



# Climate Science Survey

Final Report 2019-2020

September 2020



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**AESD** ASSOCIATION OF  
EDUCATIONAL  
SERVICE DISTRICTS

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## Climate Science Final Report 2019-2020 – Executive Summary

ClimeTime is facilitated by the Office of Superintendent of Public Instruction (OSPI) through a Washington State legislative proviso originally requested by Governor Jay Inslee of an annual \$4 million investment that began in 2018-19 and continued as a \$3 million investment in 2019-20. OSPI manages the Washington State Fellows’ Network, and the grant funding flows through all nine Educational Service Districts (ESDs) in Washington and six community-based organizations (CBOs). The ESDs and CBOs have launched programs for science teacher training, linking the Next Generation Science Standards (NGSS) and climate science. In addition to teacher professional development, the project supports the 15 grantees to develop instructional materials, design related assessment tasks and evaluation strategies and facilitate student events.

This 2019-2020 Survey Report discusses data from two surveys about ClimeTime professional development of science teachers across Washington between August 13, 2019 and June 13, 2020. The first survey, the Climate Science Survey, addressed trainings open to educators across the state related to the Washington State budget proviso. The second survey, the Fellows’ Survey, gathered feedback from science educators participating in the Washington State Fellows’ Network that OSPI and the ESDs convened. The Network is a group of instructional leaders who support district and community implementation of state learning standards in mathematics, English Language Arts (ELA), science, and the Early Learning Guidelines. The report includes data collected from the first two Science Fellows’ convenings held in the 2019-2020 school year. While Regional Science Coordinators focus on teacher leadership in the Fellows’ Program, they provide support for climate science instruction through these convenings.

ClimeTime adjusted quickly to the difficult context due to public health concerns associated with COVID-19. ESD and community partners providing synchronous and asynchronous online professional learning and developed briefs about their practice. ClimeTime hosted two-day conferences in April and May 2020 that drew approximately 1,200 participants from across the state. The conferences included interactive sessions that addressed a range of topics, including Climate Change Education Resources for Educators: Curricula and Professional Learning, Energy Matters: An Exploration of Activities and a Carbon Calculator, and STEM Mini-Projects for Learning at Home. The ClimeTime Portraits of Practice offer reflections on the successes and lessons learned in local and statewide projects. Partners shared stories of learning experienced by the teachers and students across Washington. The Portraits represent the diversity of work done by ClimeTime and the many ways in which climate science and the focus on local phenomena-based learning can engage both teachers and students.

## Survey Findings

Overall, participants in Climate Science Professional Development rated the trainings very highly with more than 90 percent stating that aspects of the session were good or very good. Most participants (97 percent) shared that they have broadened or deepened their knowledge of topics related to research-based instructional practices. Practically every participant (99 percent) agreed or strongly agreed that participation prepared them with the necessary skills to try something new or different in their professional practice.

Participants reported on the frequency of their instructional practices in science and STEM teaching. While close to two out of three respondents provided opportunities for students to use data in their thinking, a smaller proportion (49 percent) engaged students in science-based computational thinking. Two-thirds of the participants claimed that they prompted students to explain and revisit their understandings. Close to two-thirds reported engaging students in conversations around science and engineering findings.

Participants in the Science Fellows’ Trainings also gave strong ratings to these professional learning experiences (PLEs). More than 95 percent stated that aspects of the sessions were good or very good, reporting that the sessions used engaging activities, introduced them to useful resources, provided timely and relevant information and engaged them in discussion with other participants. The vast majority of participants (97 percent) indicated that the professional learning experience prompted them to try something new or different in their professional practice.

## Climate Science Survey: Open-ended Responses

Table 1: Thinking about your professional learning session, how would you rate it for the following?

