Solving Problems in Agricultural Education, Communications, and Leadership through Undergraduate Research: A Mentoring Opportunity for Doctoral Students

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Introduction/Need for Idea

Undergraduate research is becoming more common in agricultural communications and related programs across the nation (Stebner, King, & Baker, 2016). However, undergraduate research is not prominent in our department at Oklahoma State University. Faculty within the department regularly teach an overloaded assignment of courses each semester, therefore undergraduate research is not readily available to interested students. Undergraduate students in our majors regularly consider graduate school but have little understanding of what research looks like in social science.

The research that has been done regarding undergraduate research has been specifically around faculty-led project. However, beyond graduate teaching responsibilities, no formal opportunities existed for doctoral students to mentor students. As mentorship is essential in a faculty role, particularly in research, and is a learned skill, we were interested in developing and practicing that skill. Past studies have indicated a need to prepare doctoral students for faculty life (Austin, 2003). The changing context of higher education demands different and new understandings, abilities, and skills exceeding those doctoral students have previously been ready for. Researchers have called for aspiring faculty members to "engage in all aspects of research and develop a range of teaching skills" (Austin, 2003, p. 139). Mentoring undergraduate students through the research process fulfills both of those calls. A pilot course of undergraduate research taught by doctoral students was launched to benefit both doctoral student faculty development and the department itself.

How It Works

The idea for this pilot course emerged after conversations among doctoral students and junior faculty about creating more professional and faculty development opportunities in the department for those with an interest in academic careers. As a result, two doctoral students created a course proposal for a one-credit hour pilot undergraduate research course, which included a sample syllabus, course description and learning objectives, equivalent course offerings at peer institutions, and a cost-benefit analysis for the department and students. A junior faculty mentor was identified to guide the doctoral students and approval was received from the department head. AGCM 4990: Solving Problems in Agricultural Education, Communications, and Leadership through Undergraduate Research was offered as a pilot one-credit hour special problems course during the subsequent fall semester to guide Agricultural Education, Communications, and Leadership undergraduate students through the stages of conducting a research project and reporting its outcomes. Course topics broadly included the development of research questions and objectives, conducting literature reviews, research design, data collection methods, data analysis techniques, and reporting in a project-based, student-centered format.

We targeted junior and senior students majoring in agricultural communications, agricultural education, and/or agricultural leadership with interest in graduate school and research for the course. Class capacity was capped at 10 students, with the goal of enrolling a diverse group of students from all three undergraduate major programs in the department. Four students representing each undergraduate major ultimately registered for the course. The doctoral students facilitated the undergraduate research team in brainstorming and identifying a research topic and conducting a literature review to create their own research problem, purpose, and questions. This project-based learning course was thus designed to allow flexibility and adaptability to the student's project and interests throughout the 16-week semester. Instructors and students utilized the course learning management platform to provide supplemental materials and readings to students during the week in

order to focus “in-class time” on content related directly to the chosen research project and project planning.

Results to Date/Implications

Once IRB approval was received the undergraduate research team conducted a quantitative study, with data collected and analyzed. Every student who participated in this course has expressed a continued interest in further undergraduate research and advancing their education through graduate work in our discipline. Students submitted a poster abstract for a 2020 national conference. A follow-up course is currently being taught to create a full-research article regarding their topic. The students also plan to participate in university-wide undergraduate research symposiums, creating an opportunity to build awareness of the department. As a result of the research experience, the undergraduate students have developed and improved their skills in problem solving, critical thinking, decision-making, project management, self-leadership, capacity to work in effective teams, and written, verbal, listening and visual communication. Additionally, our skills and comfort as teachers, particularly co-teachers has improved. The multidisciplinary aspect of the teaching team increased our awareness of research being done in related disciplines. Moreover, our respect and understanding of one another’s disciplines has grown and evolved.

Advice to Others

It is strongly recommended for departments to consider providing a similar opportunity to doctoral students in their programs to learn how to mentor and teach undergraduate research. Reflection on our experience serves as the basis for our advice to doctoral students teaching a similar course to (a) schedule weekly instructor meetings to debrief, adjust, and plan for the next week, (b) co-teach the course with two or more doctoral students from more than one discipline (all parties seemed to benefit from a multidisciplinary approach), (c) be flexible in the course design, but still include accountability (our students needed firm deadlines, expectations, and grades or points associated with each activity they were asked to complete), (d) narrow potential research topics for students prior to the start of the course and collect literature on the topics for students to begin their literature review, (e) be sure that all students have buy-in with the research topic and from their academic advisors, (f) consider studies in our profession that need to be replicated and/or use an instrument with established reliability and validity, (g) maintain frequent communications via the course learning platform, (h) ask for help, be willing to admit what you do not know, and utilize faculty resources in the department to fill in the gaps (do not forget that this is a learning experience for you, too), and (i) dust off your research methods textbooks and course materials (they will come in handy more than you know!).

Costs/Resources Needed

The investment needed for this process were minimal. A small conference room in the department was used once a week for one or two hours to not compete with limited classroom space. Doctoral students provided time and energy into course development both before and during the semester. Revenue the department earned from the course offering is budgeted to support student travel if deliverables from the project are accepted to future professional conferences. Undergraduate research teams can be guided toward free or low-cost projects and methods. If additional funding is needed to support research efforts, university and college level undergraduate research grants and fellowships may be applied for.

References

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