

What Kids Want to Know About Agriculture: Reevaluating the Farm Field Day Model

PAIGE WRAY
DEBRA SPIELMAKER



Introduction

- This project came about after realizing that farm field days, although occurring in 17 counties statewide, were not being evaluated as to their effectiveness in increasing agricultural literacy.
- The purpose was to measure the change in agricultural literacy at Utah farm field day events, thereby evaluating the effectiveness of the farm field day trip model.



Research Questions

1. Are farm field days a good model for increasing agricultural literacy with elementary school students?
 - a. What do youth participating in a farm field day know about agriculture?
 - b. What do youth participating in a farm field day want to know about agriculture?
 - c. What did participants learn as a result of attending a farm field day event?
2. Does the content delivered at a farm field day align with the National Agricultural Literacy Outcomes?
3. Do teachers value the farm field day event?



Review of the Literature

- Research on education suggests that experiential learning programs, such as field trips, can be a helpful and valuable practice.
 - Only in context can knowledge really be understood (Fenwick, 2003).
 - “The Sigmon Farm Tour showed the effectiveness of activities that engage all the students’ sense where the students get to touch, hear, smell, see and taste what they are learning about. The knowledge gained through these experiential activities is more concrete learning and harder to lose.” (Sigmon, 2014)



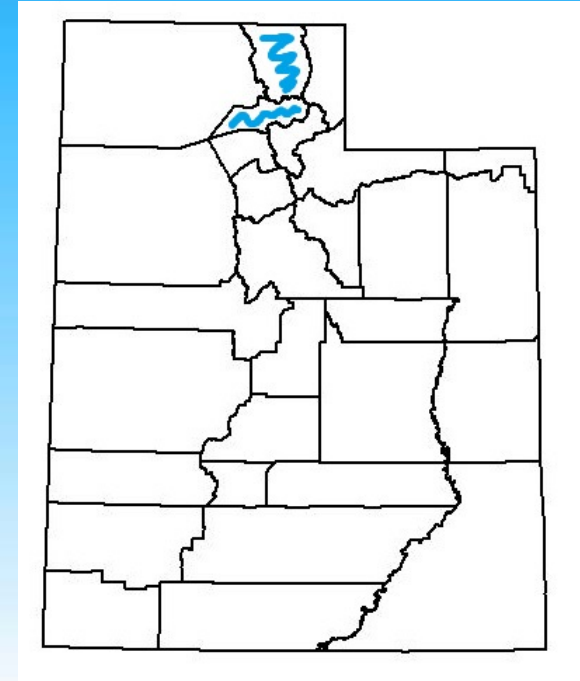
Review of the Literature

- In a study by Hess & Trexler, they discuss two ideas that were addressed by this study:
 - “Because learning occurs when students’ schema is transformed, educators need to know what commonly held perceptions learners have prior to teaching.”
 - “Few studies in agricultural education have explored these topics with an eye on elementary student understanding and their ability to converse orally about their ideas.” (2011)



Methods-Research Design

- Mixed Method, using a pretest-posttest design
- Theoretical Construct: Situated Cognition
- Target Population: All students that attend a farm field day event in Utah
 - Population samples came from a convenience sample of elementary schools in two counties, Weber (five schools) and Cache (four schools)
 - Data was generalized to all students that attend these days



