

Evaluating the Effectiveness of an Agricultural Literacy Preservice Teacher Workshop

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Introduction

The Agriculture in the Classroom (AITC) program seeks to “increase agricultural literacy through K-12 education” (“About Agriculture in the Classroom,” 2017). The AITC mission statement states that by “encouraging teachers to embed agriculture into their classroom, AITC cultivates an understanding and appreciation of the food and fiber system that we all rely on every day” (“About Agriculture in the Classroom,” 2017). The Agricultural Literacy Logic Model (Spielmaker, Pastor, & Stewardson, 2014), using the theory of change construct, posits that outputs or interventions such as teacher preservice programs are one way to increase agricultural literacy among teachers and their students. Annually, the Utah AITC program conducts an elementary preservice teacher workshop for nearly 700 preservice teachers during either their science or social studies methods course at eight higher education institutions. The workshops have been conducted for nearly a decade and to date, no evaluation data of this program has been collected or analyzed. Rather, program leadership considered invitations back each year, by methods professors, as indicators of impact. This research examines the perceived increases in agricultural literacy among preservice teachers (after engaging in a three-hour workshop), the overall workshop experience, and participant interest in a follow up survey.

Theoretical Framework

The *theory of change*, as outlined in the Agricultural Literacy Logic Model, was the overarching theoretical construct for this agricultural literacy intervention. The Utah AITC preservice programs were considered an output intervention with the desired outcome of increasing agricultural literacy among participants that would result in the short-term, planned behavior to use their newly gained understandings and resources in their future teaching. The Utah AITC workshops for elementary preservice teachers are operationalized using Kolb’s Experiential Learning Model where “learning is the process whereby knowledge is created through the transformation of experience” (1999, p. 41). Kolb’s model is rooted in the experiential learning philosophies of John Dewey. Dewey theorized that learners who connect to their prior learning and through continued learning experiences are able to make meaning and apply their understanding in different situations (Dewey, 1938). The Utah AITC three-hour presentation used a constructivist approach (also rooted in experiential learning, Fenwick, 2003) to engage preservice teachers with hands-on activities (soil erosion models, wheat threshing, seed planting, seed and flower dissection, wool spinning, etc.) and connected these activities to the food, clothing, and shelter that was part of their daily lives (connecting to prior learning). These activities are part of the Concrete Experience mode in Kolb’s model. Preservice teachers then reflected on their activities in an oral sharing, the Reflective Observation mode of Kolb’s model. The participants engaged in Abstract Conceptualization by using concept maps and a categorization activity (graphic organizer) of the products they use every day. The final mode of Kolb’s model is the active experimentation. The preservice teachers were provided with resources and a website of free classroom-ready lesson plans and supportive materials and asked to try out the resources when they became teachers.

Methodology

This research used a post-intervention survey to answer the following research questions:

- 1) Do preservice teachers who attended a/an Utah AITC workshop experience a perceived increase in their level of understanding related to the National Agricultural Literacy Outcomes?
- 2) Did participants find the workshop efficacious and valuable in terms of: organization, pacing, engagement, and relevance of content to elementary education?

Post-workshop data was collected for three semesters (fall 2015 through spring of 2017) using the online Qualtrics software. The population for this time period asked to complete the survey was 642 preservice teachers. Preservice teachers were asked to complete a 15 question, five point Likert-scale (1= Strongly Disagree to 5 = Strongly Agree) survey related to the presentation and an additional question about their willingness to participate in a future survey. Thirteen questions were developed based on the content of the workshop and the corresponding National Agricultural Literacy Outcomes (NALOs) (Spielmaker&Leising, 2013).

Results

Out of the 642 preservice teachers participating in the targeted workshop, 240 completed the survey, yielding a response rate of 37%. Addressing research question 1, participants reported an increase in agricultural understanding in all surveyed areas. The highest mean averages occurred in topics related to gaining a deeper appreciation for agriculture ($M = 4.66, SD = .63$); increasing understanding in the resources that produce food, clothing, and shelter ($M = 4.55, SD = .67$); and the value of agriculture in daily life ($M = 4.56, SD = .69$). The lowest mean averages occurred in topics related to understanding the costs associated with producing and purchasing food ($M = 3.77, SD = .93$); and describing the technologies farmers use to increase yields and improve product quality ($M = 3.79, SD = .96$). However it should be noted that these scores are still between “neither agree or disagree” and “agree.” Presentation effectiveness scores (1 = very poor, 5 = very good) had a mean score of $M = 4.86$. When parceled out, the participants reported the topic was very relevant ($M = 4.87, SD = .42$) to elementary education. Participants stated they were slightly more likely to explore the website than commit to using specific resources in the future. Twenty-four percent stated that they would be willing to be part of a follow-up study.

Conclusions

These evaluation results indicate that participants perceived an increase in their understanding related to the NALOs. They also reported that they were likely or very likely to integrate agriculture into their instruction and planned to use the Utah Agriculture in the Classroom website and related curriculum resources.

Recommendations

An attempt should be made to follow-up with non-responders to determine if similar results would be obtained on the measures. In addition, the self-reported levels of “increased in understanding,” need to be assessed with actual content-based assessments to determine the accuracy of the self-reported scores. And finally, a follow-up survey about the usefulness of the workshop and resources should be conducted with the 129 preservice teachers who stated they would be seeking a teaching position.

References

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