

A Synthesis of Recommendations within Agricultural Literacy Intervention Research

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Introduction

In 1988 the National Research Council defined agricultural literacy as “understanding the food and fiber system that includes its history and current economic, social, and environmental significance to all Americans” (National Research Council, 1988, p. 1). Since then, various definitions for agricultural literacy have been presented in literature. The common themes that tie these definitions together are developing an accurate conceptual understanding of agriculture, valuing the relationships that make up the agricultural system, and forming the skills to communicate agricultural concepts fluently (National Center for Agricultural Literacy, n.d.). In 2013, Kovar and Ball completed a synthesis of two decades of agricultural literacy research. Kovar and Ball’s work expanded our understanding of improvements needed to develop more meaningful agricultural literacy interventions. Furthermore, they recommended a need for researchers to “identify areas of deficiency” (Kovar & Ball, 2013, p. 175) related to agricultural literacy efforts.

Purpose/Objectives

This poster investigates the findings of articles written since 2006 to address the following research questions 1) What challenges exist concerning the inclusion of agriculture into K-12 core subject instruction? 2) What are the recommendations for increasing the use of agriculture as a context for core subjects in educational settings? As a framework, a systematic content analysis was used to review agricultural literacy articles published between 2006 and 2021.

Methods

Google Scholar was used to find journal articles between 2006 and 2021, using these search terms, agricultural literacy, agriculture in the classroom, agriculture in education, agricultural literacy intervention, agriculture in K-12, and integrated curriculum. Articles also had to meet the following criteria: interventions were delivered to formal K-12 educators, agriculture was used as a context for learning among K-12 students, and the studies had to have been conducted in the United States. In total, eight articles met the criteria. Excel was used to decide program modality and organize the key findings from each article. Each article’s conclusions and recommendations sections were analyzed to capture synonymous terms into one word to answer the research questions. For example, the word intervention and program or programs were translated into the term “program.” These keywords were then used to determine the frequency of these terms used to describe the challenges and the research recommendations for using agriculture as a context for teaching core subjects. The terms were further analyzed using TagCrowd (tagcrowd.com), an online software application. This software provided a visual representation of the frequency of words from article conclusions and recommendations.

Results

The search criteria included eight studies, one of which was an overlapping article from the findings of Kovar and Ball (2013). Kovar and Ball synthesized 49 articles from 1988 through 2011. Ten of those research articles focused on K-12 formal educators. Articles for this research were curated in a Zotero folder, Agricultural Literacy Recommendations. Findings for research question 1 revealed there were 39 words used more than once addressing the challenges of using agriculture as a context for core subjects. The top five words related to the context of challenges

were knowledge ($f = 25$), background ($f = 13$), relevance ($f = 10$), alignment ($f = 9$), and content ($f = 6$). For research question 2, there were 45 words used more than once. The top five recommendation words were support ($f = 16$), experience ($f = 12$), alignment ($f = 10$), resources ($f = 9$), and integration ($f = 4$). One overlapping word appeared in the results for both research questions, alignment.

Conclusions

Educators in this analysis had all been involved in “train the trainer” programs or were teachers who independently included agriculture as a context for their instruction. Some were provided the opportunity to engage in preservice training programs, while others were influenced to incorporate agriculture because of stakeholders. Overall, most teachers viewed the concept of agriculture favorably. Unfortunately, the favorability of agriculture does not correlate with the quality or quantity of using agriculture in formal education settings (Bellah et al., 2006; Fischer, 2017). There are still challenges that prevent agriculture from being used as a context for core subjects.

The challenge of *knowledge* was used in the context of teacher preparation. Lack of teacher knowledge affected instructional quality, self-efficacy, interest, effort, and, in some cases, the ability to align agricultural topics to core curriculum standards in meaningful ways. The term *relevance* was used to explain how teacher background influenced their perception related to required curriculum and testing. This challenge negatively impacted agriculture's relative importance as something “extra” in a high-stakes testing environment. Additionally, teachers did not see an immediate connection or lacked the desire to align materials to core standards. The challenge of *content* was referenced as access, quality, ease of use, and teacher interest and knowledge. The recommendations for overcoming these challenges (research question 2) suggested that programs provide financial, staffing, materials, development, education, and evaluation resources and support. Researchers also recommended providing teachers with field experience. *Alignment* was viewed as a challenge and a recommendation and demonstrated the need for agricultural literacy curriculum developers to align instructional resources.

Recommendations

This research provides agricultural literacy professionals with a summary of challenges based on research to develop, direct and deliver more successful agricultural literacy programming. Successful agricultural literacy programming matters because it leads to a more agriculturally literate public (Spielmaker et al., 2014). Since the Kovar and Ball (2013) publication, few articles have addressed the causes of agricultural literacy deficiencies and recommendations to overcome them. This research synthesized recent articles to reveal both challenges and provide recommendations for practical action. Considering the increased accountability in K-12 education (Pate, 2018), the research suggests that the most practical method for improving agricultural literacy programming is to first continue to build awareness of agriculture as a context for learning for pre-service and in-service educators. Secondly, agricultural literacy professionals must consider the five characteristics of successful professional development programming and develop ready-to-use agriculture-focused lesson plans and activities. Rasmussen (2008) found that this combination resulted in an increased initial implementation of materials and continued use of materials. Ultimately, this approach results in developing a community of practice that supports the sustained development and use of materials initially presented in professional development (Hall, 2015).

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