

**SEEDS: SOURCING EFFICACIOUSLY AND ENGAGING DYNAMIC SUSTAINABILITY
IN ELEMENTARY AGRICULTURE EDUCATION**

by

MARIA REYNALYN HELM

(Under the Direction of Nicholas Fuhrman & Kris Irwin)

ABSTRACT

The sustainability of the educational system is under threat, with teacher stress leading to high attrition. This dissertation advocates for a holistic development framework that nurtures teacher well-being, essential for sustaining effective learning environments. This study contributes to educational strategies that promote teacher resilience and well-being within Elementary Agricultural Education (EAE). It investigates EAE's potential impact on agricultural education trajectories. Employing a trio of scholarly articles, the research explores the EAE teachers challenges and growth opportunities, factors influencing teaching self-efficacy, and the Holistic Teaching Approaches (HTAs) through a novel Phenological Descriptive and Interpretative Transpersonal Analysis (PDITA) framework. Conducted among EAE teachers in Georgia using purposive sampling, the study utilizes data triangulation via interviews, observations, and data analysis. The findings highlight a synergetic interaction among the "EduSphere Mindset," "Rituals of Rigor," and "CueCon Horizon," suggesting a paradigm shift towards a more dynamic and resilient educational model that prioritizes *well-being* and adopts a "*whole person*" approach to teaching.

INDEX WORDS: elementary agricultural education, holistic education, phenomenology

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DEDICATION

To my Daddy (Hon. Reynaldo Untalan Hidalgo), your memory will continue to light my path.

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CHAPTER 1

BACKGROUND

The modern educational system is grappling with unprecedented challenges threatening its foundational principles and long-term sustainability (Lemons et al., 2015; Solomonson et al., 2019). One of the most pressing issues confronting this domain is the rising stress levels experienced by teachers, which has led to alarming rates of educator burnout and attrition (Farmer, 2020; Martin, et al., 2023). Herman et al. (2018) conducted a quantitative study wherein they found that a significant majority (93%) of elementary school teachers in the United States were identified as experiencing high-stress levels. This phenomenon not only represents a loss of seasoned professionals from the field but also diminishes the continuity and depth of knowledge imparted to students (Turner et al., 2022). When educators frequently change or leave the classroom, students grapple with inconsistent teaching methodologies, a lack of continuity in curriculum, and a potential absence of role models to emulate (Podolsky et al., 2019). In addition, this loss of classroom teachers intensifies the burden on the remaining educators, thus amplifying their stress levels and may perpetuate a self-reinforcing cycle of burnout and attrition (Hainline et al., 2015). It is imperative to acknowledge that the leaving of any educator represents the depletion of a valuable source of experiences, instructional approaches, and contextual knowledge that cannot be easily replaced within a limited timeframe. The departure of a significant number of educators has far-reaching consequences that extend beyond the immediate confines of the classroom environment. According to Carver-Thomas and Darling-Hammond (2019), teacher attrition has a cascading effect, eroding education's core values and

essence. The importance of consistent mentorship and guidance, especially in formative years, cannot be understated (Hakimova & Dilova, 2023). Vygotsky's (1978, p.57) insights into child development further illuminate the gravity of this situation. He stated:

Every function in the child's cultural development appears twice: first, on the social level and, later, on the individual level; first, between people (interpsychological) and then inside the child (intrapyschological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals.

To address this challenge, it is crucial to pivot towards a holistic development framework for teachers. This framework nurtures their well-being and empowers them to cultivate similar growth in their students. It should also balance their professional and personal development, recognizing that these aspects are inseparably linked and mutually reinforcing (Day, 2013). This dissertation posits that a Holistic Teaching Approaches (HTAs), an educational strategy focusing on the "whole person" development of the learners and the well-being of educators, is instrumental in reversing the tide of educator burnout and attrition. It arms teachers with essential knowledge, skills, and values to facilitate the growth of the "whole person," integrating academic learning with physical, emotional, psychological, and social aspects of student development. This approach advocates for a supportive teaching and learning environment that safeguards the teachers' well-being, recognizing that their health and resilience are crucial to sustaining a nurturing and effective learning environment. Such an approach can rejuvenate the educational system by promoting the simultaneous cultivation of cognitive, psychological, physical, emotional, and social well-being among educators, thereby enhancing their capacity to deliver a comprehensive and well-rounded education to their students. To combat burnout and

promote resilience, pre-service education, K-12 schools, and extended programs must develop and implement robust teaching methodologies informed by holistic education theories (Allen et al., 2022; Miller et al., 2005). Enhancing aspects of school organizational health, such as teacher affiliation, alongside a focus on classroom academic emphasis and personal self-efficacy, may mitigate the impacts of stress and burnout (Bottiani et al., 2019). There is evidence suggesting that aligning teaching methodologies with student needs produces lasting impacts, it significantly improves learning outcomes, alleviates professional stress, and nurtures a positive learning milieu (Carroll et al., 2020; von der Embse et al., 2019). Delving deeper into the psyche of educators, a vital realization emerges: a teacher's conviction in their teaching prowess profoundly shapes student motivation and their ultimate success (Bandura, 1986).

Navigating the New Educational Paradigm: Agricultural Literacy in Education

Transitioning to a broader perspective, we find ourselves in an era where students' connection with their immediate environment is championed as an essential educational pillar. The proposition of integrating real-world applications, exemplified by agriculture, into standard curricula, promises transformative outcomes (Sutaphan & Yuenyong, 2019). Experiential activities in agriculture provide a fertile ground for nurturing active learning and honing skills like critical thinking and problem-solving (Baker & Robinson, 2016; Smith & Rayfield, 2017). This is not mere conjecture, research has shown that engagement with school gardening initiatives considerably boosts students' health and academic performance (Kuo et al., 2021; Rochira et al., 2020). This sentiment is echoed by Azevedo et al. (2022) who found that hands-on gardening activities significantly enhance science performance. Yet, as we recognize these evident benefits, we must also grapple with a difficult predicament that looms on the horizon of education. The challenge of fashioning a resilient and comprehensive teaching approach. Such an

approach is crucial for nurturing the next wave of workforce, scientists, and professionals, all poised to tackle the intricate challenges of our contemporary world (Icela, 2022). Within the expansive range of pedagogy, Agriculture Education (AE) stands out for its interdisciplinary approach (Forbush et al., 2022). AE blends knowledge of nature, science, sustainable methodologies, and other disciplines (Pauley et al., 2019). Fostering an understanding of agriculture, especially at the foundational level, serves as a bridge connecting and enhancing various fields of study from biology to economics and from environmental science to social studies (Baker et al., 2020; Jhariya, 2019; Melchior & Newig, 2021). Given its central role and significance, it becomes paramount to deeply explore AE and address the factors that might weaken this indispensable sector. Fortifying AE ensures not only the growth of the agricultural industry but also bolsters the many disciplines it intersects with. This ensures that future generations benefit from a continuous, profound, and integrative learning journey (Forbush, 2022; Stubbs & Myers, 2016).

By delving into the critical need for developing educators' well-being, and education for sustainable development, this dissertation will contribute to developing educational strategies that can sustain and enrich the teaching profession. This study supports incorporating dynamic development principles into teacher education, positing that this integration is essential for cultivating the next generation of educators, scholars, and professionals equipped to navigate the complexities of the modern world (Nehm, 2019; Shernoff et al., 2017).

Holistic Approaches in Education

Today's educational environment is characterized by challenges and transformational opportunities. The disengagement from real-world experiences (Maimati et al., 2021), the escalating mental health crisis (Wong et al., 2021), and the underlying issues of teacher stress

and attrition (Farmer, 2020) demand more than mere policy change. It calls for a holistic, empathetic, and innovative re-envisioning of education. An education that not only imparts knowledge but fosters resilience, well-being, and growth, resonating with the very essence of what it means to be human. Today's educational landscape is fraught with complexity and nuance that mandates a multidimensional, integrative approach. It calls for integrating various diverse principles that transcend traditional paradigms, aiming for a holistic model that resonates with human potential at its core.

Social Cognitive Theory (SCT), introduced by Bandura (1977), emphasized self-efficacy, thereby igniting a focus on the profound influence of self-belief in shaping individual outcomes. This theory transcends teacher's empowerment, extending to students' well-being. A belief in personal efficacy can shield against the stress and burnout plaguing the teaching profession, contributing to job satisfaction and resilience. The importance of this perspective in the modern era cannot be overstated, as it plays a vital role in teacher retention, fostering environments where educators feel supported and reducing attrition rates (Skaalvik & Skaalvik, 2017). However, the holistic approach to education doesn't stop at psychology. It recognizes that cognitive and physical well-being are inextricably linked, requiring attention to biological and chemical factors such as sleep, nutrition, and stress (Norris et al., 2022). Achieving homeostasis, the body's state of internal balance underpins optimal cognitive and physical performance. A clear understanding of these principles can guide schools in creating environments that nourish the mind and body, leading to more effective teaching and learning (Walker, 2017). Nutrition presents a compelling intersection between biology and education. By exposing children to good foods and principles of sustainable agriculture, schools can instill lifelong habits of healthy eating and environmental stewardship (Taniguchi et al., 2021). Such integrative learning

experiences enhance traditional curricula and promote awareness of healthy and sustainable responsibilities (Wiek et al., 2014). There is a growing interest in collecting social-emotional data from teachers to help schools and their teachers promote well-being and reduce burnout (Allen et al., 2022). This interest was sparked by three findings: 1) that teachers' social-emotional competencies influence classroom climate and teacher-student relationships, 2) that teachers model socio-emotional skills for their colleagues and students, and 3) that teacher socio-emotional abilities are related to their classroom organization, management, and approaches (Jones et al., 2017). Recent research has made significant progress in defining social-emotional skills, identifying commonalities across frameworks, and applying theory to research and practice (Jones, 2019; McKown, 2017). Most social-emotional models include thinking skills, behavioral skills, and self-control skills (McKown, 2017). One widely used framework created by Collaborative for Academic, Social, and Emotional Learning (CASEL) includes self-awareness, self-management, responsible decision-making, social awareness and relationship skills (Lawson et al., 2019). To help teachers effectively meet the social-emotional needs of the students, teachers must be socially and emotionally supportive (Allen et al., 2022; Ruzek et al., 2016)

This holistic vision is not just an answer to explain the immediate educational challenges but is a robust solution to broader issues, including teacher retention. It reflects a conscious shift from reductionist perspectives, embracing a future that celebrates human potential in its full spectrum, acknowledging the interconnectedness of identity, actions, and environment, and enriching the multifaceted dimensions of life.

The Importance of Elementary Education

Elementary education is paramount in children's holistic development, fortifying the foundation for cognitive, socio-emotional, and moral growth. The myriad challenges in contemporary education, encompassing teacher attrition and persistent student difficulties, reinforce the imperative of nurturing cognitive structures at a formative age (Cherukunnath & Singh, 2022).

Emphasis on Concrete Operational Stage (Ages 7-11)

Jean Piaget's Theory of Cognitive Development is seminal in discerning the intricate mechanisms of cognitive development during early childhood (Schunk, 2020). The concrete operational stage, ages 7 to 11, epitomizes a transitional epoch when children develop into more systematic and logical thinkers (Piaget & Inhelder, 1969). During this crucial stage, a child's cognitive faculties evolve, enhancing their capacity for abstract reasoning, conservation principles, systematic manipulation of symbols, and multilateral perspectives (Babakr et al., 2019). These cognitive advancements scaffold subsequent higher-order cognitive functions, epitomizing the cornerstone for lifelong learning (Vygotsky, 1978). Cultivating cognitive abilities at a young age transcends mere academic prowess, enveloping the broader panorama of emotional intelligence, social competencies, and ethical rectitude (Pauw et al., 2015). The concrete operational stage is fecund for inculcating values, creativity, empathy, and societal functionality, resonating with the higher purpose of education as a tool for societal reformation (Dewey, 1938).

Intersection with Agriculture Education

Elementary Agricultural Education (EAE) marks a significant evolution in educational practice, expanding beyond its traditional bounds of middle and high school to embrace early

learning. This shift began with a pilot program, established through Georgia's Senate Bill 330 from 2019 to 2021, which was solidified into a permanent and ongoing program by House Bill 1303 in March 2022 (HB 1303 Georgia House, 2022). Now, every elementary school in Georgia is encouraged to create an agricultural program, appointing educators to bring agricultural concepts to life for students from kindergarten through fifth grade.

Such engagement in agricultural practices not only enriches academic learning but also nurtures personal and societal growth. It echoes Piaget's theory that values concrete experiences, thereby connecting classroom learning with the broader community and the environment (Piaget & Inhelder, 1969). In modern education, which demands a blend of theory and practice, EAE stands at the forefront, offering a progressive model for experiential learning. Activities like planting and soil analysis embody this model, aligning academic theories with hands-on experiences—a synergy that resonates with holistic education principles (Zuiker & Riske, 2021). This synergy facilitates a meaningful translation of abstract concepts into tangible experiences, fostering a deep connection with nature and encouraging sustainable living practices (Ives et al., 2018).

EAE represents a paradigm shift in pedagogy, instilling virtues like patience, accountability, and environmental awareness that are imperative for navigating today's complex societal demands (Kruk et al., 2018). The initiative's foundation was further strengthened by Peake et al.'s (2020) research, which led to the adoption of the first EAE standards by 26 pilot programs in Georgia in the fall of 2019. These standards, a product of collaboration between educational specialists and the Georgia Professional Standards Commission, set the stage for the Elementary Agricultural Education Teacher Certification Requirements and a post-secondary curriculum tailored to prepare teachers for this new educational frontier.

Peake et al. (2020) also identified 52 key topics for EAE, covering all seven Agricultural Food and Natural Resources Career Clusters. These topics are meticulously designed to complement and enhance core academic subjects, providing practical applications for science, mathematics, and technology education. This approach upholds the instructional model where agricultural subjects are taught as both substance and context, enriching the overall educational experience (Talbert et al., 2022).

Statement of the Problem

While existing literature has highlighted the prevalence of teacher stress and its repercussions (Farmer, 2020; Martin, et al., 2023), there is a gap in addressing the systemic adoption of holistic educational practices within EAE that support both teacher well-being and student development. The attrition of seasoned teachers represents a significant loss of pedagogical diversity and expertise, which is not recoverable, leading to far-reaching effects beyond the immediate classroom context (Carver-Thomas & Darling-Hammond, 2019). The research to date lacks an in-depth analysis of how teacher well-being directly affects their pedagogical beliefs, approaches, and the learning environments they foster, which are crucial for enhancing student achievement and the broader educational framework. This calls for rigorous scholarly inquiry that explores the underlying nuances and lived experiences of these teachers. In addition, EAE is in the nascent stage, thus we have a limited understanding of it. Notably, there is a gap in understanding whether EAE teachers' experiences align with or diverge from those of their counterparts at the middle and high school levels in agriculture education. Furthermore, the potential of EAE to influence the trajectory of agriculture education for future generations remains uncharted. Lastly, it is unclear whether EAE could be leveraged to bolster teacher and student recruitment in middle school and high school levels of agriculture education.

Purpose of the Study

The overarching aim of this dissertation is to investigate the multifaceted impact of EAE on the trajectory of agriculture education and broader educational system. This inquiry particularly focuses on the phenomenon Holistic Teaching Approach (HTA), an educational strategy that prioritizes the “whole person” development of students while simultaneously emphasizing the well-being of teachers. This strategy is poised to cultivate a holistic educational experience, equipping teachers with the essential knowledge, skills, and values needed to develop adaptability and resilience and foster an engaging and effective teaching environment. The study explores the role of HTA in sustaining the professional experience and practices of EAE teachers and potentially adopting this model across academic disciplines beyond agriculture education. Through a trio of scholarly articles, this study endeavors to:

1. Explore the barriers and growth opportunities for teachers as they navigate personal and professional challenges within the context of EAE. It considers the implications for teacher self-efficacy and the collective advancement of pedagogical practices responsive to community and environmental needs.
2. Investigate the factors influencing the teaching self-efficacy (TSE) of EAE teachers and how these factors contribute to the culture of EAE. The study explores how personal experiences, supportive environment, and innovative teaching behaviors interplay to bolster educators’ confidence and efficacy, thereby shaping the educational experiences of their students across a broad curricular spectrum.
3. Conduct a phenomenological study employing both descriptive and hermeneutic methodologies to delve into the lived experiences of EAE teachers who successfully implement HTA. The research aims to explore HTA and its influences on teachers’ belief

systems, habitual actions, and interactions within their teaching environments, aiming to redefine their self-efficacy and transform the educational landscape.

In synthesizing these lines of inquiry, the dissertation seeks to contribute a rich understanding of EAE's role in shaping the trajectories of both educators and students. It aims to articulate the benefits of EAE in promoting sustainability, enhancing pedagogical practices, and nurturing future environmentally conscious and socially responsible generations. The significance of this study lies in its potential to inform educational policies and foster an environment conducive to the growth and well-being of the educational community at large through a holistic teaching approach.

Significance of the Study

By fostering a supportive teaching and learning environment that prioritizes the well-being of teachers, this research could have a transformative impact on educational practices. Ensuring that teachers' perspectives are accurately represented, this study advocates for defining good teaching as that which supports the well-being of teachers, understanding that such support is inextricably linked to students' well-being as well. Consequently, this can bolster the organizational health of schools, improve learning outcomes, alleviate professional stress, and create a positive learning environment, ultimately enhancing the educational experience for both teachers and students. The findings could offer empirical support for the alignment of teaching methodologies with the holistic needs of students and teachers alike, potentially influencing policy and practice in every educational environment.

Introduction of Three Key Articles

This dissertation comprises three original articles, each contributing to our comprehension of EAE. These scholarly pieces collectively shed light on the considerable

impact of EAE, accentuating its vital role in teachers' and students' comprehensive development and well-being. They unravel the personal, behavioral, and environmental dimensions that arise from integrating agricultural content into foundational curricula such as science, mathematics, social studies, and language arts, fostering a more profound, practical understanding of these subjects through experiential learning.

These articles present in-depth explorations into the qualitative aspects of EAE, emphasizing a profound and empathetic understanding of the intricate dynamics at play. Such an understanding is predicated on the researchers' ability to perceive and interpret the experiences and emotions of their subjects, a methodological approach that is central to qualitative research (Rogers, 1957). This approach facilitates an insightful interpretation of the complex interactions and perceptions within EAE environments, bridging the gap between theoretical constructs and lived educational experiences. They articulate the extensive benefits of promoting holistic well-being within the educational sphere and highlight the potential for EAE to significantly contribute to societal and environmental progress. These qualitative explorations, rooted in empathetic engagement, underscore the capacity of EAE to act as a support and transformative element within educational systems, advocating for its adoption to enhance pedagogical practices and nurture environmentally conscious citizens.

Article 1: Preparing Pre-service Educators to Overcome Personal and Professional Barriers: A Case Study in Elementary Agricultural Education and Implications for Teacher Self-Efficacy

The first study focuses on the challenges faced by EAE teachers in Georgia and how these challenges serve as valuable experiences that contribute to their growth and effectiveness. The study delves into the myriad of barriers these teachers encounter, such as financial

limitations, limited class time, and student behavioral issues. Crucially, the study examines how teachers surmount these barriers, transforming them into drivers of growth. Such experiences catalyze professional development, reinforcing resilience and enhancing social relationships within the educational community. Furthermore, they stimulate innovation, inspiring teachers to adopt creative approaches to pedagogy and collaboration. By sharing experiences, strategies, and resources, they create a supportive network that enhances their teaching practices. This collaborative approach allows them to learn from each other's successes and failures, leading to collective improvement in handling the unique demands of agricultural education.

Additionally, the study highlights how implementing contextually appropriate teaching strategies plays a crucial role in surmounting these challenges. Teachers adapt their methods to suit the specific needs of their students and the limitations of their environments. This adaptive approach is crucial in ensuring that the integration of agriculture into elementary education enriches educational practices and nurtures community connection with agriculture, enhancing sustainability and environmental stewardship.

Moreover, the study underscores the invaluable support these educators receive from their communities. This external support is not just in the form of moral encouragement but often extends to tangible assistance, such as resources, time, and expertise. Such community involvement not only eases the professional burdens of the teachers but also strengthens the bond between the school and its community. It creates a mutually beneficial relationship where the community's involvement in education fosters a deeper understanding and appreciation of agricultural practices.

Article 2: A Qualitative Study of Factors Influencing Teaching Self-Efficacy of EAE Teachers.

The second study, an in-depth qualitative exploration, provides an insightful understanding of the determinants impacting EAE teachers' self-efficacy and the subsequent effects on the culture of EAE. Building upon the seminal work of Albert Bandura on self-efficacy sources, this investigation has unveiled factors that bolster teacher efficacy in the context of EAE. Teachers have highlighted that a fusion of personal values, innovative behaviors that challenge the status quo, and a positive school ethos substantially contribute to their professional confidence. They expounded that early exposure and firsthand experiences in farming and gardening have cultivated a deep-seated dedication to their educational roles. There is a prevailing belief among these educators that early student engagement with agricultural practices engenders lasting wellness habits and imparts essential practical knowledge, facilitating a more profound comprehension of concepts across the curricular spectrum, including mathematics, science, social studies, and language arts.

As forerunners in EAE, these teachers adopt the mantle of innovators, consistently venturing beyond conventional boundaries to foster and activate collaboration and flexibility within the learning environment. They interpret challenges not as impediments but as precursors to growth, an ethos that propels their pedagogical methods (Schunk & DiBenedetto, 2020). While recognizing the inevitability of obstacles, they reframe such experiences as fertile grounds for learning, thus fortifying their TSE.

Moreover, the research elucidates the correlation between TSE and being intentional in building relationships, thus underscoring the importance of building community. The educators emphasize synergistic relationships with colleagues, families, and administrative leaders as the

bedrock of a thriving EAE initiative. TSE is conceptualized as knowing that you are not alone, and it is a collective effort, reinforcing the significance of cultivating a sense of community within the educational milieu.

The implications of EAE in fostering a sustainable and eco-conscious educational framework are echoed in these findings, affirming the pedagogy's potential to shape future custodians of the environment (Pauw et al., 2015). The findings also reveal that sources and effects of TSE are consistent across different confidence levels.

Article 3: A Phenomenological Study of Elementary Agriculture Education Teachers in Successful Implementation of Holistic Teaching Approach

The third article delivers a nuanced phenomenological investigation into the application of a Holistic Teaching Approach (HTA) by EAE teachers, echoing the professional and personal growth themes introduced in prior research. This study articulates the intricate fusion of educators' belief systems, habitual actions, and the environmental contexts within which they operate, as they seamlessly integrate a holistic pedagogical approach into their teaching practices. The significance of this teaching strategy is accentuated by its capacity to redefine the educators' self-concept and reshape the educational environment, a transformation supported by quantitative research on teacher identity and pedagogical approaches (Fabrizz et al., 2020).

In continuity with the journey of growth and collective empowerment detailed in the initial studies, this paper casts a spotlight on the synthesis of these elements into a harmonious educational paradigm. The adoption of constructs such as the "EduSphere Mindset," "Rituals of Rigor," and "CueCon Horizon" is not simply a reinforcement of teaching efficacy but a cultivation of educational spaces conducive to the comprehensive development of learners. This educational philosophy aligns with the behavior model proposed by Fogg (2020), which suggests

that for behaviors to occur, individuals must be simultaneously motivated, able to perform the behavior, and prompted to do so. Moreover, the study highlights the pivotal role of environmental cues and support systems, not only as pedagogical tools but also as mechanisms for maintaining educational coherence and authenticity, affirming the significance of these constructs in aligning educational practices with the core identities of educators and students alike (Harmon-Jones & Mills, 2019, Nazarea & Gagnon, 2021). Consequently, this inquiry contributes a profound understanding of the lived experiences of EAE teachers, illuminating the reciprocal relationship between their instructional philosophies and their effectiveness in nurturing ecologically aware and socially responsible individuals.

Reflexivity Statement

“The pot carries its maker’s thoughts, feelings, and spirit. To overlook this fact is to miss a crucial truth, whether in clay, story, or science” (Krieger, 1991 p. 89). This quotation from Susan Krieger illuminates the essence of reflexivity in all facets of our endeavors, especially within the scholarly domain. Our distinctive perspectives, inherent biases, life experiences, and cultural backgrounds seep into our academic work. As highlighted by Swaminathan and Mulvihil (2018), confronting and embracing bias is more judicious than evading it (p. 58). Eradicating my biases is an insurmountable task because it is part of me and is an ongoing progress, hence, in this research, my goal is to uncover meaning and grasp the nuances of human experiences. I recognize and understand that my biases shape my role and context within this study. This recognition involves acknowledging intertwining my personal and social identities: gender, socioeconomic status, age, sexual orientation, ethnicity, language, culture, and personal history, with my research endeavors (Swaminathan & Mulvihil, 2018). My perspectives, values, and

beliefs significantly steer the research trajectory and impact the specific conditions, contexts, and dynamics within each research setting.

Bias Acknowledgment

Researcher bias represents an inherent inclination among scholars to collect, analyze, or present data that may be congruent with their pre-existing beliefs, theoretical frameworks, or intended outcomes (Roulston & Shelton, 2015). Swaminathan and Mulvihill (2018) argue that it is more prudent to recognize and potentially embrace bias rather than to futilely attempt its absolute elimination, asserting, “Rather than seek to avoid bias, it is better to confront and even embrace bias” (p. 58). This perspective posits that since personal viewpoints are inextricably linked to the human aspect of research, the objective should not be the unfeasible eradication of bias but rather an acute awareness of how such biases may tint the research panorama.

Biases have the potential to permeate all facets of the qualitative research process, ranging from the initial design to the selection of participants, from the methodologies of data collection to the nuances of analysis, and ultimately in the dissemination of findings. To constructively integrate bias, we must acknowledge our positionality and situationality within the research paradigm. Swaminathan and Mulvihill (2018) note that acknowledging a researcher’s positioning by multifarious factors such as gender, class, race, age, sexuality, ethnicity, language, culture, and personal history is crucial (p. 59). Such positionality implies that our identities are intrinsically woven into the fabric of our research endeavors. The lens through which data is interpreted, the inquiries posed, and the issues addressed are all colored by our individual and collective identities (Alcoff, 1988). Moreover, Thorne (2016) emphasize the significance of recognizing and vocalizing a researcher’s perspectives, values, and convictions and their potential impact on the research trajectory.

While “positionality” delineates the researcher’s orientation to their social, physical, cultural, and political milieu, “situationality” encompasses the specific conditions, contexts, and dynamics within the research environment. Situationality demands an understanding that factors such as location, time, and social interactions within the research setting can profoundly shape the study’s outcome (Swaminathan & Mulvihil, 2018). Both positionality and situationality necessitate researchers to exhibit methodological adaptability, reshaping their investigative approaches through continuous reflexivity and contextual cognizance.

Positionality Statement

As an academic, a woman, and a researcher, my identity is like a kaleidoscopic mosaic, vibrant with intersecting fragments of experience and contemplation. Echoing Simone de Beauvoir’s reflections on selfhood, as captured in ‘Vintages’ (1999), I find myself attuned to the ever-evolving fluidity of my research role, which is shaped by both introspection and lived experiences. My journey has become a collage of diverse experiences, each contributing to a greater understanding of who I am. The Philippines, where I was born and raised, is a community in which collaboration is the heart of society and has played a significant role in shaping my worldview. There, amidst the energy of city life and the peacefulness of the countryside, I learned the value of working together and the strength found in our collective efforts.

In the Philippine educational system, I often found myself in classrooms where the focus was on lectures and textbooks, a method that seemed disconnected from the practical realities and vibrant culture that surrounded us. I excelled in this environment, absorbing the information presented, but I always searched for a kind of education that was more alive, one that was in tune with everyday life and the enduring spirit of the people. The urban environment of *Makati*,

where I spent my younger years, was a stark contrast to the rural barrio of *Tiaong*, which I would visit during summers. These visits were eye-opening, as they revealed a simpler, more connected way of living that contrasted with the city's fast pace. In the barrio, I saw how life was meant to be lived together and how each person's contribution was valued, much like sharing a meal from a well-tended garden. Although these experiences helped me to appreciate our country's reliance on agriculture, my own education rarely touched on this vital aspect of Filipino life. This led to a division within my own understanding: the deep-rooted values of teamwork and community life on one side, and on the other, a school system that seemed to stand apart from the cultural richness it should have been a part of. From this gap grew a deep desire for an education that not only reflected but was also deeply connected to the world around it. I envisioned a learning process that wasn't just about individual study but was a collective journey of exploration and insight, similar to the community experiences of my childhood.