Methods-Instrumentation

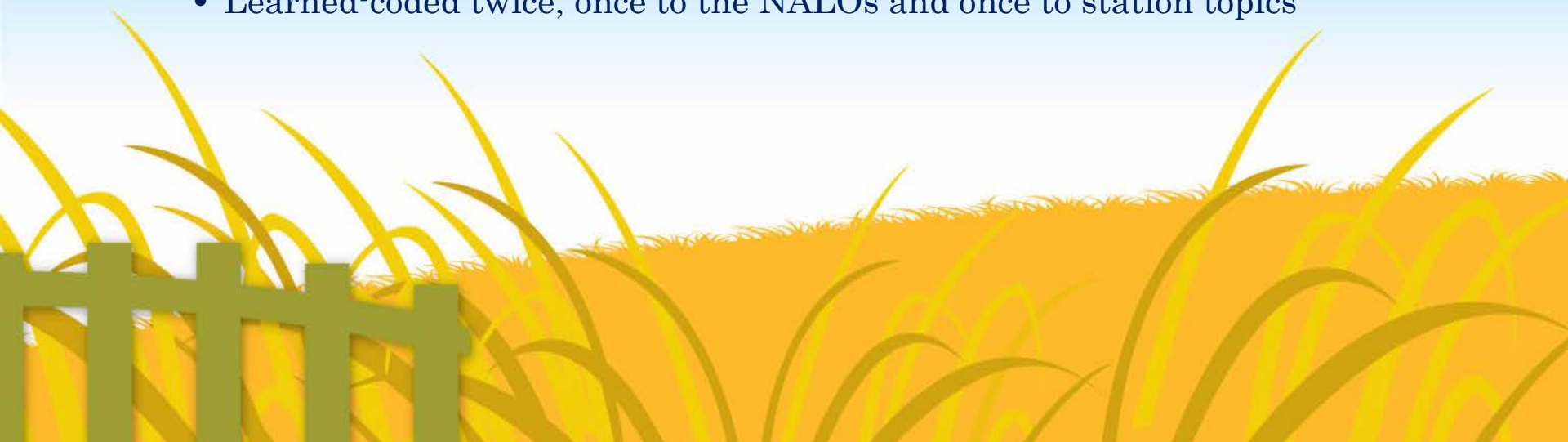
- K-W-L Charts
 - “accessing what I Know, determining what I Want to learn, and recalling what I did Learn as a result.” (Ogle, 1986)
 - K-W-L charts were shown to help students learn more than a summary journal. Researchers concluded that this was due to having prior knowledge activated (Gammill, 2006).
- To address sub-questions 1a, 1b, and 1c, K-W-L charts were used as the data collection instrument.
- Content analysis was performed on the data from this instrument

Methods-Data Collection

- For data collection, multiple collectors were required.
 - Data collectors were trained on procedures
- Data collectors went to each school twice, once before and once after the event.
 - The first visit was about 20 minutes, 10 spent on what students knew and 10 on what they wanted to know related to agriculture
 - The second visit was also 10 minutes asking what students learned about agriculture
- Surveys were also given to the teachers
 - Weber, a paper survey filled out by every teacher at the event
 - Cache, online survey filled out by one teacher from every school

Methods-Data Analysis

- After responses were collected, information was transcribed and transferred to a MS Word document.
- A qualitative data analysis software, Quirkos was used.
 - Responses were coded based on the content and relationship to the National Agricultural Literacy Outcomes and the station topics presented at the event.
 - Know, was coded according to the grade K-5 NALOs
 - Want to know-coded just to the NALO themes
 - Learned-coded twice, once to the NALOs and once to station topics



Hypotheses

- Students will demonstrate a 75% understanding of the Agriculture and Environment Grade K-2 NALO Themes.
 - This null hypothesis was repeated for each theme; Plants and Animals for Food, Fiber, & Energy; Food, Health & Lifestyle; Science, Technology, Engineering & Mathematics; and Culture, Society, Economy & Geography.
- Students will demonstrate a 25% understanding of the Agriculture and the Environment Grade 3-5 NALO Themes.
 - This null hypothesis was repeated for each theme; Plants and Animals for Food, Fiber, & Energy; Food, Health & Lifestyle; Science, Technology, Engineering & Mathematics; and Culture, Society, Economy & Geography



Findings-Question 1a

- What do students know?

Know NALO Themes

NALO Theme	Number of Codes
Plants and Animals	130
Food, Health, and Lifestyle	105
Culture, Society, Economy & Geography	32
Agriculture and the Environment	29
Science, Technology, Engineering & Mathematics	5
Misconception	10
No Related NALO Category	40
Total Codes	351

Hypothesis Results

NALO Theme	Understanding Percentage
Agriculture and the Environment	75%
Plants and Animals for Food, Fiber & Energy	67%
Food, Health & Lifestyle	67%
Science, Technology, Engineering & Mathematics	50%
Culture, Society, Economy & Geography	50%

Findings-Question 1b

- What do students want to know?