		Very Good	Good	Fair	Poor	Very Poor	Does Not Apply
Meeting the stated learning objectives of the session.	#	1137	383	38	2	1	1
	%	73%	25%	2%	0%	0%	0%
Use of engaging and useful activities to facilitate your learning.	#	1113	371	69	8	1	0
	%	71%	24%	4%	1%	0%	0%
Introducing you to useful resources such as curriculum materials, research articles, and practice information.	#	3	1087	386	79	7	0
	%	0%	70%	25%	5%	0%	0%

		Very Good	Good	Fair	Poor	Very Poor	Does Not Apply
Providing timely, relevant information that you will be able to apply in your work setting.	#	1071	408	74	7	1	1
	%	69%	26%	5%	0%	0%	0%
Engaging you in discussion with other participants in ways to facilitate your learning.	#	1125	358	66	11	2	0
	%	72%	23%	4%	1%	0%	0%
Providing sufficient time for you to process the information collaboratively with colleagues.	#	999	448	88	20	7	0
	%	64%	29%	6%	1%	0%	0%
Motivating you to recommend these types of sessions to your work colleagues.	#	1007	429	94	21	6	5
	%	64%	27%	6%	1%	0%	0%

Table 2: As a result of participating in this Professional Learning Experience, I have broadened/deepened my existing knowledge of:

		Strongly Agree	Agree	Disagree	Strongly Disagree	Not Addressed
Three-dimensional learning and teaching.	#	798	692	27	2	43
	%	51%	44%	2%	0%	3%
Research-based instructional practices.	#	887	624	22	1	28
	%	57%	40%	1%	0%	2%
Instructional practices to make learning experiences more inclusive for diverse student populations (e.g., special education, highly capable, migrant, students of color).	#	778	587	63	7	127
	%	50%	38%	4%	0%	8%

		Strongly Agree	Agree	Disagree	Strongly Disagree	Not Addressed
Instructional practices to make learning experiences more inclusive for English language learners.	#	693	582	88	11	188
	%	44%	37%	6%	1%	12%
Instructional practices to make learning experiences more inclusive for students with disabilities.	#	613	580	107	12	250
	%	39%	37%	7%	1%	16%
A range of assessment and/or resources across the educational system such as state, local, and/or classroom assessments.	#	672	630	80	7	173
	%	43%	40%	5%	0%	11%
How to share the sessions' information with others (teachers, administrators, parents).	#	693	658	76	5	130
	%	44%	42%	5%	0%	8%

Table 3: How frequently do you implement the below instructional practices in your science or STEM teaching?

		All of the time	Most of the time	Sometimes	Never or hardly ever	Not applicable
Provide opportunities for students use data to inform their thinking.	#	262	703	454	29	44
	%	17%	45%	29%	2%	3%
Test the ability of students to apply key science ideas to new situations.	#	211	634	532	64	51
	%	14%	41%	34%	4%	3%
Engage in conversations around science findings or engineering solutions.	#	328	637	426	55	42
	%	21%	41%	27%	4%	3%
Engage student in science-related computational thinking.	#	193	565	589	78	53
	%	12%	36%	38%	5%	3%
Ask students to explain their partial understandings and potentially incorrect ideas.	#	487	633	302	34	34
	%	31%	41%	19%	2%	2%
Have students make explanations and revise them in response to new evidence.	#	378	640	393	40	36
	%	24%	41%	25%	3%	2%

Table 4: Participating in this Professional Learning Experience prepared me with the necessary skills to try something new or different in my professional practice?

		Strongly Agree	Agree	Disagree	Strongly Disagree
Participating in this Professional Learning Experience prepared me with the necessary skills to try something new or different in my professional practice.	#	966	573	22	1
	%	62%	37%	1%	0%

Table 5: How frequently do you engage in the instructional practices in science and STEM teaching below?

		All of the time	Most of the time	Sometimes	Never or hardly ever	Not applicable
I plan for multiple ways for my students to access learning.	#	442	699	286	30	36
	%	28%	45%	18%	2%	2%
I encourage students to consider possible barriers to implementing a solution.	#	332	690	382	42	41
	%	21%	44%	24%	3%	3%
I survey students about their interests and experiences relevant to science ideas/solutions.	#	264	523	521	128	49
	%	17%	33%	33%	8%	3%

Table 6: How confident are you about teaching the Next Generation Science Standards (NGSS) climate science-related topics at your current level?

		Very Confident	Confident	Somewhat Confident	Not Confident
How confident are you about teaching the Next Generation Science Standards (NGSS) climate science-related topics at your current level?	#	246	710	460	82
	%	16%	45%	29%	5%

Table 7: Grade level(s) currently teaching/current role

Elementary (P-5)	#	1122
	%	72%
Middle (6-8)	#	254
	%	16%
High (9-12)	#	120
	%	8%
Multiple grade	#	66
	%	4%



Table 8: Are you a Washington State Fellow?