As I made the transition from the collective spirit of the Philippines to the individualistic pulse of Maryland, USA, I stepped into the role of educator, serving as both a high school science teacher and a community college biology instructor. In these capacities, I bore witness to the transformative power of education. It was upon the fertile ground of teaching that I came to appreciate the profound influence of integrating agriculture into the curriculum. Such integration not only captured my students' interest but also stoked their active engagement by anchoring their learning in practical and tangible experiences. I moved beyond the confines of abstract textbook teaching, providing my students with concrete examples from the world around us. Our classrooms became living laboratories, where theories were not merely discussed but enacted, creating an interactive space where education was dynamic and engaging. The study of agriculture, bridging life sciences and sustainable practices, grounded the relevance of science in

the students' everyday experiences, tying it to the collective and individual challenges they face. This pedagogical shift mirrored my own academic progression, marking a departure from abstract theories to a focus on the immediacy of experiential learning. By integrating principles of agronomy and environmental stewardship into the fabric of my teaching, I facilitated a seamless transition from theoretical understanding to practical application. This process nurtured learners to grasp the interconnectedness of human progress and environmental care, preparing them to contribute thoughtfully to society. In undertaking this journey, I honed my professional identity and developed an educational philosophy that emphasized practical knowledge. This philosophy embraces the critical role of educators in equipping students for success and responsible citizenship. I realized the importance of fostering individualistic characteristics such as the pursuit of achievement and the assimilation of evidence-based knowledge. It became clear that valuing individual achievements and critical thinking skills is as vital as promoting community and sustainability. Emphasizing individual accomplishments within the framework of agricultural education highlighted the significant role of personal initiative and evidence-based learning. This approach does not only prepare students for academic excellence but also shapes them into discerning citizens, ready to navigate and influence a world that cherishes those who deeply understand and responsibly manage our natural resources. Yet, it was the global pause prompted by the COVID-19 pandemic that truly highlighted the significance of agriculture and the serene refuge of gardening as vital elements of my life. This reconnection with the soil provided a pathway for personal growth and a steadying force amid upheaval.

Motherhood induced a profound pivot in my focus, centering my son's holistic development at the core of my purpose. Witnessing the world through his perspective, I rediscovered the magic of exploration and the limitless potential of inquiry-based learning. The

great outdoors became our classroom, where sunlight kissed his cheeks, and his hands engaged with the soil, uncovering plant roots and harvesting vegetables. These experiences sparked in him profound questions about the foundations of life. My approach was intuitive and spontaneous, guiding him through the sensory richness of the natural world. By demonstrating and facilitating interaction, rather than lecturing, his curiosity and understanding deepened. Together, we sowed the seeds of knowledge through touch, observation, and lived experience. Our immersion in the outdoors and the integration of nature into our educational pursuits have reaffirmed my belief in the efficacy of experiential learning. It has become clear that knowledge, when encountered directly, becomes more than a concept, it is deeply felt and enduringly remembered. This approach to learning, liberated from the constraints of conventional pedagogy, has not only facilitated his growth but has also continually reshaped my educational philosophies. In this regard, the practice of “learning by doing,” a fundamental aspect of my teaching ethos, has been reinforced. My dual role as an educator and mother converges in the shared mission of creating learning experiences that resonate with life’s essence, fostering a perpetual passion for learning and a deep respect for the natural world.

Now, as I amalgamate the collective wisdom of my upbringing with the depth of engagement that authentic learning demands, I strive to cultivate an educational approach that honors both intellect and the significance of community, integral to my heritage. This duality has informed my subsequent foray into academia in the United States. Residing in Athens, Georgia, post-pandemic, was an intentional move towards realizing a balance between pastoral peace and urban opportunity, a dual setting from which my family and I draw strength. This environment has enriched my doctoral research, allowing me to contribute to agricultural education from a vantage point that is as culturally intricate as it is pragmatically grounded. My Ph.D. journey at

the University of Georgia has been transformative, guided by respected professors in environmental and agricultural education whose fervor and expertise have been inspirational. They navigated me through the realm of agricultural education, involving me in elementary programs and workshops designed for educators, which provided practical exposure that shaped my academic and personal growth. The task of converting theoretical knowledge into hands-on practice in these workshops solidified the importance of active learning, contrasting sharply with my earlier education, which was laden with theory. My mentors instilled in me a passion for sustainable practices and environmental stewardship, fostering an appreciation for the role of agricultural education in connecting the classroom to the living world. Their guidance has inspired me to develop teaching strategies that prioritize environmental engagement as a fundamental component of education.

My educational philosophy is deeply rooted in a collective consciousness, informed by cultural sensitivity and grounded in a robust philosophical framework. It thrives on a genuine zeal to combine academic rigor with the tangible, nurturing aspects of agricultural practice. Recognizing that knowledge thrives at the intersection of shared experiences and personal inquiry, I advocate for a convergence of collective and individualistic paradigms in learning. Such a convergence acknowledges the power of community in shaping shared values and aspirations, while also honoring the individual's quest for achievement and evidence-based understanding. In this synthesis, I see the future of education, one where collaborative wisdom and personal accomplishment coalesce to create a learning environment that is as enriching as it is enlightening. By integrating these dual perspectives, we prepare students not only to excel in their own right but to contribute meaningfully to the collective well-being, embodying the best of both worlds in their personal and professional lives.

Situationality Statement

As I navigated the complexities of a world reshaped by the pandemic, the concept of situationality became paramount in this dissertation research. This study, grounded in Georgia's diverse educational settings and centered on the practices of elementary agricultural education teachers, was inherently shaped by the interplay of place, time, and relational dynamics. These factors, taken collectively, were not a mere backdrop but active agents in the research, directing its course and informing its conclusions.

Georgia's rich tapestry, from the vibrancy of its cities to the tranquility of its countryside, provided a dynamic arena where educational theories and practices were lived and observed. The timing of the study, in the lingering shadow of a global health crisis, was particularly poignant, as the world grappled with unprecedented challenges to mental and emotional health, the pertinence of this research into agricultural education and its implications for well-being became ever more pronounced.

Bringing to Georgia the breadth of my teaching experience from Maryland, which spans a decade, I approached my research with an in-depth understanding of classroom dynamics and pedagogical subtleties. Although mentorship had once defined my professional role, this research saw a transition to the role of participant-observer. Over the last two years, I immersed myself in a participatory role during a succession of collaborative workshops with a focus on elementary agricultural education. This role, though deeply engaged, was distinct from the mentorship I had provided in the past, it was one of an active contributor and scholarly investigator aiming to deepen the collective understanding of how agricultural education can be delivered more effectively.

The workshops during this time became a pivotal forum for dialogue and discovery, offering up vital insights into teaching methods that resonated in a world forever altered by the pandemic. My involvement went beyond mere participation, fostering significant relationships and collaborating on initiatives to meet the newly emerging educational demands. This approach allowed me to maintain a scholarly detachment necessary for analytical rigor, even as I contributed to the evolution of educational practice in these changing times.

In this research, I was situated at a unique nexus, where my history as an educator informed my insights as a researcher, and where the shared experiences within the workshops enriched my academic pursuits. This convergence of past experience and present engagement created a fertile ground for investigation, offering a nuanced perspective on the transformative potential of agricultural education in fostering resilience and holistic well-being in the post-pandemic era.

Definition of Terms

Holistic Education - An approach to teaching that seeks to address the full development of a child's intellectual, emotional, social, physical, artistic, creative, and spiritual potentials. It is aimed at fostering a more comprehensive approach to education that considers the "whole person." (Miller, 2019).

Experiential Learning - The process of learning through experience and is more specifically defined as "learning through reflection on doing" (Kolb, 2015).

Sustainability Education - Refers to a transformative learning process that equips individuals with knowledge, skills, values, and attitudes necessary for fostering sustainable socio-ecological systems (Wals, & Jickling 2002).

Pedagogy - The art and science of teaching, which encompasses the study of theories and practices that influence instructional processes and includes the practical application of those theories in the classroom (Loughran, 2015).

Inquiry-Based Learning - An educational strategy in which students follow methods and practices resembling those of professional scientists to construct knowledge (Pedaste et al., 2015).

Collaborative Learning - An educational approach involving groups of learners working together to solve a problem, complete a task, or create a product, which is based on the understanding that learning is a naturally social act (Laal & Laal, 2012).

Agricultural Literacy - Agricultural literacy refers to the understanding of how food and fiber products are produced and the recognition of the economic, social, and environmental significance of agriculture to our society (Frick et al., 1995).

Education for Sustainable Development- Empowers learners to make informed decisions and act responsibly in the interests of protecting the environment, ensuring economic viability, and a just society for present and future generations (UNESCO, n.d.).

Curriculum Integration - The practice of interweaving subjects and thematic areas to create a more cohesive and connected learning experience for students (Drake & Burns, 2020).

Inclusive Environment - Refers to pedagogical and institutional practices that adjust to the needs of all learners, thereby acknowledging diversity and eliminating barriers to access and participation (Florian, 2019).

Culturally Responsive - Culturally responsive teaching is a pedagogical approach that recognizes the importance of including students' cultural references in all aspects of learning (Gay, 2018).

Formative Assessment - A range of formal and informal assessment procedures conducted by teachers during the learning process in order to modify teaching and learning activities to improve student attainment (Black & Wiliam, 2018).

Summative Assessment - The evaluation of student learning at the end of an instructional unit by comparing it against some standard or benchmark (Taras, 2009).

Metacognitive Approach - A metacognitive approach involves teaching strategies that help students understand the way they learn; it is about being aware of awareness and having control over one's learning (Wilson & Bai, 2010).

Limitations of the Study

This exploratory qualitative study provides an in-depth examination of EAE in Georgia, a state where agriculture plays a pivotal role in the economy and culture. The purposive selection of participants aimed to yield nuanced insights into the specific educational practices and perspectives prevalent in this context. However, the findings are deeply contextual, and the intention was never to extrapolate these results across diverse educational environments or regions indiscriminately.

The choice of participants, while offering a context-rich exploration, inherently limits the study's scope. Those not included in the sample may have experiences that could differ significantly, particularly in regions where agriculture's economic and cultural roles diverge from those in Georgia. Consequently, the conclusions should be interpreted as representative of the unique context of this study, not as a comprehensive overview of agricultural education across various settings. In an effort to respect the substantial responsibilities of teachers and to avoid disrupting the educational process and valuable time for their professional development and self-care, this research was conducted within a constrained timeframe. These ethical

considerations, coupled with the necessity to complete this study within the confines of a dissertation schedule, imposed certain limitations on the duration and extent of engagement with participants. This resulted in a focused yet abbreviated exploration, which, while sufficient for the aims of this study, leaves room for more extended research engagements in the future.

The study was conducted under the fundamental assumption that all participants provided truthful and accurate information through the qualitative methodology employed. It is essential to trust that the reflections, insights, and narratives shared are genuine representations of the participants' experiences. This study is positioned as a springboard for further inquiry, encouraging replication and adaptation in different contexts to extend the reach and relevance of the findings. Subsequent research could benefit from varying the temporal scope and participant engagement strategies, offering a more extensive examination of educational practices across states with different agricultural influences, thereby enriching the discourse on agricultural education and its myriad facets.

Chapter Summary

The multifaceted demands of contemporary education, coupled with the rapid transformations in societal and environmental paradigms, have rendered the teaching profession particularly vulnerable to heightened stress levels. This burgeoning concern is not merely restricted to the immediate health and well-being of educators but also reverberates through the educational ecosystem, impacting student outcomes. Research offers a compelling exploration of the intricate nexus between escalating teacher stress, its adverse health implications for educators, and the concomitant decline in students' academic performance (Veloz Montano et al., 2023). Their findings illuminate that the rigors and pressures of teaching, if unchecked, can engender a cascade of negative outcomes that transcend the confines of the classroom.

In light of these revelations, there emerges a compelling case for a paradigm shift in how educational systems approach the well-being of educators. It is no longer tenable to focus solely on academic outcomes and pedagogical strategies without addressing the very individuals responsible for implementing them. A reformed approach to teaching, therefore, must accentuate the critical importance of educator well-being. This encompasses not only physical health but also the often overlooked facets of emotional resilience, mental fortitude, and the ability to navigate the challenges of the profession without succumbing to burnout. Furthermore, in an era that continually blurs the lines between professional and personal realms, the balance between these spheres becomes paramount. It is imperative that educational practices and policies acknowledge this balance, fostering environments where educators are equipped with the tools, resources, and support systems necessary to harmonize their professional responsibilities with personal well-being. After all, a flourishing and resilient educator is, by extension, pivotal to a thriving and responsive educational ecosystem.

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CHAPTER 2

PREPARING PRE-SERVICE EDUCATORS TO OVERCOME PERSONAL AND PROFESSIONAL BARRIERS: A CASE STUDY IN ELEMENTARY AGRICULTURAL EDUCATION AND IMPLICATIONS FOR TEACHER SELF-EFFICACY

Helm, M. R., Fuhrman, N.E., & Peake, J.B. (2024). Submitted to Journal of Agriculture Education

Abstract

Although barriers facing agricultural educators have been well studied at the middle and high school levels, they are equally important at the elementary teachers and elementary agricultural education is quite new nationally. The purpose of this study was to better understand how elementary agriculture education (EAE) teachers in Georgia overcome personal and professional barriers. Agriculture Education at the elementary level is a newly integrated concept in Georgia and little was previously known about aspects of the integration that could inhibit an elementary agriculture teacher's success. EAE engages students with experiential learning opportunities to provide foundational knowledge of the link between plants, animals, and society. The population for this study was 26 pioneering EAE schools in Georgia. Purposive sampling was used and four EAE teachers engaged in-depth interviews. Once data saturation occurred, qualitative content analysis detected emergent themes across the dataset. Personal and professional barriers included lack of financial support, a shorter class time schedule, and student behavioral issues which prevented safe hands-on learning activities. Participants overcame these barriers by collaborating and communicating with other teachers using various teaching strategies and seeking support from the community and administrators. However, participants indicated a need for training in agricultural mechanics as repairing and maintaining teaching equipment was a reoccurring issue. While not generalizable, these results suggest that pre-service teacher preparation programs at the post-secondary level that teach EAE should include teaching strategies classes focusing on experiential learning and effective classroom management with ways to reinforce positive behavioral intervention and support for younger learners. While elementary students will not be engaging with agricultural mechanics like more mature students, pre-service EAE teachers should still be trained in this area.

Introduction

Rapid industrialization and globalization demand for youth to acquire knowledge and life skills that respond to a constantly changing environment. However, with these developments, society is removed from agriculture and its importance to our daily lives (Bayer et al., 2020). Adoption of an indoor lifestyle with ongoing improvements of digital technologies for both adults and children has resulted in a disconnection to the challenges of the natural world around them such as food, energy, water, and climate change (Hufnagel, 2015; Louv, 2008).

The National Research Council (2009) pointed out that these challenges are closely tied to agriculture education and agriculture teachers are in position to cultivate the next generation of leaders and professionals needed to address these challenges. Through experiences in agriculture education, students learn about interdisciplinary links and real-world connections to the world of work. Research findings support the claim that the integration of science into the agriculture curricula is an effective way to teach science (Chiasson & Burnett, 2001). Agriculture literacy along with developing connections to nature and critical thinking skills can facilitate the development of environmentally responsible behaviors to sustain the future (Pennisi & Lackey, 2018). In contrast, research by DeSpain et al. (2016) found that agriculture classrooms do not meet the potential to increase science literacy among agricultural students. Perhaps the contrast presently in the literature relates to elements of a teacher's self-efficacy to use agriculture as a conduit for teaching science. Likewise, in an earlier study by McBeth and Volk (2010), middle school students lacked the critical thinking and decision-making skills needed to resolve environmental and human health issues.

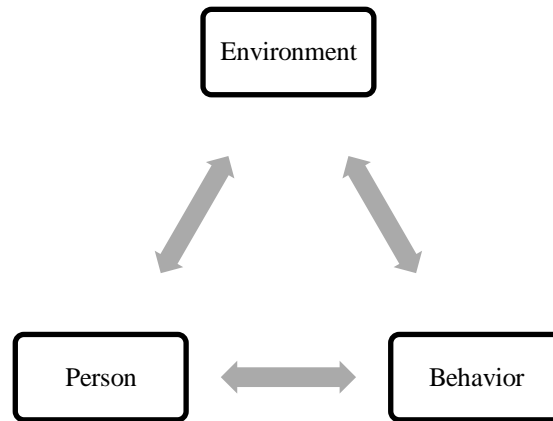
Research has established links between primary and secondary school teacher's self-efficacy beliefs and student's achievements (Hassan, 2019; Daumiller et al., 2021). Teacher's

self-efficacy shapes their perceptions and interpretations of achievement in every situation and gives effective options for action (Shahzad et al., 2017). With high self-efficacy, teachers can better manage their teaching, experiences and behaviors that influence a student's learning outcomes (Daumiller et al., 2021). This study aims to investigate elementary agriculture education (EAE) teachers' ability to overcome personal and professional barriers related to EAE. In Georgia, EAE was introduced four years ago, making it an ideal time to examine how EAE teachers are responding to the integration of agriculture education with elementary-grade students and offer suggestions to other states considering a similar initiative. .

Theoretical Framework

Social Cognitive Theory

Social cognitive theory (SCT) was developed by Albert Bandura who proposed that individual expectations, beliefs, emotional bents and cognitive competencies are developed and modified by social influences and these actuate through modeling, instruction and social persuasion (Bandura, 1986). He states that SCT favors a model of causation involving triadic reciprocal determinism (TRD) shown in Figure 1. According to this model, individuals respond to environmental situation in order to gain desired outcomes and reduce undesirable ones. TRD involves three components: behavior, cognition, and environmental factors. These factors influence and affect each other but do not necessarily have the same level of power. Environmental factors include models, roles, situations, or relationships. Behavior factors include duration, skill, or complexity. Personal factors include outcome expectations and self-efficacy. In the context of this study, SCT offers promise in better understanding the key self-regulatory cognition driving perception in one's belief and ability to confidently manage environmental demands that will effectively enact coping behaviors (Bandura, 1989).



*Figure 1. Triadic Reciprocity Model of Causality Based on *Social Foundations of Thought and Action* by A. Bandura, 1986.*

Self-efficacy

Self-efficacy is an individual's belief in their ability to successfully perform specific tasks or achieve a goal (Bandura, 1989). It is a product of a combination of experiences, observations, persuasion, and emotions. It is not concerned with the skills, but the perception of what one can do with whatever skills one possesses. People's judgement of their capabilities influence their emotional reactions during transactions with their environment. Self-efficacy is linked to academic achievements and the ability to face barriers and setbacks. Teachers with greater levels of self-efficacy related to personal and professional ability should be more likely to see themselves achieving instructional competency (Muijs & Reynolds, 2015) that delivers connection and application of agriculture and science more broadly in the real world. Overall, teacher self-efficacy and job satisfaction have a strong positive relationship; the more efficacious a teacher is, the more satisfied he or she is with the job (Blackburn et al., 2017). Collegiality and a positive work environment increase self-efficacy and dedication to the profession (Rocca & Washburn, 2006). Teachers who are satisfied with their chosen career should effectively manage stress that may arise during their job, thus providing further stability in their chosen profession,

especially during times of stress (Hong, 2012). The longer a teacher is in the profession, the more effective they are compared to less experienced counterparts (Canrinus et al., 2012). As EAE teachers are navigating newly chartered waters in [State], a consideration of their self-efficacy in this new role seems prudent.

Self-efficacy of Agriculture Educators

Studies of agriculture educators' self-efficacy report mixed results. Rubenstein and Scott (2021) indicated that a majority of preservice teachers considered Supervised Agricultural Experience (SAE) an important aspect of school-based agricultural education (SBAE) while another study indicated that agriculture teachers struggle with the implementation of these programs in the classroom (Talbert et al., 2014). In a study conducted by Duncan and Ricketts (2008), traditionally certified (TC) teachers had higher levels of self-efficacy related to classroom management such as establishing rules and preventing student's disruption, compared to alternatively certified (AC) teachers. On the other hand, AC agriculture teachers have been found to have the highest levels of self-efficacy in common pedagogical practices such as student engagement, active experiential learning and teaching to multiple learning styles (Robinson & Edwards, 2012). Both groups have a lower level of self-efficacy in content knowledge. Roberts and Dyer (2004) stated that TC agriculture teachers would be better prepared than their counterparts. An understanding of EAE teachers' self-efficacy and how pre-service teacher preparation programs may need to respond is needed and warranted this study.

Agriculture Education at the Elementary Level

Concrete Operational stage is the third stage in Piaget's theory of cognitive development in children (1977). This stage starts at around 7 years old and is completed at around 11 years old. This is when children gain understanding of concrete ideas and concepts. Those new ideas

enable the child to better understand and control relationships among objects (Wulach, 1977). Teaching science in context develops students' critical thinking and problem-solving skills (Thorton & Myers, 2012). Children learning through a more hands-on approach with guided discovery achieve greater understanding of the scientific principles (Yannier et al., 2020). Agriculture education is known to include experiential learning that actively use hands-on and inquiry-based learning strategies (Skelton et al., 2018). In addition, understanding foundations of agriculture systems knowledge at the elementary level can help develop schema that builds understanding about resource allocation and the sustainability of the food system in elementary students (Hess & Trexler, 2011).

While critical thinking and problem-solving are well accepted with regards to middle school and high school agricultural education teaching, little is known about Agricultural Education at the elementary or primary grade levels. Piaget (1977) proposed four distinct stages of childhood development; sensorimotor stage (birth to age 2), preoperational stage (age 2 to 7), concrete-operational stage (ages 7 to 12), and formal-operational stage (ages 11 to 12, and thereafter). It is outside the scope of this study to determine the most appropriate application of Piaget's model for EAE teaching, however it appears that the traditional model for Agricultural Education is not an appropriate fit for EAE due to the students' stage of cognitive development.

Purpose and Research Questions

The purpose of this study was to investigate the self-efficacy of elementary agriculture education teachers Georgia and their suggestions for overcoming personal and professional barriers. This study aligns with Research Priority 3: Sufficient Scientific and Professional Workforce That Addresses the Challenges of the 21st Century and Research Priority 5: Efficient and Effective Agricultural Education Programs of the American Association for Agricultural

Education National Research Agenda (Roberts et al., 2016). This study was guided by these research questions:

1. What are the barriers faced by elementary agriculture education teachers in [State]?
2. How do elementary agriculture education teachers in [State] overcome these barriers?
3. In what ways do the identified barriers influence elementary agriculture education teachers' perception of self-efficacy at the personal and professional level.

Methodology

A qualitative interviewing method was utilized so elementary agriculture education teachers could share their understanding and experiences regarding barriers they experience on a daily basis. The qualitative approach provided rich information that served the purpose of this research and will later inform the development of an instrument for use with a larger population at the national level (King, 2010).

Study Population

Elementary Agriculture Education (EAE) has 26 schools currently participating in Georgia. This program was piloted in 2019 through 2021 and made possible through Georgia Senate Bill 330 (Georgia Agricultural Education, 2021). Each school has one elementary agriculture teacher who teaches kindergarten to fifth grade students. Study methods and analysis protocols were submitted to the University of Georgia's Institutional Review Board and were approved under project number 00004695. To identify participants, the researcher examined the Georgia agricultural education website and EAE teacher contact information from an agriculture education professor at the University of Georgia. Purposive sampling was used to select the needed respondents who would yield appropriate and useful information (Kelly, 2010). From there, those individuals were contacted, and interviews were scheduled to occur via Zoom.

Participants gave consent, were provided a background questionnaire which gathered information about their years of teaching experience, highest level of education, teaching certificate, subject/s they teach, and grade-level of their students.

Individual interviews lasted between 30 and 60 minutes (average of 45 minutes). Zoom interviews were used because they were the preferred method by the participants. Archibald et al. (2019) found that Zoom was the best option chosen by participants instead of in person, telephone interview or other videoconferencing platform. A semi-structured interview guide was developed following a review of literature on SCT and teacher self-efficacy. The interviews were audio and video recorded with the participant’s consent for the intention of ensuring accurate transcription and were transcribed verbatim. Four elementary agriculture educators were interviewed because data saturation on several themes occurred by the fourth interview. Table 1 provides brief background information for the four participants in this study.

Table 1.

Background of Participant Teachers

Participants	Gender	Highest degree earned	Number of years in teaching	Teaching certificate
P1	Male	Bachelor’s	16	Yes
P2	Female	Master’s	12	Yes
P3	Female	Bachelor’s	3	Yes
P4	Female	Bachelor’s	(1 month)	No

Data Analysis

Qualitative content analysis using MAXQDA (version 12, VERBI GmbH, Berlin, Germany) was used to summarize, examine, and aggregate the data into emergent themes across the dataset. The transcripts were subjected to open coding by the researcher for the extraction of themes. The researcher discussed the results with two agriculture professors to review the coding and themes.

Ensuring Trustworthiness and Dependability

This study was designed according to best practices from the methodological literature to ensure consistency in interpretation and produce accurate depictions of participants' responses (Lincoln & Guba, 1985). To directly address the trustworthiness and dependability in this qualitative research, the processes within the study were planned, executed, reported, and described enabling future researchers to repeat the work. To ensure trustworthiness (validity), the researchers engaged in member-checking by sharing a summary of themes which emerged from the interviews with participants for their review and approval. The lead researcher reviewed a selection of transcripts and compared themes identified independently and then integrated themes and discussed their meaning with colleagues.

Subjectivity Statement

The lead researcher is originally from the Philippines and moved to the U.S. where she taught preschool, middle school Science, high school Science, and college Biology in various times for ten years in Maryland. Although the lead researcher has a personal connection to the topic of this study by being a classroom teacher, she attempted to put aside biases to learn about the participants' experiences in teaching elementary agriculture education and learn the different personal and professional barriers they encountered. Her previous experiences as a classroom

teacher allowed for more intentional probing questions during the interviews, further enriching the data.

Limitations of the Study

This exploratory study used purposive sampling to bring about understanding of the research questions from the elementary agriculture educators who participated. The lead researcher did not actively pursue those who did not respond to the initial request for participation beyond a single reminder email. This study interviewed four elementary agriculture educators out of 26 total in Georgia at the time of the study. After the fourth interview, data saturation was met in several themes. The results of this study are not generalizable but, when transferred, provide important perspectives and additional questions for further research.

Findings

RQ1: What are the barriers faced by elementary agriculture educators in Georgia?

To address the first research question, three themes emerged from the participants that identified barriers faced by elementary agriculture educators in Georgia. These included a lack of financial support, a short class time schedule, and student behavioral issues.

Lack of financial support

Agriculture education, especially for elementary students, requires extensive materials and visual and kinesthetic teaching aids to support inquiry-based and experiential learning.

Participant 2 shared

Agriculture is more hands on and you have a lot of real-life application activities that need to be right there. I try to do smaller activities in the classroom so that I do not have to use as much as my personal money.” Participant 1 declared that “there is not in the

budget, really for anything other than the teaching position, there is no budget to buy teaching resources.

Participant 4 added that “trying to get teaching resources and farming supplies and to find people to donate for our program because those supplies are not affordable for us teachers to buy [is difficult].” Finally, the cost of agriculture education supplies is beyond school budgets. In Georgia, experiments and practical knowledge are achieved through rudimentary and non-rigorous activities, including observation of the different stages of egg development, designing and using wind turbines, and farm visits.

Short class time schedule

Agriculture education covers subjects such as how plants and animals grow and how soil is farmed and conserved. This requires Kolb’s experiential learning model which gives students the opportunity to self-correct any educational missteps in the lesson with the professional guidance of the teacher. Therefore, another theme that emerged was the amount of time available for teachers to implement hands-on learning experiences. The participants in this study shared that their schedule for elementary agriculture classes takes 45 minutes once or twice a week except for participant 2 who shared that:

We have our elementary kids for 55 minutes, but it is on a six-week rotation. So, the way the schedule falls in with the other connection classes that we currently offer, sometimes you may go six weeks without seeing one of those groups of kids. It is not the ideal schedule of where you could have all kids, all grade levels throughout the week and you are constantly seeing them.

Participant 4 also mentioned that in addition to having limited class time, they are also required to pick up their students from the previous classroom which reduces instructional time,

sharing that, “20 minutes out of their whole 45 to be in between, like walking them, grabbing them.” This makes it harder for teachers to plan lessons that will best benefit students because they must consider limited time available. Participant 4 stated that “it makes it harder for me to get my lesson plans made for some things and a lot of my time is spent in preparing for the activities.” She also added that “I would say most of the time I'm working, even after I leave here (in school), I go home, and I have to work on the computer for the class. I'll go through and try to find things that will keep them interactive in class.” Participant 1 also said that “by the time student’s get to the class, you get started with the lesson and it is time to go. I mean, literally.” Participant 2 suggested, “we could just like, cut out kindergarten and make the other classes like an hour and 15 minutes long and we could actually get more done.” All participants agree that having this type of schedule makes it harder for students to retain information, like Participant 3’s comment: “So, when they come back to us the next week, we have to review what we did last week because they don't remember.” All participants agreed that the lack of time allotted to agriculture education handicaps its effectiveness to teach and use experiential learning.

Student’s behavioral issues

Student’s behavioral issues become a concern in most schools especially after COVID 19 school closure. Participant 2 explained the reason, stating:

Because they've been out of school for so long that and often on with different types of schedules to work around COVID that structure has been broken. And so just trying to meet them where they are at, teach them those proper ways to act so that they can experience whatever it is that we are teaching or learning that day, and especially with my class being very hands on and then being able to have that flexibility to get up and move in and do those different activities. And that is a barrier for us because if they do

not have those principles, then that routine is already in place, it's very hard for them to function in and even work with other students and in that type of environment.

Participants confirmed that students are having difficulty acclimating to classroom procedures and standards after being out of school for several months. Participant 3 discussed that “there are a lot of disruptive behaviors with students.” Participant 4 added that “usual behavior issues with students in my class are getting worse.” Therefore, participants affirmed that students' behavior affects the quality of discussion and experiential learning in the classroom.

RQ2: How do elementary agriculture educators in [State] overcome these barriers?

To answer the second research question, three common themes emerged from the participants to overcome the different identified barriers. These were collaboration and communication with other teachers, implementing appropriate teaching strategies, and support from community and administrators.

