Reducing Preparation Fatigue of School-Based Agricultural Education Teachers Through Innovative Use of Artificial Intelligence

Shane Wetzel
Oklahoma State University
318 N Monroe St
Stillwater, OK 74078
575-313-2170

Katie Honeyman
Oklahoma State University
318 N Monroe St
Stillwater, OK 74078
918-231-8505

Ryan Best
Oklahoma State University
318 N Monroe St
Stillwater, OK 74078
254-459-9221

Jon Ramsey
Oklahoma State University
237 N Monroe St
Stillwater, OK 74078
405-385-9748

Reducing Preparation Fatigue of School-Based Agricultural Education Teachers Through Innovative Use of Artificial Intelligence

Introduction

Supervised agricultural experiences (SAE) have been the cornerstone of agricultural education providing relevant work-based experiences to students (Smith & Rayfield, 2016). The original intent of SAEs was to provide an extension of concepts learned in an agricultural education class (Smith & Rayfield, 2016). However, The Vocational Education Act (1963) moved agricultural education away from the idea of SAEs being the application of concepts learned in class to being a means of acquiring knowledge. SAEs continued to evolve with the implementation of SAE For All, a work-based learning approach designed to ensure all students are provided an opportunity to gain real-world, hands-on experiences (The National Council for Agricultural Education, 2017). Despite these shifts in SAE philosophy, SAE continues to be a challenging component of school-based agricultural education (SBAE) for in-service teachers to implement (Norris et al., 2025).

Even though every student enrolled in a SBAE program is encouraged to have an SAE, Norris et al., (2025) reported only 52.3% of SBAE students are engaged in that component of the AGED model. This could be due to the recent change in SAE categories described in the SAE For All guidelines (The National Council for Agricultural Education, 2017). Despite having ready access to the SAE For All guidelines, Doss and Rayfield (2019) found most teachers could not correctly identify or describe the new SAE categories. Teachers reported the guidelines were overwhelming and hard to understand (Ford & Lambert, 2025). In addition, teachers found they were spending too much time and energy modifying the SAE For All curriculum to be grade level specific to effectively utilize it in their classrooms (Ford & Lambert). Thus, to reduce teacher preparation fatigue and increase SAE For All awareness and implementation, Oklahoma State University developed course curricula and assignments for preservice agricultural education students, specifically targeting awareness and implementation of SAE For ALL.

How it works

Agricultural education preservice teachers at Oklahoma State University must take an advising agricultural student organizations course comprising a lecture and a lab. In this course, students learn how to advise and supervise the FFA and SAE components of the AGED model. In February 2025, the instructor introduced the students to the SAE For All guidelines, which stated every student in a school-based agricultural education (SBAE) program should have an SAE (The National Council for Agricultural Education, 2017). The instructor discussed the philosophy behind SAEs and how to implement them in SBAE programs. The students discussed the types of projects they had previous knowledge of and their experiences completing an SAE in high school. They also brainstormed how to help their future students develop an SAE plan. They were encouraged to think beyond animal projects, as most of their personal experiences featured livestock projects.

Additionally, the instructor introduced students to NotebookLM™, a closed-sourced AI product developed by Google that allows users to upload multiple documents and prompt AI to "… summarize facts, explain complex ideas, and brainstorm new connections…" (Martin & Johnson, 2023). The students were asked to use NotebookLM™ to develop an SAE plan for a fictional class of 20 students. The instructor provided the students with documents outlining the fictional students' interests, hobbies, socioeconomic status, and the SAE For All guidelines. The instructor modeled using NotebookLM™ to assist with this assignment. The students uploaded both PDF documents and then prompted the AI platform with questions designed to help them generate an SAE plan featuring the SAE For All Categories for their fictional students.

Results

The lesson and subsequent introduction of this language model tool significantly enhanced students' understanding of the subject matter. Students could create multiple versions of the same scenario and use NotebookLM™ to produce a single result output. In doing so, they learned to generate individual results by creating more specific prompts. This process allowed students, as future teachers, to tailor their Supervised Agricultural Experience projects to better align with their students' hobbies and work skills. As they developed new skills with this technology, students felt empowered. Many shared their excitement, noting that the tool would save a lot of time, provide a strong starting point for new teachers, and help mitigate the impact of their inexperience. One student remarked, "I feel like my students will not suffer from my inexperience as a first-year teacher." Overall, the lesson was transformative. Students developed a valuable skill they believed could be implemented immediately in the classroom, contributing to their students' success and helping to close the knowledge gap.

Future plans/advice to others

Future uses of this technology as an educational tool are unlimited. The instructional team at Oklahoma State University plans to integrate the modeling of responsible use regarding AI technology into all preservice agricultural educational courses. Preservice teachers will have the opportunity to experience and implement the general applications of AI, using NotebookLM™ in an SBAE classroom.

Agricultural Education teacher preparation faculty are encouraged to consider utilizing NotebookLM™ in their courses to develop ethical AI practices among preservice teachers. In addition, state teacher associations should consider highlighting the benefits and applications of NotebookLM™ with inservice teachers through professional development.

Cost

There is no cost associated with NotebookLM™. However, users must also have a Gmail account and be 18 years or older to utilize NotebookLM™

References

Doss, W., & Rayfield, J. (2019). Assessing school-based agricultural education teacher familiarity, knowledge, and perceptions of supervised agricultural experience categories. *Journal of Agricultural Education*, *60*(3), 206–218. https://doi.org/10.5032/jae.2019.03206

Ford, J., & Lambert, M. (2025). Resources needed and barriers anticipated when implementing SAE for all. *Journal of Agricultural Education*, *66*(1), 1-14. https://doi.org/10.5032/jae.v66i1.2755

Martin, R. & Johnson, S. (2023). Introducing notebooklm. Google. https://blog.google/technology/ai/notebooklm-google-ai/#:~:text=We%20started%20to%20explore%20what,be%20adding%20additional%20formats%20soon.

Norris, W., Hanagriff, R., Edgar, D., & Swortzel, K. (2025). Professional rededication to SAE: Describing SAE implementation in the United States. *Journal of Agricultural Education*, *66*(1), 1-17. https://doi.org/10.5032/jae.v66i1.2895

Smith, K. L., & Rayfield, J. (2016). An early historical examination of the educational intent of supervised agricultural experiences (SAEs) and project-based learning in agricultural education. *Journal of Agricultural Education*, *57*(2), 146–160. https://doi.org/10.5032/jae.2016.02146

The National Council for Agricultural Education. (2017). *SAE for all teacher guide.* Author. https://www.ffa.org/educator_resources/sae-for-all/

The Vocational Education Act of 1963, (Report No. OE-80034). U.S. Government Printing Office. https://files.eric.ed.gov/fulltext/ED019402.pdf