Phenomenological Analysis of Elementary Teachers' Strategies for Including Agricultural Science in the Curriculum of Lubbock Independent School District in Texas

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Introduction

Agricultural education plays a role in promoting sustainability awareness and interdisciplinary learning (Knobloch et al., 2007), yet its integration into elementary school curricula remains limited (Burrows et al., 2020). Despite research highlighting the benefits of agricultural literacy, teachers often lack the resources, training, and support necessary for effective implementation. This study examines how elementary school teachers in Lubbock Independent School District [ISD] in Texas perceive agricultural education, how students respond to its integration, and the challenges teachers face in its implementation. By exploring these aspects, this research seeks to bridge the gap between theory and practice, promoting more accessible agricultural education at the elementary level. The objectives of the study were: (1) How do elementary school teachers in the ISD perceive the relevance of integrating agricultural sciences into their curriculum, (2) How do students respond to agricultural science integration, (3) What challenges do teachers encounter when implementing agricultural science education?

Theoretical Framework

This study is grounded in constructivist learning theory and Dewey's experiential learning theory and emphasizes the value of real-world learning experiences that reinforce practical application (Soffer, 1993; Dewey, 1938; Kolb, 1984). Constructivism suggests that students build knowledge through active engagement, while experiential learning highlights the role of direct experiences in deepening understanding. Integrating agriculture into elementary curricula can enhance students' understanding of their environment, foster interdisciplinary learning, and promote sustainability-focused mindsets (Knobloch et al., 2007). The study also aligns with STEM education theory, which integrates science, technology, engineering, and mathematics with practical applications, making agriculture an ideal interdisciplinary tool (Kelley & Knowles, 2016).

Methodology

A hermeneutic phenomenological approach was employed to explore the lived experiences of elementary teachers integrating agricultural education into their curricula. The sample was purposive with elementary school teachers in Texas (n=7) who participated in semi-structured interviews conducted via Zoom. The data were transcribed verbatim and analyzed using Delve software, allowing for systematic coding and theme identification. Reflexivity and member checking ensured credibility, and a hermeneutical circle approach provided a holistic interpretation of participants' insights (Sloan & Bowe, 2014).

Results/Findings

Theme 1-Teachers' Perceptions of Agricultural Science Integration. Teachers viewed agricultural education as a valuable tool for enhancing real-world connections, interdisciplinary learning, and sustainability awareness. They highlighted its natural alignment with STEM subjects and its role in fostering critical thinking. One teacher highlighted "Agriculture allows students to think beyond the textbook, connecting concepts in science, math, and social studies to real-world applications." Additionally, teachers shared that integrating agriculture encouraged students to explore sustainability and environmental stewardship, preparing them for future challenges in these areas. **Theme 2 - Students' Responses to Agricultural Science Integration.** Teachers observed increased student engagement, curiosity, and participation when agricultural

topics were introduced. As one teacher remarked, “Students began asking more questions and taking an active interest in topics like plant growth and farming processes.” Experiential learning methods, such as planting projects, led to deeper inquiry and improved retention. By engaging in these experiential learning opportunities, students not only enhanced their academic performance but also developed valuable life skills, such as problem-solving and teamwork. **Theme 3 - Challenges in Implementing Agricultural Science Education.** Teachers faced barriers such as strict curricula, financial constraints, and time limitations, which hindered the effective integration of agricultural topics. As one participant explained, “We have to justify every expense, making it difficult to secure materials like gardening supplies or animal care equipment.” A lack of administrative support further complicated efforts to sustain these programs. Despite these barriers, teachers expressed a strong commitment to overcoming obstacles, emphasizing the importance of agricultural education in fostering holistic student development.

Conclusions

Agricultural education has the potential to enhance elementary learning by making subjects more engaging and applicable to real-world contexts, aligning with Knobloch (2008) teachers recognized its interdisciplinary value but struggled with systemic challenges that limited its implementation. Despite these obstacles, they remained committed to finding creative solutions to integrate agriculture into their lessons as the teachers perceive agricultural education as relevant and valuable for student development, enhancing their critical thinking, confidence, and soft skills. This study has demonstrated that the integration of agricultural sciences into elementary education within Elementary Schools is a multi-faceted endeavor, shaped by teachers' perceptions, student engagement, and the structural challenges faced in curriculum implementation. An example of this is the research done by Frederickson (2023) in an established agriculture program for elementary schools.

Implications/Recommendations

To ensure agricultural education integration we recommend increased professional development as teachers need targeted training in agricultural literacy and experiential learning strategies. Administrators should provide support and flexibility in curriculum planning, scheduling, and resources. Additionally, administrators should assist teachers in securing funding for agricultural projects. Schools should collaborate with agricultural organizations, universities, and local farms to provide hands-on learning opportunities to create community engagement and partnerships. Further research should explore long-term student outcomes, cross-district comparisons, and effective teacher training models to enhance agricultural literacy. By addressing these key areas, agricultural education could be integrated more effectively into elementary curricula, fostering a new generation of environmentally conscious and scientifically literate students. Comparative studies across multiple districts could provide insights into how different levels of funding, administrative support, and community involvement affect the success of agricultural science integration.

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