Collaboration and Communication with Other Teachers

Collaboration and communication among teachers contribute to teamwork that produces effective and engaging lessons (Snyder, 2009). All participants explained the importance of talking to other teachers for understanding of student's performance in other classes and facilitating the exchange of ideas and teambuilding. Participant 1 said, “I had another teacher bring in a small goat last year that excite students.”, he also mentioned that he mentioned the topic he is planning to teach to one of the teachers which resulted to volunteering on bringing one of her farm animal while participant 2 added “We have tried to meet with them (other teacher) to just work out those problems.” Participant 3 shared that “it is good to know that there are other teachers there, so you have a little additional help.” Teachers working in collaboration result in a positive impact on each

other (Chong & Kong, 2012) this is confirmed by participant 2 who said that “being proactive and discussing issues with other teachers helps in understanding students’ needs like if there are things that I need to know.” Participants realized that they have responsibility to their students and by communicating and collaborating with other teachers they can share units and use each other’s areas of expertise, skills, and resources to effectively communicate and guide students for a higher level of learning. It also creates a thematic curriculum built around agriculture and the life sciences.

Implementing Appropriate Teaching Strategies

Each student has a unique personality and learning style; therefore, teachers are required to address a broad range of learning needs within the classroom. Using various strategic teaching methods can help teachers create environments that are conducive for learning for all students’ different learning styles which will encourage students’ learning success. Participant 2 pointed out that “we try to come up with our own strategies and teaching approach to better serve those kids in those grade levels.” Participant 1 also mentioned that agriculture education is mostly experiential learning and understanding the application of why students need to learn the lesson by asking real-life questions such as:

How can farmers or people in agriculture use those with other applications? Why would a farmer need a wind turbine? Why would it be important? Why would they need to know what direction the wind is coming from or where the wind's going? I mean, well, if they are going to spray a field and they have winds blowing there, is that a good idea to plant?

Participants agreed that planning a lesson that uses different strategies, especially learning by doing activities and inquiry-guided instruction. These strategies help student get involved in the learning process and discover the answer on their own and then they remember the concepts more effectively and efficiently. These teachers struggled the most with identifying and developing

different strategies and methodologies that support experiential learning for different preferred styles of learners.

Support from Communities and Administrators

Learning partners such as the school community and administrators bring passion in the classroom and make teaching become a partnership. Participant 2 admitted that support from the administrators makes teachers feel good about the school. Participant 1 shared that support from community such as private donations help a lot in making sure they get supplies that they need. Participant 1 also shared “they sent in a variety of different objects that we asked for. I mean...So we have a very supportive community here.” Participants agreed that bringing the community and administrators in the learning process adds stability and support that they need in the classroom.

RQ3: In what ways do the identified barriers influence elementary agriculture educator’s perception of self-efficacy at their personal and professional level.

Two common themes emerged regarding this research question. These included does not bother me at all and affects me greatly.

Does Not Bother me at All

Facing the different barriers in our life is what makes us stronger. There are several ways to cope with barriers in everyday life and there are also different ways it affects our mental strength and self-efficacy. Participants agreed that there are hurdles that are disheartening but often part of the teaching process and it should be treated as unavoidable circumstances that influence a teacher’s ability to solve them. Participant 1 shared, “it was not a big deal because like I said, I usually try to figure out a way to overcome it.” Participant 2 also added that “once you know, it is stressful, ...but other than that, I mean, just kind of perseverance and work

through it.” Participants affirmed that once they identified the barrier, they immediately looked for creative ways to handle it which generate more and better ideas – as Participant 2 shared:

So it was really tough at first, but it just takes, you know, some dedication to really map out. And you personally as a teacher, you know, what are your goals as a teacher? Why are you in this profession and what are the ways that you can best serve your kids?

Affects me Greatly

Overcoming barriers can surely make one stronger but in the instances of experiencing the barriers, one can expect emotional turmoil. Participant 3 shared “I had a full-blown panic attack because I had never encountered anything like that. All right. It was so scary.” Some of the hardship in teaching affects our state of mind that makes it hard for some to get full rest at night such as Participant 4, who shared, “I get like five or six sleep hours every night. That’s the most.” Participants agreed that some of the barriers makes it harder for them to make their lesson manageable. Participant 4 also added that “figuring out how to do it based off my layout, based off the resources, it is very consuming, it takes a lot of time.”

Understanding barriers and the potential negative impact to our personal and professional life is the first step in overcoming them. Participants shared that support from administrators like trainings for PBIS (Positive Behavioral Interventions and Supports) can help in some of the challenges they face in teaching, but all agreed that most of the time they must figure out how to solve things on their own. Participants also shared that there was some preservice pedagogical content knowledge that could have made their teaching experience better. Participant 2 shared “I think agriculture mechanics is the area that I was lacking in” while participant 3 specified that “I wish they (preservice instructor) would do more laboratory, experiential in-class training and a lot of classroom observation during our education classes.” Participants reiterated that classroom

management is one of the topics that they all want to explore, “not necessarily just for behavior, but just overall structure of your classroom and making it the classroom environment that is very welcoming” according to participant 2.

Discussions

This study examined the implications of overcoming the barriers in Georgia elementary agriculture education to a teacher’s personal and professional self-efficacy. According to Bandura (1986), a person’s emotional and cognitive abilities are influenced by triadic reciprocity in which behavior, cognition and environmental factors are interacting determinants of each other. This is aligned in the result of this research where the participants identified barriers they encountered in their job as an elementary agriculture educator in Georgia that influenced their behavior (action), cognition (beliefs), and overall work environment (students, other teachers, and administrators).

The first research question was aimed at identifying the barriers in elementary agriculture education. Participants considered a lack of financial support as one of those barriers because it limits their ability to purchase materials that they require to provide an adequate hands-on activity for their students. Lack of financial support is an environmental factor that affects a teacher’s ability to implement the lesson for lack of materials or resources which is an example of a behavior factor. Inability to provide materials for a lesson may influence a teacher’s ability and belief to present the lesson effectively (cognitive factor). A second barrier that was mentioned was short class time schedule (environmental factor) because it restricts a teachers’ ability to prepare an elaborate lesson (behavior factor) that will reinforce knowledge through active experiences and reflects learning (cognition factor) which would go beyond the required time for content and application processing. The third barrier that was mentioned was student

behavioral issues (environmental factor) wherein participants in this study shared that reestablishing classroom structure (behavior factor) that is conducive for learning (cognition factor) was difficult, especially after the reopening of schools due to the COVID 19 pandemic.

The second research question was aimed at identifying ways participants try to overcome the barriers which is explained in Bandura's TRD model in which behavior, cognitive and environmental factors all operate as interacting determinants of each other. The first solution that emerged was the importance of collaboration and communication with other teachers (environmental factor) to facilitate discussion and share experiences that will help overcome the barrier (behavior and cognition factors). A study by Chong and Kong (2012) reported that when teachers collaborate, their sense of self-efficacy improves. The second issue that emerged was using various teaching strategies (behavior factor) to accommodate different learning styles of students (cognition and environmental factors). The importance of community and administrators' support (environmental factors) in making sure that teachers' needs are provided and assistance is available to ensure that teachers are prepared to give assistance, support, and education to students was emphasized by participants. Other studies have also reported the importance of administrative support on teachers' sense of self-efficacy (Coban et al., 2020; Dubé et al., 2015; Kurt, 2016; Zonoubi et al., 2017)

The final research question was aimed at understanding the effects of barriers on self-efficacy. According to Bandura (1986), those who have a high sense of self-efficacy set themselves more challenging goals to accomplish but some who are prone to psychological distress often exhibit unrealistic standard setting. Participants who dwelled with the barriers as more formidable than they really are can be judged as inefficacious in coping with environmental demands. It showed in this study that participants who have less teaching experience were often

affected by the identified barrier and continue to find ways to solve it even outside of school. By contrast, persons who have a strong sense of self-efficacy deploy their attention and effort to the demands of the situation (Bandura, 1986) and shape causal thinking. Participants who have longer teaching experience tend to not be affected by this barrier and focus on finding ways to solve the problem. The results of this study aligned with Canrinus et al. (2012) who suggested the more experienced a teacher is the more effective they become.

Elementary students need experiential activity to motivate them to develop inquiry skills and connect their learning beyond the context of the classroom. Teacher beliefs influence how teachers connect academic content to real-life applications beyond the classroom. Elementary agriculture education provides real-life contexts for students to engage in experiential learning and apply what they learn in class. Based on these results, elementary agriculture educators engage students to think deeply about agriculture and its implication to everyday activities by using animals, plants and other farming resources.

Conclusions, Recommendations and Implications

Personal and professional barriers to elementary agriculture education in this study included lack of financial support, short class time schedule and student behavioral issues. Participants in this study overcame these barriers by collaborating and communicating with other teachers, using various teaching strategies, and seeking support from the community and administrators. It is important that teachers overcome the personal and professional barriers and hindrances they face to feel self-efficacious (Bandura, 1989). The greater the level of self-efficacy, the more likely that they will feel confident and see themselves achieving teaching competency (Muijs & Reynolds, 2015). This study also suggested that the more teaching experience the teachers have the more confident they are to overcome hindrances compared to

less experienced teachers who must make more effort and be more stressed before overcoming hindrances. This is aligned to what Canrinus et. al (2012) suggested in that the longer a teacher is in the profession, the more effective they are compared to less experienced teachers. Based on participants' suggestions, the researchers make the following recommendations for practice and research:

For Preservice Teacher Preparation

Programs should include teaching strategies classes that focus on experiential learning and hands on activities to give future teachers ideas on how to effectively use these techniques for well-planned and effective lessons with younger grades students. In addition, effective classroom management strategies and PBIS classes should be offered to prepare future teachers for diverting disruptive behavior and encouraging younger students to be engaged and actively involved in learning. Finally, build agriculture mechanics classes to train future teachers on dealing with the maintenance and repair of agriculture education facilities and equipment with younger learners in mind.

For Elementary Agriculture Education Practitioners and Administrators

For elementary agriculture education, the researchers suggest having at least 60 minutes and at most 90 minutes of agriculture class twice or thrice a week would be ideal at the elementary level. This will provide enough time for hands-on experiences and reflection that will better connect content and knowledge learned in the classroom to real-world applications. Allocate time for collaboration and communication with other teachers. Teachers should be given time outside of their planning time to communicate and collaborate with other teachers to discuss teaching strategies and student performance. Finally, administrators should consider apportioning budgets for agriculture and teaching supplies.

For Future Research

Replication of this study in other states and/or regions will help identify other barriers that elementary agriculture education faces to support teacher's self-efficacy. Research on effective collaboration and teaming efforts among elementary agriculture educators will help advance the program and support teachers' confidence. Future study on the effect of teacher self-efficacy on elementary agriculture student's outcomes to promote success in school and improve the teaching force is also needed. With a larger data set of elementary agriculture educators, a quantitative instrument could be developed and administered nationally to examine trends.

Identifying barriers in elementary agriculture education and finding ways to overcome these barriers will be beneficial for improving teacher self-efficacy. This can develop teacher competence and help them manage stress and hindrances that may arise in their job which will enhance stability in their profession (Hong, 2012). In the context of elementary agriculture education, it is especially important for teachers to identify and overcome barriers as they develop effective educational strategies to integrate agriculture in education at the early age of schooling.

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CHAPTER 3
A QUALITATIVE STUDY OF FACTORS INFLUENCING TEACHING SELF-EFFICACY
OF EAE TEACHERS

**Helm, M., Fuhrman, N., Peake, J., Irwin, K., & Rubenstein, E. (2024). To be Submitted to
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Abstract

In the realm of Elementary Agriculture Education (EAE), the self-efficacy of educators plays a pivotal role in shaping both their pedagogical practices and self-concept. This study, situated within a constructivist paradigm and adopting a phenomenological approach, rigorously investigates the determinants influencing EAE teaching self-efficacy. To gain a comprehensive understanding, 30 EAE educators spanning varied backgrounds and pedagogical histories were approached to counteract potential non-response bias. Out of these, 18 consented to be a part of the study, ensuring a rich and diverse sample for scrutiny. The research design prominently featured focus group sessions, with participants stratified based on their self-efficacy scores. Preliminary analyses dictated the threshold criteria for Focus Group 1 (scores ≤ 7) and Focus Group 2 (scores ≥ 8). Anchored in Bandura's (1986) triadic reciprocal determinism, the research accentuates the dynamic interaction among environmental stimuli, agricultural convictions, and behavior. Three key determinants emerged as influential to EAE teaching efficacy: Personal Values, Boundary-Breaking Behaviors, and Positive School Culture. These determinants foster an EAE environment characterized by Affective Actions, Contagious Behaviors, and a Constructive Attitude. Given the implications of these findings, continuous and iterative evaluations of the EAE curriculum are paramount in educational research.

Introduction

The Elementary Agriculture Education (EAE) program in Georgia was launched as a pilot between 2019 and 2021, facilitated through Georgia Senate Bill 330 (Georgia Agricultural Education, 2021). In March 2022, it transitioned into a permanent program under Georgia House Bill 1303 (HB 1303 Georgia House, 2022). Every elementary school in Georgia now has the authorization to establish an agricultural program and hire an agricultural education teacher to educate students from kindergarten through fifth grade. With the EAE program in its nascent stage, it is anticipated to undergo multiple evaluations to glean insights into its features and impact on student outcomes. A key challenge facing these EAE teachers is the delivery of effective, sustainable, and evidence-based instruction to meet their broader professional responsibilities to positively impact students' academic outcomes. Martinez (2022) argued that a critical determinant of the success of any new initiative is the confidence individuals have in their competencies throughout the implementation process.

As explored by Albert Bandura (1986, 1997), self-efficacy is defined as an individual's belief in their capacity to produce desired results, thereby influencing events shaping their lives and, by extension, their ultimate success. Perceived self-efficacy plays a pivotal role in determining an individual's confidence, emotional well-being, successes, and failures. Without self-efficacy, individuals tend to withhold effort, perceiving their endeavors as unfruitful (Tschannen-Moran & McMaster, 2009). Teacher Self-Efficacy (TSE) has garnered significant attention in research due to its profound influence on students' knowledge, values, behavior, and academic performance (Tschannen-Moran & WHoy, 2007; Delinger et al., 2008). Furthermore, a teacher's self-efficacy, grounded in their beliefs about their teaching competencies, is intrinsically tied to effective classroom management (Dibapile, 2012). Supporting this, Bruce et

al. (2010) highlighted a direct relationship between high teaching efficacy, supportive workplaces, rigorous academic standards, and positive teacher-student interactions. Elevated levels of teacher self-efficacy have been linked to teaching effectiveness and student achievement (Klassen & Tze, 2014). Hence, the success of EAE teachers is pivotal for agricultural education, especially considering that such courses are often elective and optional in many schools (Talbert et al., 2022).

Purpose and Research Questions

Within the constructivist paradigm, this investigation aims to delve into the experiential realm of EAE teachers, examining their experiences, perceptions, and beliefs concerning the determinants of their teaching self-efficacy and its subsequent impact on their teaching perspectives. Anchored in the American Association for Agricultural Education National Research Agenda's Research Priority 4: Meaningful, engaged learning in all environments (Roberts et al., 2016), the study's purpose is twofold: to dissect the myriad factors sculpting teaching efficacy and outcome expectancy, and to refine our understanding of the EAE teaching self-efficacy construct through the lens of Hermeneutic phenomenology. This inquiry is guided by the following pivotal research questions, which provide a structural framework for the study:

1. What are the elements that forge the EAE teachers' teaching self-efficacy?
2. In what ways do these elements shape the cultural framework within EAE?

These questions seek to illuminate the multifaceted nature of teaching self-efficacy within the specialized context of EAE, aspiring to contribute a nuanced comprehension of how educators interpret and integrate their beliefs into their professional practices and cultural milieu.

Conceptual Framework and Literature Review

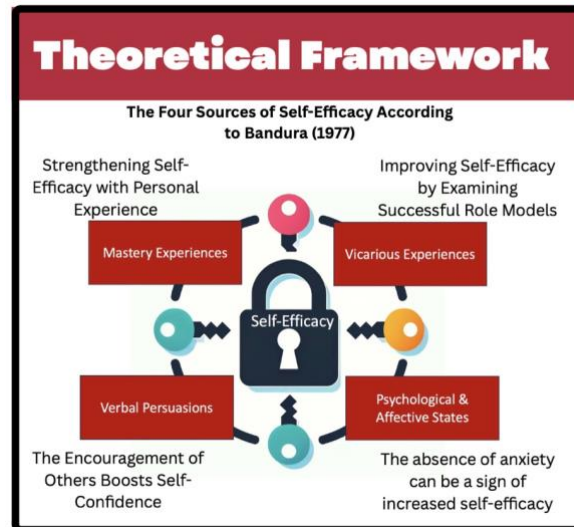
This study is anchored in Bandura's (1986) triadic reciprocal determinism (TRD) within the broader context of social cognitive theory (SCT) (Schunk, 2020). TRD provides the lens through which we can begin to understand the interplay among environmental factors, agricultural beliefs (personal determinants), and agricultural practices (behavioral determinants) in the context of enhancing the teaching self-efficacy of EAE teachers.

Bandura (1986) posited that human behavior emerges from a dynamic interaction among the individual, their environment, and their actions, forming a reciprocal and interconnected relationship. Each of these influences interplays and mutually impacts the others. Specifically, individual thought processes shape behaviors and influence environmental contexts, while actions and environments reciprocally influence individual cognition (Schunk & DiBenedetto, 2020). This intricate relationship is pivotal for individuals in setting aspirations and predicting outcomes. Integral to this concept is the inclusion of self-efficacy, emphasizing proactive individual agency in controlling their thoughts, emotions, and behaviors influenced by past experiences and environmental contexts (Rowston et al., 2021). Bandura (1997) outlined multiple sources contributing to self-efficacy as showed in figure 1, including:

1. Mastery experiences, where personal achievements bolster self-efficacy.
2. Vicarious experiences enhance self-efficacy by observing successful role models in challenging contexts.
3. Verbal persuasion, where others' reassurances amplify an individual's self-confidence.
4. Psychological and affective states, which underscore the absence of anxiety in challenging situations as a marker of heightened self-efficacy.

Figure 1

Sources of Self-Efficacy



Note. This model summarizes the four sources contributing to self-efficacy as outlined by Bandura (1977): mastery experiences, vicarious experiences, verbal persuasion, and psychological and affective states (Helm et al., 2024).

Teachers with robust self-efficacy exhibit superior instructional quality (Holzberger et al., 2013) and elevated teaching performance (Klassen & Tse, 2014), coupled with enhanced job satisfaction (McKibben et al., 2021). Such educators are adept at tailoring their teaching methodologies to cater to diverse learners (Bandura, 1986). Consequently, students are more engaged, achieve better academically, and perceive their educators as genuinely invested in their success. Additionally, empirical evidence suggests that teachers' encouragement and behavior can steer students toward STEM career choices (Faitar & Faitar, 2013).

Methodology

Teachers' beliefs regarding their personal and professional efficacy significantly influence their self-perception. This study aims to elucidate the factors influencing EAE teaching

self-efficacy using a constructivist lens. Embracing a phenomenological approach, we posit that individuals' lived experiences shape their interpretation of reality (Baker, 2022).

Participants Selection

Data were gathered from the Georgia agricultural website and consultation with an agricultural education professor at the University of Georgia (personal communication, August 2022) to ensure a representative and comprehensive sample. Email was sent to 30 EAE teachers to participate in this study. From this cohort, 18 educators agreed to participate, ensuring a robust and varied sample for analysis. Central to the study's design were the focus group sessions. Participants were categorized based on self-efficacy scores using a stratification method. The Teachers' Sense of Efficacy Scale (TSES) comprises a 24-item scale that assesses teachers' confidence in their ability to influence student outcomes (Tschannen-Moran & Hoy, 2007). Teachers rate each item using a 9-point scale that ranges from 1 (Nothing) to 9 (A Great Deal), indicating the degree to which they believe they can impact students' beliefs in their academic success. When responding, teachers are encouraged to consider their skills, the resources available to them, and the opportunities they have in their roles as EAE educators. The cut-off points for Focus Group 1 (scores ≤ 7) and Focus Group 2 (scores ≥ 8) were established based on a preliminary analysis of the score distributions to ensure equitable representation (Tschannen-Moran & Hoy, 2007). Six teachers were purposively selected to participate in Focus Group 1, and six in Focus Group 2 (Cheng, 2007). Although these sessions were primarily conducted via Zoom for its accessibility and the preference of the participants (Archibald et al., 2019), precautions were taken to address potential limitations of online discussions. These precautions included ensuring stable internet connections and enabling video to observe non-verbal cues. The semi-structured interview guide was rooted in a rigorous literature review on teachers' self-

efficacy. It comprised open-ended questions designed to facilitate rich discussions and elicit profound insights into participants' experiences, perceptions, and beliefs regarding EAE. The guide was piloted initially with a small group of educators to ensure clarity and relevance (Majid et al., 2017). Both focus groups were conducted by two facilitators (Roulston, 2022). With participants' explicit consent, focus group sessions were audio and video-recorded and transcribed verbatim. In addition to acquiring consent for audio and video recording, measures were implemented to protect participants' identities. Pseudonyms replaced real names in transcriptions, and all identifying details were redacted. Audio files were securely stored and destroyed post-transcription to safeguard participants' confidentiality.

Table 1.

Background of Participant Teachers

Level of Education	Teaching Self Efficacy	Context of Where you grew up	Context of your School	Years of Teaching Experience
FG 1				
Master	5.50	Suburban	Rural	less than 3
Bachelor	5.67	Rural	Rural	3-7 years
Master	6.00	Suburban	Urban	more than 13 years
Bachelor	4.25	Rural	Suburban	more than 13 years
Doctorate	6.75	Suburban	Urban	more than 13 years
Bachelor	6.17	Rural	Rural	8-12 years
FG 2				
Master	8.33	Rural	Rural	8-12 years
Doctorate	7.08	Rural	Rural	8-12 years
Specialist	7.83	Rural	Rural	more than 13 years
Master	8.08	Rural	Rural	8-12 years
Doctorate	8.33	Suburban	Rural	more than 13 years

Specialist	7.50	Rural	Rural	more than 13 years
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Note. Focus Group 1 comprises teachers with average to low teaching self-efficacy. This is a significant variable, as teaching self-efficacy is known to influence teaching behaviors and student outcomes (Bandura, 1997; Tschannen-Moran & Hoy, 2007). Focus Group 2 consists of educators with high teaching self-efficacy, all of whom hold advanced degrees and possess over eight years of teaching experience. Additionally, members of Focus Group 2 have reported that they currently teach in rural areas.

Hermeneutic Circle of Reflexivity and Analysis

The hermeneutic circle was explicitly mentioned by Boeckh and further developed by Schleiermacher who viewed understanding as an inverse of the rhetorical process and must be understood as part of its author’s work but also acknowledged the potential for understanding to be expanded through larger historical context (Grondin, 2015). Heidegger (1927) argued that the key is not to escape the circle but to enter it in the right way, by elucidating understanding through interpretation. Gadamer (1990) proposed a dynamic process where the interpretation of parts is guided by the understanding of the whole, which is then revised through further interpretation. Grondin (2015) described this circle as a positive condition for achieving a deeper understanding within the humanities.

The analytical paradigm of this investigation is anchored in the hermeneutic circle, as illustrated in Figure 2, initiating and concluding with a robust reflexive process to foreground the influence of the researcher's perspective. This reflexive methodology incorporates elements of both personal and transpersonal reflexivity, thereby deepening the interpretive engagement with the data corpus. Such a dialectic interplay between the researcher’s a priori theoretical commitments and the emergent data-derived insights is instrumental in cultivating interpretations

that are both contextually resonant and reflexively sophisticated (Creswell & Creswell, 2018).

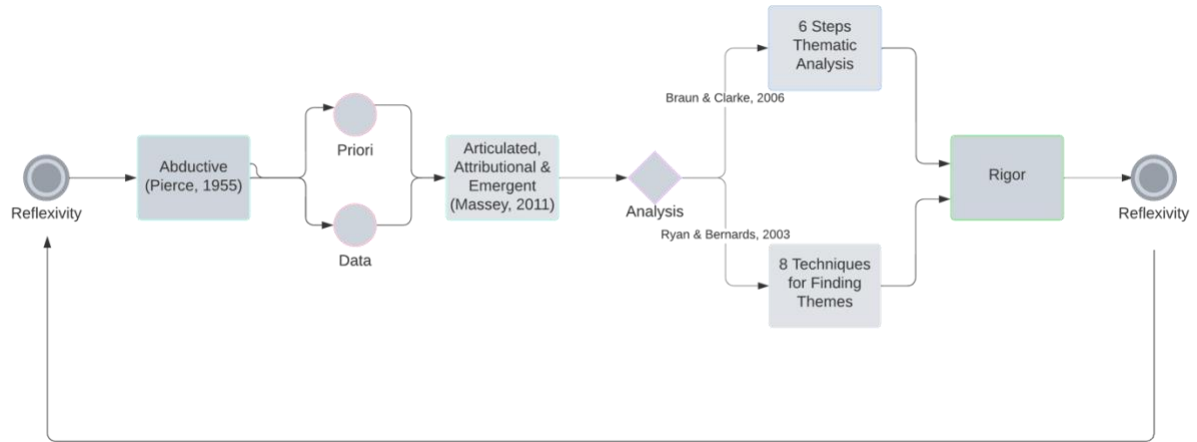
The study adopts an abductive methodological approach (Vila-Henninger, 2022), which fosters a synthesis of deductive theoretical framing and inductive empirical inquiry. This methodological framework utilizes a categorization schema delineated by Massey (2011) as follows:

1. **Articulated** – This category encompasses information that participants explicitly communicate in direct response to the inquiry at hand. It encompasses direct answers to the moderator’s specific questions and probes and the substantive dialogue that unfolds among participants as they engage with these queries.
2. **Attributional** – This classification pertains to the data derived from systematic hypothesis testing and thematic coding rooted in theoretical constructs, aiming to elucidate its significance concerning the research themes of interest. Such data is yielded from meticulously designed processes and the use of an interview guide structured to elicit participant engagement on pertinent topics, even in the absence of direct questioning.
3. **Emergent** – This category refers to insights related to collective meanings, dynamics, and standards within the group that offer novel perspectives and foster the generation of new hypotheses. It arises spontaneously from the participants' interactions and commentary, contributing significantly to the themes that emerge inductively. This contrasts with the attributional data's more deductive, a priori themes, capturing the implicit normative beliefs that inform social conduct and the latent group dynamics that typically remain unspoken and outside the realm of conscious articulation thereby facilitating a nuanced exploration of the data yielded from focus group interactions.

The use of MAXQDA 2022 (VERBI Software, 2022) for data analysis underscores the study's commitment to employing advanced qualitative data analysis software, enhancing the efficiency and depth of thematic analysis (Elliot, 2018). The thematic approach, as delineated by Braun and Clarke (2006; 2012), provides a systematic and transparent framework for data analysis, encompassing six distinct phases: familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining themes, and reporting the findings. This methodology is further enriched by employing Ryan and Bernard's (2003) eight techniques for identifying themes, thereby ensuring a comprehensive and nuanced thematic exploration of the data. To augment the methodological rigor, the study integrates corroborative strategies, such as member checking and peer debriefing, reinforcing the iterative and evolving comprehension inherent in the hermeneutic process and cementing the scholarly veracity of the findings. To improve systematicity, communicability, and transparency of the coding process, two researchers independently coded the dataset, thereby facilitating a robust mechanism for promoting intercoder reliability, reflexivity and dialogue within research teams (O'Connor & Joffe, 2020). This methodological step is crucial for enhancing the validity of the research findings, as independent coding helps mitigate biases and ensures a comprehensive examination of the data (Creswell & Creswell, 2018). Discrepancies between coders were meticulously resolved through iterative discussions, embodying the collaborative essence of qualitative analysis and reinforcing the study's methodological rigor.

Figure 2

Hermeneutic Circle of Reflexivity and Analysis



Note. This figure depicts the hermeneutic circle framework guiding the study, rooted in a cycle of reflexivity that encompasses both personal and transpersonal dimensions to acknowledge and account for the researchers' influences. The research journey commenced with an abductive approach that synthesized a priori frameworks with inductive data, sorting information according to Massey's (2011) classifications of articulated, attributed, and emergent themes. Following the structured thematic analysis procedures of Braun & Clarke (2006;2012) and utilizing Ryan & Bernard's (2003) techniques, the study identified robust themes. Rigor was fortified by member checking peer debriefing, inter-coder reliability and integrating reflexivity, ensuring a recursive process that progressively refined the researchers' understanding.

Limitations of the Study

This qualitative investigation employed a purposive sampling methodology to delve into the experiences and insights of elementary agriculture educators in Georgia. The principal investigator limited follow-up to non-respondents to a single reminder email, respecting their potential disinterest in contributing. The study concentrated on two focus groups, comprising 12

educators out of the 30 practicing at the time of the investigation. This intentional selection was designed to garner in-depth understanding of the educational strategies and viewpoints within this particular setting. It is crucial to acknowledge that the findings are context-specific, serving not as a broad generalization, but rather as a source of profound, localized knowledge that could inform subsequent inquiries in similar contexts. The results, while not universally applicable, contribute valuable perspectives and provoke further questions for future research endeavors. By focusing on a select group of participants, the research embraces a depth of exploration but also accepts the constraints it imposes on its breadth. Experiences of those outside the selected sample, especially in regions where agriculture plays a differing economic or cultural role than in Georgia, remain unexamined and could vary substantially (Creswell & Creswell, 2018).

