Research Poster

Feeding the Future: Views of Agricultural Innovation & Sustainability Efforts Through the Virginia Governor's School of Agriculture

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Introduction

The world is experiencing a rising need for the implementation of sustainable agricultural innovations greater than ever before (Blakeney, 2022; Khan et al., 2021). As agricultural innovations aid in fostering sustainability transitions in agriculture (Bilali, 2018), it is imperative for agricultural educators and programs to address the need for increased agricultural literacy (Reilly et al., 2022; Roberts et al., 2023), particularly among those in secondary education with an urban or limited agricultural background (Cosby et al., 2022). The Virginia Governor's School for Agriculture (VGSA) seeks to equip students of these backgrounds with the hands-on learning experiences and knowledge for an interest and careers in the state's agricultural industries (VGSA, 2025). This study investigates how the experiences of students involved in VGSA may impact their perspectives towards Virginia farmer and ranchers' efforts of sustainable practices and their implementation of innovative practices.

VGSA is a three-week summer residential program hosted at Virginia Tech. The program is designed for gifted and advanced high school juniors and seniors. Students participate in a variety of lecture- and field-based courses, engage in research, and interact with industry professionals and Virginia Tech faculty, researchers, and graduate students. The program emphasizes the complex and transdisciplinary nature of agriculture while preparing future leaders and scientists for careers in agriculture or related industries (Virginia Tech, 2025).

Conceptual Framework

Experiential Learning Theory (Kolb, 2014) informed this study. Experiential Learning Theory (ELT) separates one's learning process into four components (concrete experience, reflective observation, abstract conceptualization, and active experimentation) and establishes a connection between these four components and an individual's preferred learning style. ELT has been widely popularized in the realm of agricultural education, as educators seek to develop students' understanding within the context of agriculture (Mazurkewicz et al., 2012; Roberts, 2006). With a focus on the concrete experience, reflective observation, and abstract conceptualization of ELT, this study provided insight as to how the perceptions of agricultural sustainability and innovation practices may differ among students within the same program.

Methodology

Photo elicitation is defined as using photos to activate information, feelings, reflection, and memories (Harper, 2002). The integration of photos in qualitative research allows for deeper engagement and self-reflection by the participant and a wider selection of data for the researcher (Kyololo et al., 2023; Meo, 2010). In this qualitative study, participants were identified through their involvement in VGSA. This study was a part of a larger project, which took on a phenomenological approach to analyze the meaning found by several individuals who engaged in similar phenomena (Creswell & Poth, 2018). Data collection included self-reported free responses via photo elicitation from each of the 87 participants within the program. Thematic analysis and constant-comparative methods were utilized to examine participants' shared changed perspectives of sustainability and innovation efforts in agriculture.

Results and Findings

Many themes emerged from the findings, but this study aims its focus on two main themes. First, students recognized *sustainability and innovation within agriculture* through the contextual factors of water conservation and land stewardship. One participant noted: "[Agriculture] involves understanding soil health, managing water, adapting to hot weather, and using sustainable practices that protect the land for future generations." Overall, many participants emphasized the importance of implementing sustainable practices across diverse agricultural facets. They also acknowledged that the agricultural industry has been shaped by previous generations who understood the importance of sustainability, conserving resources, and implemented it in their practice.

One student noted how their perception of agriculture evolved from animal and crop husbandry to viewing agriculture as defined by sustainability and innovation in action. They expressed:

> Over the course of the two and a half weeks that I have been at this program, I have learned that agriculture is more than just growing crops or raising animals, rather, it is a system of innovation and sustainability.

Second, participants noted the *interconnection of sustainability and innovation.* Participants expressed that the nature of the relationship between sustainability and innovation is what drives the future of the industry. As one participant reflected on their experience, they noted that the real-world examples they were given showed them "how innovative modern agriculture can be." Another participant noted:

> Lastly, agriculture is ruled by new inventions and implementations…innovations are constantly changing the trajectory of the industry, and are essential to the productivity of agriculture.

Together, these perspectives highlight students' recognition of sustainable practices and innovation efforts not as separate entities, but rather as interconnected forces driving the future of the industry. Their reflections showcase not only a changed perspective on the industry through their involvement in the program, but a deep and newfound appreciation for agriculturists.

Conclusion & Recommendations

This research provided insight into the individualized and changed perceptions of agriculture from students involved in VGSA. The findings indicate that increased exposure to agricultural industries, notably from participants with limited to no agricultural background, increases awareness of current sustainability and innovation efforts. The participants in this study spoke to the importance of both sustainability and innovation within the agricultural industry, and how their exposure to agriculture through the VGSA served as the learning environment for the newfound perspective. Through experiential learning components, concrete experience, reflective observation, and abstract conceptualization, the determination of how participants' perspectives were shifted throughout their time in the program was made. VGSA leadership should examine the long-term impacts of the program on students' perceptions, educational, and career interests in sustainability and innovation, while refining real-world sustainability and technology-focused experiences to strengthen these outcomes for students with limited agricultural backgrounds.

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