

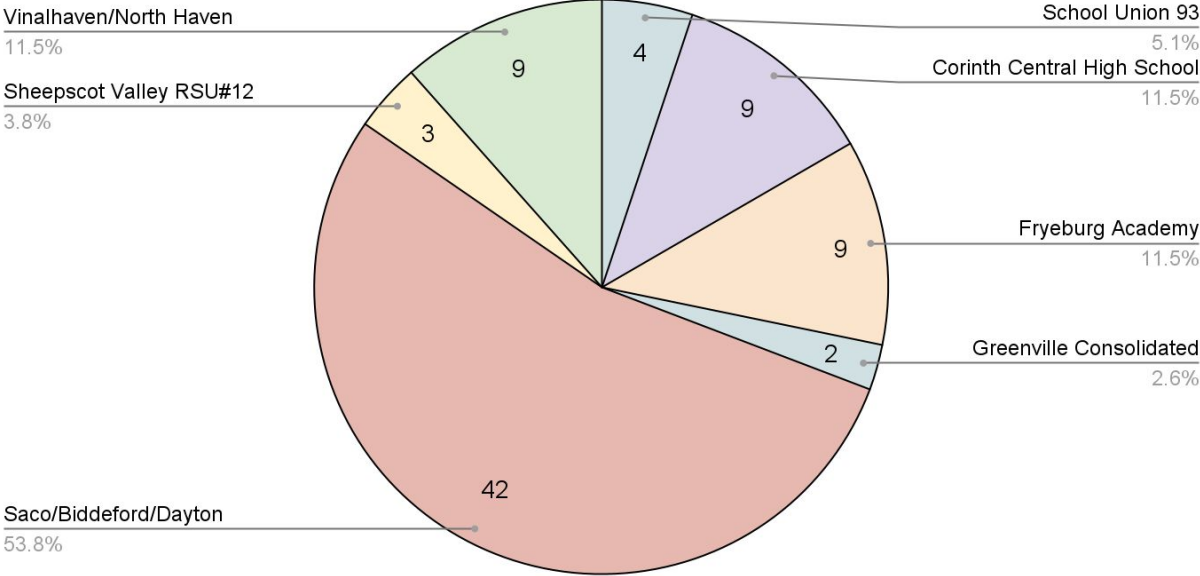
Maine Department of Education Climate Education Professional Development

Pilot Program Survey Data- Phase 1

Participant Demographics

- 78 survey responses
- 97% completion rate
- Average time to complete = 14 minutes
- Grade levels taught ranged from PreK to High School
 - PreK-2: 13 responses
 - Grades 3-5: 20 responses
 - Grades 6-8: 28 responses
 - High School: 42 responses

Program Survey Responses



Prior to the professional development, participants rated their overall LEVEL OF experience with Climate Education as a 5.45 out of 10.

Responses ranged from 1 (no experience) to 10 (very experienced).

8.8

On a scale of 1-10, how enjoyable was the professional development experience?