Findings

This study acknowledges the diversity of human capabilities and situational differences. Various factors affect different individuals' beliefs and motivations to do what one should do under a variety of circumstances. A teacher's perceived self-efficacy is an important contributor in initiating the performance and putting effort into fulfilling different levels of tasks, whatever the underlying knowledge and skills might be. The participants in this study shared their experiences, beliefs, and perceptions about EAE and how their self-efficacy influenced the design and layout of their own class experiences and how it affected interactions with their students, parents, administrators and community that promote successful outcomes.

RQ1: What factors contribute to EAE teaching self-efficacy?

To address the first research question, three themes emerged from the participants that identified factors which contributed to EAE teachers in Georgia teaching self-efficacy. These included personal values, boundary-breaking behaviors, and positive school culture.

Personal Values

Personal values serve as the cornerstone of motivation and inspiration for teachers, driving them to excel in their professional duties and to face challenges with resolve. Schwartz (2012) conceptualizes personal values as goals that, while varying in importance, significantly influence the direction of an individual's life. This influence was evident among the study participants, nearly all of whom cited their family and upbringing in agricultural settings as the wellspring of their passion for agriculture. For instance, Bob shared a vivid depiction of his upbringing:

My grandfather and uncle were essentially commercial farmers, cultivating crops like soybeans, peanuts, cotton, and all that good stuff. Throughout my life, my family maintained a garden, which to me as a child seemed more like a farm—it was vast, spanning several acres. My grandfather lived next door, also owning a few acres. We had an entire field of corn, as well as extensive plots of peas, beans, and the like. Growing up, tending to the garden was a part of my everyday life. We consistently raised chickens and pigs among other livestock. It was an activity I was always deeply involved in.

In a similar vein, Leo recounted his educational journey, emphasizing the impact of his formative years:

Agriculture has always been a fundamental part of my life. I progressed through an exceptional middle school and high school AG program, where I was very involved. I can confidently attribute my decision to pursue a degree in agriculture to my experiences in early years and the influence of a particular teacher.

Further reinforcing this sentiment, participants advocated for the introduction of agriculture education early in the curriculum to foster healthy eating habits and provide practical life skills.

Tanya highlighted the long-term benefits of such education, noting:

the earlier you introduce it in elementary school, those habits become embedded and become part of who they are. I think it's incredibly important for our kids to understand that. They then share that with their family or their friends, and it only takes one person to truly impact the culture, or to influence other people. So, the overarching goal is definitely to shift the entire mindset regarding your health, understanding where your food comes from, and to be that individual who acts as a change agent.

Ruby added, “When we reach the kids at this young age, we're opening up so many more doors for them in life as they go through.” Joey expanded on the versatility of agriculture education, explaining, “It fits into any subject; there are lessons for plant science, space, and even basic skills like using a tape measure and reading the numbers on it.” Participants collectively agreed that EAE teaches more than just farming practices; it also imparts essential soft skills that are crucial for social interaction and collaboration. Sheila shared her approach, starting with the basics: “I begin by teaching my students soft skills, such as how to shake hands, the importance of facing the person they are talking with, and how to communicate and take responsibility effectively.”

The discussion then turned towards the challenges, with Tanya expressing concern about the marginalization of science in the elementary curriculum, while Joey emphasized the need for advocacy: “People have to put pressure on all elementary schools to start this program (EAE).” This call to action resonates with the shared belief that EAE is not just an educational program but a transformative experience that can shape students' futures.

Boundary-breaking Behaviors

In the realm of Elementary Agricultural Education (EAE), teachers are often seen as pioneers on the frontiers of learning, tasked with the mission to not only impart knowledge but to inspire a generation to think beyond traditional classroom walls. The participants of this study embody this spirit of innovation and adaptability, embracing their roles as catalysts for change. Nadia, one of the study's insightful voices, acknowledges the inevitable ebb and flow of the teaching experience. "It will not be a successful day every day," she admits, but swiftly adds, "make those disappointing occurrences a teachable moment." This sentiment of turning challenges into opportunities is echoed by Ruby, who advises her peers not to let setbacks unsettle them. "Don't let it ruffle your feathers," she says, underscoring the importance of adaptability, "it's good realizing the importance of being flexible." Judith also expands on this need for flexibility, noting the diverse array of interactions teachers manage daily.:

So you're dealing with a lot of different people, not just teachers. You're engaging with individuals from outside the classroom, which means you have to be flexible in almost every situation. With our program being new, we constantly have people coming in and out. Not every time is ideal for visitors, but you just always have to be prepared. Being prepared means being ready to 'be on' and having your own behavior management system in place in your classroom. You may need to adapt or adjust how you manage behavior or your incentives. Our school, implementing a specific educational scheme, required me to integrate our PBIS model with our activities. I've established a behavior management system that differs for the lower grades versus the upper grades, because not all methods work for every age group. So being flexible and taking charge of your space is crucial, as at any moment, the door may open, and there are four or five people coming in to see

what your class is doing. Recognizing and understanding that whether we're discovering something new or breeding mealworms for a project, being able to maintain control is incredibly important.

They stipulated the importance of always trying things out and resilience on those plans that did not work out. Tanya brings to light another facet of EAE teacher's life and shared:

If you're not careful, you could spend your entire life planning in the evenings and preparing for the next day, or during breaks. You might find yourself at the school all the time, watering the garden, feeding chickens, all of that. You really have to organize yourself along with the people in the community and try to have a plan. Try to get ahead of it before time, especially if you may be going on vacation and might need someone to help out. Often, we take on everything ourselves, and it becomes extremely burdensome. And those are some of the lessons you learn the hard way, especially when the program is so new. Initially, you may not have clear ideas of what to do because everything is so fast-paced. However, it's not until I collaborate with other elementary AG teachers that I realize, 'Hey, maybe I should try this or that.' So, I think the collaboration piece is incredibly important because the program is so new.

Therefore, I would definitely recommend organizing your time, being flexible, and ensuring you have a plan for behavior management.

Collectively, the participants recognize that disappointments and challenges are part and parcel of life's journey. These hurdles are not just obstacles but stepping stones to becoming better educators and nurturing resilience within themselves and their students. They unanimously agree that overcoming these challenges not only enhances

their well-being but also fortifies their capacity to serve as agents of change for their students.

Positive School Culture

The journey of establishing the Elementary Agricultural Education (EAE) program in a school is akin to planting a seed in fertile soil—the process requires care, attention, and a nurturing community to flourish. Juliet, an enthusiastic EAE teacher, faced the initial challenge of cultivating this supportive environment. Juliet shared:

When it was first introduced that we would be running the pilot program for our school, the staff wasn't on board, and the children didn't know what it was. I felt like I had to really introduce it in a way that would be super impactful, and I knew that they would feed off of my energy. Teachers didn't get on board right away because they didn't quite understand what it was. So, I took the approach of explaining to the teachers, "Hey, support your kids as we're doing this, because if you show that you're motivated about it, it'll become contagious." Because if I'm generating a lot of positivity and it's upbeat, and they come back to tell you, support them in a positive way, even though you may not be an 'outside person'—you know, you may not like gardening or stuff that's on the premises. Still, be supportive because you never know how adults impact children. So the first couple of weeks, they didn't quite support. Once they saw my energy and how I got the community involved, and, you know, wrote out grants to make sure that we were able to get the funding that we needed, I also made really big tweets and made sure social media was super involved. I invited stakeholders and parents to whatever we were doing. I always included people in our community. Within a month or so, I could see that the whole attitude changed because it was a culture change for everybody in the building,

and they were just super receptive. It put a different spin on getting partnerships with our school and changed the attitude towards teachers as well. They were more willing to help. And I think it just made a difference in how the program was received from the beginning versus how it transformed to where it is now.

Echoing Juliet's experiences, Fane emphasized "establishing relationships with those academic teachers, parents, and administrators can make your life easier." Juliet added, sharing a light-hearted rivalry about which class students prefer, with agriculture now leading the way:

Just like everyone in my county, there's been full support. I always joke with the teachers and with some students; we like to see who is the favorite among the classes. And now, I think agriculture is in the lead – I believe I have outdone the other teachers. So that's a running joke we have: where do the students want to go? The kids are loving it, the teachers are loving it, and my administration is also providing 110% full support. Over at the board office, I enjoy collaborating a lot with my middle school and high school ag teachers, as well as with the young farmer programs. We try to get the community involved as much as possible.

Nadia affirmed and added that building a relationship with the students "means a lot more than you think." Bob also shared that communicating with everyone involved in the student's education is very important." Leo admitted "you do not have to be a hero or know everything, do not be afraid to ask for help because you are not in this alone." Bob concluded with a strategic insight on community engagement by stating:

develop support with your community, to reach out to your Georgia Farm Bureau, to reach out to the different businesses in the community ... building those relationships

with academic teachers and teaching your class as a support to academic classes is something that will really help you have an enjoyable and effective experience.

Through their shared narratives, it's clear that a positive school culture, founded on strong relationships and open communication, is not just beneficial but essential for the success of EAE programs and the self-efficacy of their teachers.

RQ2: *How do these factors influence an EAE culture?*

To address the second research question, three themes emerged from the participants responses, detailing the influence of teaching self-efficacy factors, identified from the first research question, on EAE culture. These themes are: affective actions, contagious behaviors and constructive attitudes.

Affective Actions

Teachers are required to successfully complete tasks and cover specific content in every class experience. Participants shared that they must plan lessons well in advance and believe that activities associated with each lesson will increase a students' competencies and performance in in the classroom, but most especially in life and soft skills that students will use in their everyday life. Judith responded, "if they are engaged in working together, getting along, and getting stuff done, those are the good days." Tanya added, "when students use tools they've never used before, build anything that finds it cool, and when they take pride of what they do, that is success." Perhaps as EAE teachers increased their self-efficacy, they become more concerned on affective learning. They value more on making sure that students get experiences that they can connect with what they can use in their everyday life. Participants agreed that it is not the number of concepts that students can repeat or worksheets they can complete but they prioritize more in making sure that students are having fun, participating and engaging in the activities.

Contagious Behaviors

In EAE, teachers have not only impart knowledge to their students but also ignite a spark of enthusiasm that transcends the classroom. Participants in this study talked passionately about the contagious effect of their classes on others who interact with their students. Judith shared “what’s great about this program is that you start to see your students have these conversations outside of your classroom with other students and teachers, you will hear them talked about ag (agriculture) activity in the hallway or in the cafeteria...it is fulfilling.” Fane proudly shared her story:

They shared the excitement they feel when parents approached them and asked questions like “How did you get my child to enjoy eating squash? I can't even get them to taste it at home, and yet you can get them to eat it raw at school. You know, I tell them that if they plant it and grow it themselves, they're more likely to try it. They're more willing to try new things that way.

Nadia emotionally remembered when a former student’s family shared that:

Her family told me this year that ever since she was in third grade, many years ago, every year they have to plant sunflowers in their yard because she did that at school. Some of the kids that I have had graduated over the year, I've been at the school for 20 years, so many of them have gone, graduated and moved on.

It is the fulfillment that they feel when they realize that the lessons, they shared with their students become shared as well with everyone else in the community as their students become agriculture ambassadors because they are.

Constructive Attitude

Agriculture education lessons are designed with mostly hands-on activities aligning with pedagogical understanding that tactile experience supports learning. It was therefore anticipated when participants discussed activities that promote sensory engagement, a term which refers to the use of the senses to gather information and participate in the learning process (Scherf & Bye, 2017). What is unique about conversation is the enthusiasm they observed when their students' connected objects or situations learned in previous lessons they completed. Judith shared “when we we’re wearing masks and I have a few students that don’t speak a lot and one of these kids point at my mask and talked about bees because she sees honeybees on my mask, and she correlate that in agriculture.” Kelsey also excitedly shared “one of our yearlong projects is to develop and maintain our school farmer’s market so they will be in charge of building a business plan...they came up with best ideas and used previous lessons that I thought they were not interested but they remembered and that made me proud.” It seems that EAE teachers’ self-efficacy impact student’s attitude to use information presented and connects it to previous knowledge they had. The participants also agreed that it is not just the concepts, knowledge and skills that their students were building, it is also their enthusiasm to learn and use agriculture in their everyday lives because “they realized that it affects them as well that is why they become on board on ideas and activities they weren’t on board at the start”, Bob explained.

Discussions

The nuanced interplay between self-efficacy and behavior is indeed reciprocal, as self-efficacy both influences and is influenced by a teacher’s actions and outcomes. This dynamic relationship suggests that self-efficacy is not a static trait but is fluid and continually shaped through ongoing experiences in the educational environment. In the context of Teaching Self-

Efficacy (TSE) within Elementary Agriculture Education (EAE), this reciprocal nature is particularly salient. Teachers' beliefs in their capacities significantly dictate their pedagogical approach, persistence, and resilience in the face of challenges, thereby fostering a fertile learning environment. Concurrently, their experiences and reflections in teaching further refine these self-efficacy beliefs.

Adding to the discussion, the sources of TSE—consisting of mastery experiences, vicarious experiences, verbal persuasion, and physiological feedback—remain consistent regardless of the initial level of self-efficacy a teacher possesses. This consistency implies that the process of cultivating self-efficacy through these sources is likely to be effective across the spectrum of TSE. Moreover, the dimension of encouragement and support is not limited to verbal affirmations but also includes practical demonstrations of trust and confidence, such as providing opportunities for professional growth, collaborative teaching experiences, and school leadership recognizing and acting upon teachers' input. Such multifaceted support enhances teaching practices, inspires sustained effort in teaching endeavors, and exerts a positive impact on student engagement and achievement. Given this consistency, self-efficacy can be leveraged as a universal tool for educational improvement, offering a reliable means to foster better educational outcomes. Enhancing TSE can lead to improved instructional strategies, increased teacher commitment, and more effective classroom management. The reciprocal and consistent nature of self-efficacy informs a strategic approach to professional development, suggesting that bolstering educators' self-efficacy is a sound investment in the educational landscape. This is particularly true in EAE, where the capacity to impart agricultural literacy is pivotal, transforming students into advocates for sustainable practices and integrating agricultural knowledge into their daily lives.

Thus, the study underlines the transformative potential of EAE when guided by teachers who possess a robust sense of self-efficacy, supported by a school culture that values and nurtures this attribute. The role of self-efficacy as a universal lever for educational enhancement cannot be overstated, signifying its critical importance in the professional growth of educators and the subsequent academic and social development of their students.

Conclusions, Implications & Recommendations

Elementary Agricultural Education (EAE) enriches more than the curriculum—it fundamentally reshapes the dynamics between teachers and students, fostering impactful outcomes. This study illuminates the critical importance of self-efficacy in the educational process. Teachers, who are deeply rooted in agricultural values and draw from their personal experiences, are compelled to craft learning spaces that are not only informative but also captivating. Building on this foundation, the research of Sheehan & Moore (2019) and Dishon-Berkovits (2019) reveals that when educators are well-established in these core values, their ability to engage students becomes more effective. This engagement is crucial, as it can transform a standard lesson into an immersive experience. Supporting this notion, the work of Jensen et al. (2016) delves deeper into how such authentic experiences can strengthen an educator's teaching efficacy. This is not merely theoretical; the practical applications are evident and impactful.

The participants of this study demonstrate the powerful interplay of individual beliefs, environmental support, and proactive pedagogy. Together, these elements create a synergy that enhances the educational experience, underscoring the fact that effective teaching in EAE is not isolated to the dissemination of knowledge—it's about fostering a collaborative spirit, navigating challenges, and encouraging innovative thought.

Recommendations for Additional Research in EAE

1. **Longitudinal Impact Studies:** Future research should involve longitudinal studies that track the progression of EAE students into their higher education and career paths. For example, a study could follow a cohort of students from their introduction to EAE through to their post-graduate achievements, analyzing the correlation between early EAE exposure and later success in agricultural sciences or related fields.
2. **Soft Skills Development:** Researchers should explore the specific impact of EAE on the enhancement of soft skills. This could include comparative studies between students in EAE programs and those not, with a focus on real-world problem-solving scenarios, such as community-based projects that require teamwork and effective communication.
3. **Innovative Pedagogical Models:** Investigation into innovative educational models within EAE is needed. An example would be to study the effects of gamification on learning outcomes in EAE programs, assessing whether game-based learning can improve engagement and retention of agricultural concepts.

Recommendations for Practice - Teacher Preparation Programs

1. **Self-Efficacy Training:** Teacher training programs should include modules specifically aimed at enhancing self-efficacy. This could involve workshops where experienced EAE teachers share success stories and strategies, or simulation-based learning environments where preservice teachers can practice and receive feedback in a controlled setting.
2. **Community Building Platforms:** Establishing platforms such as online forums or regular meetups for EAE educators to share insights and resources can foster a sense of

community. For instance, a monthly webinar series could feature discussions on best practices and challenges faced in the classroom.

3. **Feedback and Reflective Mechanisms:** Incorporate structured feedback and reflective sessions into the curriculum. This could take the form of peer-review groups where educators share lesson plans and receive constructive feedback, or digital portfolios that allow teachers to reflect on and document their teaching experiences and growth.

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CHAPTER 4

A PHENOMENOLOGICAL STUDY OF ELEMENTARY AGRICULTURE EDUCATION

TEACHERS' IMPLEMENTATION OF THE HOLISTIC TEACHING APPROACH

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Abstract

Addressing the widespread impact of teacher burnout on classroom dynamics and student well-being, this study revealed the application of Holistic Teaching Approaches (HTAs) within Elementary Agricultural Education (EAE). Recognizing teachers as the central force in education, the research underscored the necessity of nurturing their holistic development to foster positive student learning outcomes. To address the complexities of this inquiry, this study adopted a conceptual framework that intertwined the philosophy of phenomenology, the practicalities of holistic education, and Bandura's Triadic Reciprocal Determinism (TRD), offering a nuanced exploration of the factors enabling effective and fulfilling teaching practices. A purposive sample of five esteemed EAE teachers from Georgia, selected for their high Teaching Self-Efficacy and Holistic Teaching Assessment scores, provided in-depth data via triangulated interviews, observations, and document analyses. This approach revealed the synergistic interaction between the *EduSphere Mindset*, *Rituals of Rigor*, and *CueCon Horizon*, offering insights into how HTAs' thematic elements are interlaced to support teachers' resilience and professional fulfillment. The findings advocate for an educational paradigm that embraces holistic well-being, positioning HTAs as a strategy to counteract burnout and cultivate a healthier, more supportive school environment. By integrating phenomenology with Bandura's TRD, the study provided a conceptual framework that advocated the whole-person approach in teaching, aligning with the aims of sustainable educational reform and informing practice for in-service and pre-service teacher preparation programs.

Introduction

A critical exploration into innovative teaching practices reveals a compelling correlation between educator retention and student success. The urgency for such investigation is pronounced, with alarming attrition rates signaling a broader socioeconomic crisis. According to Weldon (2018), approximately 50% of teachers leave the profession within five years, a phenomenon often attributed to burnout (Zee & Koomen, 2016). This exodus incurs substantial costs, with urban districts spending a minimum of \$20,000 per departing teacher (Carver-Thomas & Darling-Hammond, 2017), potentially mirroring rural and suburban districts.

Moreover, the contagion effect of teacher burnout is palpable in the classroom, where students are more likely to exhibit negative emotional behavior in response to their teachers' depolarization, a form of burnout (McLean et al., 2019). Therefore, cultivating teachers' social-emotional competence is critical, as it is inextricably linked to academic and life success (Bailey et al., 2019). Teachers are the fulcrum of learning and teaching practices, necessitating bolstering their holistic development. However, little work has been done in the field of agricultural education to better understand the phenomenon of holistic teaching.

Educators are often on the front lines of confronting the effects of societal issues on children. At least one in seven children has experienced child abuse and neglect in the past year, and this is likely an underestimate. In 2019, 1,840 children died of abuse and neglect in the United States (Substance Abuse and Mental Health Administration [SAMHSA], 2023). Each day, more than 1,000 youths are treated in emergency departments for physical assault-related injuries, indicating the magnitude of violence that pervades the lives of many students (SAMHSA, 2023).

The suicide rate has seen a 35% increase from 1999-2018, rising from 10.5 to 14.2 deaths per 1,000,000 population (Hedegaard et al., 2020). More recently, suicide has been recognized as the 12th leading cause of death in the US, accounting for 45,900 deaths in 2020 alone (National Institute of Mental Health [NIMH], 2021). This figure is nearly double the number of homicides in the same year, which stood at 24,576 (Centers for Disease Control and Prevention [CDC], 2021). These stark figures highlight the critical importance of addressing mental health proactively, particularly in the education sector, to mitigate the risk factors associated with such tragic outcomes. The alarming escalation of mental health issues and suicide rates underscores the urgent need for robust support systems for educators.

Educators are uniquely positioned to identify and respond to signs of distress and trauma in students. As such, *their* mental health and capacity to provide support are crucial, not only for their own sake but also for the well-being of their students. Developing comprehensive support systems and training for educators can help them manage this dual burden. It can be a vital component in a broader strategy to address the interconnected issues of mental health, suicide, and violence affecting both children and adults.

In the vanguard of this effort is the Holistic Teaching Approaches (HTAs), a pedagogical phenomenon revealed by educators in Elementary Agricultural Education (EAE) during this study. HTAs extend beyond the mere transmission of knowledge; they integrate the explicit teaching of social and emotional skills within a nurturing environment that prioritizes safety, care, support, and responsiveness. Agriculture education, emphasizing hands-on and experiential learning, provides fertile ground for holistic education practices (Talbert et al., 2022). The STEM and active learning strategies have demonstrated benefits for both educators and students, fostering engagement, well-being, and satisfaction (Dolmans et al., 2016; Wang & Knobloch,

2018). Yet, despite these advances, the specific elements contributing to teacher well-being and empowerment within the context of EAE require further exploration. This study illuminates HTAs enacted by successful EAE teachers to understand better how to cultivate a supportive teaching and learning environment. Such an environment empowers teachers to thrive professionally and serves as a buffer against the stressors that can lead to burnout and mental health challenges. By embedding socio-emotional learning within EAE, HTAs emerge as a compelling strategy for educational practices that can embody holistic education and enhance the resilience and fulfillment of teachers, thereby potentially reducing the incidence of attrition and contributing to a healthier school climate. By adopting a phenomenological approach (Creswell & Poth, 2018), this study aims to explore the success stories of EAE teachers to foster teacher well-being, empowerment, and retention. This study contributes to a shift towards prioritizing mental health and well-being in teaching practices.

Purpose & Research Questions

The purpose of this study was to conduct an in-depth exploration of the holistic teaching phenomenon by examining the interplay among personal, environmental, and behavioral factors that contributed to what EAE teachers believed to be holistic teaching approaches. This study aligns with Research Priority 3: Sufficient Scientific and Professional Workforce That Addresses the Challenges of the 21st Century and Research Priority 5: Efficient and Effective Agricultural Education Programs of the American Association for Agricultural Education National Research Agenda (Roberts et al., 2016). To achieve this, the study addressed two primary research questions:

1. How was the holistic teaching approach manifested in the identities, methodologies, and environmental contexts of elementary agriculture education teachers?

2. How did educators perceive and experience the implementation of a holistic teaching approach?

Conceptual Framework and Literature Review

Recent educational research has concentrated on teachers' well-being, empowerment, and fulfillment, acknowledging these factors as significant contributors to educational outcomes (Frost & Rayfield, 2020; Hascher & Waber, 2020; Kidger et al., 2016). Frost and Rayfield (2020) posited that understanding factors influencing individuals to enter or exit the teaching profession is essential, especially given the persistent shortage and attrition in the field. Hascher and Waber (2020) highlighted the scarcity of research on the impact of Teacher Well-Being (TWB) on individual factors such as health, work-related aspects like motivation and teaching quality, and contextual factors like social relationships. They also established a connection between TWB and Student Well-Being (SWB). EAE provides a compelling framework for investigating these elements, placing teachers at the helm of nurturing students' holistic development through active and experiential learning (Mahmoudi et al., 2012). To address the complexities of this inquiry, this study adopted a conceptual framework that intertwined the philosophy of phenomenology, the practicalities of holistic education, and Bandura's Triadic Reciprocal Determinism (TRD), offering a nuanced exploration of the factors enabling effective and fulfilling teaching practices.

Holistic Education

Holistic education is a comprehensive pedagogical approach that emphasizes the development of the whole person by integrating intellectual, emotional, physical, social, aesthetic, and spiritual aspects of individual learning (Miller, 2016). This approach demands "whole teachers," who attend to their body, mind, and well-being and guide learners toward

goals while acting as facilitators in the learning journey (Miseliunaite et al., 2022). While holistic education is highly valuable to both students and teachers, there is a gap in the number of teachers prepared to implement this approach, necessitating additional time and resources for training, whether as pre-service or in-service teachers (Miseliunaite et al., 2022). Historically prominent educators like Pestalozzi, Thoreau, Dewey, and Montessori have underscored the importance of addressing all aspects of a child's development, encompassing ethical, emotional, physical, psychological, and spiritual dimensions (Rybska & Błaszak, 2020). Holistic education fosters respect for individuality, citizenship, democracy, experiential learning, and nurturing relationships (Mahmoudi et al., 2012).

A key element of holistic education is experiential learning, which Kolb (1984) defines as a process of learning through direct experience and reflection, where learners actively construct knowledge by integrating their experiences into the curriculum. Active learners engaged in experiential education are typically more motivated, enthusiastic, and involved (Rianawaty et al., 2021). Experiential learning in holistic education encompasses sensations, emotions, physical changes, and cognitive engagement (Tomkins & Ulus, 2016). Caring relationships form the foundation of holistic education, characterized by a keen sense of community, friendship, respect, cooperation, and collaboration (Rudge, 2016). Additionally, freedom and autonomy are vital components of this approach, empowering students, and teachers to choose subjects, projects, and teaching methods that align with their interests (Rudge, 2021). However, if teachers are overwhelmed and underappreciated, they may struggle to overcome barriers such as financial limitations, limited class time, and student behavior issues (Chapter 2). Understanding holistic education as a phenomenon of interest offers promise for overcoming such barriers.

Dewey (1963) emphasized the need to appreciate the interconnectedness of various aspects of learning, stressing the importance of connecting theory and practice. Rybska and Błaszak (2020) propose that holistic education requires educational design and lesson planning that incorporates three dimensions, including:

1. Sensibility relates to features of the lesson and educational environment that cultivate a sense of welcoming comfort, safety, homeostasis, and active participation.
2. Functionality involves features of the lesson that scaffold social interactions, discourse, cognitive processes, and sense-making.
3. Rationality pertains to the learners' ability to reflect on six values (care, fairness, loyalty, authority, sanctity, and liberty) and how they relate to the elements present in each lesson or unit as a coherent sequence of tasks.

While the literature on holistic education often centers on learners, it is essential to acknowledge the importance of facilitators, coaches, and *teachers* in ensuring holistic education thrives among their students and within the learning environment. Teachers play a critical role in fostering the principles of holistic education, providing the guidance, support, and encouragement necessary for students to develop holistically. However, little is known about their ability to foster holistic education in the EAE sector. By studying holistic teaching approaches, educators and stakeholders can better understand how to promote the development of the “whole person,” creating a more engaging and effective educational environment. This includes recognizing teachers’ crucial role in successfully implementing holistic education principles and providing them with the necessary resources and training to excel as holistic educators, enabling them to build critical life skills in their students (DeJaeghere & Murphy-Graham, 2022)

Teacher Wellness

The relationship between teacher wellness and effectiveness is crucial in shaping students' educational experiences. Research indicates that teacher wellness and effectiveness are interconnected, significantly impacting student outcomes (Spilt et al., 2011). Teacher wellness encompasses various personal dimensions, including physical and mental health, job satisfaction, and work-life balance. Enhancing teacher wellness is essential for promoting a positive learning environment and optimizing student success. Evidence-based wellness programs and interventions can significantly improve teacher wellness by increasing job satisfaction, reducing stress, and enhancing overall well-being (Naghieh et al., 2015; Spilt et al., 2011). A study on mental health demonstrated that wellness programs contributed to reduced psychological symptoms and burnout, improved classroom environments, and increased self-compassion among EAE teachers (Lever et al., 2017). Emphasizing achievements and recognizing teachers' accomplishments can also play a vital role in enhancing their well-being (Fernet et al., 2016). Some strategies for promoting teacher wellness include:

1. Implementing comprehensive wellness programs: Schools and districts can develop and implement wellness programs that address various aspects of teacher well-being, including physical health, mental health, stress management, and work-life balance (Nagheigh et al., 2015).
2. Encouraging self-care: Teachers should be encouraged to engage in regular self-care activities, such as exercise, mindfulness practices, hobbies, and social connections, to maintain their well-being and resilience (Klap et al., 2020).
3. Providing professional development opportunities: Offering professional development opportunities related to stress management, coping strategies, and self-compassion can

support teachers in managing the demands of their profession and enhancing their well-being (Lever et al., 2017).

4. Fostering a supportive work environment: Schools can create a supportive work environment by promoting collaboration, communication, and positive relationships among staff members (Spilt et al., 2011).
5. Recognizing and celebrating achievements: Acknowledging and celebrating teachers' accomplishments can help boost their self-esteem, motivation, and overall well-being (Fernet et al., 2016).

While it is clear that investing in teacher wellness benefits teachers and contributes to a positive student-learning environment, leading to improved academic achievement and success, there remains a gap in understanding the specific factors that enable *EAE teachers* to overcome challenges and achieve their professional and personal goals. This study is crucial in addressing this gap, as it will provide valuable insights into the experiences, beliefs, and knowledge of successful EAE teachers, ultimately informing teacher in-service and pre-service preparation programs and ultimately fostering holistic education practices in EAE.