Yes	#	233
	%	15%
No	#	1291
	%	83%
Fellow Emeritus	#	38
	%	2%

## Fellows Surveys

Table 9: Thinking about your professional learning session, how would you rate it for the following?

		Very Good	Good	Fair	Poor	Very Poor	Does Not Apply
Meeting the stated learning objectives of the session.	#	179	70	8	1	0	1
	%	69%	27%	3%	0%	0%	0%
Use of engaging and useful activities to facilitate your learning.	#	190	49	16	3	1	0
	%	73%	19%	6%	1%	0%	0%
Introducing you to useful resources such as curriculum materials, research articles, and practice information.	#	161	68	25	2	2	1
	%	62%	26%	10%	1%	1%	0%
Providing timely, relevant information that you will be able to apply in your work setting.	#	175	71	10	2	1	0
	%	68%	27%	4%	1%	0%	0%
Engaging you in discussion with other participants in ways to facilitate your learning.	#	192	55	11	0	1	0
	%	74%	21%	4%	0%	0%	0%
Providing sufficient time for you to process the information collaboratively with colleagues.	#	170	73	11	3	1	1
	%	66%	28%	4%	1%	0%	0%

Table 10: As a result of participating in this Fellows Session, please rate your agreement with the statement: I have broadened/deepened my existing knowledge of...

		Strongly Agree	Agree	Disagree	Strongly Disagree	Not Addressed
The content area.	#	118	113	11	1	16
	%	46%	44%	4%	0%	6%
Research-based instructional practices.	#	147	103	4	1	4
	%	57%	40%	2%	0%	2%
Instructional practices to make learning experiences more inclusive for students of color.	#	116	109	9	1	24
	%	45%	42%	3%	0%	9%
Instructional practices to make learning experiences more inclusive for English language learners.	#	125	105	9	1	19
	%	48%	41%	3%	0%	7%
Instructional practices to make learning experiences more inclusive for students with disabilities.	#	108	113	10	1	27
	%	42%	44%	4%	0%	10%
A range of assessment and/or resources across the educational system such as state, local, and/or classroom assessments.	#	73	93	26	4	63
	%	28%	36%	10%	2%	24%
How to share the sessions' information with others (teachers, administrators, parents).	#	92	124	19	4	20
	%	36%	48%	7%	2%	8%
Leadership practices to provide equitable access to high quality instruction.	#	123	115	11	3	7
	%	47%	44%	4%	1%	3%
How to look at data to identify ways to adjust instruction.	#	64	71	35	5	84
	%	25%	27%	14%	2%	32%

		Strongly Agree	Agree	Disagree	Strongly Disagree	Not Addressed
How to try something new or different in my professional practice.	#	163	86	6	2	2
	%	63%	33%	2%	1%	1%

## Climate Science Survey: Open-ended Responses

What aspect of your learning today are you most likely to use in your classroom in the near future?

Participants discussed resources, tools, and specific strategies that they would use in their classrooms and schools including: games, hands-on activities, modeling, online resources, and science kits. Some were eager to introduce systems thinking and local phenomena to their students. Participants also valued the opportunity to collaborate with fellow teachers, sharing tips and feedback. Many walked away excited to intentionally bring a cross-curricular lens to the classroom and engage students, particularly English Language Learners. Overall people appreciated the opportunity to gain more confidence and practice with science curricula and State standards.

- “Everything was very useful today and will definitely be used. All the graphic organizers are appropriate to first grade and I really like that some organizers have multiple styles that can fit students during different times of the school year.”
- “I’m going to use the ambitious science teaching strategies to introduce my students to climate change and its effect on snow dependent species (like the wolverine).”
- “Creating Phenomena that are deep, engaging and relatable to students.”
- “I am excited to implement some systems ideas for early learning and special education preschool students.”
- “The session reinforced key ELL strategies and gave me time to prepare ways to directly apply them to my current lessons. Specifically, I’ll be using focused vocabulary minilessons (3 minutes tops) and more graphic organizers with visual scaffolds in the upcoming lessons and trying to work on things like wait time and how I deliver my vocabulary instruction during my lessons.”
- “I like the integration between Science and the ELA standards and practices.”

What suggestions do you have to make this professional learning experience better?