NALO Theme	Number of Codes
Plants and Animals	231
Culture, Society, Economy & Geography	39
Agriculture and the Environment	19
Science, Technology, Engineering & Mathematics	14
Food, Health & Lifestyle	10
No Related NALO Category	16
Total Codes	329



Findings-Question 1c

- What did students learn?

Hypothesis Results

NALO Theme	Understanding Percentage
Agriculture and the Environment	80%
Plants and Animals for Food, Fiber & Energy	60%
Food, Health & Lifestyle	57%
Science, Technology, Engineering & Mathematics	50%
Culture, Society, Economy & Geography	16%

- The top three stations at the Weber County event according to response rate were, Dairy Products/Barn (89 responses), Pork (48 responses), and Sheep (33 responses).
- The top three stations at the Cache County event according to response rate were, Pork (37 responses), Bees (19 responses), Dairy (17 responses).

Findings-Question Two

- Does the content delivered at a farm field day align with the National Agricultural Literacy Outcomes?
 - Data showed that every theme within the NALOs was addressed at both events but not every outcome.
 - 54% of the K-5 outcomes were addressed.
 - The theme of Culture, Society, Economy & Geography had the greatest number of missing outcomes.
 - The wheat, dairy, and pork stations were the only stations to address at least one outcome in every theme.



Findings-Question Three

- Do teachers value the farm field day event?
 - When asked why they chose to attend, three themes emerged, past experience, fit with core curriculum, and experiences that students could not get in the classroom.
 - Teachers thought students benefited most from the hands-on experiences and those topics that went along with their core.
 - Least beneficial parts were mainly facilitation issues, and some of the presenters not being as engaging or hands-on as others.
 - On a 1-5 scale, teachers average rating of presenters from both days was 4.13, location 4.7, benefit to students 4.53, and overall experience 4.53.
 - Hands-on experiences were the most mentioned improvements of the day.



Summary

- Findings showed that the Plant and Animal NALO theme had the greatest frequency of responses across all data categories.
- Data revealed that students viewed agriculture as it was 75 or 100 years ago.
- For hypothesis one, students only knew 75% of one theme, Agriculture and the Environment.
- For hypothesis two, students exceeded a 25% understanding in all themes except for the theme of Culture, Society, Economy & Geography.



Summary

- This research shows a strong case for situated cognition and place-based learning. Weber County's event was held on a dairy farm. Responses coded to all aspects of a dairy farm were the most abundant.
- At both events, facts related to the pork station were near the top. This presentation relied on a video, with the presenter asking questions related to the video.



Recommendations

- Due to low percentages of understandings in the K-2 NALO themes, it is recommended that teachers be better equipped with lessons and materials to integrate these concepts into existing core.
- Greater gains could be made if these events were held on a working farm.
- Organizers could benefit from holding a presenters training highlighting possible hands-on or other experiential activities.
- Organizers should encourage the use of K-W-L charts to get students ready for the event.

Recommendations

- It is recommended that a uniform survey for teachers be created.
- It is recommended that further research be conducted on agricultural books, television programming, movies, and other educational media typically used.
- The NALOs do not include any outcomes on basic animal or agricultural facts. While it is implied that students will learn these, authors of the NALOs may want to consider the identification of facts and terminology related to each outcome.
- It is recommended that further research be done on retention in a longer-term study.

Conclusion

- The results of this farm field day study indicate that a one-day event can partially achieve an understanding of the National Agricultural Literacy Outcomes and increase agricultural literacy among elementary students.
- Putting students in an authentic agricultural setting with hands-on experiences is the best way. With improvements and recommendations mentioned before, effectiveness of these events and student learning could increase.



References

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Experiential Learning Opportunities



Experiential Learning Opportunities not to be missed while on the farm



Resources

- Utah Farm Field Day Resources:
<http://utah.agclassroom.org/outreach/farmfield.cfm>
- <https://www.facebook.com/FarmFieldDay/>
- Michigan Farm Bureau Project R.E.D. Booklet, part of the conference downloads.
- <https://agclassroom.org>