Empowering Educators

Empowering educators is essential for fostering positive and productive learning environments in EAE. Equipping teachers with the necessary tools, resources, and support can make them more confident and competent in their roles, improving student outcomes (Ingersoll & Strong, 2011). Providing professional development opportunities focused on evidence-based instructional strategies, such as project-based learning and differentiated instruction, is crucial in elementary education (Ruddy & Prusinski, 2012). These opportunities enable educators to refine their teaching practices, enhance their subject-matter knowledge, and adapt their methods to

meet the diverse needs of their students. Equipping teachers with high-quality curriculum materials and technology resources is vital for empowering them in their roles (Ehsanipour & Zaccarelli, 2017; Matuk et al., 2016). Educators can better support students' diverse learning needs by offering access to up-to-date and relevant resources and creating engaging, interactive learning experiences.

Coaching and support for educators are essential for sustained empowerment (Kimwarey et al., 2014). This support can be instructional coaching, peer mentoring, or collaborative learning communities designed to help teachers continually develop their skills and adapt to new challenges. School leaders play a crucial role in teacher empowerment by fostering a collaborative work environment, providing instructional support, and involving teachers in decision-making processes (Sebastian et al., 2016). Supportive and inclusive leadership contributes to a positive school culture for teacher and student success. Empowering educators is critical for promoting positive and productive learning environments in education (Carver-Thomas & Darling-Hammond, 2017). A practical teaching approach encompassing professional development, access to high-quality resources, ongoing support, and strong school leadership can empower educators (Carver-Thomas & Darling-Hammond, 2017). As a result, this approach enhances student performance and fosters a more vibrant and engaging learning atmosphere (Akpan & Beard, 2016). In the context of EAE, empowerment could come from holistic pedagogical strategies that incorporate the TWB into classroom instruction. This integration can extend to fostering community support and creating a well-rounded educational environment, offering teachers and students genuine, enriching, and positive learning experiences. However, little is known about how EAE experiences the HTAs in Georgia.

Elementary Agriculture Education

Elementary Agriculture Education (EAE) was initially piloted in Georgia from 2019 to 2021. This program transitioned to a permanent and ongoing initiative in March 2022 under State House Bill 1303 (HB 1303- Georgia House (2021-22) - Open States, 2022). All elementary schools in Georgia are authorized to establish an agricultural program and hire an agricultural education teacher to instruct kindergarten through fifth-grade students. As a vital curriculum component, EAE lays the groundwork for students' lifelong learning and engagement in agriculture-related professions, highlighting the importance of developing agricultural literacy. This literacy is crucial for fostering a profound understanding and appreciation of agriculture's significance (Frederickson & Peake, 2023). Evidence suggests high school students in agricultural education programs exhibit greater career readiness than their counterparts (Mouser, 2019). However, further research is needed in the EAE world to explore these programs' potential impact on younger learners and expand our understanding of effective implementation strategies in elementary settings. To optimize EAE, it is essential to integrate field trips to local farms, school gardens, and other agricultural environments into the curriculum (Frederickson & Peake, 2023; Ingram & Chiswella, 2018). Such hands-on learning experiences enrich students' grasp of farming concepts and practices while heightening their interest in the subject matter. A successful EAE program depends on the teacher's ability to tailor its implementation to their community's distinctive needs (Peake et al., 2023). The model (shown in Table 1) elucidates the functional and theoretical foundations of EAE, enabling administrators, teachers, and parents to understand the possible best practices for its implementation. Although there is no consensus among Georgia EAE teachers on a specific lexicon to describe their formal instructional methods, the terms most used include experiential learning, hands-on learning, inquiry-based

instruction, and problem-solving. Under the umbrella of experiential learning, several activities enable teachers to implement Farm to School programs, typically associated with local procurement efforts, school gardens, and direct educational experiences. Regarding leadership development, the National FFA Organization does not currently include students below grade six; however, the Cooperative Extension Service’s 4-H program offers a well-established curriculum geared toward civic engagement and has a rich history of involvement with younger, elementary-aged students. In addition, this approach seeks to meld innovative teaching strategies with experiential learning.

Table 1

A Proposed Vision for an Integrated Three-Component Model of Elementary Agricultural Education

Philosophical Underpinning	Manifestation at the Secondary Level (Croom, 2008)	Manifestation at the Elementary Level (Proposed)
Cognitive Development	Formal Instruction	Formal Instruction
Experiential Learning	Supervised Experience	School Garden/Farm to School
Leadership Development	FFA	Citizenship (4-H, student org)

Note. The table delineates the multifaceted approach to EAE in Georgia (Peake et al., 2023).

Technological resources, such as virtual field trips and online simulations, can distinctly supplement and invigorate students’ learning experiences (Mead et al., 2019). However, how prepared are EAE teachers to facilitate these unique experiences holistically? By employing experiential learning, technology, and innovative pedagogical approaches, educators can enhance student engagement and excitement for agriculture. Furthermore, incorporating holistic education principles and agricultural literacy initiatives can assist teachers in establishing connections between the environment, food production, and agriculture’s importance in students’

lives (Vallera & Bodzin, 2016), providing a more comprehensive understanding of the EAE experience.

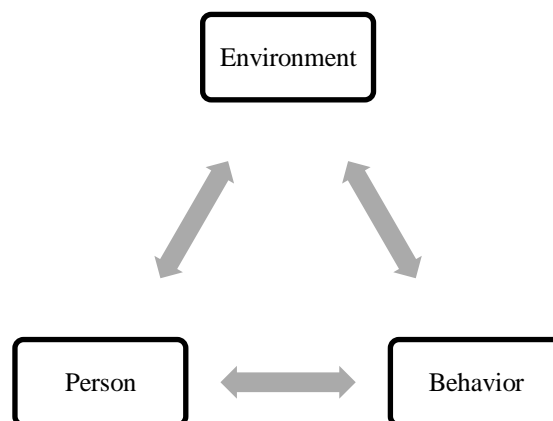
Theoretical Framework

Triadic Reciprocal Determinism

In the social learning perspective, which examines interaction as a process of reciprocal determinism (Bandura, 1978), behavior, internal personal factors, and environmental influences operate as interlocking determinants of one another. As depicted in Figure 1, the process encompasses a triadic reciprocal interaction. This dynamic model effectively captures the interplay between the three components, acknowledging that each may not always hold equal significance in the causal chain (Bandura, 1978). The fundamental principle of TRD lies in the interconnected nature of an individual's internal and external contexts, offering a more sophisticated understanding of the human experience. Investigating this intricate relationship enables us to understand how individuals influence others and their environments. Through this intriguing perspective, we can deepen our knowledge of ourselves and the communities we engage with, fostering meaningful personal growth and significant societal transformation.

Figure 1

Bandura's Triadic Reciprocal Determinism Model



Note. Triadic Reciprocity Model by A. Bandura, 1978

Personal Factors in Teaching

Internal personal factors, such as beliefs, conceptions, and self-efficacy, impact an individual's perspectives, emotions, physiological responses, and attitudes, affecting their perceptions, behaviors, and decision-making processes (Bandura, 1977). The cognitive component of personal aspects relates to the mental functions of an individual, such as perception, attention, memory, and reasoning (Baddeley, 2012). The affective component refers to a person's emotional experiences, such as pleasure, dissatisfaction, and arousal (Brett et al., 2018). Lastly, the biological part includes an individual's physiological responses to numerous stimuli, such as changes in heart rate, respiration, and skin conductance (Hugo & Garfinkel, 2018). These personal aspects are interrelated and constantly interact to shape an individual's subjective world experience.

Within the framework of Triadic Reciprocal Determinism, a critical personal element is self-efficacy. Bandura (1978) describes this concept as an individual's conviction in their ability to plan and carry out the actions necessary to achieve specific goals. Self-efficacy influences behavior by determining the goals and challenges individuals set for themselves, the effort they invest in pursuing and overcoming challenges, and their persistence in the face of difficulties and obstacles (Pfitzner-Eden, 2016). Factors such as self-reflection, collaboration with colleagues, and professional development can improve teacher self-efficacy (Avalos, 2011; Tschannen-Moran & Hoy, 2001). Self-reflection enables teachers to evaluate their teaching practices, identify areas for improvement, and set growth goals (Larrivee, 2000). Collaboration with colleagues fosters a shared learning and support culture, wherein teachers can exchange ideas, resources, and feedback to enhance their teaching practices (Lofthouse, 2015). Professional

development opportunities empower teachers to stay current with research, pedagogical strategies, and subject-matter knowledge (Carver-Thomas & Darling-Hammond et al., 2017; Phillips, 2008). Bandura (1977) asserts that self-efficacy is based on the notion that individuals actively shape their lives, influencing their functioning and life events according to their beliefs about their abilities. By examining students' internal experiences, including their ideas, feelings, and attitudes about their talents, educators can better understand the components contributing to effective teaching and learning (Blazar & Kraft, 2016). A teacher's sense of self-efficacy is a crucial aspect that can influence student learning outcomes. Research indicates that higher levels of teacher self-efficacy correlate with more effective teaching methods and improved student learning outcomes (Klassen & Tze, 2014).

Environmental Factors in Teaching

Physical, social, cultural, and economic elements can influence student learning outcomes and teacher efficacy because they create the external setting in which teaching and learning occur (Bandura, 1977). The school's culture and climate can impact teacher job satisfaction and retention (Skaalvik & Skaalvik, 2011). Environmental factors are vital in defining teaching and learning within EAE. Access to farm animals, gardens, and other agricultural tools and equipment can allow immersive and hands-on learning, increasing student engagement and learning outcomes (Ingram et al., 2018). The social and cultural values and beliefs of the school's community also have a vital role in influencing the curriculum and the perception of agriculture education's significance (Rice & Kitchel, 2017). In specific communities, agriculture may be considered an integral part of their culture and way of life, while in others, it may be regarded as unimportant or irrelevant. Physical, social, cultural, and economic aspects significantly impact agriculture education's teaching and learning

environment. The availability of resources and the community's cultural background influence how agriculture education is understood and incorporated into the curriculum. Knowing and managing these environmental aspects aligns with holistic education and can help teachers establish a good, engaging learning environment that encourages student growth and development. As revealed by the initial study in this dissertation (Chapter 2), a comprehensive understanding and application of these environmental factors empower educators to cultivate engaging and more meaningful education experiences for teachers and students.

Behavioral Factors in Teaching

In education, behavioral factors refer to teachers' observable activities and behaviors, such as their instructional methodologies, classroom management techniques, and communication styles. These activities have been demonstrated to affect student engagement and learning outcomes (Maulana et al., 2016). Good teaching practices like active and problem-based learning have improved student learning results. Effective classroom management techniques can promote positive conduct and limit disruptive behavior (Reinke et al., 2012). It is essential to address the behavioral variables in teaching, such as instructional strategies, classroom management techniques, feedback and assessment procedures, and the use of technology, since they play a crucial role in improving student learning results (Ehsanipour & Zaccarelli, 2017). It has been established that hands-on learning activities, experiential learning, and project-based learning boost student engagement and learning outcomes (Seaman et al., 2017). Good classroom management strategies, such as establishing clear goals and procedures, using positive reinforcement to encourage positive behavior, and responding rapidly and consistently to disruptive behavior, can contribute to developing a positive learning environment (Korpershoek et al., 2016). In addition, studies demonstrate that formative assessment processes significantly

improve student accomplishment (Xuan et al., 2020). Teachers can use productive assessment techniques such as rubrics, peer evaluations, and self-evaluations to provide students with feedback and boost their learning and development. The prevalence of technology in education is on the rise, and it can be used to enhance student engagement and learning results (Stewart et al., 2013). Technology should support effective teaching methods, not replace them (Ertmer & Ottenbreit-Leftwich, 2010).

Successful teaching strategies for agriculture education must consider several behavioral features within the context of Bandura's TRD model, where personal, behavioral, and environmental interact. Teachers can support student growth and development by utilizing effective instructional strategies, classroom management techniques, feedback and evaluation strategies, and technology to create a good learning environment. Teachers who effectively balance these behavioral components while embracing the interplay of personal beliefs and environmental factors would be more likely to achieve their professional and personal goals and promote successful student learning outcomes. This underscores the importance of understanding the HTAs phenomenon through the lived experiences of EAE teachers, as this would provide valuable insights into the efficacy of educational strategies and the promotion of an educational environment conducive to teaching excellence and student achievement.

Methodology

Phenomenology is a method of inquiry that centers on the phenomenon of lived experience, known as "phenomena" (Husserl, 1983). The term phenomena, derived from the Greek root *phenomenon*, signifies flare-up, show itself, or appear (Heidegger, 1996; Allen-Collinson & Evans, 2019). Phenomenology aims to address the fundamental question, "What is this experience like?" by understanding the universal nature of phenomena through human lived

experiences (van Manen, 2017). “Lived experience” is crucial to phenomenology, referring to the pre-reflective experience unaffected by preconceived notions or ideas (Heidegger, 1996). Its significance becomes apparent only upon deliberate reflection (Zahavi, 2005). Phenomenology must resist objectifying fading meanings, striving to authentically restore their lived meanings (Mjølstad et al., 2013). The “now,” the often-neglected immediate moment, is vital to phenomenology (Heidegger, 1996). Phenomenologists aim to comprehend lived experience’s significance without resorting to coding, sorting, or pattern analysis; instead, they allow phenomena to reveal themselves as they wish (Zahavi, 2005).

Phenomenological studies examine the depth of a phenomenon as opposed to its breadth (Johnson & Parry, 2022). Essentially, there are two main kinds of phenomenology: one developed by Husserl, which focuses on describing experiences exactly as people feel them, and another by Heidegger, which interprets the deeper meanings behind these experiences (Johnson & Parry, 2022). Phenomenological researchers tend to be not concerned with goals important to other research methods, such as data saturation, to find the adequacy of data collection; instead, phenomenologists delve into the essence of a phenomenon to describe it to others (van Manen, 2023).

This study adopted a Dasein-centered approach as delineated by Heidegger (1996). This methodology acknowledged the intrinsic impossibility of total phenomenological reduction, recognizing that complete bracketing, as proposed by Husserl (1983), is not wholly attainable due to the deeply intertwined nature of an individual’s pre-understandings with their experiences (Heidegger, 1992). Thus, rather than attempting to set aside all preconceptions, the study engaged with them critically, allowing for a more profound interpretation of the educators’ lived experiences. Heidegger’s concept of *Dasein*, or ‘*being-there*,’ offered a framework for

understanding the essence of being as it is manifested in the world, particularly within the complex social and cultural landscape of educational settings. This approach illuminated the educators' experiences of being-in-the-world (Heidegger, 1992), or their Dasein, as they navigated the intricacies of teaching. It also considered the personal, behavioral, and environmental interactions proposed by Bandura's model.

Specifically, this study explored how educators enacted and embodied a holistic pedagogical approach, unpacking their perceptions, attitudes, and practices amidst the challenges and opportunities they encountered. By centering the investigation on the "*Dasein*" of EAE teacher-participants, the research aimed to explore the nuanced insights into how these educators integrated holistic education principles within their teaching methods, fostered relationships with students, and created connections between agriculture, the environment, and the student's learning experiences. Such an inquiry was pivotal for developing effective teaching strategies and supporting EAE teachers professionally. In-service and preparation programs for agriculture education teachers can benefit from these findings because they provide a picture of the cultivation of teachers who are not only versed in agricultural content but also skilled in applying holistic educational principles to their teaching practices. Teacher preparation programs can use these findings when building a curriculum focused on student *and* teacher well-being.

Phenomenological Descriptive and Interpretative Transpersonal Analysis (PDITA)

The study introduced the Phenomenological Descriptive and Interpretative Transpersonal Analysis (PDITA) framework. This novel approach to phenomenology underscores and combines both descriptive and interpretative phenomenology. Additionally, it emphasizes the importance of personal and transpersonal reflexivity, providing a valuable methodological framework for understanding and interpreting participants' experiences. This methodological

structure has five stages to deepen the researcher's engagement with descriptive and interpretive phenomenology.

Stage 1: Reflexivity in the PDITA Approach

This phenomenological research commenced with a crucial process: reflexivity, which started with bracketing as recommended by Singh et al. (2013). This approach, rooted in Husserl's epoché, obliged the researcher to carefully record their preconceptions about the phenomenon before undertaking research activities (Johnson & Parry, 2022). Through this method, the researcher was presented with numerous opportunities to identify, reflect on, and control biases and their relationship with the phenomenon under scrutiny. As Swaminathan and Mulvihil (2018) suggested, embracing bias was more beneficial than avoiding it, as it allowed for a deeper engagement with the research context. van Manen (2014) further promoted the articulation of a researcher's assumptions to mitigate their influence on the research outcomes.

Reflexivity in this study extended beyond a methodological protocol; it was a sustained, integral practice that deepened the research with insightful observations. Informed by Heidegger's concept of *Dasein*, which emphasizes the importance of an individual's subjective interpretation of *being-in-the-world*, this practice of self-reflection and reflexivity demanded constant introspection throughout the research process. It involved critically recognizing the researchers' predispositions, molded by past experiences and beliefs, and acknowledging their potential evolution (Bergen & Labonté, 2019). Using a reflective journal was pivotal as it facilitated the ongoing documentation and critical examination of their values, biases, and assumptions. Additionally, transpersonal reflexivity, which involves engaging in dialogues with co-researchers to challenge each other's viewpoints, was a cornerstone of this research, enhancing the integrity of the study (Dörfler & Stierand, 2020). This collaborative reflexivity

was essential to maintain acute consciousness of researchers' subjectivity and its possible impact on data collection and analysis (Finlay, 2012).

Incorporating reflexivity in this manner was crucial for understanding the phenomenon as experienced and described by the participants. It enabled researchers to approach their narratives without the overt interference of their preconceptions, thus allowing participants' voices and interpretations to emerge more authentically. Through this reflective practice, researchers were better equipped to discern the essence of the participants' experiences and to portray these experiences genuinely in the study's findings.

Stage 2: Data Collection

At the time of the study, there were 48 EAE teachers in Georgia. Utilizing a convenience sampling technique, a pool of prospective participants was compiled from the Georgia agricultural education website, and EAE teacher contact information was obtained from an esteemed professor of agricultural education at the University of Georgia (EAE Teachers | Elementary Agricultural Education, 2023; J. Peake, Personal communication, August 14, 2023.) An invitation to participate in the study was extended via email. In response to this solicitation, 26 teachers engaged and completed a demographic survey, a 12-item short-form Teachers' Self-Efficacy (TSE), a comprehensive 43-item Holistic Teachers' Assessment (HTA), and a nomination process to identify effective EAE teachers, drawing from their beliefs and perspectives on the characteristics that define effective teachers in the field of EAE (Allen et al., 2022; Tschannen-Moran & Hoy, 2007). Among these respondents, four were excluded for not being EAE teachers but rather educators in STEAM and "Agriculture in the Classroom" programs.

Purposive sampling was employed to select participants with diverse experiences who could provide valuable insights into the research topic (Creswell & Poth, 2018). The final roster of participants was carefully and purposively chosen using three criteria: nominated by their colleagues as effective EAE teachers, had at least three years of teaching experience, and scored high on both the TSE and HTA surveys, which corroborated their professional standing (Nielsen, 2024). The selection criteria for participants were meticulously designed to encompass a broad spectrum of educator qualifications. A baseline of three years of teaching experience was set to ensure that participants had attained a degree of professional maturity and familiarity with the classroom environment. Additionally, participants were required to self-report their teachers' sense of self-efficacy (TSES), as outlined by Tschannen-Moran and Woolfolk Hoy (2001), and to complete HTA (Allen et al., 2022). The TSES is a 12-item self-report that measures the teachers' self-efficacy and indicates their confidence in their abilities to successfully organize and execute the necessary actions to manage specific teaching tasks within varying contexts. This evaluation consists of three distinct elements: Instructional Techniques (examining the extent of employing diverse assessment methods), Classroom Management (evaluating the capacity to manage disruptive classroom behavior), and Student Engagement (assessing the ability to inspire students to appreciate learning). The TSES utilized a nine-point Likert scale for each question, where one signifies "*Not at All*," and 9 indicates "*A Great Deal*," with the mid-value 5 representing a "*Moderate Amount*." Prior studies confirming the TSES's validity have demonstrated all three components to possess robust internal consistency, indicated by Cronbach's alpha scores between 0.76 and 0.90 (Allen et al., 2022; Tschannen-Moran & Woolfolk Hoy, 2001). These assessments also reflect a teacher's belief in their capabilities and correlate with behavioral predictors in teaching, such as persistence, effort, and resilience when

confronted with challenges in educational settings (Bandura, 1997). In addition, the HTA was developed by Allen et al. (2022) as a self-assessment tool comprising 43 questions to evaluate ten resiliencies. These constructs include Action Orientation (involvement in active pursuits), Emotional Control (management of distress and anger), Perseverance (continued effort in tasks and problem-solving despite challenges), Assertiveness (self-assured expression of one's views and defense of one's beliefs), Trust (viewing others as supportive and reliable), Empathy (acknowledging the emotions and experiences of others), Optimism (positive outlook and hopefulness about one's own life), Reflection (introspection, self-awareness, and thoughtful response to external matters), Coworkers Relationships (constructive and encouraging interactions with colleagues), and Mentor Relationships (constructive and encouraging engagement with educational leaders). The HTA employs a four-tier rating system to indicate behavioral frequency: 1 for "Not at All," 2 for "Sometimes," 3 for "Often," and 4 for "Almost Always." This instrument was determined to possess internal reliability, as indicated by Cronbach's alpha values for all scales, which fluctuated between 0.69 and 0.89. It could measure three social-emotional dimensions pertinent to educators, notably the most inversely correlated with burnout and most directly correlated with teaching self-efficacy. These dimensions were Emotional Control, Optimism, and Professional Relationships (Allen et al., 2022). The findings from the HTA confirmed that the educators chosen for the study brought the necessary experience, pedagogical skills, and psychological attributes vital for effective teaching methods. The study ensured that the participants selected demonstrated high levels of self-efficacy (>7) and met the HTA criteria (>3) on at least 7 of the constructs, thus possessing the essential experience, educational expertise, and psychological and emotional skills fundamental to comprehensive teaching (Allen et al., 2022). This extensive profiling allowed the research to be

conducted with teachers who were not only technically skilled but also capable of nurturing learning environments that support the full development of students. The methodology was designed to capture the complexity and richness of the educational experience from various angles:

Participant Observation. This approach to data collection was pivotal in establishing methodological consistency. The lead researcher, drawing on an extensive background as a classroom teacher, mentor, and observer, conducted 30-minute in-person observations of EAE teachers across various educational environments, such as classrooms, school gardens, barns, and greenhouses. The 30-minute duration was selected as a constant variable to standardize the observations despite variations in-class session lengths, which ranged from 45 to 60 minutes. According to findings from Article 1 (Chapter 2), it was reported that in the shorter 45-minute sessions, some minutes were frequently consumed by transitional activities, such as walking to collect students from a previous class. By standardizing the observation period to 30 minutes, the research ensured that each session captured a substantial, uninterrupted segment of active teaching time, aligning with the typical short and focused form referred to as “walk-through” observations (Stevens, 2016). This duration provided a balanced framework for evaluating teaching efficacy and allowed for meaningful comparison across different teaching contexts. The observation protocol was meticulously structured into three distinct segments. The first seven minutes were allocated for a comprehensive classroom tour, which included photographic documentation to capture the spatial and environmental context guided by a checklist based on a systematic review of relevant studies (Appendix H). This approach aligns with the recommendations presented by Onwuegbuzie et al. (2009) for identifying features in the holistic education classroom. Then, the next 15 minutes were dedicated to observing classroom dynamics

to capture the immediacy of the teaching environment (Casabianca et al. 2015). The final eight minutes were reserved for completing checklists and creating post-observation reflection notes, which allowed for documenting initial impressions and insights while they were fresh (Moser & Korstjens, 2017). This structured and intensive approach minimized potential rater drift and enhanced the observer's focus, thus bolstering the reliability of observational data (Archer et al., 2016). The non-evaluative nature of these observations aligned with the pedagogical peer review approach presented by Mueller and Schroeder (2018), where the observer refrained from judgment and feedback, allowing for an unbiased capture of the educational process.

Semi-structured Interviews. The study utilized 60-minute semi-structured interviews with each of the five teachers. An open-ended interview guide was followed to initiate dialogue and maintain focus on the study's purpose (Massey, 2011). This guide was reviewed by experts and served as a flexible framework, allowing for the natural progression of dialogue while ensuring key thematic areas were explored (Majid et al., 2017). Two pilot interviews via Zoom were conducted to refine the interview protocol (Appendix F) and guide (Appendix G). These preliminary sessions served to test the questions, improve the interview guides, and gain some practice in interviewing (Majid et al., 2017). Building rapport with participants was prioritized to elicit richer responses, beginning with casual conversation before the formal interview (Jacob & Furgerson, 2012). The flow of the discussions was primarily participant-driven, adhering to the open-ended nature of questions that empowered educators to express their experiences with authenticity. This interviewing method aligns with Geertz's ethnographic approach, which seeks to grasp participants' subjective experiences "from the inside out" (Laverty, 2003, p. 29).

During the interviews, careful attention was given to both the explicit dialogue and the nuances of communication, "reading between the lines" (Jonsdottir & Fridriksdottir, 2019, p.

180), including the silences that often convey the implicit and the assumed. Such non-verbal cues can be as telling as the verbal responses themselves, as van Manen (2023) underscored, revealing the deeper underlying truths of the participants' experiences. All interviews were conducted following the classroom observations when the researcher had already established rapport with the participants. To minimize disruptions and maintain focus, these interviews were carried out via Zoom at times that suited the participants best. All interviews were recorded and transcribed verbatim. During the transcription process, bracketing was employed to ensure that the researcher's pre-existing ideas or biases did not influence the interpretation of data (Finlay, 2012).

Document Study/Analysis. The study's methodology was enhanced by incorporating document analysis as a triangulation - "the combination of methodologies in the study of the same phenomenon" (Denzin, 2017, p. 291). This approach included all written materials, images, and objects related to the participants' teaching that the participants shared with the researcher. Merriam (1988) pointed out, "Documents of all types can help the researcher uncover meaning, develop understanding, and discover insights relevant to the research problem" (p.118). A document study created the classroom observation checklist (Appendix H). Documents were analyzed and used critically to establish the meaning of the document and its contribution to the phenomenon (Bowen, 2009). Participants provided up to three lesson plans, offering a window into their instructional designs and the practical application of curricular concepts. This direct evidence was augmented by analyzing news reports related to the participants. News reports provided context for the teachers' professional achievements and community roles. These combined data sources yielded a layered understanding of the participants' professional identities and the impact of their teaching practices, both in the classroom and within the broader

educational landscape. The integrative approach adopted by this study captured the nuanced practices of EAE educators. It provided insights into the wider implications of their work, informing potential advancements in educational methodology and teacher development.

Stage 3: Data Analysis

In the context of the study framed within interpretivism and constructivism, data analysis becomes a process of rich engagement with the narratives and expressed phenomena of the participants, mirroring the complexity of human experiences in educational settings (Baker, 2022). The PDITA framework blends descriptive insights with interpretative rigor, ensuring that the teachers' attitudes, opinions, and experiences are not merely cataloged but are deeply understood and contextualized.

The researcher engaged in ongoing data analysis throughout the data collection process, documenting the emergence of new information and insights and whether evidence and examples sufficiently saturate existing codes; an approach refers to the “run length” (Guest et al., 2020, p. 6). During the descriptive examination of the interviews, the researchers carefully annotated and immersed themselves in the data to capture linguistic nuances and conceptual elements (Vagle, 2010). This meticulous process allowed the researcher to become intimately familiar with the participants' lived experiences, setting the stage for emergent themes to be recognized and explored. The interpretative phase followed, exploring connections across these emergent themes within each case. This phase was critical as it focused on the idiographic nature of individual experiences, honoring the participants' subjective realities while also considering the reflexive role of the researcher in shaping the data interpretation.

A predominantly inductive approach was employed as the analysis proceeded, prioritizing the meanings derived directly from respondents and data. However, some deductive

analysis was also integral to aligning coding with the overarching research questions and the theoretical underpinnings of the study (Braun & Clarke, 2019). This abductive approach ensured that the analysis remained rooted in the data while guided by the theoretical framework. The thematic analysis involved several key steps, as Braun and Clarke (2019) articulated, facilitating the systematic exploration of themes. The researcher moved from familiarization with the data through generating initial codes and potential themes to defining and naming themes. This process was iterative and reflective, with the researcher continually revisiting observations, transcripts, checklists, journals, and other documents to refine the interpretations. This diligent practice further examined the data layers to deepen the understanding and validate the findings. In the final stages, the researchers examined patterns across all cases to develop a narrative that included subordinate and superordinate themes (Jeong & Othman, 2016). This narrative was not merely descriptive but also interpretative, offering a structured yet nuanced account of the educational phenomena under investigation. The study's approach to data analysis reflects a commitment to scholarly rigor and depth, embracing both the richness of qualitative data and the necessity of methodological precision.

