

**The Incorporation of Micro-Teaching Experiences to Enhance CASE AFNR Integrated  
Institutes for Preservice Teachers**

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### **Introduction/Need for Innovation**

The University of Arizona introduced the Curriculum for Agricultural Science Education (CASE) Agriculture, Food, and Natural Resources (AFNR) integrated institute into required coursework for all preservice agriculture teachers in the Fall of 2017. The integrated institute spans over the course of 16 weeks to follow the University semester schedule, which is vastly different than CASE's original 10-day institute model (CASE, 2019). In the 10-day institute experience, the professional development is geared towards participants who already have some experience within the classroom, so the focus lies within the logistics of completing the major labs. However, many integrated institutes are focusing on participants who have not yet taught in a formal classroom setting because it is offered prior to their student teaching experience.

Through the inaugural cohort of the University of Arizona's integrated institute in 2017, there was a noticeable disconnect between the foundational science concepts preservice teachers needed to understand and the inquiry-based labs they were asked to complete. Additionally, there was a deficit of knowledge related to how this curriculum would translate to actual high school students in the traditional classroom setting. Preservice teachers commented in course evaluations that they didn't comprehend the "why" behind the labs they were completing in class or how it related to the overall objectives for the lesson or unit. The format of a CASE institute is fast paced and while it does allow time for participants to complete a large portion of the lab activities; a traditional institute does not have extra time available to address foundational content delivery or developing the felt need to learn for high school students. This coupled with the lack of experience in preservice teachers presented a dilemma- how could these important foundational concepts be made explicit during CASE and how can preservice teachers be encouraged to understand the content at a level that allows them to develop meaningful well-rounded lessons associated with state standards?

From that disconnect, the professor decided to incorporate micro-teaching experiences into the required participation and grading criteria for the integrated CASE AFNR institute in Fall 2018. Micro-teaching simulations have been an effective method used in agriculture teacher preparation for decades (Newcomb, McCracken, Warmbrod, & Whittington, 2004). Engaging in a micro-teaching scenario forces preservice teachers to place themselves in the role of a professional and design content that includes not only the lab applications found in CASE, but also to focus on brief content delivery and developing an interest approach to elicit a felt need to learn for students. While CASE curriculum has inquiry-based labs that allow students to truly inquire into the agricultural science subject matter, it only provides a brief content outline for foundational content knowledge and does not address interest approaches, a crucial component to the learning process (Newcomb et al., 2004).

### **How it Works**

To begin this implementation, the professor and teaching assistant went through the entire CASE AFNR curriculum to choose three specific labs that were most difficult for students to process through during the Fall 2017 CASE integrated institute course. These three labs were spread out throughout the semester and served as the basis for the three micro-teaching assignments. The labs chosen included: 4.3.4 Testing for Quality, 5.2.5 Refueling Plants, and 6.1.2 Electrical Power (CASE, 2019). An additional lab, 3.1.4 Measure Me, was taught by the teaching assistant early in the semester to model expectations for the three micro-teaching assignments to be completed by students. Students within the course worked with a partner and

were assigned one of the following components of the lesson: interest approach and conclusion, content background, or lab preparation and procedures. These components were taught in the order of a typical lesson, with everyone completing the lab activity application as outlined by CASE. Each micro-teaching was worth 5% of their total course grade, for a total of 15%.

Students assigned to the interest approaches and conclusions section were required to think about how they were going to capture the attention of the audience to create a felt need to learn and how they were going to wrap up the crucial and main points at the end as a check for understanding. This led students to making explicit connections as to why this content was important. Students assigned to content background section were encouraged to look at the resources and visuals that CASE had already provided to introduce the topic and background knowledge. They could then update content and incorporate other activities, demonstrations, or information, and delivered the information primarily through lecture and discussion. Finally, the students assigned to lab preparation and procedures had to generate a plan of how they were going to help their fellow students understand the instructions or equipment associated with the lab. After these components were planned, one entire class period (approximately 3 hours) was dedicated to completing the specific lesson with each pair of co-teachers presenting their assigned component of the lesson. Following the lesson, each student was provided constructive feedback on their teaching experience from the professor, teaching assistant, and peers.

### **Results to Date/Implications**

The students of the 2018 University of Arizona CASE integrated institute course were unanimously in favor of the integration of the three micro-teaching experiences upon completion. One student commented that the micro-teaching experience, “helped me to gain a greater understanding of the applicability of the curriculum to my future students.” Another student stated, “by designing an interest approach for content, I was able to understand the content more deeply and better maneuver through the curriculum.” Another student comment was, “the elaboration on the content through teaching allowed me to better comprehend the science behind the lab.” Observations of the professor and teaching assistant confirmed these comments and noted a reduced disconnect related to students understanding of how to utilize and implement the curriculum resources and lessons compared to the previous year. It is also important to note that the 2018 enrollment was only six students, which might not be reflective of the size of the cohort for future years.

### **Future Plans/Advice to Others**

The University of Arizona integrated CASE institute is planning to continue these microteaching experiences for future iterations of the course. It is recommended that other universities implementing an integrated institute with preservice teachers consider adding micro-teaching to their required coursework.

### **Costs/Resources Needed**

This idea did not require any additional cost or resources, just time in the schedule to allow for the micro-teaching experiences.

### References

Curriculum for Agricultural Science Education (2019). Retrieved from <http://www.case4learning.org>

Newcomb, L. H., McCracken, J. D., Warmbrod, J. R., & Whittington, M. S. (2004). *Methods of Teaching Agriculture* (3rd ed.). Upper Saddle River, New Jersey: Pearson Prentice Hall.