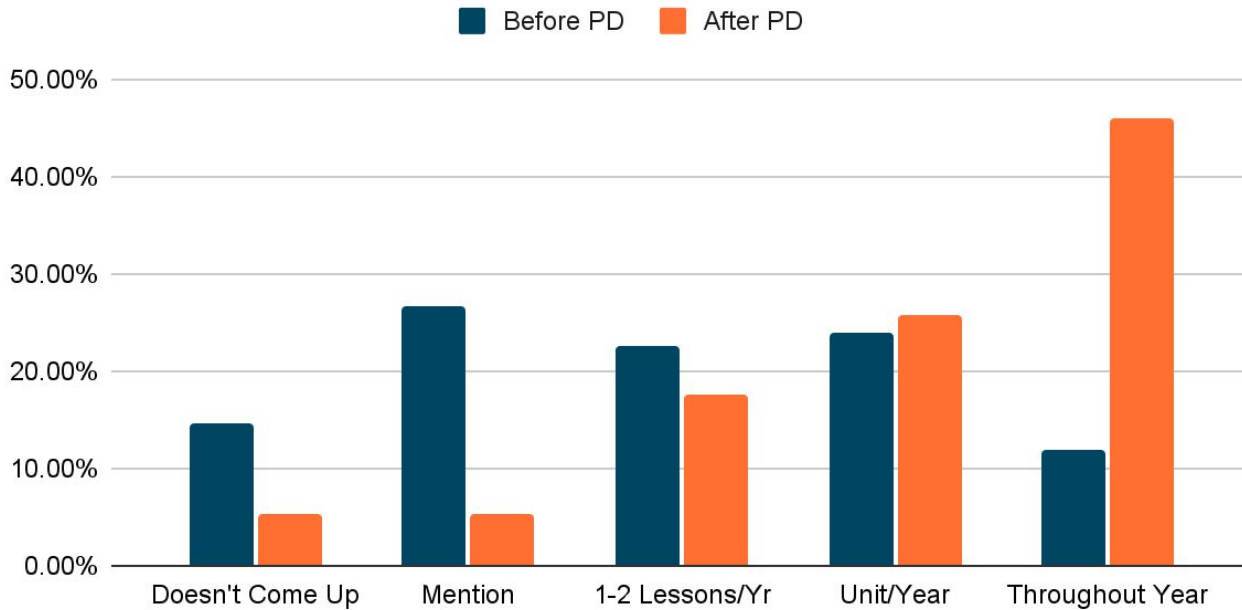
7.9

On a scale of 1-10, how much did you learn about climate education?

8.8

On a scale of 1-10, how likely are you to recommend the professional development to a colleague?

Participants' Planned Teaching About Climate Change Before and After Professional Development



After participating in the professional development, participants planned to teach about climate change more than they had in the prior academic year. On a scale of 1-5, where 1=climate change “doesn’t come up” and 5= plan to teach it “throughout the year” the mean score increased from 2.92 to 4.0.

Item	Before the PD	After the PD
I am able to answer learners' questions about climate change.	3.61	4.31*
I welcome learners' questions on the topic.	3.88	4.58*
I feel confident about answering learners' questions.	3.56	4.32*
I have the necessary skills to teach this topic.	3.35	4.19*
I feel confident when explaining climate concepts.	3.45	4.17*
Although this is a complex topic, I feel prepared to teach it.	3.31	4.08*
I understand the content well enough to teach this effectively.	3.31	4.12*
I am able to anticipate learners' common misconceptions related to climate science.	3.25	3.94*
I know how to effectively address learners' misconceptions	3.12	3.97*
I am able to use examples to teach this topic	3.49	4.38*
I feel supported by my school community to teach climate education topics.	3.57	4.21*

Mean Likert Scale ratings from Strongly Disagree=1 to Strongly Agree=5; Paired samples t-tests were used to compare pre and post responses. * Denotes a statistically significant change at the $p < 0.05$ level.

Professional Development Outcomes

92% of respondents agreed or strongly agreed that *the PD experience prepared me with the necessary skills to try something new or different related to climate education in my professional practice.*

87% of respondents agreed or strongly agreed that they *gained research-based instructional practices for climate education.*

66% agreed or strongly agreed that they *gained instructional practices to make learning experiences more inclusive for diverse student populations (e.g. special education, students of color, students of low socioeconomic status).*

92% agreed or strongly agreed that they *are more motivated and enthusiastic about incorporating climate education into my curriculum because of this professional development experience.*

Professional Development Incentives- Ranking of Importance to Participants



#1 Stipends (0% N/A)



#2 Follow Up support during the school year (7% N/A)



#3 Continuing Education Units (CEUs) (11% N/A)



#4 Free Supplies/Equipment (23% N/A)



#5 Mileage Reimbursement (32% N/A)

* N/A indicates the percentage of respondents who were not offered that incentive (which did not affect the ranking). The #1 support (stipends) was also the one offered most frequently. The #5 incentive (mileage reimbursement) was also offered the least frequently.

Other Incentives Important to Participants- Connection and Collaboration

“Time for collaboration was the most important element by far”

“Creation of collaborative classroom materials”

“An incentive for me was connecting with local partners too!”

“Having time to talk with colleagues throughout my district”



8.7

On a scale of 1-10, how likely are you to continue an ongoing relationship with the PD host organization?

Partnership and Collaboration Outcomes

82% agree or strongly agree that they know who would be good climate education partners in their community

88% agree or strongly agree that they know how to identify and align curriculum with community-based climate education problems.

76% agree or strongly agree that they have a peer support network to help them navigate climate education (only 23% of classroom educators agreed/strongly agreed in the 2022 Census)

83% agree or strongly agree that there is a statewide network of support for climate education in Maine.