Stage 4: Qualitative Rigor

Several strategies were employed to ensure the study's validity: Triangulation involved corroborating findings through data from multiple sources, including interviews, observations, and documents, which increased the study's credibility (Creswell & Poth, 2018). Member checking was conducted by providing participants with summaries of the findings and interpretations to confirm the accuracy and authenticity of their perspectives (Creswell & Poth, 2018). Detailed and contextualized descriptions of the participants' experiences and perspectives were conveyed, allowing readers to understand and evaluate the study better (Creswell & Poth,

2018). The researcher engaged in self and transpersonal reflexivity to address potential biases that might impact the analysis (Creswell & Poth, 2018; Dörfler & Stierand, 2020). Additionally, peer debriefing was conducted, wherein the researcher consulted with peers and colleagues to discuss the research process, findings, and interpretations, thus providing an external perspective, and further enhancing the study's credibility (Creswell & Poth, 2018). An external auditor was also consulted to examine the research process, findings, and conclusions, ensuring the study remained objective and unbiased (Creswell & Poth, 2018).

For the study's reliability, transcripts were carefully reviewed and compared with the original audio recordings to verify the accuracy of the transcribed data (Bailey, 2008). Moreover, cross-checking of codes through intercoder agreement was performed, with multiple researchers reviewing the results to ensure consistency and reliability in the coding process and achieve richer interpretation (Clarke & Braun, 2013).

Step 5: Data Presentation

The narratives were enriched by direct quotations from participants and photographic evidence from observations and supporting documents. Data triangulation was also pivotal, incorporating multiple sources: interviews, observations, documents (lesson plans, news reports, researcher's journal, observation checklist), and visual material, to substantiate the findings (Natow, 2019). This approach provided a detailed account of the experiences of EAE teachers who have successfully adopted holistic instructional strategies (Creswell & Poth, 2018). Moreover, careful attention was given to the quote-to-text ratio, maintaining a balance between participant quotations and the narrative to preserve coherence and flow. By employing a phenomenological approach, the researcher sought to capture the essence of the participants' lived experiences and convey their unique perspectives on holistic teaching in EAE. Through this

rich and in-depth analysis of the personal, environmental, and behavioral factors influencing holistic teaching in EAE, the study aimed to provide valuable insights and recommendations for educators, administrators, and policymakers seeking to foster more engaging, effective, and inclusive learning environments aligned with the Triadic Reciprocal Model and guided by holistic education.

Findings

This research identified a distinctive phenomenon: the Holistic Teaching Approaches (HTAs). This approach transcends the boundaries of conventional pedagogy, embodying practices that include educators' identities, their systematic instructional routines, and their active interaction with the environmental context of their classrooms and communities. This integrated approach has emerged as a lifestyle that provides educators with robust mechanisms to address professional stress and burnout.

RQ1: How is the holistic teaching approach manifested in the identities, methodologies, and environmental contexts of elementary agriculture education teachers?

To address the primary research question, the study identified three salient themes that epitomize a holistic pedagogical framework based on participant data. These themes encompass the Paradigm, termed as "EduSphere Mindset," the Habits, referred to as "Rituals of Rigor," and the Surroundings, denoted as "CueCon Horizon." The "EduSphere Mindset" paradigm elucidated three subthemes: cultivating awareness of personal values and self-efficacy, recognizing strengths and weaknesses within teaching practices, and creating a synergetic learning environment. The "Rituals of Rigor" habits revealed a triad of subthemes, including promoting fun and ease in learning, fostering multifaceted engagement, and developing a supportive and empowering educational milieu. Lastly, the Surrounding theme, "CueCon

Horizon,” unveiled two subthemes: the cue environment and forming a confidence group, which are pivotal in reinforcing the educational setting.

Theme 1: Paradigm – “EduSphere Mindset”

This study has illuminated that EAE teachers’ paradigms, including their values, beliefs about education, self-efficacy, and self-awareness of their strengths and weaknesses, profoundly shape their pedagogical approach and the learning environment they cultivate. Participants emphasized that their teaching was not merely a professional duty but a reflection of their identities and a manifestation of their core beliefs about the significance of agriculture in everyday life.

Mindset of Self-Discovery

Understanding the interplay between personal convictions and self-efficacy is pivotal in comprehending how EAE teachers shape their pedagogical methods. The participants’ narratives offer a window into the intrinsic motivations that shape their teaching philosophies. Participant 1’s story illustrated these connections vividly:

My children grew up through the 4-H and FFA programs; agriculture has always been my passion. I grew up in agriculture. My grandfather was a farmer. My oldest son was an FFA state president, and during his tenure, they announced they would pilot an elementary AG program. I’ve always incorporated agriculture into my classroom, so when the opportunity arose, I immediately spoke to the Superintendent. We applied and became one of the pilot schools.

This reflection demonstrated how the participant’s upbringing and ongoing exposure in an agricultural setting have been foundational to their understanding of and approach to their pedagogical practices. This background gave them an authentic perspective that enriched their

teaching, allowing them to draw upon personal experiences to connect with students and bring real-world relevance to the classroom. Participant 4 offered a complementary perspective, “EAE is everything... It’s important for the students and the kids to understand and know about what’s happening around them—where their food comes from, their clothing, shelter as far as their homes, things about that,” emphasizes the holistic nature of agricultural education. These statements illustrated an educational approach that transcends the classroom and highlights the teacher’s belief in educating students about the interconnectedness of agriculture with their everyday lives (Figure 2). This also underscored the teacher’s paradigm that education should prepare students to be informed citizens and understand the essential aspects of life that agriculture impacts. These insights demonstrated that for EAE teachers, teaching is not just a job but an extension of their personal histories and values.

Figure 2

Examples 1 and 2 of Mindset of Self-Discovery



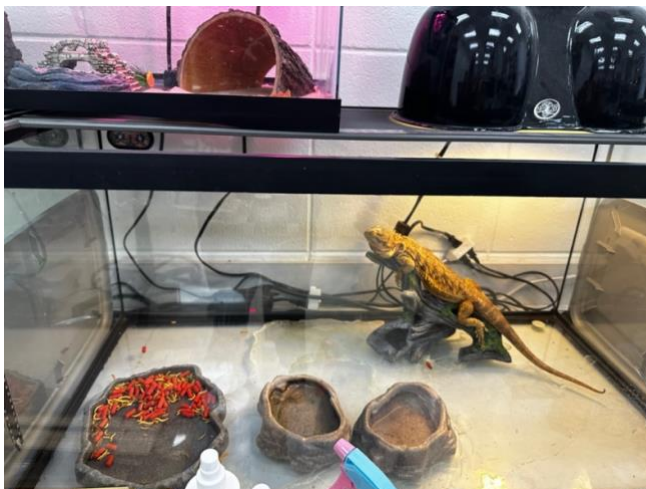
Note. Both the left and right panels display taxidermy specimens that highlight the teacher’s commitment to exposing students to aspects of wildlife. These served as a testament to the value

placed on connecting students with nature and fostering an appreciation for biodiversity. The left panel shows materials or imagery associated with the FFA organization, indicating the teacher’s intention to familiarize students with agricultural education programs and career opportunities.

In the classrooms, the researcher noted various plants, animals, and even taxidermy (Figures 2 and 3), which served as decorative elements and integral components of an interactive learning space. The presence of animals and plants in the classroom, like that mentioned by participants who aimed to give students firsthand knowledge of wildlife, serves a similar pedagogical purpose. The animals offered “students’ direct interaction with living creatures, fostering a sense of care and responsibility” (Participant 4). At the same time, the taxidermy provides a permanent “exhibit of wildlife diversity” (Participant 1), fostering a connection with the natural world. Their self-efficacy, grounded in these values, translates into a confident, value-driven approach to education. This alignment is pivotal, as it informs their instructional choices and classroom management, ultimately fostering an environment that is not only conducive to learning but also reflective of the values they hold dear.

Figure 3

Examples 3 and 4 of Mindset of Self-Discovery



Note. Left panel: The image showcases the integration of animals within the classroom environment, illustrating a hands-on approach to teaching. It underscores the value of nurturing empathy and responsibility in students through direct interaction with living creatures.

Right panel: This image displays an array of plants in the educational setting, reflecting the commitment to teaching students about biodiversity and the stewardship of nature. The presence of plant life enhanced the learning atmosphere and served as a living lesson in care, growth, and sustainability.

Mindset of Progressive Growth

This subtheme was deeply rooted in the educators' commitment to self-improvement and adaptability. This is clearly articulated in the study's participants' narratives, who demonstrated a keen self-awareness and a proactive stance toward their professional growth. One educator emphasized the importance of integrating their personal commitment to environmental issues into their teaching, stating, "I integrate my passion for environmental stewardship into every lesson, while I continually seek professional development in areas where I feel less confident" (Participant 5). This reflection highlights their strength in environmental stewardship and their recognition of areas for growth, exhibiting a dedication to lifelong learning and self-improvement. Another teacher underscored the value of structured planning in their instructional approach: "Lesson plans keep me on task and ensure my lessons are focused and purposeful." This statement from Participant 1 revealed a strategic use of lesson plans to maintain focus and direction, suggesting a systematic approach to teaching that leverages organizational tools to enhance educational outcomes. The challenge of innovation was also acknowledged by a teacher who candidly shared, "The hardest part is coming up with something new each year." This remark from Participant 2 revealed the difficulties inherent in maintaining a fresh and engaging

curriculum, highlighting the constant effort required to renew and invigorate their teaching practices to meet the dynamic needs of their students. Participant 5's statement, "It's important to create an environment where mistakes are acceptable and learning from them is encouraged," aligns perfectly with embracing imperfection as a critical component of the learning process. By publicly displaying such affirmations, educators reinforce a growth mindset culture, where challenges are seen as opportunities for development rather than setbacks. This can be symbolized by a bulletin board (Figure 4), which carries the motivational statement, "Take chances, make mistakes, and get messy." This message served as a daily reminder for teachers and students that the classroom is a safe space to explore, experiment, and learn from errors without fear of judgment.

Figure 4

Example of Mindset of Progressive Growth



Note. The bulletin board conveys a vital message: to embrace the learning process. It suggests that making mistakes should not be feared but rather seen as valuable opportunities for growth

and discovery. This perspective encourages a mindset where taking risks and navigating challenges is celebrated in personal and educational development.

These educators' reflections provided a multifaceted view of the teaching profession. They highlighted a balanced approach where the recognition of personal competencies is coupled with an open acknowledgment of areas for growth. This balance is crucial for developing teaching practices that are not only attuned to the educators' strengths but also responsive to the changing landscape of educational needs and the pursuit of teaching excellence.

Mindset of Multidisciplinary Integration

This encapsulates how EAE teachers utilized their deep understanding of their teaching paradigms to curate educational experiences that are comprehensive, interdisciplinary, and anchored in the real world. This approach transformed their classrooms into dynamic ecosystems, mirroring the complexity of the broader agricultural community and the world.

Participant 3 encapsulated this concept by stating:

We also involve 4-H in larger events, like when they set up a booth for our pollinator project last year. They're a great help and are willing to participate in different capacities, visiting our fifth graders monthly and fourth graders on a bi-monthly basis, though the schedule for the fourth grade is more tentative as we're seeing how it fits in

This showcased how their educational setting was about imparting knowledge and illustrating the vast web of connections and relationships underpinning our ecosystem (Figure 5).

Figure 5

Examples 1 and 2 of Mindset of Multidisciplinary Integration



Note. Left panel: Showcases the 4H bulletin board, displaying current events and resources that exemplify the organization's integration. Right panel: The wall serves as a conduit of information, highlighting the different careers in agriculture.

Participant 4 highlighted the value of experiential learning: “They get so much more out of being able to be around and have those real-world experiences.” This reflection underscored the benefit that students derive from engaging with tangible elements of agriculture and the natural environment, which profoundly solidified their learning and understanding (Figure 6). Participant 2 added, “I believe knowledge sticks when it can be related to personally... thematic teaching is crucial.” This sentiment reinforces the effectiveness of thematic teaching in creating personal connections between the student and the subject matter, thereby enhancing the retention and application of knowledge (Figure 7).

Figure 6

Examples 3 and 4 of Mindset of Multidisciplinary Integration



Note. Left panel: Students engaged in a practical exercise using a screwdriver, an example of a simple machine, to enhance their mechanical comprehension. Right panel: One of the participants demonstrated the construction of a bird feeder, an activity soon to be attempted by the students. These images underscored the importance of hands-on experiences in educational settings, promoting active learning and reinforcing theoretical knowledge through real-world.

Figure 7

Examples 5 and 6 of Mindset of Multidisciplinary Integration



Names: _____ and _____

THE SEARCH FOR THE BEST TREE

Directions: Investigate the tree clippings in your box. Record your findings

Tree Type	Sketch a picture of the needles	Describe the needles (soft, firm, prickly, long, short, how do they grow?)	Does the tree smell? (Does it smell good? Is it a strong smell?)	Does it hold up to the ornament test? Why or why not?
FIR				
PINE				
SPRUCE				

TURN TO THE BACK

Note. Left panel: A classroom was adorned with Halloween and Christmas decorations, reflecting the hybrid holiday spirit of early December. Right panel: A worksheet provided by a participant was displayed. The worksheet centered on selecting the best type of tree for celebrating Christmas, with students actively comparing the different characteristics of fir, pine, and spruce leaves.

These teachers' insights exemplified a pedagogical approach that prioritizes a learning environment where students can draw connections between their studies and the world around them. By facilitating this, EAE teachers nurtured a learning process that was both academic and deeply personal, reflecting the larger ecological and social systems in which they live.

Theme 2: Habits – “Rituals of Rigor”

Adaptability in teaching methodology and student engagement is essential, reflecting the behavioral factors inherent in Bandura's concept of triadic reciprocal determinism (Bandura, 1989). In the context of EAE teachers' practices, such adaptability went beyond strategies, evolving into deeply ingrained habits that emphasize a commitment to dynamic and responsive pedagogy. These habits manifested across three primary domains:

Rituals of Enthusiasm

EAE educators have cultivated practices that make learning an experience of delight and ease. Participant 2 poignantly captured this ethos: “I wanted them to be able to take something home from their lesson,” highlighting the emphasis on creating memorable learning experiences.

Participant 1 described how she utilized ambient tools to enhance the learning environment:

I like to project calming scenes or play soothing music, especially during the holiday season. It's not just for aesthetics. I use it as a tool for group work. If the class gets too loud and the music can't be heard, it signals the students to lower their voices. The

interactive screen is also used for PowerPoints, videos, and research activities. Although each student has a Chromebook, I prefer not to rely too heavily on computers in class, as they already spend a lot of time on them. It's just a personal choice. It's not required at all. Some teachers don't use their boards, but I don't like them to sit unused. If I'm not projecting something for the lesson, I still want it to contribute to a relaxing and welcoming classroom atmosphere.

Participant 4 complemented this sentiment by stating, "I encourage creativity with the resources available. We do not stick to the usual materials," indicating a deliberate shift towards nurturing creative potential through diverse resources (Figure 8). This practice was further elucidated by Participant 5, who shared:

Given that students these days can have shorter attention spans, it's crucial to make instructional time both concise and focused. In our rotation period, I have implemented what I call "teach time." I strive to keep this within a 10-minute frame. We aim to optimize our time to ensure students understand the lesson but aren't overloaded. We incorporate a lot of singing, which seems to significantly aid their retention of the material.

This demonstrated that integrating music and constructive play into the curriculum was a deliberate strategy to enhance memory and enjoyment, consistent with cognitive neuroscience research on memory and attention.

Figure 8

Examples 1 and 2 of Rituals of Enthusiasm



Note. Left panel: Shows students' project, creatively fashioned to represent a barn, showcasing the integration of agricultural themes into a fun learning activity. Right panel: Features a collection of rocks, each uniquely painted by students, reflecting the joy and simplicity of learning through artistic expression. Together, these images capture the essence of an educational environment that values engagement and hands-on experiences, making learning enjoyable and memorable for students.

Rituals of Engagement

This theme was a testament to the rich and inviting teaching strategies that characterized the EAE approach. Participant 3's innovative teaching method, "In math, we teach percentages by analyzing the ingredients of a pizza," illustrated an engaging way to contextualize mathematics, bridging textbook theory with tangible, real-world applications (Figure 8). Participant 1's strategy of juxtaposing physical materials with literary resources, as they

described, “displaying cotton and wool alongside a book about where clothes come from,” infused a tactile dimension into the learning experience (Figure 9). This multisensory strategy was underscored by Participant 1’s reflection, “if they can touch it, smell it, feel it...it makes them retain more about it,” which aligns with educational theories that stress the importance of engaging multiple senses to deepen learning and retention. Elaborating on this subtheme, Participant 3 explained the role of EAE encompasses more than academics; it involves cultivating students into responsible citizens and stewards:

My approach to elementary agriculture is not just about delivering content. It's about fostering productive society members, which includes good citizenship. A big part of that is understanding environmental stewardship—this is our only planet. It also involves turning them into educated consumers who make responsible choices. So, I've incorporated practical applications like reducing food waste by setting up a donation area and teaching recycling and repurposing. For instance, leftover grape juice might be unwanted by one student but appreciated by another later in the day, or it can even be enjoyed by our class pig. We find creative uses for materials, like repurposing cardboard for educational projects. It's these little things that teach them there are alternatives to waste, and I incorporate sustainability wherever I can. I practice recycling at home, too, and I believe in modeling these behaviors for my students. Given the amount of time, some students spend with us compared to their families, our classroom needs to be a role model. I strive to be a teacher who does what she says—actions speak louder than words.

Figure 9

Examples 1 and 2 of Rituals of Engagement



Note. Left Panel: Captured an innovative teaching moment where a participant employed a tape measure as a tangible tool to teach fractions and demonstrated a practical application of mathematical concepts. Right panel: Showed a lesson plan enriched with a tactile learning resource, a booklet containing various types of fibers such as wool and cotton. This tactile approach facilitated an engaging and multisensory learning experience, highlighting teachers' diverse methods to cater to different learning styles and bring abstract concepts into a concrete, relatable context.

Rituals of Empowerment

This showcased the pedagogical commitment to creating a learning environment that reframes mistakes into valuable learning experiences. This approach encouraged learners to view challenges as opportunities for growth, fostering a proactive attitude toward their education.

Participant 3 encapsulated this by stating:

While Junior FFA isn't an official thing, it's a big deal at [Place], and the students take initiative. They pick up trash and contribute to the school's and community's appearance without being asked. I aim to show them the right way and occasionally reward their

good deeds, not expecting a reward but to foster a genuine desire to do good. Although I must admit, we're pretty motivated by candy in our classroom.

This technique not only enhanced the joy of learning but also solidified knowledge using positive reinforcement, making learning outcomes more tangible for students. Moreover, Participant 4 emphasized the significance of maintaining a transparent and reliable atmosphere within the classroom. "I keep my students informed...Being upfront helps maintain a calm and predictable environment" (Figure 10). This clarity and predictability were foundational for a learning space where students could feel secure and focused, which was crucial for their academic success and overall well-being. Inclusivity was also a cornerstone of this supportive and empowering framework. Participant 4 underscored the necessity for every student to feel valued: "Students feel like they were a valued part of the group, regardless of their behavior or differences" (Participant 4). Such an inclusive approach prevents feelings of isolation and promotes a collective educational journey where every student feels an essential part of the learning community. Participant 2 expressed:

I collaborate with other teachers. For example, when the fourth grade covers measurement, I also do measurement in my class. If they study weather, we discuss how weather affects farmers' crops. This year, after a tornado, we saw firsthand how it impacted our crops. When kids read a story about okra but didn't know what it was, we studied it in class, which made the story make sense to them. We cooked, pickled, and even ate okra raw, which they enjoyed.

Figure 10

Examples 1 and 2 of Rituals of Empowerment



Note. Left panel: A participant provided instruction and explained the presence of an observer to the students, thereby creating an environment of inclusivity and awareness. Right panel: A student had been tasked with distributing class folders, which fostered a sense of responsibility and service. This delegation of tasks empowered the students and promoted organizational skills and a supportive classroom culture where students were encouraged to contribute to the learning environment.

These thematic habits formed the foundation of a dynamic educational practice, ensuring that learning was engaging and comprehensive but also supportive and empowering. They were reflective of an educational resilience attuned to the evolving needs of students and the educational landscape. EAE teachers, through their adaptability and professional dedication, maintained a pedagogy that was both relevant and effective, aligning with the ultimate goal of

educating students to become well-rounded individuals who understand and value agriculture's role in their lives and the wider world.

Theme 3: Surrounding – “CueCon Horizon”

This theme emphasized the significant influence of environmental stimuli and interpersonal relationships on teachers' and students' dynamic development and well-being. It was articulated through two subthemes.

Cue Ecosystem

This subtheme captured the pivotal external stimuli and resources in enhancing the educational setting. Participant 2 remarked, “I'll put it on Facebook, and our Facebook friends and then other parents are always like, oh, I would love to help you in the barn,” which illustrated the role of social media as a contemporary tool for engaging community support and fostering involvement in school activities. The emphasis on family and staff contributions was notable, with comments such as “the family support, lunchroom ladies at the end of every day...they'll go out there and take it to the animals,” highlighting the communal spirit and the ‘*educational family*’ that extended the learning experience beyond traditional classroom settings (Figure 11). Participant 1 added to this theme by integrating elements of the local ecosystem into the learning space, explaining, “We have pictures of Georgia butterflies and Georgia snakes in the classroom so that the kids identify things that are native to Georgia.” This method imparts essential local knowledge and deepens students' sense of belonging to their community, offering authentic learning opportunities that bridge lessons with their broader environment.

Figure 11

Examples 1 and 2 of the Cue Ecosystem



Note. Left panel: A participant had displayed a bin containing leftover fruits and applesauce from the school cafeteria, which would be repurposed to feed animals in the barn. This act exemplified the practical application of sustainability and resourcefulness within the educational setting, teaching students the value of waste minimization and the care of other living beings. Right panel: Another participant had presented boxes filled with dried flowers and leaves. This brought elements of the natural world into the learning environment and served as a tactile, visual cue that encouraged students to engage with and learn about the environment. Both images captured the essence of the “Cue Environment” by utilizing everyday resources to enhance environmental awareness and responsibility among students.

The researcher’s observations also noted the presence of various personal items that contributed to this environment (Figure 12). Family pictures, images of students, and displays of student work adorned the walls, making the space more personal and reflective of the lives within it. Gifts and memorabilia from families and previous students added a layer of history and sentimentality, reminding students of the continuous community thread and the value placed on relationships and past interactions. Teachers’ hobbies and motivational phrases interspersed

throughout the classroom reflect not only the educators' personalities but also as a source of inspiration and encouragement for students. Together, these elements created a tapestry of visual cues that promote a feeling of safety, belonging, and motivation, which were crucial for an immersive and holistic educational experience.

Figure 12

Examples 3 and 4 of the Cue Ecosystem



Note. Left panel: A participant's board displayed pictures of former students and cards from them, celebrating past educational achievements and relationships. Right panel: Another participant's classroom cabinet was adorned with family photographs, awards, and a diploma, personalizing the learning space and reflecting the educator's identity and values.

Confidence Community

This subtheme delved into the interpersonal relationships and emotional safety nets integral to fostering students' confidence and well-being. Participant 2's comments underscored the significance of emotional support in the educational sphere: "I think for me it is I want to be supportive to everyone...they know that they're safe when they come in," which illustrated a commitment to creating a secure, nurturing environment where students were assured, they were valued and understood (Figure 13). Further emphasizing the collaborative spirit within the educational community, Participant 2 shared, "We're supported by an administrator, and we do the most" and "I have good coworkers...we just have fun." Participant 4 shared:

Our previous principal was very supportive. She would step in and handle things when needed, and I believe the new principal will do the same. It's a relief to have a team that's willing to share the responsibilities. It makes the workload manageable, unlike some other teachers I know who have to handle everything on their own.

These statements underlined the importance of cultivating a joyful and supportive work environment, which was crucial for educator well-being and providing a positive learning atmosphere for students. Participant 1 echoed the sentiment of communal involvement and support, illustrating the classroom's familial atmosphere:

It's hard to separate personal and professional life because we take our work home.

However, this program is a family affair. My husband is a tremendous support; he's the reason I don't go nuts. He helps with everything, including taking care of the animals if

I'm having a rough day. My family's support makes it enjoyable rather than stressful.

Such connections were further evidenced by the materials contributed by family members, which adorned the classroom and contributed to its homely feel. Participant 3 also highlighted the

significance of interconnected support among colleagues, ensuring that educational efforts were synergistic and holistic: “I make sure that I can reach out to other teachers to ask them about their lesson and how I can support and integrate their lesson to agriculture.” This approach enhanced the curriculum's cohesiveness and fostered a culture of collaboration and mutual support. The researcher observed the crucial role that time spent in laughter and shared meals played in enhancing group dynamics. Participant 2 noted the value of eating lunch together to boost morale and provide a listening ear to those who were upset. This camaraderie was pivotal in strengthening the bonds between educators, which in turn radiated to the students, enhancing their confidence and sense of belonging. Participant 1’s message to the researcher further cemented this concept: “What makes my program a success is phenomenal support from my county office, my administration, my faculty in my school, and my family.” This all-encompassing support structure laid the foundation for a thriving educational environment. The poignant interactions with students, exemplified by Participant 1’s reflection, “elementary school kids are lovable...I like to hug,” and the transformative educational moments, “that kid hugs you or cries because now they realize they know what you're talking about,” (Participant 3) were poignant illustrations of the deep emotional connections fostered within this supportive framework. These elements collectively formed a nurturing ecosystem vital for students' holistic development.

Figure 13

Examples 1 and 2 of Confidence Community



Note. Left panel: A motivational quote emphasized the multifaceted nature of building confidence. Right panel: The wall was adorned with pictures of joyful students and notes expressing their affection for the participant.

The “CueCon Horizon” theme encapsulated the broader educational philosophy that recognized the significance of environmental cues and a supportive community in cultivating a holistic learning experience. It emphasized that education was not an isolated endeavor but a collaborative, community-engaged process that thrives on mutual support, emotional security, and relevant environmental interactions. These subthemes collectively underscored the philosophy that a holistic teaching approach extends beyond academic instruction to include

nurturing students' emotional and social competencies, thereby contributing to the development of well-rounded, confident individuals.

RQ2: How do educators perceive and experience the implementation of a holistic teaching approach?

In response to the second research question regarding educators' perceptions and experiences of implementing a holistic teaching approach, the data analysis revealed three pivotal themes: dynamic equilibrium in holistic pedagogy, symbiosis of structure and adaptability, and educator identity, growing through reflection.

Theme 1: Adaptive Pedagogy

The first emergent theme mirrors the educators' systematic yet flexible approach in shaping a welcoming and secure environment for their students. It involves a delicate balance between well-structured planning and the ability to adapt responsively to real-time classroom interactions. This theme embodies the convergence of the "EduSphere Mindset" with the "Rituals of Rigor," (Figure 17), aiming to create learning experiences that resonate with the students' needs and identities. It incorporates practices that consider the prioritization of Maslow's hierarchy of needs (1943), as a precursor to Bloom's taxonomy of learning (Krathwohl, 2002), which Participant 2 encapsulated this adaptive teaching strategy: "Sometimes a lesson doesn't go as planned, so I'm willing to change things as needed." This ability to pivot was a reaction to unforeseen circumstances and a deliberate educational strategy to continuously refine their pedagogical approach. Participant 3's narrative showcased this equilibrium through career experiences that enhanced their teaching philosophy: "After a decade in education, I briefly managed a plantation in Georgia but soon returned to teaching." This breadth of experience provided a unique lens to "extend agricultural education beyond middle school," thus

enriching the curricular offerings. Meanwhile, Participant 5 emphasized on fostering a nurturing and safe educational setting:

I try not to take too much of their time but enough of the time that they learn what the lesson is about. I just kind of make sure that my kids know they're safe when they come in. I want them to come in here and enjoy it. They want to come to class, they want to learn... so they can become a part of the community.

This approach emphasized the critical balance between knowledge acquisition and practical application. Furthering this theme, Participant 4 connected interdisciplinary teaching to broader life contexts: “STEM is agriculture, and it’s everything about our lives...” (Figure 14).

Figure 14

Examples 1 and 2 of Adaptive Pedagogy



Note. Left panel: A video emphasized the significance of agriculture in daily life. Right panel: A participant’s classroom was adorned with materials spanning various disciplines and potential career paths, highlighting the intersection of educational subjects and real-world applications.

