowing the university to move forward with the initial course offerings more quickly than normal. The degree tracks have been vetted with the wind energy industry, bio-fuels industry, and state government leaders via an advisory board. By using some existing courses intact and refocusing a few others, the degree program is being put into place with no additional faculty resources. The process undertaken to accomplish this goal in a time of increasingly scarce resources for new programs provides a model that others may find useful.

Key words: multi-disciplinary, wind energy, bio-fuels, degree programs, renewable energy, articulation

#322

Comparing Factors Used in Calculating Teaching Loads within the Delaware Study to Factors Used at the College of Agricultural Sciences and Natural Resources at the University of Nebraska-Lincoln

Dann Husmann
University of Nebraska-Lincoln

Land grant colleges across the country are experiencing tremendous stress in dealing with the current and future budget challenges that may drastically affect their ability to serve their students. The Delaware Study has been used in

determining faculty teaching load, direct instructional cost, and budgeted scholarly activity. The academic appointment for a faculty member in the College of Agricultural Sciences and Natural Resources (CASNR) includes undergraduate and graduate instruction, academic advising, advising student organizations, CASNR and university committee service, recruitment and retention activities, community service, professional service, and textbook and instructional software development. Consequently, standard parameters of productivity such as student credit hours generated were inadequate measures of a CASNR faculty member's contributions to the unit and college mission. This academic appointment formula was changed in September 2006 to align itself closer with the Delaware Study since over 39 states are now considering legislative mandates requiring a system of accountability reporting for its faculty members in higher education. This presentation will compare and contrast the various factors used to calculate faculty teaching load within the Delaware Study to the existing system used in CASNR. All colleges of agriculture must seriously consider how faculty-teaching loads are being calculated on their campuses so accurate and comprehensive responses can be provided to legislative bodies where state budget reductions are being debated and discussed. If left to data found only in the Delaware Study, inaccurate pictures may be developed that could drastically change the landscape of many of our land grant colleges.

Key words: Delaware study, FTE assessment, teaching FTE calculations, teacher workload

#324

Implications of Performance Assessment in Meats Abattior Procedures Practicum at Oklahoma Panhandle State University

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The purpose of this study was to develop an authentic assessment for laboratory practicums within the agriculture curriculum and to determine the effect the use of scoring rubrics had on inter- and intra- rater reliability as well as, the overall effect on student learning. A content-

related/performance based scoring rubric was developed to determine student proficiency in the laboratory practicum for the "Meats abattior procedures" course. The scoring rubric was used to assess student knowledge and proficiency during their performance in the laboratory setting. Prior to the development of the content related rubric, a score sheet with numerical values for key elements of the lab procedures was utilized to determine students' proficiency. All instructional personnel were provided training on the use of the scoring rubric to ensure consistency and reliability in scoring. Students were provided with the rubric prior to their performance in the lab practicum. During the course of the study, noticeable changes in intra-rater reliability were not noticed. This is attributed to one faculty member utilizing the existing assessment instrument that was developed and utilized solely by that faculty member over an extended period of time. Noticeable changes in inter-rater reliability were observed over the course of the study. Based upon a survey provided to the students, it was indicated that the new content-related/performance based scoring rubric facilitated student knowledge of expectations for performance in the practicum setting. Further use of scoring rubrics will provide increase authentic assessment in practicum/lab settings.

Key words: assessment, rubric, performance based practicums

#326

Riding to the Future: Assessing S.H.O.T. Educational Clinics

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Texas Tech University

The Stock Horse of Texas Association (SHOT) was formed in 1998 by interested horsemen, trainers, extension agents and faculty from state universities. Stock Horse of Texas has maintained an educational focus through collaboration with Texas AgriLife Extension offices and now offers clinics prior to every show as well as collegiate competition that has attracted competitors from colleges and universities nationwide. SHOT has experienced steady yearly growth and has now chartered the American Stock Horse Association (ASHA) which will im-

mediately begin the formations of other state stock horse associations. As a result it has now become important and necessary to assess SHOT educational clinics in order to improve these clinics to create a model program for implementation in new associations. Demographic data can be used to increased focus on interested groups for marketing and development. Learning, as defined in Kirkpatrick's Four-Levels of Evaluation Model, was used as the theoretical foundation for this retrospective pre-test questionnaire. Skill and Knowledge Level (SKL), Comfort Level (CL), and Demographics information was collected at nine clinics during the 2007-2008 show season. One hundred ninety-one responses were received, and all data were compiled in Microsoft Excel. Simple and weighted means were used to calculate percentages of increase from pre clinic to post clinic in SKL and CL. Increases by question across all shows were found in a range from 5.38% to 23.86%. SKL average increase was 17.37% and CL average increase was 14.76%. The overall average increase across all nine SHOT clinics was found to be 16.18%.

