

**From Assignment to Exhibition through a STEAM Idea Showcase**

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### Introduction/need for innovation

Across higher education, student learning often remains largely invisible beyond the classroom. While authentic, performance-based assessments are widely recognized for promoting deeper thinking and transfer of knowledge (Wiggins, 1998; Darling-Hammond & Adamson, 2014), the products of that learning are rarely shared with public audiences. As a result, opportunities for students to synthesize knowledge, communicate across disciplines, and receive feedback from external stakeholders are limited. Simultaneously, agricultural literacy continues to be identified as a persistent societal need (Frick et al., 1991; Spielmaker & Leising, 2013), underscoring the importance of engaging broader audiences in conversations about agriculture, science, and innovation. Experiential learning and project-based learning frameworks emphasize public demonstration as a critical component of reflection, revision, and knowledge transfer (Kolb, 1984; Thomas, 2000). Yet in many postsecondary contexts, culminating projects are submitted only to the instructor, constraining both authenticity and impact. There is a need for assessment structures to deepen student learning and extend learning into the community.

The STEAM (Science, Technology, Engineering, Arts, and Mathematics) Idea Showcase was developed to address these dual challenges by making student learning visible while advancing agricultural literacy. Designed as a culminating, public-facing event, the Showcase promoted interdisciplinary agriculture through the lens of STEAM. Students in the [course name] presented capstone agriscience units of instruction in a poster-session format to a diverse stakeholder audience. Attendees engaged with presenters, provided feedback, and voted for awards aligned with each component of STEAM. While piloted within a teacher preparation course, the Idea Showcase model is adaptable across disciplines as a public-facing, performance-based end-of-course assessment. The goals of the event were twofold:

1. To provide students with an opportunity to showcase and celebrate their development of knowledge and skills as part of a summative assessment, and
2. To promote agricultural literacy among attending stakeholders through authentic engagement with student-designed instructional innovations.

### How it works/methodology/program phases/steps

The capstone project for [course name] required students to apply STEAM concepts within an agriscience unit plan of instruction consisting of a sequence of three to five lessons. In the area of Science, projects addressed at least one Next Generation Science Standard (NGSS) and incorporated a relevant agriscience phenomenon, defined as an observable and/or measurable contextualized event. Technology was incorporated through at least one lesson that promoted student inquiry using PASCO Bluetooth probeware in the domains of biology, physics, or chemistry. Engineering was integrated through students' use of a laser engraver to design and produce a manipulative that supported student sensemaking. The Arts were connected to engineering through the required development of a digital design for the engineered manipulative. Mathematics was incorporated in conjunction with technology through the analysis and display of data collected using probeware. The general tasks and timelines for completing an Idea Showcase, beyond the specific context of teacher preparation, are discussed:

1. **Launch the project:** Introduce the Showcase early in the term, clarifying the purpose, goals, evaluation, and timelines.

2. **Project Development:** Provide structured opportunities to develop projects in scaffolded steps, with ample opportunities for self-reflection and peer/instructor feedback.
3. **Stakeholder Engagement:** Invite key stakeholders utilizing messaging/branding to clarify the purpose of the event as outreach and assessment.
4. **Public Exhibition:** Organize a poster style session allowing stakeholders to engage in dialogue.
5. **Recognition:** Develop structures for feedback and recognition of exemplary work.

### **Results to date/implications**

Beyond the thirteen teacher candidates, more than 35 individuals attended, including parents, family members, peers, cooperating teachers who hosted part-time student teaching candidates, and various administrators. The event was marked by sustained dialogue between students and attendees. Students articulated their unit and lesson designs, highlighting unique STEAM features, including the prototype manipulatives they created. Candidates shared that they appreciated the opportunity to view the completed projects, even though they had supported one another throughout the process.

Implications of this event emerge from three perspectives. First, the public Idea Showcase shifted evaluation from a private exchange between instructor and student to a public-facing performance of learning. This structure created opportunities for critique and dialogue that supported student accountability, while also providing curricular transparency for stakeholders. Institutional leaders noted the rigor and quality of the work, strengthening perceptions of and credibility in the program. Stakeholders particularly commended candidates' focus on disciplinary literacy, as many used the laser engraver to create manipulatives such as discussion dice to support literacy development.

Following the event, some candidates taught their units in the subsequent term, further demonstrating transfer of learning. From an agricultural literacy perspective, the Showcase functioned as informal outreach, as students explained their agricultural phenomena to visitors and illustrated how STEAM integration materializes in agricultural education. Finally, the presence of families at a postsecondary academic event intentionally strengthened relationships between faculty and families and deepened families' understanding of their students' academic and professional preparation.

### **Future plans/advice to others**

There was an overwhelmingly positive response to this inaugural event. Future iterations may require a larger venue to accommodate increased participation and to include additional student learning artifacts from one or more courses within the cohorted teacher preparation program. Those seeking to replicate this model should intentionally invite families, industry partners, faculty, administrators, and other stakeholders who can enhance the impact and reach of the event. Especially noteworthy was the value of broad stakeholder presence in elevating both the authenticity and visibility of student learning.

### **Costs/resources needed**

*Direct costs* will vary based on the context of implementation including costs in association with facilities rental, poster printing, refreshments, materials that may be provided to students for the development of their projects. *Indirect costs* associated are closely linked to the time required to complete the tasks (see suggested steps in the How it Works section).

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