

Teaching/Undergraduate and Graduate Education Symposium: Adapting Our Teaching to Meet Current and Emerging Societal Needs

800 Effecting change in teaching and learning in the agricultural sciences. R. Kirby Barrick*, *University of Florida*.

Two recent reports provide insight regarding how teaching and learning in the agricultural sciences should and must keep pace with changes in society. The National Research Council (NRC) report (2009) on Transforming Agricultural Education for a Changing World and the Academic Programs Section (APS), Board on Agriculture Assembly of APLU report on Human Capacity Development (May 2009) serve as a call to action to meet the challenges of global competitiveness. The NRC report outlines 9 recommendations for change, and the APS publication offers recommendations to achieve 4 strategic goals for preparing the next generation of scientists and the agricultural workforce. Implications for action center on the following major areas: strategic planning, introductory courses, broadening the undergraduate student experience, faculty development, rewarding teaching, partnerships with other colleges and universities, connecting with K-12 education, partnerships with stakeholders, integration of teaching, research and outreach, doctoral education, recruitment and retention of students, and the utilization of technology. This session will attempt to place in context the recommendations of 2 major national studies with the initiatives of agencies such as USDA/NIFA and the National Science Foundation. Implications to consider in reviewing and updating teaching and learning in both undergraduate and graduate education will be shared with participants for further discussion and potential action in departments and colleges throughout the country.

Key words: teaching and learning, undergraduate education, graduate education

801 Perspectives on using values-based communications as a tool for preparing animal science students to address consumer trust issues challenging the animal industry. J. L. Garrett*, *JG Consulting Services LLC, Dowling, MI*.

Consumer choices and perceptions have a profound impact on global food production, supply and policy. Yet, criticism of animal agricultural practices by national and social media continues to erode consumer trust in the animal industry. Preparing Animal Science students to communicate facts, skills and competence is important in minimizing this decline in trust. However, research shows that communications demonstrating values are 5 times more important in building consumer trust than competence alone. The objectives of this presentation are to: 1) discuss current consumer attitudes and trust research specific to food and agriculture, 2) compare values-based communications with traditional approaches, 3) review and discuss values-based communications learning outcomes with dairy and crop farmers over the last 2 years, and 4) share literature and experiential based best practice considerations for incorporating values-based communications into the animal science curricula for better preparing graduates for success in a consumer-driven economy.

Key words: teaching, values-based communications, consumer trust

802 Course and activities based learning teams: A method of enhancing the first-year university experience. M. D. Kenealy*, *Iowa State University*.

In 1995, under the direction of the Center for Excellence in Learning and Teaching (CELT), Iowa State University (ISU) began testing the concept of course-based learning teams (LTM) with the goal of enhancing the first year experience of students, improving academic performance, and increasing retention rate. The Department of Animal Science (AnS) joined the university effort and placed approximately one-third of freshman students in course-linked LTM's. Students were grouped in teams based upon species interest and level of academic achievement during high school. A typical AnS LTM included linking AnS orientation, introductory AnS, introductory biology, and English composition for a group of 13 students. Faculty in the courses exchanged texts and syllabus materials with the linked English lecturer so that students could write about science topics and see the connections in their learning activities, thereby avoiding the silo concept of education. Additionally, each AnS LTM was assigned an upper-class student mentor and an academic advisor to guide additional team activities, such as study sessions, industry visits, and participation in club activities. As a program incentive, competitive grant monies were available from CELT to compensate student mentors and support LTM programming. Animal Science faculty used the programming grant monies to sponsor field trips to industries and organizations to introduce LTM members to potential internships and careers. Over 15 years, average first year to second year retention rate for ISU was 8 percent higher (89 vs 81 percent) for LTM students versus control groups of non-LTM students. Average 6 year graduation rate was 12 percent higher (74 vs 62 percent) for the LTM students. For FY2010, AnS freshman average cumulative grade-points were: linked-course LTM's: 2.96 (4.0 scale); non-course-linked LTM's: 2.91; non-LTM students: 2.52. Comparison group surveys validated that LTM students had higher satisfaction and engagement with their department and ISU at the end of their first year at the university.

Key words: learning teams, graduation rate, student retention

803 Innovative and effective practices for student development—What are the difference makers? D. Mulvaney*, *Auburn University, Auburn, AL*.

Our animal and allied industries are confronted by a complex array of contemporary issues and problems and need a well-prepared workforce ready to address them. Educational programs in tertiary institutions need to persist in preparing students for life after graduation that: 1) enables them to innovatively solve problems that do not yet exist, and 2) present skills that are most highly demanded or coveted by employers. Are we utilizing available student development theory and data to intentionally prepare students for productive adaptive futures in a constantly changing, flat world? Development of the whole, well-rounded student is a complex process. While multiple theories surround evidence-based practices contributing to student development, the academy may not always incorporate programming insights found in a rapidly growing body of literature focused on growth and development of students. Learning and experiential outcomes for Animal Science curricula often transcend the classroom alone and include opportunities for development of life success skills, work experience, project-based experiential learning, leadership development, emotional intelligence, and social skills to name but a few. The National Summit on Higher Education in Agriculture combined with a National Academies Report on: The New Biology for the 21st Century: Ensuring

ing the United States Leads the Coming Biology Revolution, reinforce the importance of reexamining our approaches to student development and clearly identifying the difference makers. Of benefit to faculty, students and decision makers, this careful examination of theory and application of best practices for development of contemporary Animal Science students should lead to recommendations for strengthening learning environments which foster development of leaders and professionals essential for addressing emerging challenges of the day.

