Master of Science in Science Education

How participating in climate action projects affects students' understandings and perspectives about climate change

BACKGROUND

- I teach students in ninth grade physical science
- I recognize inattention given to climate change in Libby, Montana
- Recognize wide variety of understandings and perspectives about climate change in our community

QUESTIONS

- How does participation in a climate change unit incorporating solutions and action projects affect students' understandings and perspectives about climate change?
- How does participation in action projects affect students' perspectives about their future regarding climate change?

METHODS

PRE
- Survey and interviews
- Initial models and concept maps
- Climate science background

DURING
- Mini-research solutions
- Climate action project
- Teacher journaling

POST
- Teacher journaling
- Survey and interviews

KEY FINDINGS

Terms and phrases used to complete the sentence, *"Climate change makes me feel…"* The number of students with similar responses is given for both pre and post surveys. Pre-survey (*N*=77) and post-survey (*N*=75).

Concerned/Worried	Pre (n=37)	Post (n=49)	Indifferent/Disinterested	Pre (n=33)	Post (n=12)
Angry/Disgusted	2	2	Annoyed	1	1
Anxious/Nervous/Scared	3	3	Cold/cool	3	
Concerned for future	2	12	Disinterested/Normal	7	6
Confused/Conflicted	10	9	Good/Happy/Warm	2	
Disappointed	1		It's natural/not real	2	1
I care but am not scared	1	1	It's not people's fault	1	
Sad	5	4	It won't affect me	15	
Worried about the future	9	15	We will adapt	1	1
Exhausted/tired		1	Weird	1	
Curious as to what the long-term effects will be		1	It's over-exaggerated		1
I want to worry about climate change when I am an adult – not now		1	Neutral – I am not sure what I can do		2
Total (%)	48%	65%	Total (%)	43%	16%

Empowered	Pre (n=8)	Post (n=14)
We need to/can do something about climate change	3	9
I am interested in finding out what can be done	5	1
I am determined to do something about climate change		2
I am hopeful that we can do something about climate change		2
Total (%)	10%	19%

Pre- and post-survey

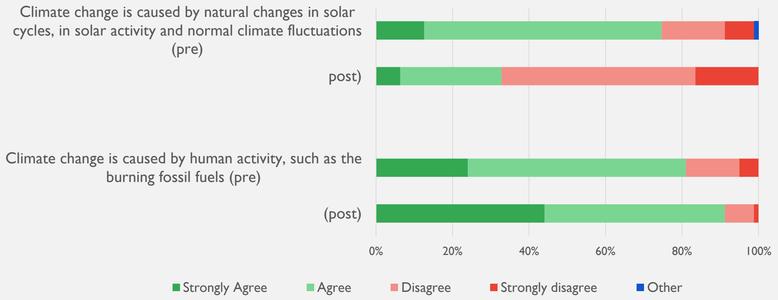


Figure 2. Student understanding of the cause of climate change (*N*=79)

> *"What you do makes a difference, and you have to decide what kind of difference you want to make."*
>
> *– Jane Goodall*

Pre- and post-survey

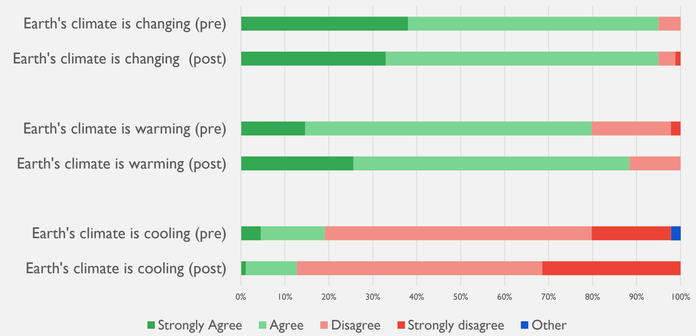


Figure 1. Student understanding of the trend of climate change (*N*=79)

TAKE-AWAYS

- The number of students who are concerned about climate changed increased from 44% on the pre-survey to 63.3% on the post-survey.
- It is unclear if participating in the climate action projects or an increase in understanding had a larger impact on the students' perceptions.
- Next year the choices of action projects will be limited. The benefit from student participation in these projects did not clearly outweigh the time and energy expended by the teacher.
- Collaboration with other teachers was a highlight and ben0efit of the project for the teacher.

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