Theme 2: Symbiosis of Structure and Ingenuity

The second theme, Symbiosis of Structure, and Ingenuity, suggested that educators navigated a pedagogical path that harmonized established frameworks with innovative, student-centered teaching methods (Figure 15). This fusion embodies the “Rituals of Rigor” and

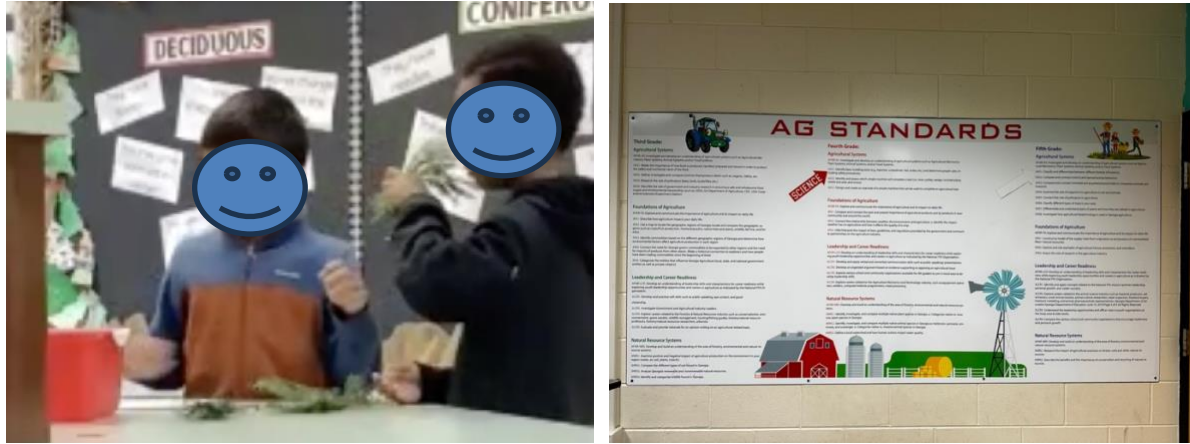
“CueCon Horizon” (Figure 17). Teachers consciously design lessons and activities that nurture students’ cognitive development and originality through experiential learning, utilizing multimodal approaches and multisensory strategies. They strive to adapt responsively to their surroundings while fostering a stimulating learning environment. Participant 1 valued the creative latitude within the guidelines: “We have standards laid out for the semester that we’re free to teach in our way.” This autonomy allowed educators to tailor their instruction to resonate more deeply with their students. Participant 5 demonstrated this by infusing lessons with creativity to fill gaps in the standard curriculum: “I try to incorporate vocabulary and hit things that I think that my teachers might not get to hit.” On the other hand, Participant 2 illustrated a commitment to exceed state standards, reflective of a personal teaching ethos: “I probably do more than required, but that’s how I have always written my lesson plans.” Similarly, Participant 3 described interdisciplinary curriculum development that bridged art, agriculture, and other subjects fostering a holistic education:

While our 5th graders tackle the complex topic of cells, our approach transcends the traditional use of paper and pencil. We culminate the unit with a hands-on, multisensory project: “cell cakes.” This activity not only solidifies their understanding of the cell structure through a tangible and creative process but also integrates mathematical skills as they calculate proportions and measurements. Moreover, the art of decorating these cakes to represent various cell organelles encourages a cross-disciplinary approach, blending science with culinary arts. It’s this kind of interactive learning experience that stays with the students long after they’ve left the classroom, making the process of education both enjoyable and impactful.

This synergistic approach reflects a commitment to create an educational experience that is as enriching and multifaceted as the students themselves, ensuring that learning becomes a tapestry woven from threads of knowledge, creativity, and practical skill.

Figure 15

Examples 1 and 2 of Symbiosis of Structure and Ingenuity



Note. Left panel: Students utilized multisensory approaches to learning, indicative of an adaptable teaching style, using various senses to understand the concept. Right panel: A display of agriculture standards for different grade levels, representing a more structured educational framework. They demonstrate a harmonious blend of structured curriculum with adaptable teaching methods.

Theme 3: Reflective Evolution

The final theme underscored that educators’ identities were continuously shaped by their reflections on teaching practices and student interactions. This theme is the fusion of “EduSphere Mindset” and “CueCon Horizon” (Figure 17). Characterized by engagement, joy, and a focus on goals leading to what John Dewey referred to as “optimal experience” (Rybska & Blaszak, 2020, p. 54). Emphasizing the role of leisure and reflection in educational settings, this theme underscores the significance of carving out time for personal reflection to cultivate a sense of

accomplishment and self-fulfillment. Participant 2 embodies the quest for balance and compassion within the teaching profession:

I ensure I have strategies to protect myself from stress. Many teachers are stressed, but I try to manage it and keep a positive outlook. I go to the gym every morning at 4:30 to prepare for the day. Spirituality helps as well. Remembering that kids need to be active. They need variety in teaching strategies to keep their attention. Seeing the bigger picture is a quality I'm cultivating.

This reflective practice suggested a conscious effort to align professional identity with personal values (Figure 16). Participant 3 spoke about professional growth influenced by both personal passion and systemic involvement: "This experience fueled my passion... I joined the task force to write the curriculum." Here, identity was not only a product of self-reflection but also of active contribution to the field. The transformative nature of teaching was poignantly articulated by Participant 1, who found fulfillment in witnessing student epiphanies: "Seeing the *light bulb* moments in kids... makes me feel effective as a teacher." This emphasizes that happiness is intimately linked to a mindset and the realization of potential and self-fulfillment, which are nurtured within a supportive community.

Reflective Evolution demonstrates that personal growth and professional identity are intrinsically linked within the teaching vocation. Educators' reflections on their experiences in and outside the classroom catalyze an evolution of identity that resonates with their core values and aspirations, contributing to a fulfilling and joyful educational journey.

Figure 16

Examples 1 and 2 of Reflective Evolution



Note. Left panel: Students engaged various senses to grasp concepts, showcasing an approach responsive to diverse learning needs. Right panel: Students were involved in hands-on gardening activities, which spoke to the practical application of knowledge and educators' nurturing role in guiding student exploration and growth.

These themes collectively depicted the educators' nuanced and reflective journey through holistic teaching approaches. The narratives highlighted their commitment to fostering an adaptive pedagogy that centered on creating a welcoming and comfortable learning environment, a precondition for student engagement, and the cultivation of higher-order thinking skills. This approach corresponds with the *"Maslow before Bloom"* philosophy, underscoring the need to meet foundational needs before addressing academic learning (Rybska & Blaszak, 2020, p. 49). Additionally, educators fostered a balance of structure and creativity, intentionally shaping their teaching spaces and methods to enhance student learning. They crafted engaging and thought-

provoking lessons rooted in hands-on learning and diverse, multimodal explorations. Within the reflective evolution, educators found equilibrium, tailoring their teaching environments to reflect their identities, thus fostering a dynamic “*state of flow*” in their professional realms (Rybska & Blaszak, 2020, p. 54). This adjustment promoted an equilibrium between assimilation and accommodation, offering challenges commensurate with their competencies. In this ever-evolving cycle, they nurtured a student-centered educational environment while perpetually refining and redefining their professional identities through continual reflection and experience.

Discussion

The Holistic Teaching Approaches (HTAs) within EAE (Figure 17) delve into the intricate fusion of the “EduSphere Mindset,” “Rituals of Rigor,” and “CueCon Horizon.” These elements are essential in fostering a new era of educational practices that are holistic, interconnected, and imbued with integrated values. Central to this concept is the recognition of the multidimensional nature of human experience, which has been shown to substantially amplify the potential for learning. This phenomenological investigation has illuminated the complex interactions and coalesce between educators’ philosophical paradigm, their habitual actions, and the environment within which they operate. It corroborates the merit of a dynamic educational landscape, which echoes the principles of Bandura’s (1978) Triadic Reciprocal Determinism.

The “EduSphere Mindset” consists of a set of paradigms that shape educators’ belief systems. This includes the “Mindset of Self-Discovery,” which involves the educators’ integration of their personal beliefs and values within their lesson and learning environment. The “Mindset of Progressive Growth” embodies educators’ dedication to continuous growth through self-improvement and adaptability in the face of challenges, emphasizing the de-stigmatization

of making mistakes as this is inevitable in the learning process. The “Mindset of Multidisciplinary Integration” reflects a commitment to weaving academic topics with other disciplines and organizations in the school community.

The “Rituals of Rigor” are intentional practices that educators employ to establish a systematic yet creative environment. This encompasses the “Rituals of Enthusiasm,” innovative practices that elevate interest through simplified, entertaining, creative, and multisensory educational strategies. The “Rituals of Engagement” are techniques that integrate various learning modalities to enrich student involvement and interaction. Lastly, the “Rituals of Empowerment” are those practices that foster trust, transparency, and commitment, thus enabling students to take ownership of their educational journey, thus enhanced classroom climate.

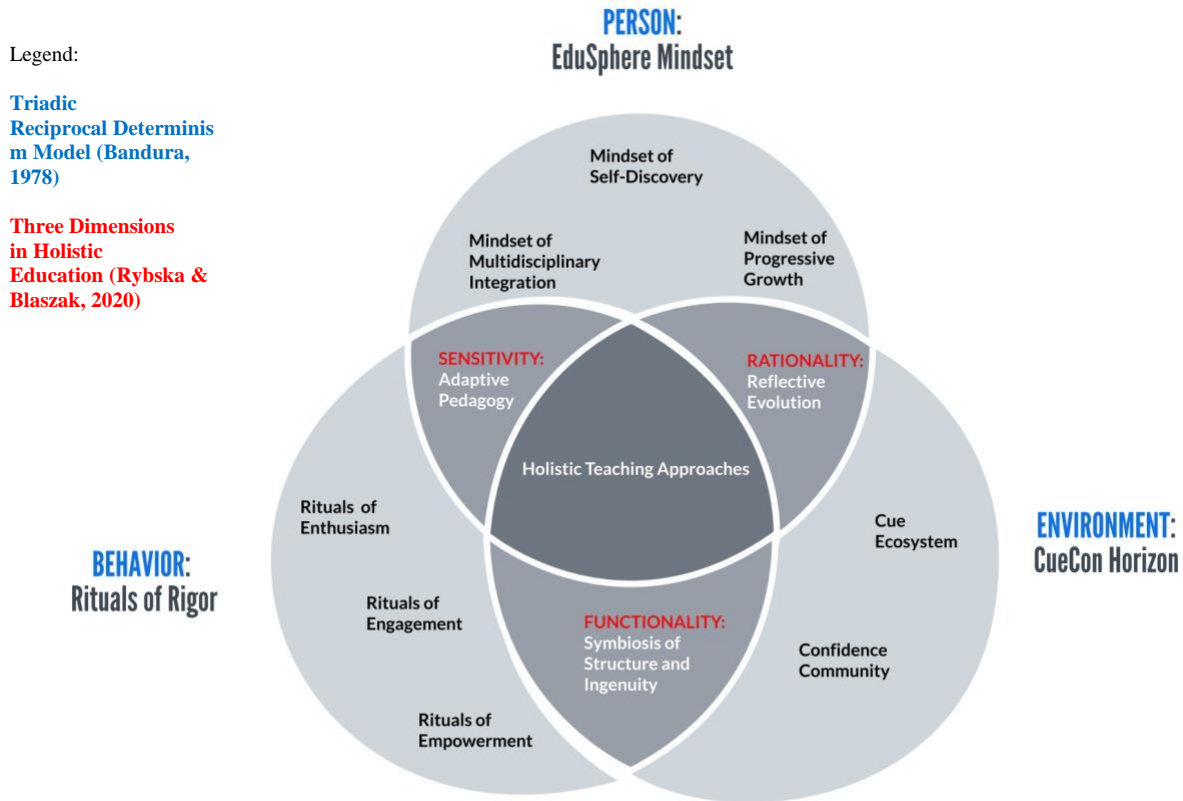
The “CueCon Horizon” encapsulates the cues and the support system within which educators operate. This includes the “Cue Ecosystem,” which consists of both biotic and abiotic elements that serve as constant reminders of educators’ values, beliefs, objectives, and identities. The “Confidence Community” represents the network of support that bolsters self-efficacy and fortifies confidence, thereby harmonizing paradigms with behavior and environmental context.

The characteristics of HTAs are encapsulated in the convergence of three core elements: “EduSphere Mindset,” “Rituals of Rigor,” and “CueCon Horizon.” This convergence aligns with the three dimensions of holistic education, as delineated by Rybska and Blaszak (2020). The fusion of “EduSphere Mindset,” and “Rituals of Rigor” fosters “Adaptive Pedagogy” which is a commitment to creating a learning environment that is grounded in a deep understanding of each student’s needs. This pedagogical approach corresponds with the dimension of *Sensibility*. It underscores activities meticulously designed to cultivate an ambiance of warmth, comfort, and security, which are crucial factors that impel learners to actively engage and immerse themselves

in the educational process (Rybska & Blaszk, 2020). The coalesce of “Rituals of Rigor” and “CueCon Horizon” crystallizes into the “Symbiosis of Structure and Ingenuity.” This synthesis represents an unwavering commitment to harmonize the structured discipline of rigorous academic inquiry with the boundless realms of creativity. It emphasizes the necessity of balancing critical and creative thinking, which are pivotal in fostering neurodevelopment and cognitive advancement. Such pedagogical orientation is aligned with the dimension of *Functionality*. It elucidates aspects of instruction that undergird the scaffolding of social interactions, constructive discourse, cognitive operations, and the elucidation of concepts, which are instrumental in cultivating an environment conducive to meaningful learning (Rybska & Blaszk, 2020). Lastly, the confluence of “EduSphere Mindset” and “CueCon Horizon” culminates in “Refective Evolution.” This pedagogical commitment accentuates the value of metacognition, highlighting the crucial role of self-reflection in the management and navigation of one's educational and professional odysseys. Corresponding to the dimension of *Rationality*, this approach invites reflection upon six cardinal values: care, fairness, loyalty, authority, sanctity, and liberty. It encourages an examination of how these values integrate with the lesson's components, fostering a comprehensive and coherent educational trajectory (Rybska & Blaszk, 2020).

Figure 17

Holistic Teaching Approaches in Elementary Agricultural Education



Note. HTAs figure, through its use of darker colors denotes the blending of these components and symbolizes the dynamic interplay and mutual influence between the EduSphere Mindset, Rituals of Rigor, and CueCon Horizon. Each blend, Adaptive Pedagogy, Reflective Evolution, and Symbiosis of Structure and Ingenuity—illustrates how the thematic elements of HTAs are interwoven and embody the principles of Bandura's (1978) TRD model and Rybska and Blaszak (2020) components of holistic education. Adaptive Pedagogy represents the interaction between personal beliefs in growth (EduSphere Mindset) and behavioral engagement (Rituals of Rigor), Reflective Evolution captures the evolution of personal and environmental factors (EduSphere Mindset and CueCon Horizon), and Symbiosis of Structure and Ingenuity showcases the

harmony between behavioral practices (Rituals of Rigor) and environmental supports (CueCon Horizon).

Grounded in the principles of holistic education, this pedagogical approach seeks to transform the educational environment from the inside out, beginning with the educator's holistic well-being. It posits that educators can create a ripple effect that extends to their students and the wider learning community by cultivating a mindset steeped in beliefs, emotions, values, and attitudes that favor growth and interconnected learning. The HTAs framework is articulated through a trifold structure, that are not standalone concepts; they are interwoven threads that, when combined, create a robust tapestry of educational excellence. At its core, HTAs advocate for a learning environment where reflective practice, interdisciplinary collaboration, and a growth mindset are not just encouraged but embedded in the ethos of teaching.

EduSphere Mindset

Building upon the foundation of the EduSphere Mindset, it has become evident that nurturing educators' mental attitudes is paramount. As delineated by Paxton et al. (2015), the mindset of an individual, comprising beliefs, emotions, values, and attitudes, predicts how one perceives and interacts with the world. Within this context, transformative practices in teaching are brought to the fore, shaped by self-awareness, interdisciplinary insight, and an orientation toward growth that characterizes the EduSphere Mindset. To cultivate such an enriching mindset, several strategies have been proposed:

1. The practice of **Reflective Journals** is advocated to enhance educators' reflexivity and self-discovery. The reflection-in-action model underscores the transformative power of reflective practice, allowing educators to introspectively engage with their professional experiences. This reflective process catalyzes continuous personal and professional development,

enabling educators to critically appraise their teaching methods and student interactions (Zulfikar & Mujiburrahman, 2017).

2. The fostering of **Interdisciplinary Collaboration** through professional learning communities is encouraged. Communities of practice provide a valuable framework for this endeavor, advocating for a collaborative environment where educators can amalgamate and apply knowledge from various disciplines (Klaassen, 2018). This not only amplifies the EduSphere Mindset's focus on multidisciplinary integration but also enriches the educational tapestry with diverse perspectives and approaches.

3. The implementation of **Growth Mindset Training** is essential. Drawing on the work of Dweck (2010), such training equips educators with the psychological tools to persevere through challenges, view setbacks as learning opportunities, and approach teaching with a mindset attuned to continuous improvement before mastery. This paradigm shift is crucial for educators to foster resilience and a lifelong commitment to educational excellence.

These strategies are not merely additive but are integral to actualizing the EduSphere Mindset within the educational landscape. By instilling practices that promote reflection, collaboration, and growth, we not only empower educators but also set in motion a dynamic cycle of learning that benefits the entire educational community.

Rituals of Rigor

Building upon the foundational “EduSphere Mindset,” the study progresses to the practical implementation of this philosophy through the “Rituals of Rigor.” This facet of the HTAs model recognizes the critical role of habit formation in fostering an environment conducive to active learning. A methodical approach is advocated, in which instruction is deconstructed into small, manageable segments, thereby cultivating a cycle of enthusiasm,

engagement, and empowerment. These segments pave the way for a series of targeted activities that challenge students to recall and apply new knowledge, effectively bridging the gap with what has been previously mastered. To cultivate such rituals of rigor, several strategies have been proposed:

1. The **Microteaching Sessions** emerge as a cornerstone strategy. Through microteaching, educators refine their pedagogical techniques within controlled, bite-sized portions of the instructional process. This modality, supported by the findings of de Lange and Nerland (2018), is not merely a teaching tactic but a strategic exercise in enhancing educators' instructional acumen.

2. The **Active Learning Workshops** offer an avenue for educators to cultivate a participatory and empowered learning environment. These workshops serve as a platform for educators to explore and adopt active learning strategies, thereby energizing and enriching the student learning experience. Administrators should encourage teachers to participate in these workshops for continuous improvement and reflection.

3. The integration of **Positive Behavioral Modeling and Support** aligns with the principles set forth by Fogg (2020), proposing a nuanced approach to sustaining effective teaching practices. By embedding prompts and triggers (digital reminder app, professional development checklist, vision boards, etc.) within the educational milieu, educators are continually cued to enact the desired teaching behaviors. This reinforcement is not merely about adherence to routine but about the internalization and embodiment of professional habits that resonate with the aspirations of both the educator and the learner.

CueCon Horizon

Moreover, this study illuminates the crucial role of environmental cues and support systems in education, not merely as pedagogical tools but as pivotal mechanisms for upholding educational coherence and authenticity. Such constructs are essential in harmonizing educational practices with the fundamental identities of both educators and students that remove cognitive dissonance and reinforced perspectives on cultural memory (Mills, 2009; Nazarea & Gagnon, 2022). These environmental elements serve as continuous reminders of our foundational memories and values, forming a sanctuary as described by Nazarea (1998). They act as touchstones that ignite and strengthen our core beliefs, directing us toward a coherent sense of self amidst a complex and interconnected world. By intentionally incorporating these cues into educational settings, we can nurture an atmosphere that consistently reminds educators and students of their inherent values and ambitions, thereby supporting the preservation and evolution of these essential principles. To foster CueCon Horizon, several strategies have been proposed:

1. Transition to Culturally Responsive Pedagogy: As we delve deeper into the significance of environmental cues, it becomes apparent that the adoption of Culturally Responsive Pedagogy is a strategic move to align classroom practices with the rich tapestry of both teachers and students' cultural backgrounds. According to Pirbhai-Illich (2017), this approach is not merely an inclusion of diverse content, but a comprehensive pedagogical shift that ensures all classroom interactions are reflective of and sensitive to the class cultural contexts.

2. Transition to School Culture Initiatives: In tandem with culturally responsive teaching, the development of school culture initiatives stands as a testament to the institution's commitment to its educators' values. By integrating "*values affirmation*" exercises, in which

schools can foster an environment where educators' personal beliefs are echoed, thus supporting their identity and reducing the stress that may arise from a misalignment of values (Wu et al., 2021).

3. Transition to Mindfulness and Well-being Programs: Further reinforcing the CueCon Horizon, the implementation of mindfulness and well-being programs serves as a cornerstone for nurturing educator resilience. Roeser et al. (2013) underscore the transformative impact of mindfulness on educators' stress levels, which in turn, can enhance their ability to create a supportive and empathetic learning environment for students. Such programs might include: professional development workshops on emotional intelligence and resilience to manage stress effectively; providing materials and guidance on self-care practices including yoga, healthy eating, and sleep hygiene; and introduction of a quiet room in schools for teachers to take short breaks during the day to recharge through rest, reflection, or brief meditation.

This dynamism is further exemplified by the concept of self-efficacy, as suggested in Bandura's theory of Triadic Reciprocal Determinism (Bandura, 1978). Self-efficacy is not a static trait; rather, it is a characteristic that fluctuates and evolves through ongoing interactions within the educational environment, as revealed in Article 2 (Chapter 3). The dynamic relationship indicated by Bandura implies that individuals continually develop their sense of self-efficacy through experiences, interactions, and reflections within their educational environments. As such, the HTAs is not just a fixed structure but a living system that adapts and grows with the learners and educators it encompasses.

The HTAs is not just a theoretical construct but a practical guide for educators to enhance their self-efficacy and foster value-driven learning environments. It is a call to action for

educators to embrace a pedagogy that is deeply integrated with their personal and professional identities and dedicated to the holistic development of students in agriculture and beyond.

Conclusions, Implications & Recommendations

This study revealed that a holistic teaching approach within EAE can profoundly influence educators' identities and the educational landscape. By integrating core principles such as the "EduSphere Mindset," "Rituals of Rigor," and "CueCon Horizon," educators not only enhance their self-efficacy but also cultivate learning environments that foster the comprehensive growth of their students. The "EduSphere Mindset" provides a foundation for continuous learning and adaptability, while "Rituals of Rigor" emphasize disciplined practice and reflective pedagogy, ensuring that teaching methods are both thorough and dynamic. The "CueCon Horizon" represents the strategic implementation of cues and supports within the learning environment, which aligns with the bedrock of teachers' memories and core values, promoting a sense of sanctuary and identity coherence.

Moreover, the inclination of teachers to engage with broader societal and environmental concerns underscores the potential of this approach to nurture global citizenship and sustainability. By embodying these principles, educators are better equipped to foster not only academic excellence but also the ethical and empathetic qualities necessary for students to navigate and contribute positively to the complexities of the modern world.

The study's findings have several critical implications:

1. **Educational Policy and Curriculum Design:** Educational policymakers and curriculum designers are encouraged to integrate the findings of this study into the development of curriculum standards and teaching guidelines, recognizing the value of a holistic teaching

approach in fostering an interconnected understanding of agriculture, ecology, and sustainability.

2. **School Culture and Environment:** This study implies that schools should strive to create cultures that value and support holistic educational practices, including the provision of physical spaces that facilitate such learning, like gardens and animal husbandry facilities, which can serve as living laboratories for students.
3. **Community and Stakeholder Engagement:** There is a need for increased engagement with community stakeholders to enrich the educational experience, as this study indicates the success of holistic teaching approaches often relies on a supportive and involved community.
4. **Mental Health and Emotional Well-being:** The findings imply that teacher well-being is crucial for the successful implementation of holistic teaching approaches. Schools must establish support systems that prioritize educators' mental health, including opportunities for engagement with nature, which can have therapeutic benefits. This could include organizing annual nature retreats for team building and conducting stress management workshops,

Recommendations for Practice

1. **Professional Development in Holistic Education:** Institutions should proactively invest in professional development programs that underscore the "EduSphere Mindset," "Rituals of Rigor," and "CueCon Horizon." Such programs would aim to merge educators' personal values with their instructional methodologies, thereby bolstering self-efficacy and nurturing an all-encompassing learning environment.

2. **Enhancing Classroom Environments:** Educational leaders are encouraged to facilitate classroom settings that abound with relevant stimuli, such as local flora, fauna, and agricultural instruments. Such enriched environments would serve to connect students more deeply with the content and the world around them while creating an environment more conducive for active learning.
3. **Building Support Networks:** It is imperative to cultivate formidable support networks within school communities. This can be achieved through mentorship programs, collaborative teaching initiatives, and professional learning communities, all centered around the shared ethos of collective advancement and holistic education.
4. **Emphasizing Experiential Learning:** Teachers should be empowered to embed experiential learning within their pedagogy, leveraging field trips and practical engagements with local agricultural entities to solidify students' understanding and appreciation of the subject matter.
5. **Inclusion and Diversity Pedagogy in Pre-Service Education:** It is recommended to incorporate courses on inclusive strategies and diversity pedagogy in pre-service teacher programs. Such courses would prepare future educators to create and manage classrooms that not only acknowledge but celebrate diverse cultures and perspectives. This training should be designed to equip teachers with the competencies required to deliver curricula that honor and reflect the varied backgrounds and heritages of both students and educators. The aim is to ensure that each individual's culture and history are acknowledged and esteemed in the educational environment, contributing to a rich and multifaceted learning experience.

Recommendations for Future Research

1. **Longitudinal Studies on Holistic Practices:** Future research could focus on longitudinal studies that assess the impact of holistic educational practices on student outcomes and teacher retention over time. Such studies would help in understanding the sustained effects of such approaches on the emotional, social, and academic development of both educators and students.
2. **Neuroscientific Research in Agricultural Education Contexts:** There is a need for more neuroscientific research to explore the relationship between neuroplasticity, habit formation, and the teaching-learning process. Such studies could deepen our understanding of how agricultural teachers can optimize learning environments and instructional strategies.
3. **Comparative Studies Across Different Educational Settings:** Conducting comparative studies across various geographic locations and school settings could provide insight into how the “EduSphere Mindset” adapts to different cultural and environmental contexts.
4. **Investigating the Role of Technology:** Future research should investigate the role of technology in supporting holistic teaching practices. This includes the use of social media and other digital platforms to enhance community involvement and learning experiences.
5. **Quantitative Analysis of Holistic Practices:** To complement the qualitative findings of this study, future research should include quantitative analyses to measure the effectiveness of holistic teaching strategies and their direct correlation with student achievement and well-being.
6. **Teacher Training in Curriculum Reform:** Research could also be directed toward assessing the impact of holistic teaching approaches embedded within teacher training

curricula. This would provide a framework for teacher education programs to incorporate these strategies from the onset of an educator's career.

The *Holistic Teaching Approaches* model offers an organizing framework that includes the "EduSphere Mindset" – educators' belief systems, "Rituals of Rigor" - their practices, and the "CueCon Horizon" - the cues and support systems within which they operate (see Figure 17). This framework is designed to explicitly integrate and manifest holistic education teaching beliefs, practices, and environments within applied fields. As educators adopt these approaches, they embark on a transformative journey that blends adaptive pedagogy, creative design, and deep self-awareness of the learning process. This fosters an environment where the holistic growth of both educators and students is paramount.

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CHAPTER 5

This dissertation has illuminated the multifaceted dimensions of teaching within the context of Elementary Agricultural Education (EAE) in shaping educational trajectories, emphasizing the well-being of teachers as a central component of the Holistic Teaching Approaches (HTAs). This approach prioritizes the “whole person” development of students. It underscores teachers' essential well-being and professional fulfillment that resonates with their identity and has been shown to impact student success significantly. To date, more studies have been conducted that focus on students than have been conducted on teachers' wellbeing (Anderson & Graham, 2015; Burns et al., 2020). This dissertation has critically examined three original articles. It has identified and scrutinized the multifaceted barriers and growth opportunities within EAE, elucidating their implications for teacher self-efficacy, well-being and pedagogical innovation.

Article 1: Navigating Challenges and Opportunities

The intricate interplay between personal fortitude and professional environments shapes the efficacy and adaptability of teachers in Elementary Agriculture Education. As teachers navigate the multifaceted landscape of EAE, they encounter barriers that may be formidable to some but serve as catalysts for growth for others. Financial constraints, limited class time, and behavioral challenges emerge not merely as obstacles but as opportunities for educators to refine their practice and reinforce their belief in their capabilities. Findings from this study indicate that a lack of resources necessitates creativity in lesson implementation, while time constraints demand efficiency and innovation in pedagogy. Furthermore, the behavioral dynamics of

students, particularly in the post-pandemic classroom, require a reimagining of classroom management strategies to foster a conducive learning environment. Efforts to surmount these barriers, as revealed by the participants' experiences, will influence the positive impact of teacher collaboration on self-efficacy. Additionally, the adoption of diverse teaching strategies and the crucial support of the community and administrators play a pivotal role in bolstering teacher resilience and adaptability.

The study's insights extend to the implications of barriers to self-efficacy, with less experienced teachers often perceiving challenges as more insurmountable. In contrast, their more experienced counterparts focus on problem-solving and goal attainment, aligning with the assertion made by Carrinus et al. (2012) that there is a correlation between experience and effectiveness. Elementary students thrive on experiential learning, and it is through this lens that EAE provides a rich context for real-world engagement. Teachers' beliefs and practices are instrumental in bridging academic content with practical application, ensuring that students learn and demonstrate they can apply their knowledge meaningfully. This study underscores the profound importance of EAE in cultivating inquiry skills and deepening students' understanding of agriculture's relevance to daily life.

Article 1 of this dissertation presents a compelling case for empowering EAE teachers through strategically navigating professional challenges. It affirms the transformative power of embracing barriers as pathways to enhance self-efficacy and pedagogical prowess, ultimately contributing to the development of educators who are as resilient as reflective and students who are as engaged with the world around them as they are with the curriculum before them. These insights underscore the importance of professional development initiatives that equip educators

with effective strategies for overcoming challenges and managing classroom behavior, fostering an environment conducive to teaching excellence and student success.

Article 2: Factors Influencing Teaching Self-Efficacy

Article 2 of the dissertation examined the determinants that shape educators' self-efficacy within the Elementary Agricultural Education (EAE) domain. The analysis illuminates the pivotal role that supportive environments and progressive teaching practices play in cultivating the cultural ethos of EAE, thereby enriching students' educational journeys across an extensive curricular gamut (Vainio et al., 2020). Educators' commitment is instrumental in bolstering student engagement, with research indicating that teacher enthusiasm, adeptness, and adaptive capabilities, underpinned by a profound vocational calling, significantly elevate the caliber of student learning outcomes.

