

Keeping the “Tech” in Career and Technical Education

Submitted to:
American Association of Agricultural Educators
Southern Region 2021 Conference

Innovative Idea Poster

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Introduction/Need for Innovation

Within agricultural education, studies indicate the largest needs for preservice agricultural educators are student motivation, student discipline, integrating technology into the classroom, and providing guidance to students on post-secondary education (Duncan et al., 2006; Garton & Chung, 1996; Joerger, 2002). Teacher education programs have struggled to provide familiarity to technologies used in the classroom (Bakir, 2016). Teacher educators indicated the need for additional ways to implement technology into field experiences and methods courses (Gronseth et al., 2010). Remaining current with technology and providing pre-service teachers with the tools to teach with this technology is critical to success in the classroom (Kimav & Aydin, 2020).

Pre-service educators are often taught technology through a stand-alone technology course (Gronseth et al., 2010). Preservice educators are more likely to understand and utilize technology if it is presented as practical knowledge instead of isolated content (Tondeur et al., 2012). Technology modeled and taught within the context it would be used in the future has a positive effect on pre-service teacher preparedness to use technology (Jang, 2008). Oliver & Townsend (2013) suggest opportunities to practice with technology ensure success in preparing teachers. A southern university is aiming to provide the technology preparedness pre-service teachers need to be successful in their classrooms.

Experiential learning is used as the framework for providing technology resources to pre-service educators. Experiential learning is described by Kolb (1984) as a learning cycle. Within the learning cycle, the learner has a 1) concrete experience, 2) reflects on the experience, 3) develops new knowledge, and 4) applies the knowledge to a new situation. Additionally, Itin (1999) adds the importance of learning from successes and failures within the experiential learning process. The importance of using technology as a vehicle for experiential education has only increased with the impact of the Coronavirus on our educational climate. This research aligns with the National Research Agenda (Roberts et al., 2016), “Priority 5: Efficient and Effective Agricultural Education Programs” (p.43).

How it Works

Students in the curriculum writing class are required to design a lesson around a technology they could use in the classroom. As facilitators of the experiential education process, the teacher educator provides the “concrete experience”. Students have the freedom to select the technology, but students are tasked with 1) writing the instructions for using the technology, 2) demonstrating the technology to the class, and 3) verbally reflecting on the process of teaching with the technology. The experience pushes students to step out of their comfort zone and become aware of successes and failures they could encounter using technology in their classroom. Students are encouraged to use applications, websites, virtual field trips, and interactive software, but are restricted from using PowerPoint as it is commonly used in lessons.

Within the demonstration, students experience the effectiveness of their instruction sets. The remainder of the class follows along with the demonstration on their technology devices. Instructions are assigned to be written specific enough for the technology to be used without the

guidance of an educator. At the conclusion of the demonstration, students are asked to reflect on their experience with the technology. Additionally, the student's classmates provide feedback on how the demonstration could be improved for future use. In continuing to ascribe to Kolb (1984)'s model, the development of new knowledge is facilitated by learning to teach with a new technology through the experience. The opportunity exists for students to apply new knowledge to future teachings.

The final component of the experience is the development of a list of resources for pre-service educators. Although each student demonstrates one technology, pre-service teachers are exposed to a multitude of instructional strategies with potential to be used in their future classroom. A list of the technologies is provided to pre-service educators at the completion of the experience and are encouraged to provide assistance to each other on using the technology.

Results to Date

Students realize the importance of instruction sets when demonstrating/teaching with technology. With a technology unfamiliar to them, specific instructions are important to their success and the success of students. Additionally, students develop an increased awareness for the time needed to teach with technology and the potential difficulties of using a technology in the classroom. Pre-service educators reflected on the importance of the technology being visible to students, keeping students on the same page, and having specific instructions for students to follow. Preservice educators had this to say, "having the opportunity to learn more about a new technology tool to use in my future classroom was extremely beneficial. It challenged me to step out of my comfort zone and typical resources and learn about a new tool to enhance my teaching". Teacher educators have seen success in the use of demonstrated technologies in lessons taught in future lessons. Pre-service educators used technologies demonstrated by their classmates in their method's labs to enhance instruction and specific instructions have been provided in lesson plans.

Future Plans

The implications from this experience suggest pre-service educators are comfortable integrating technology into their lessons. Within the current educational climate, it is important teacher education programs continue to use distance technologies and integrate new technologies when possible. The teacher education program at the University of Kentucky plans to continue to expose pre-service teachers to new technologies in the context of teaching experiences. Expanded reflection methods could include modification of lesson plans and a written component to enhance the effectiveness of the technology in future teachings. Additionally, future plans include using videography and music to write unique curriculum for agricultural students.

Costs/ Resources Used

Pre-service educators are encouraged to use free technologies, so it is available to all. The wide array of instructional technology provides ample opportunity to enhance instruction without a cost to the educator. Application of the technology requires a device with internet access for the educator and each student. Additionally, depending on the technology, a downloaded application, specific link, or QR code will need to be provided for accessibility.

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