Program Evaluation of the Georgia Agriculture Experience (Mobile Classroom)

Hannah Cheek
405 College Station Road
Athens, GA 30602
706.495.1054
hannah.cheek@uga.edu

Christa Anderson
405 College Station Road
Athens, GA 30602
706.495.1054
hannah.cheek@uga.edu

Jason Peake
405 College Station Road
Athens, GA 30602
229.392.6097
jpeake@uga.edu

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Introduction/need for research

In recent years, elementary agricultural education has gained headway in Georgia, and this is now aided by the Georgia Foundation for Agriculture's Georgia Agriculture (GA AG) Experience, a mobile classroom trailer aimed to build agricultural literacy of 3rd-5th graders. The Foundation and the University of Georgia have partnered in creation of educational materials for the Experience, creating an emphasis on STEM in relation to Georgia agricultural commodities. The GA AG Experience, and related lessons, may be an effective method of building interest in agriculture and STEM at an earlier age, generating a public more aware of the origins of their food and prepared to fill a deficit of those qualified to fill STEM positions. With the introduction of the classroom and curriculum, a program evaluation was of value to test effectiveness of methodology. Instruments for the collection, analysis, and synthesis of data regarding the effectiveness of the Experience were produced in the form of a logic model, condensing ideas of inputs, outputs, and outcomes of the mobile classroom, as well as a series of surveys to evaluate the Georgia Ag Experience from multiple perspectives (students, educators, and facilitators). This study sought to determine the effectiveness of the GA AG Experience in student knowledge, opinion, and behavior related to agriculture and STEM. This research serves to improve the GA AG Experience, to better the process for all involved, and elementary agriculture education as a whole.

Theoretical framework

The Theory of Planned Behavior served as the theoretical framework for this study due to there being "evidence that an individuals' behavior is strongly influenced by the confidence they have in their capability to perform the behavior" (Bandura, Adams, Hardy, & Howells, 1980). This framework is also used for this study because "understanding where participants reside on the innovativeness spectrum will help researchers understand the next generations' willingness and attitude toward adopting agriculture within their lessons." (Rianda, 2019).

Methodology

Before the arrival of the mobile classroom, an online survey consisting of eleven questions was given to students. The pre-visit survey includes three multiple choice agricultural knowledge questions and five opinion questions rated using a Likert scale (1-5). An additional three questions captured demographic data. Once students have completed the mobile classroom`s visit, a post-visit survey with the same questions alongside three additional feedback questions was given to see if student scores improved and/or their opinions of the agriculture and STEM had changed.

Results/findings

Table 1
GA Ag Experience Completers Pre and Post Test Means, Standard Deviation, and Change

Knowledge Questions	Pre-Test		Post-Test		M
	n	Correct	n	Correct	Change
Which term best describes the practice of growing crops and raising animals to provide food and other products?	4340	60.4 %	1769	77.7%	17.3%
Where does your food, clothes and paper come from?	4340	45.0%	1769	66.4%	21.4%
Which of the following is our largest industry in Georgia?	4340	55.3%	1769	79.6%	24.3%
Opinion Questions	Pre-Test		Post-Test		M
	n	M	n	M	Change
I care about farmers & knowing where my food comes from.	4131	4.48	1735	4.55	1.56%
Pre-Visit: Highest Level: 2552/4131(61.78%)					
Post-Visit: Highest Level: 1173/1735 (67.61%) ▲ 5.83%					
I am interested in having a job in farming.	4110	3.41	1732	3.67	7.62%
Pre-Visit: Highest Level: 1106/4131 (26.77%)					
Post-Visit: Highest Level: 577/1732 (33.31%) ▲ 6.54%					
I would like to a visit a farm and learn more from the farmer.	4110	4.36	1729	4.46	2.29%
Pre-Visit: Highest Level: 2483/4110 (60.41%)					
Post-Visit: Highest Level: 1142/1729 (66.05%) ▲ 5.64%					
I would like to eat more food that is grown in Georgia.	4110	4.28	1729	4.36	1.87%
Pre-Visit: Highest Level: 2161/4110 (52.58%)					
Post-Visit: Highest Level: 992/1729 (57.37%) ▲ 4.79%					
I feel like I can talk to my friends and family about farming.	4110	4.09	1729	4.18	2.20%
Pre-Visit: Highest Level: 2011/4110 (48.93%)					
Post-Visit: Highest Level: 937/1729 (54.19%) ▲ 5.26%					

Conclusions

The purpose of this study was to determine the effectiveness of the GA AG Experience in student knowledge and opinion related to agriculture and STEM. The results of students in the post-visit survey reported 73% selected that they became more interested in agriculture. The results of this study also indicate that the completion of the mobile classroom visit has the potential to increase student knowledge that agriculture is Georgia`s largest industry by 24.3% and that their food, clothes, and paper come from farms by 21.4%. Results also suggest that from the time of pre to post visit, student interest in having a job in farming increases by 6.54%.

Implications/Recommendations/Impact

This data supports that GA AG Experience increases student knowledge and interest of agriculture and STEM immediately following the experience. As a result, this could lead to higher employability of agriculture and STEM careers in the future, however without longitudinal data it is outside the scope of this study to determine long-term changes in students' knowledge and opinions. Recommendations for future research include a longitudinal study to measure changes in student knowledge and opinion 3 months and 6 months after the GA AG Experience.

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