Participants suggested more time, requesting to break up the materials over a few sessions. A few participants mentioned small technology issues, such as volume and the concept board software. Generally, people enjoyed and requested more collaboration and planning time. They also wanted more attention to strategies and content geared towards working with English

Language Learners, students with disabilities, and elementary school students. Rather than offering feedback, about half of the participants who replied to this question expressed praise for this professional learning experience or did not have any further suggestions.

- “Make it a 2-day training again. I know it costs money to do this, but when it is rushed, it is covered at a surface level and is stressful/hard to follow.”
- “Meetings online are challenging and can be awkward. That is why the moderators need to establish norms to allow all to participate, providing airtime, conversations on topic and preventing colleagues from talking over each other.”
- “Allow more time in break out groups to synthesize. This experience was amazing and so well executed in a way of guided evaluative discovery.”
- “Would love to see more ideas for adapting activities for a variety of learners (ELL's and kids with a variety of reading levels).”
- “Have the material and training in Spanish.”
- “None. I love how it was laid out and organized: the combination of independent homework time, small group, whole group, partner, recording, sharing out. It was a good use of my time. The two-hour sessions were long, but always seemed to go by fast because of the pacing. I loved it!”

## Fellows Open Ended Responses

### What worked well?

Participants valued collaboration time, particularly with other teachers within their grade level and across different districts. Many fellows appreciated time spent practicing strategies, particularly modeling and centering local phenomena. Overall people liked the structure of the days, noting the pacing, variety of activities, guest speakers and opportunity to practice learning from the student perspective.

- “I enjoyed having time to dialogue with teachers at the same grade level from different schools. We were able to share ideas about curriculum and how and where we might use the information provided.”
- “I feel I learned a lot of new and useful strategies for improving student modeling by using modeling scaffolds. It has given me ideas for developing generic templates I can use, edit, and share with colleagues.”
- “The logical sequence of the activities, the varied and innovative activities, opportunities to work with others, independent thinking time, engaging materials, great facilitator.”

What would you change for the next session? What would you change for 2019-20?

Fellows provided helpful suggestions for improving the professional learning experiences. Some participants requested more time for collaboration, planning and solo reflection time. A few participants suggested adding more content applicable across grade levels, particularly at the elementary level. Additionally, many would like access to the demonstrated resources and more support in implementing strategies into their own classroom. About one out of four participants replied with praise or no suggestions for changes.

- “More time to process with other teachers. The MOST valuable part of Fellows is getting to debrief with other teachers how they approach problems and learning.”
- “If at all possible, separate activities into two distinctly different examples: elementary and secondary. I think it is sometimes hard for elementary teachers to place themselves in a secondary example.”
- “Breakout session in grade level groups to discuss how to apply strategies to our specific students.”
- “I would love more resources for using Games in my classes so that I don't have to create them.”
- “None - I feel that all time was appropriately spent, and I am grateful for all of the resources!”

What new or different thing(s) will you try in your professional practice in the coming months because of this Professional Learning Experience?

Participants noted several tools and strategies they are excited to bring back to their classrooms including models, scaffolding, check lists and science circles. Some Fellows are excited to share new strategies and learnings to their colleagues.

- “Create more opportunities for students to use modeling to explain their understanding of science concepts.”
- “Checklists and templates so students know exactly what is expected.”
- “I will implement the Scientist's circle to make sure all of my students feel heard.”
- “I will share this modeling information with my colleagues to help improve their practices.”
- “Refining and revising modeling lessons so students are truly showing a model of a phenomenon. Working with teachers on what modeling really is and how to assess it. Revising and using phenomenon-based lessons.”

What assistance would you like to support your teacher leadership activities?

Fellows noted several ways they would like support as teacher leaders. Many appreciated and want more space and time to collaborate with other science Fellows. Participants want access to more materials and resources for their classrooms and to share with staff. Some respondents want additional support creating, editing, and implementing their action plans. Others are interested in learning about leadership opportunities and attending leadership skill-specific trainings.

- “More time to work with the other Fellows and [my Science Coordinator] as a resource. Time to work with colleagues in my district.”
- “More anchoring phenomenon activities that we can take back to our districts to share with other teachers. If the activities are already created, we may have more buy in from our fellow teachers.”
- “I appreciate the sharing of resources to further our understanding of teaching and learning in science.”
- “Time to think about the action plan and how to make it successful.”
- “I would like to hear about opportunities that are available for leadership. Leadership is a new endeavor for me. It has been an uncomfortable, nervous, and scary step, but very rewarding.”