Key words: clinics, SHOT, assessment, education

#327

English Language Learning for Agriculture Majors: Assessing Learning and Teaching

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University of Puerto Rico, Mayagüez Campus

This presentation reports the results of a year-long, content-based, technology-enhanced, basic English course for native Spanish speakers. The course fused agricultural content, English language, technology, and academic strategy learning in order to increase the motivation and academic English proficiency of thirty incoming agriculture majors at the University of Puerto Rico in Mayagüez. The researchers assessed the program in several innovative ways. (1) Performance-based assessment measures were used in order to measure students' improvement in English. (2) Surveys were used to periodically assess students' technology learning. (3) Focus

groups and interviews were used to assess the students' motivations and attitudes toward the class. (4) Observations by teachers external to the project gave insight into the quality of the teaching and the integration of technology, content, English, and strategy learning in the classroom. (5) Researchers' own reflections served as a self-assessment of performance. (6) Retention rates of program participants were compared to overall agriculture major retention rates. The analysis of all of the collected data revealed several important outcomes. Results showed that students did indeed improve their academic English performance and their ability to use technology for academic purposes. Both qualitative and quantitative data showed that the combination of technology, agricultural content, and English increased student motivation and positive attitudes towards the field of agriculture. The materials developed for this basic English for agriculture majors course will be shared and techniques for implementation in different cultural contexts will be offered.

Key words: ESL, content-based language learning

#328

Teaching Assistant Collaboration in the Design and Implementation of Equine Behavior and Training Manual

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University of Arkansas

The semester-long Equine Behavior and Training Laboratory course at the University of Arkansas DE King Equine Program pairs students with a project horse. To ensure student success in achieving targeted course outcomes, University instructors enlist and share teaching responsibility with teaching assistants (TAs), who serve as peer mentors to the students in their charge. To organize the lab course, TAs also collaborated with instructors in the design and initial implementation of a supplemental course manual that organizes process and delivery of the instructional program. The TA manual mirrors the student lab manual, but reinforces student lab manual structure and significantly enhances its content by including setup times, equipment necessary for demonstrations, back

dated calendars, detailed checklists, and photographs. The shared design of the manual promoted TA engagement and responsibility and strengthened TA organizational skills, as focus group interviews document. The poster session (1) describes the process used in designing the TA manual; (2) indicates key components that reinforce the lab manual and provide clearer definition to the instructional program; (3) provides a sample instructional unit; (4) documents outcomes for TAs and students. Poster presenters include TAs who will share the completed manual and provide insight into the design process. The TAs will comment on their engagement in the teaching and learning process as they shared power with instructors in addressing learning objectives of a key course in the Equine Program curriculum.

Key word: student collaboration

#330

Implementing and Assessing Demand-Driven Curriculum

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University of Arkansas

This session describes a model for (1) defining specific program outcomes that relate to needs of potential employers; (2) adding objectives to respond to those needs; (3) assessing student outcomes in the curriculum; and (4) using assessment data to refine objectives and instructional activities to further connect curriculum with specific employer needs. A component of the mission of the University of Arkansas' Department of Animal Science is to "prepare students for productive careers in Animal Science and related fields." D. E. King Equine Program curricular objectives were reviewed using an Institutional Review Board-approved survey administered to potential Arkansas employers in 2006. Curricular objectives were rated by respondents on a Likert-type scale; skill-sets and objectives desired by potential employers were identified. Based on the results of this study, additional skill-sets were incorporated into Equine Program curriculum. Both an IRB approved instructor administered skill assessment and student self-assessment over course objectives were given

to students participating in capstone internships offered at the University. Preliminary findings indicate (1) that students' skills (meeting additional course objectives) were greatly enhanced by the internship, controlling for initial knowledge; and (2) that students rated themselves higher on a greater proportion of course objectives at the middle and end of the internship than at the start. Follow-up assessment continually refines the connection between instructional programming and program objectives. The presenters will share steps in the process linking employer needs to curricular outcomes, as well as data supporting conclusions that student learning in the equine program addresses newly added outcomes.

