

**Using Grounded Theory to Evaluate the Employability Skills Framework**

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### Introduction

Employability skills are essential for acquiring and maintaining employment, yet recent studies have found that many high school graduates lack these skills (Crawford et al., 2011). Twenty-first-century employability skills remain a focus in secondary school programs and are closely tied to content standards and technology use, particularly in Career and Technical Education (CTE) (National Research Council, 2012; Stehle & Peters-Burton, 2019). A rapid shift in employers' priorities has been noted, moving from soft skills to career-oriented skills, also referred to as 21st-century employability skills (DiBenedetto, 2018). Employability skills are a crucial component of college and career readiness regarding academic knowledge, technical expertise, and the suite of skills required to be employable (Crawford et al., 2011). Employability skills are defined into nine areas: 1) applied academic skills, 2) interpersonal skills, 3) personal qualities, 4) technology use, 5) systems thinking, 6) communication skills, 7) information use, 8) resource management, 9) critical thinking skills (U.S. Department of Education [USDE], 2024). However, limited research has focused specifically on employability skills related to plant science career pathways. Additionally, there has been a demand for plant products in all facets of our lives, including food for people and animals, structural, entertainment, well-being on large and small scales, and environmental concerns, which leads to a demand for careers in a multitude of fields of plant sciences (Sidoti et al., 2023). These skills are utilized by various professionals, including farmers, ranchers, florists, growers, professors, and scientists (Pearson & Moore, 2017).

### Theoretical Framework

Grounded theory, developed by Glaser and Strauss (1967), is a flexible qualitative research method characterized by its cumulative and cyclical nature. It allows researchers to begin with data collection and build general conclusions inductively without a predetermined hypothesis (Bytheway, 2018; Chun Tie et al., 2019; Tesch, 1990). This study aimed to determine floriculture industry professionals' recommendations for 21st-century employability skills needed for SBAE teachers to prepare their students for plant science careers. The research question was: *Do floriculture industry professionals' recommendations align with the current framework for 21st-century employability skills?* The study objectives were to: 1) engage floriculture industry professionals in discussion with school-based agricultural education (SBAE) teachers to communicate their experiences working with employees; 2) create a framework for SBAE programs to emphasize plant science industry career readiness practices in curricula.

### Methodology

Data were collected during an immersive travel experience as part of the STEM it Up<sup>2</sup> (SIU<sup>2</sup>) professional development program, where agriscience teachers spent 10 days tracing the life of a fresh-cut flower. Floriculture industry professionals (N = 24) from nine locations—including university research labs, industry research facilities, flower farms, floral distribution centers, and corporate plant growers—were asked two open-ended questions: 1) What skills do you look for in employees? 2) What should agriscience teachers be teaching their students to help them prepare for careers in plant science/floriculture? Using the grounded theory approach, three researchers recorded each response in field notes. Field notes were synthesized into a single document and analyzed to address the questions asked to determine if the industry supports and aligns with the ideas previously identified by the *Employability Skills Framework* (USDE, 2024). Additionally, field notes were coded for emergent themes, novel ideas, and any ideas that expand on the current skills associated with floriculture. Industry experts' comments from the immersive experience were aligned with the *Employability Skills Framework* (USDE, 2024) to determine if the industry supports and aligns with these ideas.

### **Results/Findings**

As a result of the SIU<sup>2</sup> immersive experience, many of the noted employability skills aligned with the *Employability Skills Framework* (USDE, 2024). This was expected. However, new skills emerged from our discussions with the floriculture industry professionals that were related but not explicitly defined by the current lists of employability skills. As a result, ten new employability skills were identified, and four emergent themes were categorized: 1) global mindset, 2) technical mindset, 3) business mindset, and 4) growth mindset. Emergent themes were added to the existing themes, which resulted in an added layer of mindsets to expand the current *Employability Skills Framework* (USDE, 2024). The expansion of the current framework represents employability skills specific to the green industry.

### **Conclusions/Implications/Recommendations/Impact on Profession**

Green industry professionals identified each of the 21st-century employability skills outlined in the *Employability Skills Framework* (USDE, 2024). Additional technical skills and global competencies emerged as skills required to be prepared for careers in plant science, horticulture, and floriculture. Adding to the current employability framework in technical fields such as the green industry can lead to a better understanding of what is needed in STEM specialty areas regarding the importance of developing future professional mindsets. Agriscience teachers are encouraged to utilize the *Employability Skills Framework* (USDE, 2024) with the mindsets identified explicitly for the green industry in their SBAE program plant science curricula.

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