Development of an Agricultural Mechanics Course for Preservice Teachers

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Introduction

Changes within post-secondary agricultural mechanization programs have led to a discontinuation of hands-on skill oriented courses in agricultural mechanics for preservice teachers (Burris, Robinson, and Terry, 2005). This has forced some teacher education programs to assume the task of providing instruction regarding technical content, laboratory management, and instructional methods in agricultural mechanics (Hubert & Leising, 2000; Johnson, Schumacher, & Stewart, 1990). In light of this national trend, _____ University developed and offered a one credit hour workshop on methods for teaching agricultural mechanics in 2002.

The workshop was an interim step towards offering a permanent course to develop preservice teachers' agricultural mechanics competencies through hands-on instruction. The workshop was discontinued in 2003 and 2004. It was later revised and offered again in 2005 and 2006. The revised workshop only provided 16 hours of instruction. This did not reflect the importance of the needed skill sets. Due to a lack of equipment, no available laboratory site, and no available instructor within the department; the instruction for the workshop was done by an agriculture teacher at a local high school. Enrollment was voluntary. Students who chose to enroll in the workshop commuted six miles. This was done twice weekly during a four-week block prior to student teaching.

In 2006 the department entered into a collaborative agreement with the department of animal science, the _____ farm, and _____ University's research and demonstration farms. The agreement was made in order to build a new facility as a step towards developing a more permanent solution to address preservice agriculture teachers' instructional needs and to provide a central location to service the university's research and teaching farms. Land was donated by the _____ farm so that in 2007 a 5,760-square-foot building was constructed. Approximately 2,100-square-feet were dedicated as an agricultural mechanics teaching laboratory. This provided the foundation for an agricultural mechanics methods course to be included in the teacher education program. The development of the course is the focus of this poster.

Purpose

The purpose of this poster is to share our experiences in developing and implementing a course on methods for teaching agricultural mechanics for preservice agriculture teachers.

Procedures

- A graduate student with prior experience in teaching agricultural mechanics was recruited to pursue a doctorate in order to help coordinate instruction, develop curriculum, and to secure equipment and supplies for the course.
- Most of the equipment was donated by local secondary agricultural education programs and the departmental farm. Other pieces of equipment were purchased from retailers at an educational discount.

- An experimental course request placing emphasis on methods and management techniques for agricultural mechanics laboratories was submitted and approved by the department. Topics for the lecture component of the course included safety, management of students, instructional techniques, facility planning, and management of equipment and materials. The laboratory portion of the course focused on mechanical skills development in small engine technology, electricity, and welding as well as practice for teaching those skills.

- The course was approved to be included in the 2009-2011 University Catalog as a three credit hour course with one hour of lecture and six hours of lab per week The departmental curriculum committee included the course as a core agricultural science requirement for agriculture and life science education teacher certification majors.

- The course was taught for the first time in the fall of 2008. Classes met on Mondays from 1:10pm to 3:00pm and Wednesdays 1:10 to 4:00pm.

Results

- Preservice teachers received hands-on instruction that focused on technical content integrated with curriculum design, instructional planning, and laboratory management.

- Thirteen students participated in the fall of 2008, eight participated in spring of 2009, and 13 are enrolled for fall of 2009.

- Students gave high course evaluation ratings. Students supported the course and encouraged the continuation of the course with a similar format.

- Students were provided resources including safety information, skill sheets, and presentation notes via WebCT.

- Students developed an agricultural mechanics teaching portfolio which included lesson plans and laboratory management plans.

Future Plans

We plan to offer the course every semester. More skills will be included as equipment and funding are identified. An additional course will be developed and offered in the future

Resources Needed

A student fee was charged for purchasing consumable materials and supplies. Departmental funds were used to acquire additional equipment not donated by other educational institutions.

References

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