Key words: outcomes, assessment

#333

Harnessing the Power of Teamwork: Preparing Agriculture Faculty in the Effective Use of Teams

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Companies increasingly rely on teams to improve productivity, and consequently the agricultural industry will expect colleges and universities to prepare graduates to effectively work in teams. Instructors must be equipped to prepare students to fully capitalize on the power of teamwork. This study examined the affect of agriculture instructor training in, and practice of, methodologies to increase student teamwork knowledge, skills, and abilities. Eleven instructors in agriculture related courses underwent a year-long program of instruction in the effective use of teams. Instructors participated in a one-day workshop conducted by a nationally recognized expert in teamwork and monthly discussion groups, reviewed current literature, and integrated new teamwork pedagogy into their courses. Results of pre- and post-test scores of 350 students in agriculture courses indicated significant improvement in their teamwork knowledge, skills, and abilities. Implications of these findings for future research and practice are discussed.

Key words: teamwork, pedagogy, faculty training

#335

Distance Education Brings Opportunities to Place-Bound Students

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Redlands Community College

The purpose of the Agriculture Pathways Partnership, an online degree program offered through five colleges, is to provide access to higher education opportunities to place-bound students to complete their bachelor's degree. The Partnership is a hybrid degree consisting of distance and traditional courses offered by Missouri State University through the collaboration of distance sites. Students completing the Pathways program earn a Bachelor of Applied Science in Agriculture degree from MSU after completing 85 hours at the community college level and 40 hours of upper division hours through MSU. Students taking courses through MSU have the option of earning 40 upper-level credit hours through courses offered via interactive television, Internet courses, weekend courses, and internship experiences. This paper will report on an evaluation of the processes, outcomes, and impacts the Agriculture Pathways Partnership has on Oklahoma students. A mixed-methods design was used to collect survey and case study data. The focus of the evaluation was on the students being served at NEO and Redlands Campuses. The results will be used by site coordinators at NEO and Redlands campuses for improvement of the Partnership. According to the preliminary results, the majority of students are satisfied with the program. The results of the study demonstrate a need for further research. We recommend that stakeholders are included in additional discussions regarding the organization of the partnership. Our recommendations include improvements to current class schedules, interactive technologies, and program administration. Recommended additions include distance education teacher training workshops, student orientation activities, and weekend workshops

Key words: distance education, hybrid degree

#338

Assessment of Student Team Member Effectiveness in Collaborative Learning

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Collaborative learning groups of two to four students were used in multi-disciplinary and student-centered learning classrooms to assess how selected variables influenced team members' self-evaluation of ability to complete a project and how team members evaluated each other within their group. A peer-review survey model of assessment of team member effectiveness was revised by seven faculty of different disciplines and used to rate the significance of five variables on team collaboration and effectiveness. Variables were 1) member contribution to team work, 2) member interaction with teammates, 3) member keeping the team on track, 4) member expectation of quality, and 5) member having relevant knowledge, skills and abilities. The survey also asked teammates to provide comments on their scoring of each variable. The intended meaning of each variable with examples was given to help guide team members in their rating. All variables were rated on a scale of 1 (strongly disagree) to 5 (strongly agree). The survey was used in five courses (Accounting 4220, Biology 1009, Early Childhood Education 2300, Feeds and & Feeding 2104, and Hotel Restaurant 2231). The instructor of each course assigned team members based either on specific skills each member brings to the team and/or randomly assigned. Courses had different learning activities or projects. Data from each course were analyzed separately with the one-way ANOVA procedure. In general, individual variables effect on groups was significant ($P < 0.01$) in the Biology and Feeds and Feeding courses which had larger number of groups, but not in the other three courses with fewer groups. There was no difference ($P > 0.05$) between members self-evaluation and how they rated others within the same group for all courses. Modifying grouping strategy to improve collaboration between team members may provide for more effective and productive learning classroom projects.

Key words: assessment, team member, effectiveness, collaborative learning

#342

Effectiveness of Peer-Led Study Groups in Undergraduate Animal Science Courses: Do They Improve Student Academic Performance?

