

**Fab it Up: Involving Pre-service Teachers in an  
In-service Teacher Professional Development Experience**

Trent Wells, Ph.D.  
Southern Arkansas University  
Department of Agriculture  
Agriculture (AGR) 208  
Magnolia, AR 71753  
ktwells@saumag.edu

P. Ryan Saucier, Ph.D.  
Sam Houston State University  
School of Agricultural Sciences  
P. O. Box 2088  
Huntsville, TX 77341  
ryansaucier@shsu.edu

# **Fab it Up: Involving Pre-service Teachers in an In-service Teacher Professional Development Experience**

## **Introduction**

Using experiences as teaching and learning opportunities has long been a significant component of school-based agricultural education (SBAE) (Phipps et al., 2008). Dewey (1938) indicated that high-quality, suitable learning experiences can have a lasting impact on one's knowledge and skill development over the long term. Through the lens of experiential learning (Kolb, 1984), using positive experiences coupled with insightful reflection can promote further engagement in learning. Granberry et al. (2022) further noted that individuals' perceptions regarding a topic (e.g., perceived competence to perform agricultural mechanics skills, etc.) may change as they engage in subsequent experiences. Considering these notions, it is evident that positive, reflective experiences can be leveraged to impact individuals, such as pre-service teachers.

The development of effective SBAE teachers occurs through numerous avenues, such as early field experiences and technical agriculture coursework completed within traditional agricultural teacher education programs (Whittington, 2005; Wells et al., 2018). Effective SBAE teachers are familiar with different agricultural subject matter areas (Eck et al., 2019), which includes animal science, plant science, and agricultural mechanics (Albritton et al., 2020). Regarding teacher competence, ensuring that teachers are adequately prepared prior to starting their first position can reduce the likelihood of encountering liability issues (Love & Roy, 2017). Considering the need for competent teachers who are capable of addressing students' learning needs while also keeping them safe, it is vital that SBAE teachers be prepared to successfully teach agricultural mechanics (Wells & Hainline, 2021; Wells et al., 2021). Such preparation can occur through professional development (PD) workshops (Wells & Hainline, 2021). It is worth considering that perhaps involving pre-service teachers in an in-service teacher PD workshop experience could be a practical approach to the teacher competence development process.

## **How it Works**

During the Fall 2022 semester, the lead author, who is currently an agricultural teacher educator at Southern Arkansas University (SAU), selected five pre-service teachers to participate in an introductory-level trailer fabrication PD workshop hosted by a faculty member at another university. Three pre-service teachers were female while two were male. He employed two selection criteria for each pre-service teacher: (1) they must be preparing to complete their student teaching experience during the Spring 2023 semester and (2) they must have successfully completed either the agricultural metal fabrication course that he teaches or an equivalent post-secondary course. He reviewed each pre-service teacher's academic transcript and consulted with the Agricultural Education degree program coordinator at SAU to ensure all five of the selected pre-service teachers met both of the designated criteria. Afterward, he contacted each pre-service teacher via text message to confirm their interest. He subsequently completed the appropriate university paperwork to procure travel permissions. A SAU Foundation Student Travel Grant award covered travel expenses (e.g., lodging, fuel, meals, etc.). Each pre-service teacher was responsible for paying the \$150.00 PD workshop registration fee.

The PD workshop took place on Friday, September 30, 2022. Upon arriving at the PD workshop location, the pre-service teachers collected the personal protective equipment (PPE) they needed (e.g., safety glasses, welding helmets, etc.) and reported directly to the facilitating faculty member. Once all the in-service teachers arrived, the faculty member introduced himself and provided an opportunity for all the participants to introduce themselves. Afterward, the faculty member introduced the day's trailer fabrication project and provided each participant with project and curriculum resources for them to use in their respective SBAE programs.

Throughout the day, the pre-service teachers worked alongside the in-service teachers to perform project lay out procedures, take measurements, cut steel, and perform the appropriate welding, cutting, and finishing procedures. The in-service teachers served as project mentors for the pre-service teachers and provided them with guidance on proper fabrication procedures, shared information regarding their professional teaching experiences, and built a substantial degree of camaraderie with them throughout the day. Once the project was finished and the participants were dismissed by the faculty member, the participants exchanged contact information and took extensive, detailed pictures of the completed trailer fabrication project.