Key words: animal sciences, student development, best practices

804 Best practices in designing undergraduate research experiences in animal science curricula. C. Rosenkrans Jr.*[,] *University of Arkansas, Fayetteville*.

Experiential learning is an excellent method of facilitating student learning and includes a variety of techniques for student discovery of knowledge. Undergraduate research is an experiential learning technique that is well suited for motivated students who are interested in applying or extending a classroom concept. Identifying students that are a good “fit” in the mentor’s research program is essential for successful undergraduate research programs. I have found that a personal interview is the most efficient method of determining if mutual research interests exist and if the student and mentor have compatible personalities, i.e., “fit.” However, others prefer to assess “fit” by asking the student to write a brief research proposal before accepting the mentee. After a mentor-mentee match has been established it is incumbent on the mentor to: explain the ethics and importance of quality data collection; establish the learning experience and work expectations; design a challenging research project that can be completed by the student in a timely manner; ensure that supervision is encouraging and occurs in a timely manner; and complete the process by assisting the student in disseminating their results. Students at UofA have the opportunity for oral presentations at professional society meetings (ASAS, etc.), and local events sponsored by Gamma Sigma Delta. Publication opportunities include local undergraduate research publications (Discovery and Inquiry), departmental publications, and peer-reviewed journals. Undergraduates who successfully complete research projects have a more thorough understanding of Animal Science, and enhanced skills related to analysis, interpretation, and communication. In addition, students typically graduate with a greater connection to the department. Undergraduate research is an experiential learning technique that enhances the collegiate experience for our students, and integrates the teaching and research missions for a faculty member.

Key words: scholarship, student learning, integrated projects

805 Casting a line—Creating a national Scholarship of Teaching and Learning (SoTL) for animal sciences: Adapting to the gaps through SoTL and networking. M. A. Wattiaux*, *University of Wisconsin-Madison, Madison*.

In college classrooms both teaching and learning are inextricably linked, yet for the most part each continues to reside in different domains. The gap between what students actually learn and what they should learn was addressed when Schillo (1997; *J. Anim. Sci.* 75:950–953) drew a sharp contrast between indoctrination (claiming knowledge of scientific fact without critical evaluation) and education (ability to think analytically and make independent judgments about scientific claims). Arguably, the gap between what—and how— instructors actually teach and what—and how—they should teach, remains a professional challenge if not an emotionally charged issue that few are willing to raise. Given the realities of academia (funding, time constraints, reward

system), the prospect for instructors to engage in scholarly teaching as an integral part of their professional identity remains an elusive proposition because of: a) lack of graduate training, b) departmental, college or university cultural norms, c) expertise and effort involved in pedagogical research, d) lack of reward, or e) unawareness. Studies have revealed that in order not to jeopardize professional progress, a choice is often made not to oppose traditional ways of teaching. However, the lack of negative correlation between research outcomes and teaching effectiveness should serve as a guide to allow for part of the open space that comes with academic freedom to be committed to high impact teaching practices. Although SoTL (the systematic inquiry into the learning environment for the purpose of advancing the practice of teaching within a discipline in making research findings public) is the most demanding form of commitment, small but significant networks are also effective tools to channel creativity and innovation that cultivate continuous improvement of teaching and student learning. At any point in one’s career path, documenting the impact either may have on student learning could serve to alleviate some the aforementioned barriers. There is a need to lay the foundation of an integrated framework that aligns clearly opportunities with expectations and rewards for scholarly teaching efforts in the animal sciences.

Key words: SoTL, pedagogy

806 Casting a line—Multi-institutional collaborations to enhance animal science education. D. L. Boggs*, *Kansas State University, Manhattan*.

Comprehensive undergraduate curricula in animal sciences have traditionally consisted of relevant disciplinary courses and courses that applied these disciplines to management of all relevant species within a state or region. Consolidation of many animal industries has decreased the number of students entering animal sciences programs with background in these industries and interest in exploring them as career options. Thus the enrollment in many species based courses has decreased below the threshold of viability. At the same time, budgetary restrictions have decreased the ability of colleges and universities to maintain a critical mass of faculty within some disciplines and species. Therefore, many departments have eliminated faculty positions as well as animal facilities for experiential learning and are no longer able to offer comprehensive curricula. This first manifested itself in poultry, where budget redirections eliminated many departments, farm units and faculty positions. Recognition of the need to still develop professionals for the industry led to the development of the Midwest Poultry Consortium, a collaborative program to educate students for this industry. Collaborations need to expand if we are to comprehensively educate professionals and leaders for animal industries. Distance education technologies provide numerous opportunities for faculty to work across institutional and physical boundaries to provide innovative educational programs. The Institute for Academic Alliances at Kansas State University identifies the following keys to successful collaboration: commitment of faculty and administration to quality programs and e-learning, work with similar organizations, and combine complementary areas of expertise. AG*IDEA is an affiliate of the Great Plains Interactive Distance Education Alliance and provides an infrastructure for faculty and students to participate in educational collaborations. The AG*IDEA Swine Science Online Certificate is an example of a collaboration among several universities and industry. Opportunities exist to enhance educational opportunities via multi-institution collaborations.

Key words: collaboration, AG*IDEA, distance learning