The findings of this study accentuate the essentiality of deliberate efforts to nurture relational dynamics within the school community. These efforts include establishing open lines of communication, promoting collaborative professional development sessions, and creating mentorship programs that encourage shared experiences and building relationships. It posits that teacher self-efficacy is not an isolated construct but a collective endeavor that amplifies the significance of fostering a robust community network. The participants' narrative in this investigation echoes the sentiment that EAE extends beyond the traditional classroom setting, with students assuming the role of agricultural emissaries, as delineated by the study's respondents.

Furthermore, the research highlights the intrinsic value imbued within agricultural education, which serves to deepen pedagogical approaches, thereby augmenting the learning

experience and amplifying student engagement. Participants in this study revealed values such as stewardship of the environment, the importance of sustainable living, the appreciation of the ecosystem, and the indispensable role of teamwork and collaborative effort. Ultimately, the success of EAE is contingent upon aligning educator values with malleable pedagogical methodologies and a supportive learning infrastructure.

Article 3: The Lived Experiences of Implementing the HTAs

Article 3 offered a phenomenological insight into the lived experiences of educators implementing a Holistic Teaching Approaches (HTAs), examining how this approach transforms their teaching environments and belief systems, ultimately enhancing their self-efficacy and the educational landscape at large. The HTAs is an educational strategy that prioritizes the “whole person” development of students while simultaneously emphasizing the well-being of teachers. This strategy is poised to cultivate a holistic educational experience, equipping teachers with the essential knowledge, skills, and values to develop adaptability and resilience and foster an engaging and effective teaching environment. Prior to this study, the HTAs had not been examined in the context of elementary agricultural education.

The major findings have been encapsulated in the HTAs, an integrated pedagogical framework in the context of EAE. This approach involves an intricate fusion of the three core components: the “EduSphere Mindset,” which is the educators’ belief system; “Rituals of Rigor,” which is their habitual actions; and “CueCon Horizon” that includes the cues and the support system in the environment within which they operate to foster an educational paradigm that values wholeness and interconnectedness. This approach, encapsulated in Figure 17, aligns with Miller et al. (2016) concept of wholeness and Bandura’s (1977) Triadic Reciprocal Determinism theory, emphasizing the complex interplay between educator mindsets, consistent

pedagogical practices, and supportive environmental cues. The “EduSphere Mindset” influences educators’ perceptions and actions, challenging them to transcend their limitations and embrace self-discovery, integration, and growth. The “Rituals of Rigor,” informed by Allsop et al. (2020) and Fogg (2020), advocates for structured, engaging learning activities that reinforce knowledge and encourage active participation.

Meanwhile, the “CueCon Horizon” underscores the importance of environmental cues and support systems, as highlighted by Nazarea (1998), in maintaining educational authenticity and reinforcing a coherent sense of identity for educators and students alike. These elements of HTAs collectively aim to create a resonant, value-driven educational experience that nurtures a sense of identity and purpose within the agricultural education landscape. When the educator implements the HTAs, students will likely benefit positively (Hascher & Waber, 2020; Miller, 2019).

The HTAs in EAE is presented as a strategy that fosters an educational experience that values teacher and student wellbeing. This aligns with the work of Mezirow (2018), who emphasizes the importance of reflective and adaptive teaching practices. This approach equips teachers with resilience and adaptability, crucial for creating an engaging and effective learning environment (Fullan, 2016).

Conclusion

This dissertation has illuminated the transformative potential of the Holistic Teaching Approaches (HTAs) within the EAE classroom in Georgia. By embracing the HTAs, comprised of the “EduSphere Mindset,” “Rituals of Rigor,” and “CueCon Horizon,” educators are empowered to employ the “whole person” development of both teachers and learners and actively prioritize and safeguard their wellbeing. HTAs equips teachers with the necessary

knowledge, skills, and values to nurture the “whole person,” fostering a symbiotic growth of cognitive, psychological, physical, emotional, and social well-being. This approach revitalizes the teaching profession and enhances the educational experience for students, ensuring that educators are well-prepared to deliver a comprehensive education.

The findings herein advocate for an educational renaissance that prioritizes empathy and innovation, one that understands teaching not merely as a transfer of knowledge but as a practice that enriches human resilience and well-being. The complexities of today’s educational landscape demand an integrative strategy that transcends conventional methods and resonates with the core of human potential. The holistic teaching approach advocated in this study extends beyond psychological aspects; it appreciates the intricate connection between cognitive functions and physical health, emphasizing the role of biological and environmental factors in optimizing educational outcomes. By fostering environments that support mental and physical health, EAE classrooms can become a space that nurtures and promotes effective teaching and learning. These classroom spaces can become more supportive if educators include physical elements such as plants that students tend to, animals that inspire curiosity and responsibility, taxidermy that preserves the history of wildlife, seeds that symbolize growth and potential, agricultural products like cotton that connect to the local industry, family pictures that evoke a sense of community, memories from previous students that build legacy, awards that recognize achievements, and motivational quotes that inspire daily effort. This dissertation underscores the importance of incorporating principles of dynamic development into preservice and in-service teacher education, positing that such an integrated model is essential for preparing educators capable of navigating the challenges of the modern educational milieu.

The call for action is clear: educational institutions must adopt and implement holistic methodologies to cultivate resilient, adaptable, and engaged teachers who, in turn, can develop students equipped to face the complexities of our contemporary world. The HTAs within EAE not only hold promise for educational reform but also for societal and environmental progression. It is a call to empower the educational community and nourish the roots of a system that will bear the fruit of societal transformation.

Through its qualitative exploration and empathetic engagement, this study advocates for adopting EAE to enhance pedagogical practices and cultivate environmentally conscious and socially responsible citizens. In the face of increasing teacher stress and its harmful effects on educators' health and student outcomes, a reformed educational practice is imperative—one that places the well-being of educators at the forefront. By fostering an equilibrium between professional duties and personal well-being, educational policies can create an ecosystem where educators thrive and, by extension, facilitate a responsive and dynamic educational environment for their students.

Pursuing a holistically nurtured educational community is not simply an ideal; it is a necessary stride toward cultivating a resilient and flourishing future for educators and students alike. As this dissertation posits, integrating holistic educational principles is the cornerstone of a robust and responsive educational system that upholds all participants' dignity, potential, and well-being.

Recommendations

Recommendations for Practice

For Preservice Teacher Educators, intentional course design and lesson planning are crucial to embedding the Holistic Teaching Approaches (HTAs) principles within Elementary

Agricultural Education (EAE). Here are examples of courses or lessons that should be prioritized based on the findings presented here:

Courses to Prioritize:

1. **Dynamic Mindset and Adaptive Pedagogy:** A course that delves into the psychological underpinnings of mindset and adaptation in teaching. Lessons could involve interactive simulations, scenario analyses, and critical reflection activities that enable preservice teachers to cultivate and apply a dynamic mindset to themselves and foster the same in their students, emphasizing the agility required in modern education.
2. **Reflective Practice and Instructional Innovation:** This course would encourage preservice teachers to develop and refine their reflective teaching methodologies. Instruction would be focused on creating lesson plans enriched with formative assessments, integrating student feedback systems, and employing interactive teaching techniques to nurture a cycle of perpetual pedagogical enhancement.
3. **Integrative Environmental and Social Foundations in Education:** A course aimed at equipping preservice teachers with the ability to discern and respond to the complex interplay between environmental factors and societal dynamics that influence student learning. Lessons should encompass project-based community engagement, critical analysis of societal trends affecting student welfare, and the design of educational settings that are both inclusive and conducive to learning.

To advocate for the widespread adoption of EAE across all states, the following strategies could be emphasized for in-service teacher training:

1. **Interdisciplinary Integration:** Offer workshops and lessons demonstrating how agricultural concepts can be integrated across various subjects such as science,

economics, and environmental studies, making a case for the versatility and relevance of EAE.

2. **Community Engagement and Outreach:** Create lessons on building partnerships with local farms, agricultural businesses, and community organizations to showcase the practical benefits and community support for EAE, bolstering the argument for its adoption and involvement of community stakeholders on teacher advisory committees.
3. **Research and Evidence-Based Practice:** Encourage action research projects that allow preservice teachers to investigate the benefits of EAE in the classroom, providing empirical evidence to support its effectiveness and necessity.

By incorporating these courses and lessons into teacher preparation programs and emphasizing the practical and societal benefits of EAE, educators and policymakers can be better equipped to champion the cause of EAE and its adoption at a wider state level.

Recommendations for Research

The present study has laid a foundational understanding of the HTAs within the context of EAE. However, future research should focus on several areas to continue the advancement of this educational model:

1. **Effects of HTAs Workshops on Teacher Self-Efficacy:** Investigate the impact of HTAs -focused professional development workshops on teachers' self-efficacy. This research should aim to quantify changes in teacher attitudes, confidence, and instructional practices following their participation in HTAs workshops.
2. **Teacher Empowerment through Community Support Networks:** Study the development of community support systems for EAE teachers and the subsequent impact on teacher self-efficacy and empowerment. This research would examine how

community involvement and support can buffer against professional stress and contribute to a positive school culture.

3. **Contextual Variations in EAE Implementation:** Investigate how EAE is implemented across different educational contexts—urban, suburban, and rural settings—and examine each context's unique challenges and opportunities. This research should consider factors such as community involvement, resource availability, and socio-economic conditions that differ by context. This approach would provide a nuanced understanding of how EAE can be adapted and optimized to meet specific needs and leverage the strengths of each educational setting.
4. **EAE's Influence on Agricultural Education Trajectories:** Explore the broader impact of EAE on the trajectories of agricultural education, including curriculum development, student career interests, and the role of agricultural education in promoting sustainable practices. Research could track longitudinal outcomes for students participating in EAE programs to determine how it influences their educational and career paths.
5. **Effects of EAE on Teacher Recruitment and Retention:** Assess how the implementation of EAE affects the recruitment and retention of teachers, particularly in agricultural education. This research could explore whether the HTAs and EAE models make the profession more attractive to prospective educators and examine the retention rates of teachers trained in and practicing EAE.
6. **Quantitative Measures of Classroom Environment:** Develop and utilize quantitative tools to measure the impact of the physical classroom elements, such as plants, animals, and agricultural products, on student engagement and learning. These studies should aim

to create validated scales that can reliably assess the influence of such elements on educational outcomes.

7. **Teacher Professional Development Evaluation:** Assess the effectiveness of the recommended courses and training programs for preservice and in-service teachers to refine and optimize professional development in EAE. This research should explore the relationship between professional growth, teacher performance, and student success in EAE settings.

Future research can address these areas and contribute to a comprehensive understanding of EAE's role in shaping the educational landscape, supporting educators, and preparing students for future challenges within the agricultural sector and beyond.

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APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL FOR ARTICLE 1



Tucker Hall, Room 212
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Human Research Protection Program

EXEMPT DETERMINATION

October 22, 2021

Dear [Nicholas Fuhrman](#):

On 10/22/2021, the Human Subjects Office reviewed the following submission:

Title of Study:	Barriers in Elementary Agricultural Education in Georgia
Investigator:	Nicholas Fuhrman
Co-Investigator:	Maria Helm
IRB ID:	PROJECT00004695
Funding:	None
Review Category:	DHHS – Exempt 2(ii)

We have determined that the proposed research is Exempt. The research activities may now begin. Since this study was determined to be Exempt, please be aware that not all future modifications will require review by the IRB. For more information, please see Appendix C of the [Exempt Research Policy](#). As noted in Section C.2, you can simply notify us of modifications that will not require review via the “Add Public Comment” activity.

A progress report will be requested prior to 10/22/2026. Before or within 30 days of the progress report due date, please submit a progress report or study closure request. Submit a progress report by navigating to the active study and selecting Progress Report. The study may be closed by selecting Create Version and choosing Close Study as the submission purpose.

In conducting this study, you are required to follow the requirements listed in the [Investigator Manual \(HRP-103\)](#).

Sincerely,

Benilda P. Pooser, Ph.D., CIM
Director, Clinical Research Compliance

APPENDIX B

INSTITUTIONAL REVIEW BOARD APPROVAL FOR ARTICLE 2



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Human Research Protection Program

EXEMPT DETERMINATION

May 5, 2022

Dear [Nicholas Fuhrman](#):

On 5/5/2022, the Human Subjects Office reviewed the following submission:

Title of Study:	Effective Teaching Practices for Elementary Agriculture Educators: A Modified Delphi Panel Approach
Investigator:	Nicholas Fuhrman
Co-Investigator:	Maria Helm
IRB ID:	PROJECT00005583
Funding:	None
Review Category:	DHHS – Exempt 3(B)

We have determined that the proposed research is Exempt. The research activities may now begin. Since this study was determined to be Exempt, please be aware that not all future modifications will require review by the IRB. For more information, please see Appendix C of the [Exempt Research Policy](#). As noted in Section C.2, you can simply notify us of modifications that will not require review via the “Add Public Comment” activity.

A progress report will be requested prior to 5/5/2027. Before or within 30 days of the progress report due date, please submit a progress report or study closure request. Submit a progress report by navigating to the active study and selecting Progress Report. The study may be closed by selecting Create Version and choosing Close Study as the submission purpose.

In conducting this study, you are required to follow the requirements listed in the [Investigator Manual \(HRP-103\)](#).

Sincerely,

Benilda P. Pooser, Ph.D., CIM
Director, Clinical Research Compliance

APPENDIX C

INSTITUTIONAL REVIEW BOARD APPROVAL FOR ARTICLE 3



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Human Research Protection Program

EXEMPT DETERMINATION

November 14, 2023

Dear [Nicholas Fuhrman](#):

On 11/14/2023, the Human Subjects Office reviewed the following submission:

Title of Study:	Holistic Teaching Behaviors Among Elementary Agriculture Educators
Investigator:	Nicholas Fuhrman
Co-Investigator:	Maria Helm
IRB ID:	PROJECT00008399
Funding:	None
Review Category:	Exempt 1, Exempt 2(ii)

Materials reviewed: Submission form, training records, [Recruitment email](#), [Consent letter](#), [Guide Questions](#), [Observation Guide](#)

We have determined that the proposed research is Exempt. The research activities may begin 11/14/2023.

Note: School authorization from an authorized official must be obtained before research activities may take place at school. This must be submitted for review via a modification to add the External Site and upload the site authorization. Please utilize [Template - School Authorization to Conduct Research 2018.docx\(0.03\)](#)

Since this study was determined to be exempt, please be aware that not all future modifications will require review by the IRB. For more information please see Appendix C of the Exempt Research Policy (<https://research.uga.edu/docs/policies/compliance/hso/HRP-033-ExemptResearch.pdf>). As noted in Section C.2., you can simply notify us of modifications that will not require review via the "Add Public Comment" activity.

APPENDIX D

INVITATION TO PARTICIPATE

TOPIC: A Phenomenological Study of Elementary Agriculture Education Teachers in Successful Implementing of Holistic Teaching Approach

Subject: Participate in a Research Study

Dear <Prospective Participant>,

My name is Maria Helm, and I am passionately pursuing my Ph.D. at the University of Georgia in the Agriculture Leadership, Education & Communication Department. Under the esteemed guidance of Dr. Nick Fuhrman and Dr. Kris Irwin, my focus has turned towards an intriguing and vital subject: the Holistic Teaching Approach in EAE. This study seeks to pinpoint the multifaceted elements that drive effective teaching in Elementary Agriculture Education (EAE). I am eager to discern the distinct tools, strategies, and activities you employ in the classroom that not only help you achieve your teaching objectives but also support your well-being.

Your vast experience and insights as a respected EAE educator have the potential to profoundly shape the future direction of this educational paradigm. The prospect of partnering with you in this pivotal research is both an honor and a privilege.

Why Should You Consider? By collaborating, not only will you be playing a fundamental role in pioneering research, but you'll also have the opportunity to reflect on your unique teaching approach, gaining fresh insights that could further enrich your pedagogic strategies.

Here's What Your Enlightening Contribution Would Entail:

1. **Teaching Materials Exhibit:** Share a lesson plan and worksheet that you believe embodies your EAE teaching philosophy.
2. **Classroom Glimpse:** A brief 15–20-minute classroom observation to delve into the heart of your teaching style and the dynamic with your students.
3. **Virtual Exchange:** Engage in a 45 to 60-minute Zoom interview. This intimate conversation will be a platform for you to voice your experiences, beliefs, and aspirations. With your consent, this will be audio and video recorded to guarantee a thorough and accurate documentation of our discussion.

If you would like to request additional information about this study, please feel free to send email to maria.helm@uga.edu.

Thank you for your consideration!

Sincerely,

Maria Helm
301-710-8572

APPENDIX E

CONSENT LETTER

UNIVERSITY OF GEORGIA CONSENT LETTER

A Phenomenological Study of Elementary Agriculture Education Teachers in Successful Implementing of Holistic Teaching Approach

Dear Participant,

My name is Maria Helm, and I am a Ph.D. candidate in the Agriculture Leadership, Education & Communication Department at the University of Georgia under the supervision of Dr. Nick Fuhrman and Dr. Kris Irwin. As part of my dissertation, I am conducting a research study about **Holistic Teaching Approach** in Elementary Agriculture Education (EAE). I am inviting you to take part in a research study. I am looking for current EAE teachers in Georgia, male or female, and with at least one year of teaching experience in EAE.

Your invaluable contribution to this study would entail:

1. **Submission of Representative Teaching Materials:** Kindly share a lesson plan and a worksheet that exemplify your instructional approach in the EAE curriculum.
2. **Classroom Observation:** Allow for a brief observation, spanning 15-20 minutes of your instructional session to gain insights into your teaching methods and student interactions.
3. **In-depth Interview:** Participate in an interview, projected to last between 45 to 60 minutes. The session will be conducted on over Zoom. With your permission, the interview will be audio and video recorded to allow us to capture your responses accurately.

Participation is voluntary. You can refuse to take part or stop at any time without penalty. Your decision to participate will not impact your participation in any programs.

Some questions may make you uncomfortable. You can skip these questions if you do not wish to answer them. Your responses will uncover how personal experiences, teaching environments, and daily behaviors intertwine to define holistic teaching practices for EAE educators like yourself. Your insights will be instrumental in this groundbreaking research.

The audio and video recordings will be destroyed after these have been transcribed. Research records will be labeled with study IDs linked to you by a separate list that includes your name. This list will be destroyed once we have finished collecting information from all participants. De-identified information from this research may be used for future studies (or shared with other researchers) without your additional consent.

This research involves the transmission of data over the Internet. Every reasonable effort has been taken to ensure the effective use of available technology; however, confidentiality during online communication cannot be guaranteed.

If you are interested in participating or have questions about this research, please contact me at 3017108572, maria.helm@uga.edu, or my advisers Dr. Nick Fuhrman at 352-226-1199, fuhrman@uga.edu, Dr. Kris Irwin at 706-542-7412, kirwin@uga.edu. If you have any complaints or questions about your rights as a research volunteer, contact the IRB at 706-542-3199 or by email at IRB@uga.edu.

Please keep this letter for your records.

Sincerely,

Maria Helm

Page 1 of 1

APPENDIX F

INTERVIEW PROTOCOL

Basic Information

Title: A Phenomenological Study of Elementary Agriculture Education Teachers Experience with the Holistic Teaching Approach

Objective: To empathetically unravel the journey of EAE teachers as they navigate through their experiences, beliefs, and perspectives regarding holistic teaching approaches.

Participants: Six to ten EAE teachers, identified through criterion-based sampling for having at least one year of teaching experience and exhibit high self-reported self-efficacy and social-emotional tendencies.

Method: Semi-structured, one-on-one interviews conducted either in-person, via Zoom, or in a convenient or neutral location, depending on the participant's preference and availability. Interviews will be audio-recorded and transcribed for data analysis purposes.

Duration: Each interview is expected to last 45 minutes to 1 hour.

Interview Topics: The interview questions will cover personal, behavioral, and environmental factors that influence the implementation of holistic teaching approaches in EAE. Topics will include personal beliefs and values, past experiences, self-efficacy, emotional intelligence, teaching strategies and techniques, classroom management, relationships with colleagues and school administration, and the influence of policy and curriculum guidelines.

Data Analysis: The Phenological Descriptive and Interpretative Transpersonal Analysis (PDITA) will be employed to identify patterns and themes emerging from the interview data. Transcripts will be coded, and themes will be developed iteratively through an abductive process, allowing for discovering unexpected insights. PDITA provides a structured and systematic approach to analyze, interpret, and report patterns and themes in the qualitative data collected from the interviews.

Confidentiality: Participants' identities will be kept confidential, and pseudonyms will be used in the final report to ensure anonymity.

Ethical Considerations: Participants will be provided with an informed consent form outlining the purpose of the study, data collection procedures, potential risks and benefits, and their right to withdraw from the study at any time without any consequences. Ethics approval will be obtained from the University of Georgia review board before the study begins.

APPENDIX G

INTERVIEW GUIDE

Date: _____ Location: _____
Interviewee: _____ Pseudonym: _____

Introduction: Thank you for participating in this study. We are exploring the holistic teaching phenomenon in Elementary Agriculture Education (EAE). Your insights will help us better understand the experiences of educators implementing an effective teaching approach. Please feel free to provide as much detail as you are comfortable sharing.

Before we begin,

You need to know that this interview will be audio-recorded, with your consent, to ensure that I will be able to capture information you provide. All the information you share during the interview will be kept confidential, and any identifying details will be removed from the final report. Your participation in this study is voluntary, and you may withdraw at any time without any negative consequences.

If you are comfortable with the interview process, please state that you agree and we can begin the interview.

Holistic Teaching

1. Tell me about you, how long you have been teaching EAE and why did you decide to be in this role?
 - You mentioned _____. Can you tell me more about that?

Environmental Factors:

2. Pretend that I have never had the chance to step into your classroom. Can you describe to me how it looks? Why did you choose to set it up that way?
 - What feelings or intentions guided those choices?
3. At the elementary level, Ag Ed is still a novel concept. From your experiences, how has the EAE model of teaching been beneficial for your students, if at all, in your opinion?
 - Think of a time when you experienced a special, observable benefit of EAE and describe in as much detail as possible.

Behavioral Factors:

4. Could you share some of the things you do that you feel are absolute game-changers?
 - And on the flip side, have there been approaches or methods that you've learned to avoid?
5. Can you describe some routines or practices you've established in your classroom? They could occur on a daily, weekly, or even monthly basis.
 - What motivations or reasons underpin these practices?
 - Were there any particular individuals or experiences that influenced your adoption of these routines and practices?

Personal Factors:

6. As educators, we know our past plays a powerful role in shaping our present. Diving deep into your teaching memories, are there standout moments or experiences, especially from your own student days, that still resonate with you?
 - How do these memories influence your current teaching approach?
7. In terms of providing all-rounded support to students – be it physical, social, emotional, or mental – what techniques do you rely on?
 - You mentioned _____; tell me more about it.

Closing:

8. If there is a “holistic teaching basket” and I ask you to put all the factors necessary to teach holistically, what would you put in the basket?
 - EMOTIONAL: You mentioned ... (confidence/ excitement /joy/ empathy/ gratitude/ fear/ anxiety/ curiosity) ...can you elaborate on how that plays a role?
 - SOCIAL: You also mentioned... (peer support/ feedback/validation/ collaboration) ...can you elaborate on how that plays a role?
 - PHYSICAL: You highlighted aspects like ... (physical activity/ hands-on learning/movement breaks/ kinesthetic experiences) ... can you delve deeper into how these physical components shape HTA?
 - PSYCHOLOGICAL: You pointed out factors such as (mindset/resilience/motivation/self-awareness/ introspection) ... can you explain this more.
9. How do you take care of yourself. What do you think, do or surround yourself with to make sure that you take care of yourself too?

I appreciate your thoughtful responses and the time you've dedicated today. Is there anything else you'd like to share that we haven't discussed?

Thank you.

APPENDIX H

OBSERVATION GUIDE

(to be used in participant observation and document analysis)

Note to observer: This guide is a reference based on key holistic teaching elements from the literature. HTA is about a balanced approach not just the presence of certain items. Context and individual approaches matter. Seek to understand how they come together and work in tandem to indicate the degree to which HTA is occurring.

Checklist

Personal	check (√)	Behavioral	check (√)	Environmental	check (√)
Family picture		Check-ins/time built into lesson plan for check-ins		Student work display	
Hobby/sport references		Rules or expectations		Sensory space corner	
Previous/current students' artifacts displayed		T/S engaged in dialogue		Indoor plants or pictures of nature	
Personal goals/Vision boards		Routines		Home-based and flexible seating	
Personal achievement/milestone		Collaborative problem-solving activities occurring or planned		Spaces dedicated to quiet reflection or relaxation	
Books (focused on growth, motivation, teaching strat., etc.		Peer teaching or mentorship experience		Diverse multicultural resources (books, artifacts, posters etc)	
Classroom decorations (arts, crafts or DIY)		Process praise		Technology and tools that are age appropriate	

Photos or mementos from educ trips or conferences		Positive reinforcement		Group seating/ Open layout	
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Personal Factors Observation Checklist

Observation Point	check (✓)	Comment
In the classroom		
Presence of activities where students collaborate such as: <ul style="list-style-type: none"> - table arranged in clusters. - shared resources - interactive whiteboards - visual aids for group roles - work displayed in pairs/groups. - guidelines and norms 		
Dedicated areas for students to display personal achievements such as: <ul style="list-style-type: none"> - bulletin boards with personal achievements - wall of fame (photographs, articles and descriptions) - portfolio corners - student led presentations. - feedback stations. 		
Evidence of teachers giving real-time, constructive feedback such as: <ul style="list-style-type: none"> - verbal affirmations - clarifications request - immediate error corrections - use of annotation tools (highlighters, pens) - modeling the correct answer. 		
Observable behaviors where the teacher tries to grasp individual student interests and abilities/incorporate them into the lesson/discussion such as: <ul style="list-style-type: none"> - interactive discussions (asking questions about their personal 		

<p>experiences or interest related to the topic)</p> <ul style="list-style-type: none"> - show and tell sessions - regular check-ins - use of anecdotes - flexible groupings (based on interest related to topic) - project based learning (students propose/select projects that align with their interest) 		
In the Lesson Plan/Worksheet		
Sections where students can highlight personal achievements.		
Activities that promote group collaboration.		
Directions that suggest a gradual introduction of content materials.		
Recommendations for teachers to gather details on students' individual interests and abilities.		

Behavioral Factors Observation Checklist

Observation Point	check (√)	Comment
In the classroom		
<p>Time allocated for either personal or group explorations such as:</p> <ul style="list-style-type: none"> - independent study blocks (schedule where student work independently) - collaborative workspace (areas/space where students can gather and collaborate on projects/discussions) - exploration journals/notebooks for reflections, journeys and findings) - project boards (boards showcasing ongoing projects, tasks..) 		

<ul style="list-style-type: none"> - showcase events (such as science fairs, exhibitions). - Time management tools (such as timers, clocks, digital tools) 		
<p>Engagement in open-ended discussions, questions, or prompts such as:</p> <ul style="list-style-type: none"> - Socratic questioning - Wait time - Use of real-world scenarios - Feedback loop 		
<p>Presence of classroom living organisms (e.g., plants, fish, pets, greenhouse outside) with evidence of student involvement in their care or study.</p>		
<p>Observable instances of structured debates, arguments, or discussion of diverse viewpoints.</p>		
<p>Spaces or tools available that support learning through design, construction, or experiential activities (lab stations, simulation softwares, outdoor learning spaces, tool kits).</p>		
<p>In the Lesson Plan/Worksheet</p>		
<p>Instructions for open-ended or divergent questions. Noting if incubation or reflection time is provided.</p>		
<p>Activities that prompt students to create or formulate new ideas or objects based on previous knowledge.</p>		
<p>Directives that encourage reflection, reporting, or in-depth discussions.</p>		
<p>Clear instructions or guidelines for classroom debates emphasizing varied perspectives.</p>		
<p>Activities related to the care, study, or observation of classroom living organisms.</p>		

Environmental Factors Observation Checklist

Environmental Point	check (√)	Comment
In the classroom		
Utilization of various instructional tools such as: <ul style="list-style-type: none"> - Audio/visual aids - Physical manipulatives - Printed resources (textbooks, worksheets/handouts) - Educational software - Interactive whiteboards 		
Observable peer interactions with scaffolding such as: <ul style="list-style-type: none"> - Role modeling - Guided questioning (peers asking each other to arrive at an understanding) - Peer review (students providing feedback on each other's work) - Collaborative problem solving 		
Clear sequence of task introduction and manipulation such as: <ul style="list-style-type: none"> - Step by step instructions - Visual aids - Active demonstrations 		
In the Lesson Plan/Worksheet		
Activities or tasks that use various modes of engagement.		
Instructions that guide students on how to provide peer feedback/engage with each other in a constructive way.		
Activities that gradually introduce objects or concepts.		

References:

- Miller, J. P., Karsten, S., Denton, D., Orr, D., & Kates I.C. (2005). *Holistic Learning and Spirituality in Education*. State University of New York Press.
- Miller, J. P. (2016). Equinox: Portrait of a holistic school. *International Journal of Children's Spirituality*, 21(3-4), 283-301. <https://doi.org/10.1080/1364436x.2016.1232243>
- Scherf, R., & Bye, C. (2017). Multi-Sensory Practices for All: Changing Physiology, Behavior, and Performance. In *Optimizing Learning Outcomes* (pp. 58-73). Routledge.