### **Implications, Future Plans, Advice to Others, and Costs**

The intention of involving these pre-service teachers in the PD workshop experience was two-fold: (1) to positively impact their confidence and competence in completing large agricultural mechanics projects and (2) to help them build professional relationships by allowing them to closely engage with in-service teachers during a day-long PD workshop. Throughout informal visits with the pre-service teachers during the PD workshop, they reported that: (1) their self-perceived confidence and competence in completing large agricultural mechanics projects increased as the project progressed, (2) the in-service teachers served as valuable, competent mentors throughout the project, and (3) they more thoroughly understood what PD is and why it is important for their growth as teachers in the future. One female pre-service teacher excitedly remarked that, "Coming to this workshop really reinforced my confidence to teach agricultural mechanics and I really enjoyed the opportunity to network with current teachers. I am looking forward to teaching agricultural mechanics to my own students soon!"

To further enhance pre-service teacher competence in agricultural mechanics, the lead author is developing a trailer fabrication PD workshop experience that he plans to deliver annually to all senior-level pre-service teachers at SAU. This workshop will be funded by selling the completed trailer fabrication project. He further plans to involve these five pre-service teachers in helping deliver a trailer fabrication PD workshop that he will host at SAU in June 2023. Thus, these five pre-service teachers will apply their knowledge and skills to help instruct a group of in-service teachers. Based on the outcomes that these five pre-service teachers reported, he advises that other agricultural teacher educators consider seeking out or developing similar learning opportunities for their own pre-service teachers. Doing so would better prepare pre-service teachers to successfully teach agricultural mechanics in the future.

In total, it cost approximately \$1,000.00 to provide the PD workshop experience opportunity to these five pre-service teachers. The lead author used approximately 48 hours of his time to facilitate this opportunity (e.g., procuring lodging, travel time, etc.).

## References

- Albritton, M. C., & Roberts, T. G. (2020). Agricultural technical skills needed by entry level agriculture teachers: A modified Delphi study. *Journal of Agricultural Education*, 61(1), 140-151. <https://doi.org/10.5032/jae.2020.01140>
- Dewey, J. (1938). *Experience and education*. Collier.
- Eck, C. J., Robinson, J. S., Ramsey, J. W., & Cole, K. L. (2019). Identifying the characteristics of an effective agricultural education teacher: A national study. *Journal of Agricultural Education*, 60(4), 1-18. <https://doi.org/10.5032/jae.2019.04001>
- Granberry, T., Roberts, R., & Blackburn, J. J. (2022). "A challenge that I'm willing to take on:" The self-efficacy of female undergraduate students in agricultural mechanics. *Journal of Agricultural Education*, 63(3), 44-58. <https://doi.org/10.5032/jae.2022.03044>
- Kolb, D. A. (1984). *Experiential learning: Experience as the course of learning and development*. Prentice-Hall, Inc.
- Love, T. S., & Roy, K. R. (2017). Tools and equipment in nontraditional spaces: Safety and liability issues. *Technology and Engineering Teacher*, 76(8), 26-27. [https://www.researchgate.net/profile/Tyler\\_Love/publication/315614632\\_Tools\\_and\\_equipment\\_in\\_nontraditional\\_spaces\\_Safety\\_and\\_liability\\_issues/links/590b9e36a6fdcc5d421ed6bb/Tools-andequipment-in-non-traditional-spaces-Safety-and-liability-issues.pdf](https://www.researchgate.net/profile/Tyler_Love/publication/315614632_Tools_and_equipment_in_nontraditional_spaces_Safety_and_liability_issues/links/590b9e36a6fdcc5d421ed6bb/Tools-andequipment-in-non-traditional-spaces-Safety-and-liability-issues.pdf)
- Phipps, L. J., Osborne, E. W., Dyer, J. E., & Ball, A. (2008). *Handbook on agricultural education in public schools* (6th ed.). Thomson Delmar Learning.
- Wells, T., & Hainline, M. S. (2021). Examining teachers' agricultural mechanics professional development needs: A national study. *Journal of Agricultural Education*, 62(2), 217-238. <https://doi.org/10.5032/jae.2021.02217>
- Wells, T., Hainline, M. S., Rank, B. D., Sanders, K. W., & Chumbley, S. B. (2021). A regional study of the agricultural mechanics knowledge and skills needed by school-based agricultural education teachers. *Journal of Agricultural Education*, 62(2), 148-166. <https://doi.org/10.5032/jae.2021.02148>
- Wells, T., Smalley, S. W., & Rank, B. D. (2018). Early field experience course students' perceptions of school-based agricultural education laboratory environments. *Journal of Agricultural Education*, 59(3), 243-257. <https://doi.org/10.5032/jae.2018.03243>
- Whittington, M. S. (2005). The presidential address to the Association for Career and Technical Education Research: Using standards to reform teacher preparation in career and technical education: A successful reformation. *Career and Technical Education Research*, 30(2), 89-99. <https://www.ctc.ca.gov/docs/default-source/educator-prep/cte-files/cte-research-presidential-address.pdf>