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Ohio State University ATI

This study examined the effectiveness of peer-led study groups on undergraduate student academic performance in animal science courses over a ten year period. Twenty-two classes derived from five courses over ten years were selected for peer-led instruction based on prior student course performance, enrollment, and rank. Faculty and staff selected peer instruction leaders based on past academic performance in the course. Faculty instruction remained consistent over the course of the study. Statistics were performed using SAS. Of the 718 students enrolled, 356 (49.6%) participated in at least one peer-led study session. Participating students attended an average of 4.0 + 3.6 study sessions per class. A positive correlation existed between study group attendance and course grade ($r = 0.24$, $p < 0.001$), cumulative grade point average (GPA) ($r = 0.22$, $p < 0.001$), and graduation ($r = 0.12$, $p < 0.01$). Additionally, a strong correlation emerged between prior academic performance (GPA) and course grade ($r = 0.73$, $p < 0.001$), and graduation ($r = 0.44$, $p < 0.001$). The study also showed a weak positive correlation between tutor and course grade ($p < 0.01$). Regression analysis of study sessions and course grade indicated that for each study group attended there was a +0.08 change on average in course grade. Therefore, students needed to attend four study sessions on average to improve their course grade (ex. B to B+), suggesting a cumulative effect. Anecdotal instructor observations suggest many students that would have benefited from study group participation simply failed to attend.

Key words: study groups, effectiveness

#351

Educating Leaders of Tomorrow, But Leaders of What?

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University of Alberta, Canada

You would be hard pressed to find an individual connected to any higher education institution in Canada, the U.S., or elsewhere around the world who has not heard someone use the phrase “educating leaders of tomorrow” when referring to the learning environment in their institution. In an age when our students enter the world to face increasingly complex global challenges, it is hard to argue that educating the leaders of tomorrow is not a worthy goal, particularly in the context of agriculture. But what does “educating leaders of tomorrow” really mean for our institutions or our individual teaching practice? This interactive session will provide an opportunity to discuss the rhetoric behind the phrase “educating leaders of tomorrow,” to discuss our own roles as university instructors in creating or facilitating an environment that develops our students as leaders ready to take on the great global challenges in systemic and adaptive ways, and to provide an example of a leadership framework that can help us unpack what it might mean to incorporate the development of tomorrow’s leaders as a fundamental learning outcome of our teaching and learning environment in agriculture.

Key words: leadership, global challenges

#352

Changing Times: Experiences from the Faculty Lives of Men and Women in Agricultural Education

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Brenda SeEVERS
New Mexico State University

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University of Arizona

John Elliot
Texas A & M University

The evolution of under-represented groups in Agricultural and Extension Education (AEE) reflects change. Updating the profile of professionals involved with university level AEE, was the primary goal of this study utilizing objectives addressing demographics, perceptions of the workplace and variation of experience among genders, ethnicities and years-experience. In 2005, the USDE reported female and minority university enrollment continuing to climb. Women make-up nearly 60.0% of bachelor's degrees, and minorities make-up approximately 25.0%--reflecting the changing face of AEE potential professionals. Insight into the experiences of professionals leads to understanding satisfaction within the profession. Data can be examined and utilized to increase retention of experienced professionals regardless of gender or ethnicity. The population included faculty, specialists, administrators, and graduate students at universities and in extension fields. Data reflected variations of job satisfaction. When asked to rate their level of job satisfaction, 50.0% of males reported being "very satisfied" with their position. No men reported "ready to quit." By contrast 27.0 % of women surveyed were "very satisfied" with their positions and 4.0 % of women reported either "dissatisfied" or "ready to quit." This profile serves as historical documentation of the changing face of AEE, and becomes a tool to remove barriers and obstacles preventing the embracement of diversity. Variations of the professional experience based on gender, ethnicity, and years-experience establish a mechanism for recognizing opportunities to welcome new faces and ideas. The fresh perspectives and modes of interaction provided by a diverse profession are essential to a diverse, global society.
Key words: gender, ethnicity, agricultural education

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Teaching Innovation Using Student Response System

Zahra Afrasiabi and Frieda Eivazi
Lincoln University

Student Response Systems provide a new way of transformation of knowledge in the classrooms. Instructors can explore strategies for allowing students to become active and responsible in their own education. It captures students' interest, draws them into the learning environment, and actively engages them. For the past two years we have been using student response systems (clickers) in our classrooms and designed clicker-based instructional strategies. To achieve the optimal benefits of this technology faculties must master the technical skills required by clickers, learn to design effective questions, and the art of classroom management. Our experience shows that students' participation and learning improves in the classrooms equipped with this technology compared to conventional lectures. This project is funded by USDA, 1890 Teaching Capacity Building Grant.