89%

Agreed that the professional development experience helped them build
new professional relationships

69%

Of respondents who developed new relationships have followed up on them since the PD ended.

How have
people followed
up?

“All of our partners have continued to be regular resources as the school year has started. I've connected with Maine Tree, MWOBS, CEBE and Maine Climate Action Now, as well as continuing talks with UMaine and Ash resources.”

How have
people followed
up?

“I have remained in touch with several educators who I met at the conference via social media.”

How have
people followed
up?

“I touched based with Portland Water District for help in vernal pool education. I also submitted to the grant I learned from through this experience.”

Aspects of the PD most likely to be used in the future

- Specific curriculum/
resources/lessons/books
 - Local data collection ideas
 - Importance of outdoor
learning experiences
 - Communication strategies /
connections to culture
 - Literature and other
interdisciplinary connections
 - Connections with partners
-

Representative Quotes

“The study of trees as an indicator of climate change. The tools to remain positive and active in calling for cultural and legal changes to our community to be more resilient and able to respond quickly.”

Representative Quotes

“I also met professionals and worked with them over the summer. I learned a lot of lessons and have already used them with my class.”

Representative Quotes

“The tremendous amount of resources that are available are incredibly helpful. Prior to this PD that was my biggest challenge.”

Representative Quotes

“Acknowledging that spending meaningful time outside, in nature, is an important part of climate education. Real life scenarios.”

Representative Quotes

“Really liked learning about different ways to talk about climate issues (the example of the town hall meeting was very helpful).”

Representative Quotes

“Work with other teachers to design a multi-class project. For example, a science teacher could coordinate with a language arts teacher to have students research climate topics and write persuasive essays or opinion pieces. This reinforces skills across subjects while focusing on a common theme.”

Recommended Improvements and Ideas for the Future

- Climate science content
- Lesson planning time and resources for climate education
 - Specific examples of student activities
- More PD and follow up during school year
- Continued networking/collaboration
- Age appropriateness / differentiation of grades
- Better application to different content areas (ELA)

Representative Quotes

“It would be very useful to build this into an annual collaborative retreat for planning interdisciplinary teaching projects on climate education. Time for such collaboration is a necessary and valuable resource.”

Representative Quotes

“Would like to hear more about climate education. I felt like a lot of the conversation was about getting kids outside. I'm already doing that at my school and wanted to go deeper (maybe more content/things we should consider with climate ed.).”

Representative Quotes

“I think we need more lessons designed for K-5. Our students don't really understand what is happening.”

“I wasn't sure how this would even apply to my content area, so I'm not able to answer this question.”

Representative Quotes

“I was hoping for more content knowledge, help learning about the specifics of climate change to be better prepared to lead discussions and answer questions at the high school level. Also activities we participated in were geared toward the youngest students. More strategies and ideas for activities with older students **would** be helpful.”

Representative Quotes

“More specifics for student focused projects and solutions that are helpful ways to feel part of the process of taking steps to change - beyond recycling.”

Barriers to Incorporating Learning from PD

#1 Time

#2 Funding for Equipment/Supplies/Field Trips

#3 Transportation

(Administor support, community support, and learning standards were rated between “Not a barrier at all” and “A Slight Barrier”)

Climate Change Topics (Currently or Planning to Implement)

Reducing Climate Change	66%
Science of Climate Change	61%
Role in Natural Disasters	58%
Impact on Biodiversity	53%
Society/Health/Food/Culture Impacts	50%
Adaptations to Climate Change	47%
Consumer Choices	39%
Environmental and Climate Justice	37%
Economic Impacts	34%

