Introduction

Adult Environmental Education refers to teaching environmental instruction in a context that addresses how businesses and individuals can alter their behavior to live more sustainably.

Today we are facing a lack of environmental awareness because of obstacles that hinder adult environmental education.

Proposed Solution: Environmental education activities that will educate participants about water conservation.

Maricopa Cooperative Extension is an outreach center that provides practical information and education to improve the quality of life that people live. Every month, the center assists in the facilitation of environmental festivals to raise environmental awareness. At each festival, the Maricopa Extension is responsible for conducting two educational environmental activities: The Watershed Model Activity and the Groundwater Flow Model Activity.

2 environmental focus activities: This research project set out to analyze the knowledge retention rate of participants who observe two water-related environmental education activities.

The Watershed Model Activity is a three-dimensional model that demonstrates how point source ground pollution can affect water quality and how surface water runs off a watershed.

The Ground Water Flow Model Activity is a Plexiglass tank filled with sand, gravel, and clay to represent a slice of the earth. The model simulates groundwater concepts like groundwater movement, aquifer types, water table levels, and the effects of pumping wells.

Methodology

Modified retention survey tool to measure learning

Appropriate Method: Survey, a survey will be administered to measure participant knowledge retention of water concepts covered in both of the environmental activities. The participants for the survey will be festival attendees who observed one, both, or neither of the activities. This survey instrument can be used by other researchers as a springboard to perform more extensive research on environmental education activities which promote adult environmental education in the future.


Survey Structure: The survey consists of 3 true or false questions and 1 critical content question which had contrasting scores of 29% and 76%.

Survey Questions: A true or false question with a focus solely on Arizona’s environmental issues. In addition, I recommend a re-formatting of the watershed question with a more comprehensive watershed model and clearer directions for answering the question.

Sample Pool: The sample pool was 48 participants with 32 who saw both activities, 16 who saw one activity, and 10 who saw neither activity. The survey instrument was modified from a pre-existing survey because the questions pertain to concepts that were deemed important by the creators of these activities.

Sample Question: True False Groundwater is not clean.

Average Score: The percentage of correct responses on the survey creates the average score.

Results vs. Groundwater Activity: 52% participants selected the correct answer. Participants who observed the Groundwater Flow Model Activity received a score of 54-75%.

Participant Retention of Water Festival Informational Content: The percentage of correct responses on the survey was not supported because participants who saw neither activities scored in the same percentage range as participants who saw one or both activities.

These results demonstrate that participants who saw both activities scored 54-70% and the groundwater activity participants scored 54-76% were almost identical in score averages except for one critical content question which had contrasting scores of 29% and 75%.

Possible explanations for low survey scores can be attributed to misunderstandings of survey questions and ambiguity of wording of certain questions.

Some other potential drawbacks from the activities are the bombardment of excessive information and the amount of participants’ incomplete surveys skewed the average by marking no answer as incorrect.

Future Endeavors

My recommendation for the Maricopa Cooperative Extension would be to re-write questions with a focus solely on Arizona’s environmental issues. In addition, I recommend a re-formatting of the watershed question with a more comprehensive watershed model and clearer directions for answering the question.

Further research would need to be conducted to determine how much information participants are retaining through implementing a pre- and post-test in order to evaluate participants’ knowledge before and after observing the activities.

Conclusions

Prediction is not supported.

The hypothesis that participants who observed both activities would have the highest scores among the four critical content questions on the survey was not supported because participants who saw neither activities scored in the same percentage range as participants who saw one or both activities.

These results demonstrate that participants who saw both activities scored 54-70% and the groundwater activity participants scored 54-76% were almost identical in score averages except for one critical content question which had contrasting scores of 29% and 75%.

Possible explanations for low survey scores can be attributed to misunderstandings of survey questions and ambiguity of wording of certain questions.

Some other potential drawbacks from the activities are the bombardment of excessive information and the amount of participants’ incomplete surveys skewed the average by marking no answer as incorrect.

Future Endeavors

My recommendation for the Maricopa Cooperative Extension would be to re-write questions with a focus solely on Arizona’s environmental issues. In addition, I recommend a re-formatting of the watershed question with a more comprehensive watershed model and clearer directions for answering the question.

Further research would need to be conducted to determine how much information participants are retaining through implementing a pre- and post-test in order to evaluate participants’ knowledge before and after observing the activities.

References


Acknowledgements

This research would not have been possible without the support of my mentors Nancy Conklin and Monica Elser, as well as the support of Kaja Brandtland and Dina Ahmadi. Special thanks to the students from the DCCC ISP course for all your feedback.

This material is based upon work supported by the National Science Foundation under Grant SES-044156. Decision Center for a Desert City II: Urban Climate Adaptation. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

Appendix