

#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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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

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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 (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?

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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 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

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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

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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
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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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University of Florida

Jay Akridge and Freddie Barnard
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

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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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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

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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

Randy Burd
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 conceptual milestones. In addition, an end of unit laboratory exercises assesses collective factual, conceptual and practical knowledge. Course and instructor effectiveness is evaluated through online 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

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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 participated 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

Gail Nonnecke, Grace Marquis, Manju Reddy, Lee Burras, Steve Freeman, Kevin Saunders, Rameshwar Kanwar, and David Acker
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 explored 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

Jean Bertrand, Louise Wicker, Ronald Walcott, and Kecia Thomas
University of Georgia

Food and agricultural sciences offer excellent venues for application of disciplines of science, technol-

ogy, 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 attributed 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

Bakken instrument was determined to have content validity by a panel of experts, while face validity was determined by a field test with a like 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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Sandy Mehlhorn and Stephanie Ivey
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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 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 increased 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 (IDIR) is an assessment based on the Bennett Model of Intercultural Development. The IDIR 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 IDIR at the beginning of each course. The IDIR 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. Although 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

Chicktimmah, 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

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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

J. Robertson, Shelly Sitton, and Traci Naile
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: A Food Science Case Study

Naveen Chikthimmah, John Floros, Ryan Elias, Rama Radhakrishna, and John Ewing
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 stu-

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dents 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
Oklahoma Panhandle State University

Steven Frazee
Texas Tech University

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

Dennis Duncan, Jennifer Williams, and Chris Morgan
University of Georgia

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

Cindy Blackwell, Shelly Sitton, Amanda Erichsen, Dwayne Cartmell, Tanner Robertson, and Jessica Holt
Oklahoma State University

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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Nicholas Fuhrman
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-mmercials," 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 "edu-taining" way. Broadcasters presented seemingly dull content related to such topics as needs assessments, measurable objectives, and data analysis using songs, short movie clips, and humorous acronyms. Once students presented their e-value-mmercials 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 relevance 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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University of Georgia

Roslynn Brain
University of Florida

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

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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

Jeremy Robinson

Oklahoma State University

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

Ron Hanson

University of Nebraska-Lincoln

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 accreditation 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
Virginia Tech

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 questions 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
Virginia Tech

In our increasingly competitive world, college graduates must enter the workplace with the appropriate skills to not only survive but also grow their career.

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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 collaboration 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
Virginia Tech**

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 already 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 students 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

**Jeff Hattey, Melanie Bayles, Daren Redfearn,
and Sarah Lancaster
Oklahoma State University**

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

Cory Epler, Donna Moore, Jill Casten, and Thomas Broyles
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 application 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

Elizabeth Kreston

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

M. Whittington and Carla Jagger

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' attention 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

Emily Rhoades and Kelly Aue
The Ohio State University

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

Ashley Renck and Jason Scales
University of Central Missouri

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

Kimberly Williams
Kansas State University

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 enter-

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taining 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

Don Boggs

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Iowa State University

Ruth Williams

Kansas State University

Kenneth Esbenshade

North Carolina State University

Steven Waller

University of Nebraska

Paul Vaughn

University of Missouri

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 expertise 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

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 organiza-

tions 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

Alexis Barbarin and Nicole Webster
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 knowledge 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

Florah Mhlanga, Foy Mills Jr., Emmett Miller, 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 experien-

tial 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 particular 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

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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 individuals 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 programming.

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 reasoning.

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

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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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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 conducted 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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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 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

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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

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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

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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

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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

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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 educa-

tional 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

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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

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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

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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 effect in raising awareness.

Key words: raising awareness, seminar course

#340. Using Student Learning Outcomes in Course Design and Implementation

Candice Shoemaker
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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

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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 > 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 > 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 > 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

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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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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.

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