

## **Initiating Inquiry through Cultivation of Professional Identity: *Blending pre-service and in-service professional learning.***

### **Introduction**

Inquiry-based learning has become a critical piece of pedagogy and component of reform in 21<sup>st</sup> century classrooms (Harris & Rooks, 2010), thus it is a critical content area for agricultural teacher education programs in universities, both for pre-service teacher candidate development and in-service professional learning. From student engagement to retention of material and sustained interest, inquiry-based learning presents benefits for education in applied STEM contexts like agricultural education courses. Providing shared professional learning opportunities for mixed populations of pre-service and in-service teachers concurrently may have the ability to maximize the time of overloaded faculty (Sheets et al., 2018) as well as cultivate a shared professional identity and sense of belonging in teacher candidates (Masry & Saad, 2018).

Inquiry-based learning is a strategy that has been shown to encourage cognitive development, critical thinking, and intellectual growth in students (Phipps et al., 2008). A study from Baldock & Murphrey (2020) showed that students not only preferred inquiry-based learning opportunities but expressed an interest for more inquiry-based learning opportunities to improve their critical thinking skills. For the successful integration of inquiry-based learning to occur in classrooms, teachers must be given the training and tools to do so. Silm et al (2017) conducted a qualitative study to appraise teacher efficacy in respect to inquiry-based instruction after training. The strongest effects on attitude were resources and confidence in inquiry-based learning motivating students. While sometimes educators run into barriers initially as evidenced by Blythe et al. (2015) in a study on integration of inquiry-based learning in classrooms, educators did report that students learned noticeably more than with traditional teaching methods. Given the body of knowledge on the benefits on inquiry-based learning, the need for professional development opportunities to improve teacher efficacy in delivering inquiry-based instruction, and the benefits of developing teacher identify and professional belonging, the Center for Professional Personnel Development at The Pennsylvania State University (PSU) hosted professional learning institute on inquiry with blended targeted populations of pre-service student teacher candidates and novice in-service teachers. The goal of the institute was to provide professional development in the areas of designing and delivering lessons using inquiry-based learning for new and beginning teachers in Pennsylvania.

### **How it works**

The Center for Professional Personnel Development at PSU developed a two-day institute at the campus hotel with programming starting in the evening and running through the end of business the following day. An out-of-state, external presenter was engaged to facilitate six sessions, one on the first evening and five the following day. The qualifications for the presenter were both teaching experience and holding the designation as a National Agriscience Ambassador. Each session was one hour long and included: materials for the learners, documents for the participants to use later in their classrooms, and time to complete the activity in pairs. When possible, pre-service candidates were paired with in-service educators to encourage

networking across teacher developmental stages. All instructional materials and supplies were secured two weeks prior to the program and topics covered included animal science, plant science, ecology, epidemiology, and agricultural mechanics. Participating educators received a three-ring binder to assist in productive reflection. All lesson materials were available both in hard copy and digitally on a google drive folder upon completion of the event.

### Results to Date

Twenty-four participants came to the Inquiry Institute at PSU to engage in two days of professional development. Results from a program evaluation of the responding participants (n=9) with items on a scale from 1 to 5 indicated that the workshop was well run (m=4.67, SD=.47) relevant (m=4.89, SD=.31), and the instructors were prepared (m=4.89, SD=.31) knowledgeable (m=5.00, SD=.00), and helpful (m=4.89, SD=.31). All participants who completed the post-institute survey indicated that they would like to see the Inquiry Institute offered again next year. In addition to sentiments on the programming, each of the participants pre-service participants also included reflections on the event in a blog post as part of their ongoing documentation of their teacher education journey for the 2021-2022 academic year. In addition to the blog, candidates were also tasked to use at least one of the six sessions in their instructional design for a course during their student teaching placement.

### Future Plans

The positive sentiments captured in the evaluation of the Inquiry Institute as well as the deliverables that came from working with an experienced master teacher to facilitate the event have led the Center for Professional Personnel Development at PSU to begin plans for the next Inquiry Institute this upcoming fall. Given feedback from the evaluation, the Center for Professional Personnel Development will expand the length of sessions, add focus to assessment strategies, and add in new technical agriculture content areas as part of the 2022-2023 program.

Limitations of the experience reside in limited enrollment and understanding that this was a one-contact intervention. Future work will not only include expanding the cohort, but also include adaptive efforts to continue to measure engagement and growth of the participants during the institute and post-institute.

### Resources Needed

| Items                | Notes/Description                          | Unit Cost | Qty.         | Total         |
|----------------------|--|-----------|--------------|---------------|
| Facilitator Expenses | Honorarium for workshop facilitator        | \$1070    | 1            | \$1070        |
| Lesson Materials     | Lab supplies for lessons                   | \$2800    | 1            | \$2800        |
| PSU Expenses         | Rooms, facility rental/meals for attendees | \$4900    | 1            | \$4900        |
|                      |  |           | <b>Total</b> | <b>\$8770</b> |

## References

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