

Seeding the Future: Cultivating a Research Agenda in Elementary Agricultural Education

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Introduction

With the recent formalization of Elementary Agricultural Education (EAE) in several states across the southeast (ARK House Bill 1336, 2018; GA House Bill 1303, 2022; TX Senate Bill 801, 2021) and emerging programs in Mississippi, Florida, and Missouri a need for research is critical for the development of sustainable and effective programs. In Georgia, EAE has been widely accepted since the formalization (House Bill 1303, 2022) of the program for schools across the state. With the adoption of recent programs in elementary schools and the necessary training of teachers in content, many questions are left unanswered. While some areas of EAE have been studied, i.e. school gardens, farm to school, etc, there is no established research agenda for EAE.

With the development of EAE there is a danger in selecting a research agenda for EAE simply through the lens of an agricultural education expert, instead imploring ideas from a variety of experts across disciplines provides a systematic approach to developing EAE.

In 2023, the University of Georgia established the Center for Elementary Agricultural Education (CEAE) to meet research needs and gaps in the literature. The center's creation arose from the training needs of existing EAE teachers, undergraduates pursuing a minor and endorsement in EAE, and elementary schools across the state that require direction related to EAE. The CEAE's purpose is to establish a group of transdisciplinary faculty members from a variety of units, departments, and colleges to create a collaborative team that conducts research. The core members of the CEAE are composed of specialists in Elementary Education Psychology, Educational Theory and Practice, Food and Nutrition, Elementary Education Science, Technology, Engineering, and Mathematics (STEM) integration, 4-H Youth Leadership, and Community School Gardens. The primary goals of UGA's CEAE are: (1) To pursue grant funding to support research in EAE and (2) Design, conduct, and disseminate research that works to inform decision-making and promote broader impacts of elementary agricultural education. The purpose of this research is to systematically determine a research agenda EAE.

Framework

The theoretical framework for this study is Durkheim's consensus theory (1892). Through the implementation of Durkheim's (1892) idea of collective consciousness, experts in the CEAE participate in collective thinking through development of a research agenda.

Methodology

The researchers conducted a modified Delphi study to determine an EAE research agenda. By utilizing a modified Delphi, the belief is that contributors will provide honest responses which leads to a systematic path to collective thinking and goals.

The initial survey was dispersed to experts via Qualtrics with the goal of collecting open-ended responses. Results were combined according to similarities and trends that arose. The second round consisted of a four-point Likert scale; inappropriate (1), neutral (2), appropriate (3), and very appropriate (4). Before dissemination of surveys, a minimum score of 3.5 was set a

priori for inclusion in proceeding rounds. Due to all topics, with the exception of one, meeting the minimum score of 3.5 in round two the Delphi did not proceed with additional rounds.

Findings

Data collected in the first round about expert's individual ideas of most appropriate research topics for the CEAE were combined or omitted due to replications down to 21 categories to be sent out to experts for ranking through a Likert scale. After round two, the topic of cognitive processing was removed due to not meeting the mean score of 3.5. Due to space limitations the top 10 of 20 accepted research topics by experts are listed in Table 1.

Table 1

CEAE Research Agenda Topics After Round 2

No.	Topic	M	SD
1	Goals of elementary agricultural education	4.86	0.35
2	Determining appropriate interdisciplinary avenues (e.g., nutrition education, childhood wellbeing)	4.86	0.35
3	Developing a model for elementary agricultural education	4.86	0.35
4	Developing programs for training teachers in elementary agricultural education focusing on specific issues not addressed in typical teacher training	4.71	0.45
5	Best practices for experiential learning in elementary agricultural education	4.71	0.45
6	Teacher training in elementary agriculture education	4.57	0.73
7	What is developmentally appropriate agriculture for elementary aged students (curriculum development)	4.57	0.49
8	Developing scalable lessons for elementary agricultural education	4.57	0.49
9	Integration of STEM and agriculture	4.43	0.49
10	Teacher efficacy in elementary agricultural education	4.43	0.73

Conclusions

A priority area of the National Research Agenda for the American Association for Agricultural Education is “advancing public knowledge of AFNR (Agriculture, Food, and Natural Resources) systems” which includes “examining curriculum design, development, delivery, and evaluation in elementary...programs” (AAAE, 2023). This research guides the direction of the UGA's CEAE through the systematic process of a Delphi study. The three highest ranked topics all obtained a mean score of 4.86, goals of elementary agricultural education, determining appropriate interdisciplinary avenues (e.g., nutrition education, childhood wellbeing), and developing a model for school-based elementary agricultural education.

Implications & Recommendations

The results of the study reveal that experts believe there is much research to be conducted in EAE. Future CEAE grant proposals and research endeavors will be guided by the findings. As new knowledge about EAE emerges, it is necessary to revisit this research agenda to incorporate emerging issues. Furthermore, the CEAE plans to collaborate with other states to conduct multi-state studies when feasible, thereby preventing redundant research efforts and providing diverse lenses of knowledge. It is recommended that other studies be conducted to

support the research needed. To foster nationwide acceptance of EAE, research is essential to determine the goals of EAE to create an effective and sustainable model for programs.

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