Climate Change Education (CCE): Student experiences from climate data studies, education sessions, and survey analysis

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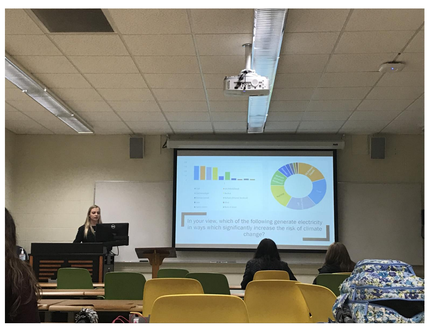
USDA United States Department of Agriculture
National Institute of Food and Agriculture

Abstract

As part of a federally funded climate change education (CCE) grant, this project describes undergraduate student experiences in studying weather patterns, conducting educational sessions for high school students, and analyzing survey data of college students' perspectives on climate change and its impacts on agriculture. Weather data collected included precipitation, temperature, evaporation, and wind. Educational sessions used a climate change wedge game to encourage 4-H and FFA students to find cost-effective measures to reduce carbon emissions in agriculture. The survey analysis used a Likert scale tool based on the premise of increasing awareness among college students that climate change is impacting agriculture locally and examining their willingness to pay for community-based climate change mitigation efforts. Given the gap in knowledge surrounding climate change, more efforts should focus on education and research in universities, and outreach in rural communities to enhance awareness about climate change and positively impact future policy regulations.

Concept and Overview



Undergraduate student worker involvement

Develop scientific skills

- Weather data was collected by submitting temperature, wind, evaporation, and precipitation to the National Weather Service.
- Learning about climatic parameters.
- Communicating within a team to correctly translate measurements.

Student Research

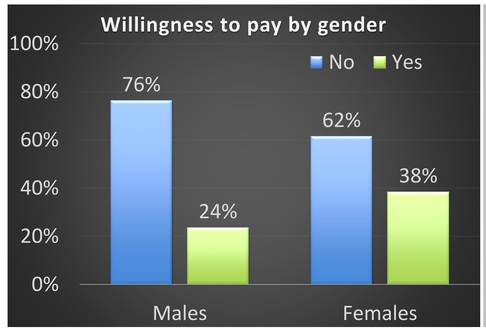
- Willingness to pay for climate change mitigation was asked through a survey
- The data was interpreted through the Likert Scale, Maximum likelihood statistics, and Descriptive Statistics.
- The results were published in Advances in Social Sciences Research Journal – Vol.7, No.9.

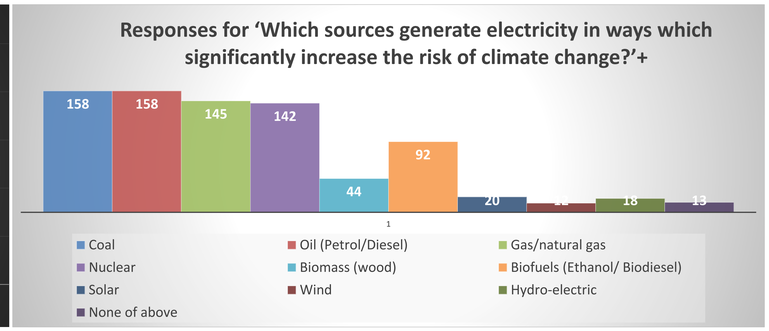
Assistance with outreach

- The climate wedge game increased awareness of the climate and climate change with students in 4-H.
- Further developed presentation and communication skills.
- CLASS Initiative
- UTM Center for Sustainability

Research experience and results

- The objective of the study was to evaluate college students' perspectives about climate change in two agricultural schools located in western Tennessee and western Kentucky, respectively. The primary focus was on willingness to pay for climate change mitigation efforts as affected by other variables. A total of 230 responses were obtained, of which 133 were complete. Data was presented at 2019 TAS and 2020 SAEA.
- Research showed that most students wanted more information about climate change and how it would affect them before they were willing to pay for mitigation efforts, and most students were neutral on all topics.
- Concern about earth's climate showed significance in the logistic regression for impacts on willingness to pay.
- Results will potentially enhance existing literature on the future workforces' perceptions for climate change mitigation efforts and provide insights for policy recommendations
- Results were published in Advances in Social Sciences Research Journal – Vol.7, No.9
- In addition to survey research, weather data including precipitation, temperature, and evaporation was also collected and sent to the National Weather Service.





Conclusion and learnings

- This research deepened my understanding of the climate and weather patterns as well as the perceptions of students as it relates to the climate.
- Learning related to various methods of analyzing data results in Excel using regression, SAS, Maximum Likelihood Estimates, confidence intervals, probability, and CORR procedure with Willingness to Pay.
- Many other future efforts can be derived from this research including but not limited to; surveys at other universities, specific demographics, and other areas involving climate research.
- Learnings from participating in 4-H and FFA events through the Climate Wedge game and presentations which developed student worker confidence and communication skills.
- Participating in conferences helped with sharing the data collected and developing new ideas for further research.
- During the weather collection trials, the student workers learned how to collect temperature, evaporation levels, precipitation levels, and wind distance.
- *The overall experience involved all segments of the CCE initiative.*
- *This research will be vital in understanding how this generation will decide to make policies in regard to climate change and environmental issues.*

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