#354

Recognizing a Student and Curriculum Need: Developing IPM 5305, Principles of Pesticides, at the University of Florida

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University of Florida

Initiated in 1999, the Doctor of Plant Medicine (DPM) curriculum at the University of Florida has the goal of educating graduate students to enter the agricultural plant production industry. A missing component of the original curriculum was a practical course designated for teaching pesticide technology. Students that enter the DPM program don't necessarily have agricultural backgrounds, and thus, do not have a level of production practices, particularly to Florida conditions. Florida's environment is conducive to severe pest pressure in agricultural commodity production. In the early years of DPM, students were required to take advanced courses related to pest control, but having no foundation in pesticide technology. Principles of Pesticides, IPM 5305 was developed and offered in 2007. IPM 5305 is a web-based, three-hour credit course, which students access online during the week, but meet in person each Friday for discussion,

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review, and exams. The online portion utilizes Articulate software technology which allows PowerPoint® slides to interface with audio narration. A written text script is also provided for every lecture's slide. Initial student evaluations were overwhelmingly positive for IPM 5305.

#355

Installation of a Residential Irrigation System: A Significant Learning Experience in a Landscape Irrigation Undergraduate Course

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Kansas State University

An irrigation course was developed at Kansas State University by integrating several Irrigation Association professional training classes into a semester course for undergraduate students. A significant learning component of the course is the installation a residential irrigation system during the laboratory sessions. The project allows students to learn the procedural skills required to install an efficient irrigation system. In order to evaluate the influence this experiential learning project may have on student's confidence to perform particular irrigation skills, a survey was used. The survey was administered to 70 undergraduates during the fall 2006 and 2007 semesters prior to and after the completion of the irrigation system. Using a Likert scale, students responded to two questions pertaining to ten specific irrigation skills used during the installation project: 1) whether or not they actually performed the particular skill during the installation and 2) how confident they were to perform that aspect of installation on their own. The correlation between whether students actually performed the particular skill during the installation and how confident they were that they could actually do it on their own was significant ($r=.46$, $P<.0001$). During the fall 2006 semester, 38 students were asked to compare their actual experience installing the system to what they learned during lecture and by reading the textbook; participants said that installing the system greatly increased their understanding (Mean=7.84, SD=1.41) and increased their confidence to perform particular skills (M=7.84, SD=1.03). In general, students do benefit from

this type of experiential learning, as documented in the survey.

#356

Assessing Wiki as a Tool for Building Communal Constructivism in a Graduate-Level Course

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Wikis have been praised as tools that enhance collaborative writing within educational environments and move learners toward a state of communal constructivism. Many pedagogical claims exist regarding the benefits of using wikis. These claims, however, have rarely been tested empirically. This study used a three-year longitudinal cohort survey design to test the pedagogical claims of wiki when used as an assignment to create an online textbook in a graduate-level course. The overall survey mean for all three years was 2.5 on a four-point scale (2.0=not sure, 3.0=agree), indicating learners were marginally impacted by the wiki writing experience in terms of knowledge construction and enhancing critical thinking skills. Five variables with the highest means were student satisfaction with the wikibook (2.7), building the wikibook enhanced learning outcomes (2.8), student felt more responsible as a result of contributing to the wikibook (2.8), students perceived they were constructing knowledge within a community (2.8), and students critically assessed the information they created (2.9). Results from this study marginally support other researchers' assertions that interactive communication technologies create communally constructivist learning opportunities, resulting in civically engaged, life-long learners. Throughout the study, the course instructor and students learned that collaborative writing does not naturally spring from wiki work, but must be coaxed and nurtured through reward and a self-directed learning approach. While this study provided empirical evidence to test Holmes et al. theory, the sample size was limited and results should not be generalized to other populations.

Key words: wiki, communal constructivism

