

Empowering Preservice Teachers Through Professional Development

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Introduction

Professional development workshops are used in education to provide teachers with new knowledge and strategies for promoting learning and engaging students. Research recommends that professional development must provide authentic opportunities allowing teachers to gain subject matter knowledge and make connections to curriculum standards (Supovitz & Turner, 2000). Desimone, Porter, Garet, Yoon, and Birman (2002) found teachers who attended professional development with a focus on instructional practices later implemented those instructional practices, benefitting both the teacher and students in the classroom.

In 2015, the College of Education implemented a requirement that all teacher candidates must have completed 4.5 professional growth units (PGU) in order to be recommended for teacher licensure. Nearly all professional development opportunities in the college are general in nature, thus lacks little appeal to many of our preservice teachers. Though our student teachers complete 32 to 38 hours of agriculture content courses, they lack ideas and resources for implementation of agricultural activities in their lessons.

How it Works/Methodology

Professional development was offered to agricultural education majors in Fall 2014, Fall 2015, and Spring 2016. The topics of the professional development workshops focused on forestry, animal science, and climate change/forestry, respectively. Colleagues in the College of Natural Resources and Project Learning Tree delivered the forestry and climate change professional development. A current agriculture teacher and a doctoral student delivered the animal science.

Agriculture professional development sessions were four hours in length allowing each student to receive 1.5 PGU for each session attended. Each of the fall professional developments started at 4:00 or 4:30 pm, while the spring 2016 session started at 1:00 PM. The fall sessions were held on Monday and Thursday evenings, while the spring session was held on a Friday afternoon.

At each session, preservice teachers participated as students in the learning activities (see Table 1). Each preservice teacher also received complete activity plans and/or curriculum materials both electronically and in print. This enabled them to replicate the learning activities within their micro-teaching and student teaching. Teachers and facilitators modeled how to lead the activities and how to elicit student thinking about the underlying agricultural and natural resources concepts.

Results to Date/Implications

Students indicated that they appreciate the opportunity to learn about activities related to agriculture content. In the fall 2015 *Methods of Teaching Agriculture* course, preservice teachers implemented several of the animal science activities in their micro-teaching practices. Thus far, student teachers in the spring 2016 semester also appear to be implementing activities learned from the professional development. Attendance at the professional development has been strong. From the attendance trend, it appears that starting in the late afternoon best aligns with student schedules.

Table 1

2014-2016 Professional Development in Agricultural Education

Time	Topic	Typical Activities	Attendance
Fall 2014	Forestry	Timber stand improvement, percolation tests, modeling competition for nutrients	38
Fall 2015	Animal science	Administering shots, ear-tagging, dissecting a ruminant digestive tract	21
Spring 2016	Climate change	Modeling the carbon cycle, timelines of climate change research and policy	12

Future Plans/Advice to Others

Planning future professional development is important for preservice teachers who are seeking additional skills to prepare them for their careers. Current juniors and seniors majoring in agricultural education were asked to rank order a list of topics they would like for future professional development. Interesting agricultural applications activities (*rank order* $\mu = 2.9/7.0$), engaging horticulture course activities (*rank order* $\mu = 3.2/7.0$), classroom management for effective learning (*rank order* $\mu = 3.3/7.0$) were ranked highest by students. Additionally, students could submit their own topics and three students indicated a need for animal science activities.

We anticipate offering one content-focused professional development to our agricultural education students each semester. We will also monitor the implementation of these learned activities and projects into micro-teaching and student teaching.

Currently, our agriculture teacher preparation faculty noticed a growing void between what students learn in their agriculture course and their ability to translate that knowledge into classroom- or lab-based learning activities for their students. Perhaps this void exists because fewer and fewer of our student teachers have concrete agriculture experiences in their backgrounds. We anticipate that it will be increasingly important to provide professional development to bridge the gap between agriculture content knowledge and pedagogic instruction in education.

Costs/Resources Needed

We provide an honorarium of \$50.00 for agriculture teachers, and cover their mileage to campus. Additionally, we budget \$250.00 for materials and \$100 toward a modest meal for students and our guest facilitators.

References

- Desimone, L. M., Porter, A. C., Garet, M. S., Yoon, K. S., & Birman, B. F. (2002). Effects of professional development on teachers' instruction: Results from a three-year longitudinal study. *Educational Evaluation and Policy Analysis*, 24(2), 81-112.
- Supovitz, J. A., & Turner, H. M. (2000). The effects of professional development on science teaching practices and classroom culture. *Journal of Research in Science Teaching*, 37(9), 963-980.