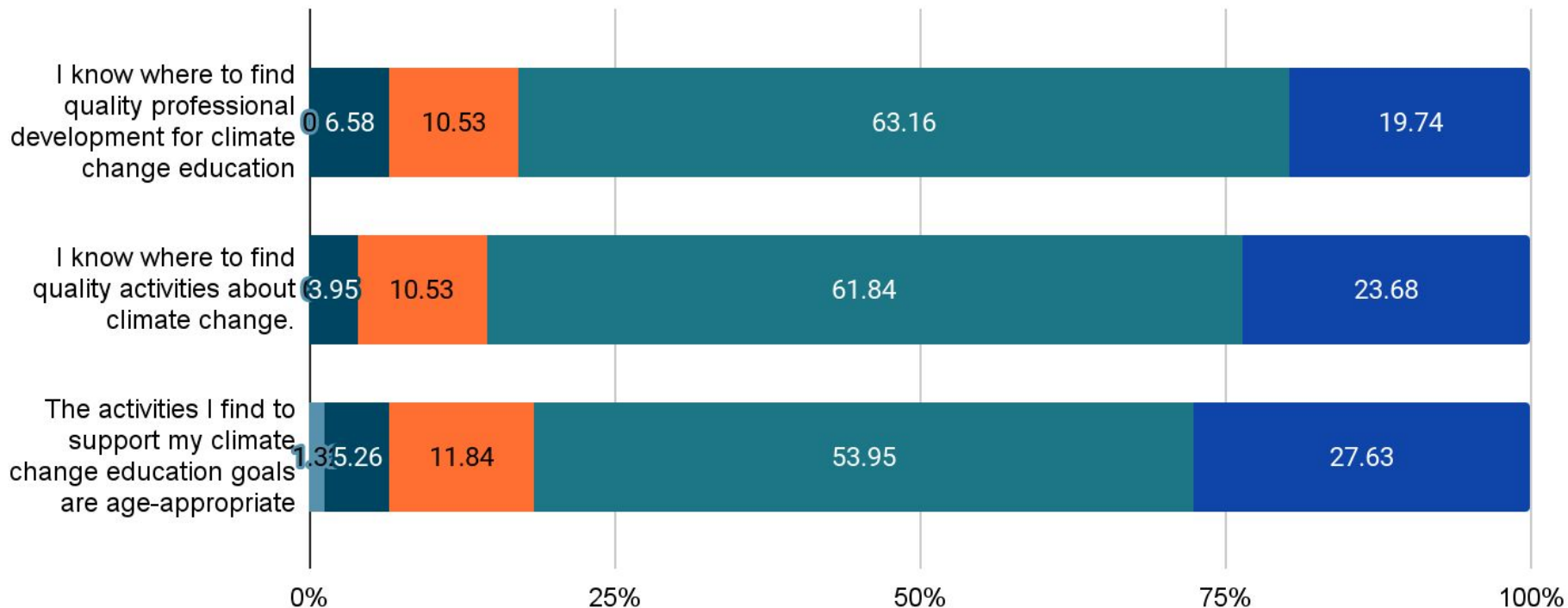
Climate Change Teaching Strategies

Project-Based Learning	68%
Outdoor Learning	67%
Place-Based Learning	55%
Interdisciplinary Learning	50%
Data Exploration/Literacy	39%
Indigenous Perspectives	36%
Diverse Perspectives	28%
Career Exploration	20%
Play-Based Learning	12%
Mental Health Supports	12%

Educators generally agree that they know where to find quality PD and age-appropriate materials to support climate learning goals.

Participant Ratings About Resources/Activities

Strongly Disagree Disagree Neither Agree Nor Disagree Agree Strongly Agree



80%

Of respondents are noticing positive student impacts from participation in climate change education.

Student Outcomes Noticed by Teachers After Climate Education Participation

Increased Critical Thinking Skills	72%
Increased Science Knowledge	71%
Increased Engagement	67%
Increased Pro-Environmental Behavior (picking up trash, recycling, etc.)	57%
Increased Emotional and Social Skills (self-esteem, team work, etc.)	38%
Decrease in Climate Anxiety	8%

Other responses: Increased awareness (4 respondents), increased climate anxiety (one respondent)

Professional Development Reflections

This topic is critical and I learn more every time I engage in professional development on the topic. I will seek out and attend as many PD sessions as I can on the topic, so I hope these programs will continue to exist. I always share what I learn with my coworkers, so the experience doesn't just live with me.

Developing curriculum with other faculty and community partners was a valuable experience in general, but especially when trying to create material that bridges so many subject areas. Creating a pathway to continue to invest in community partners and ongoing educational development was a valuable outcome of this PD.

What would it be like to have a handful of curriculum coaches (DOE staff?) present during the PD to help teachers. Could that coach meet occasionally with teachers throughout the year to help problem solve challenges?

I am so grateful to the DoE for funding this kind of professional development. Despite having 5.5 PD days built into my district's annual calendar, NONE of those days are teacher-driven at the elementary level--they are all planned for us. Please, please keep finding ways to fund opportunities for educators to continue our learning about climate education, Wabanaki people/history/culture in Maine, and best social/emotional practices for facing the challenges many of our students bring to school daily.