

Context Matters: Intentional Pairing of Preservice and Inservice Teachers During a Professional Development Event

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Introduction

Integrating science, technology, engineering, and math (STEM) into core disciplines continues to be an important topic in education (Gao et al., 2020). School-based agricultural education (SBAE) has been a relevant avenue for STEM integration as it contains several ties to STEM industries (Phipps & Osborne, 1988). However, there are significant challenges associated with incorporating STEM concepts such as lack of resources, student motivation, and teacher understanding (Shernoff et al., 2017). Professional development is one solution used to mitigate the concerns listed by the teachers, however Roberts et al. (2020) found SBAE teachers do not benefit from generic professional development and suggested tailoring the sessions to the teachers' specific needs. One such professional development opportunity which has become increasingly popular is Curriculum for Agricultural Science Education (CASE) Institutes (CASE, n.d.). During the institutes teachers are provided with training and access to a sequenced, inquiry-based agricultural curriculum which is ready to implement into their classrooms (CASE, n.d.). Many universities partnered with CASE to provide inservice teachers the training and support to implement the curriculum, however very few institutions provide training specifically to preservice teachers (CASE, n.d.). While preservice teachers' content knowledge increased, they lacked the contextual knowledge to understand how to incorporate inquiry-based instruction into a classroom (Tummons et al., 2020). Thus, to provide preservice teachers with contextual knowledge during a BriefCASE training, Oklahoma State University intentionally paired inservice teachers and preservice teachers to work together for the duration of a two-day professional development experience.

How it works

A BriefCase training is a shortened institute that ranges from five hours to three days. These trainings are designed to train teachers on semester-long curriculum (CASE, n.d.). AgXplore (AgX) Middle School is one of the courses taught in a two-day BriefCASE format. The AgX curriculum is designed as a semester long middle school curriculum (CASE, n.d.). In November of 2024 Oklahoma State University hosted a two-day BriefCASE for 32 teachers which included preservice ($n = 16$) and inservice ($n = 16$) teachers. The training was held on a Friday evening and lasted until Saturday afternoon. Normally the participants would work with a partner of their choosing to complete the activities showcased during the experience. However, for the purpose of this professional development, faculty used registration information to intentionally pair preservice teachers with inservice teachers. The intentional pairing allows preservice teachers to gain context and real-world insights for integrating the curriculum into their future classrooms. Additionally, the inservice teachers can gain new ideas and insights from a younger generation of teachers.

The teachers arrived to campus on Friday evening and departed Saturday afternoon. During the training, the teachers received a student workbook, curriculum access, and detailed training on the inquiry-based activities outlined in the AgX curriculum. The hosts alternated the sessions between guided discussion and active participation in the activities. The teachers worked with

their assigned partners to complete the hands-on activities outlined in the curriculum. The hosts were available to answer questions, provide guidance, and facilitate discussion, while the participants worked. In total, the participants received training on 27 different activities.

In addition to the activities, the participants were given time to engage in guided discussions regarding CASE implementation and adaptation after every session. During these discussions, the teachers collaborated on ideas for implementing CASE into their classes, brainstormed creative solutions to resourcing supplies, and talked through potential challenges their students might face. The preservice teachers were able to ask questions regarding CASE implementation and gain contextual insight into teaching from seasoned in service teachers. Outside of structured class time the participants ate meals together. This unstructured time allowed the participants to share information with each other and fostered a sense of comradery amongst teachers.

Results

There were 16 preservice teachers and 16 inservice teachers who participated in the training whose experience ranged from that of a preservice teacher to those with 30 years of experience. During the training, the hosts observed the participants collaborate in productive conversations with their assigned partners and the larger group as a whole. Inservice teacher participants said they found engaging with preservice teachers to be a valuable addition to a CASE training. Likewise, the preservice teachers stated they benefited from being able to collaborate with the experienced teachers. However, they also expressed the desire to have more intentional instruction specifically targeting the preservice participants.

Future plans/advice to others

This was the third time we have offered CASE AgX for preservice teachers, but the first time was a combined offering with purposeful participant pairing. Therefore, future CASE trainings hosted by Oklahoma State University will include an intentional pairing component. This will serve to add context for the preservice teachers and expose the inservice teachers to the perspectives of the preservice teachers. The hosts will collect data on future institutes to evaluate varying aspects of the program. Future institutes should consider intentionally pairing experienced teachers and inexperienced teachers as both groups benefited from this strategy.

Costs/resources needed

Costs are those associated with hosting a BriefCASE (i.e., curriculum access, equipment/supplies, lead teacher costs, and participant meals). In the case of this iteration, a university faculty member and graduate teaching assistant, both certified in CASE AgX, served as the lead teachers for this training. Equipment and materials for CASE AgX are minimal given the design of the curriculum. Leaving the primary costs to be the CASE certification fee per participant and the meals (i.e., dinner, breakfast, and lunch). Inservice teachers were charged \$300 each to participate, this covered their associated costs, while external support covered the costs for participating preservice teachers. Preservice teachers were required to register for a one-credit hour special problems in agricultural education course to participate in the CASE AgX offering.

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