Climate Science Proviso

2018-19 Interim Survey Report

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AESD ASSOCIATION OF EDUCATIONAL SERVICE DISTRICTS
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Supporting Washington's Schools and Communities.

CLIME TIME

Kauffman & Associates INCORPORATED

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Introduction and Executive Summary

ClimeTime is facilitated by the Office of Superintendent of Public Instruction (OSPI) through a Washington State budget proviso of $4 million in 2018-2019 originally requested by Governor Jay Inslee. OSPI manages the Washington State Fellows' Network,[1] and the grant funding flows through all nine Educational Service Districts (ESDs) in Washington and seven community-based organizations (CBOs). The ESDs and CBOs are launching 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 16 grantees to develop instructional materials, design related assessment tasks and evaluation strategies, and facilitate student events.

This interim survey report discusses data from two surveys about ClimeTime professional development of science teachers across Washington between September 1 and December 15, 2018. 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 educators participating in the Washington State Fellows' Network, which 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 fall 2018. While Regional Science Coordinators focus on teacher leadership in the Fellows' Program, they provide support for climate science instruction through these convenings.

Climate Science Survey Findings

Overall, participants rated the trainings very highly with more than 86 percent stating that aspects of the session were good or very good. More than nine in ten participants reported that they were introduced to useful resources and were motivated to recommend these types of sessions to colleagues.

Most participants (88 percent) shared that they have broadened or deepened their knowledge of topics related to climate science. 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. Over 90 percent agreed that they have broadened or deepened their understanding of research-based instructional practices, and over 80 percent reported increased knowledge of the content standards and how to share the information they learned with colleagues. A significant proportion of respondents (between 63 and 79 percent) agreed or strongly agreed that the training increased their knowledge of practices to make learning experiences more inclusive for students of color, English language learners, and

[1] Please visit http://k12.wa.us/CurriculumInstruct/Fellows.aspx to learn more about the Washington State Fellows Network.

students with disabilities. Over half (55 percent) reported that they are confident or very confident about teaching the NGSS climate science-related topics at their current level.

Participants reported on the frequency of their instructional practices in science and STEM teaching. While close to four out of five respondents plan for multiple ways to access learning most or all of the time, a smaller proportion (42 percent) survey students about their interests or experiences relevant to science ideas. Over three-fourths of the participants claimed that they prompted students to explain and revisit their understandings. Close to two-thirds reported employing other practices, including using data to inform students' thinking and engaging in conversations around science and engineering findings.

The Climate Science Surveys provided information about participants in professional development supported by the 2018-19 legislative proviso. Trainings drew primarily elementary teachers (39% percent) and middle school teachers (31 percent) with remaining percentages serving high school and multi-grade teachers. Most respondents stated they had relatively little training, with more than half (67 percent) noting they had engaged in six or fewer hours of climate science training.

Fellows' Survey Findings

Overall, participants in the Science Fellows' Trainings gave strong ratings to their professional development. More than 86 percent stated that aspects of the sessions were good or very good. More than nine in ten participants reported that the sessions used engaging activities, introduced them to useful resources, and provided timely and relevant information.

The vast majority of the participants (96 percent) agreed or strongly agreed that participation prepared them with the necessary skills to try something new or different in their professional practice. Most respondents agreed that they have broadened or deepened their understanding of research-based instructional practices (95 percent) and leadership practices to provide equitable access to high quality instruction (92 percent). A significant proportion (between 76 and 85 percent) agreed or strongly agreed that the training increased their knowledge of practices to make learning experiences more inclusive for students of color, English language learners, and students with disabilities.

Survey Responses

The following sections list the number of responses and percent of responses for each question in the Climate Science Survey and the Fellows Survey. Summaries of the responses and verbatim responses are also provided for any open-ended questions.

Climate Science Survey Responses

Table 1 through Table 8 provide the number and percentage of responses for each question in the Climate Science Survey.

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

Question	Very Good	Good	Fair	Poor	Does Not Apply
Meeting the stated learning objectives of the session	239 (66%)	111 (31%)	9 (3%)	0 (0%)	1 (0%)
Use of engaging and useful activities to facilitate your learning	235 (65%)	103 (29%)	21 (6%)	1 (0%)	0 (0%)
Introducing you to useful resources such as curriculum materials, research articles, and practice information	226 (63%)	109 (30%)	22 (6%)	2 (1%)	1 (0%)
Providing timely, relevant information that you will be able to apply in your work setting	220 (61%)	125 (35%)	14 (4%)	1 (0%)	0 (0%)
Engaging you in discussion with other participants in ways to facilitate your learning	244 (68%)	106 (29%)	8 (2%)	2 (1%)	0 (0%)
Providing sufficient time for you to process the information collaboratively with colleagues	180 (50%)	132 (37%)	42 (12%)	4 (1%)	0 (0%)
Motivating you to recommend these types of sessions to your work colleagues	217 (61%)	113 (32%)	22 (6%)	2 (1%)	4 (1%)

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

Question	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Addressed
The content standards	139 (39%)	178 (49%)	18 (5%)	0 (0%)	25 (7%)
Research-based instructional practices	174 (48%)	169 (47%)	7 (2%)	0 (0%)	10 (3%)
Instructional practices to make learning experiences more inclusive for diverse student populations (e.g., special education, highly capable, migrant, students of color)	141 (39%)	145 (40%)	20 (6%)	0 (0%)	54 (15%)
Instructional practices to make learning experiences more inclusive for English language learners	107 (30%)	146 (41%)	35 (10%)	0 (0%)	71 (20%)
Instructional practices to make learning experiences more inclusive for students with disabilities	92 (26%)	134 (37%)	37 (10%)	0 (0%)	96 (27%)
A range of assessment and/or resources across the educational system such as state, local, and/or classroom assessments	120 (34%)	155 (43%)	22 (6%)	0 (0%)	61 (17%)
How to share the sessions' information with others (teachers, administrators, parents)	121 (34%)	183 (51%)	17 (5%)	0 (0%)	37 (10%)

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

Question	All of the time	Most of the time	Sometimes	Never or hardly ever	Not applicable
Provide opportunities for students to use data to inform their thinking	58 (17%)	179 (51%)	103 (30%)	3 (1%)	5 (1%)
Test the ability of students to apply key science ideas to new situations	38 (11%)	166 (48%)	130 (37%)	10 (3%)	4 (1%)
Engage in conversations around science findings or engineering solutions	69 (20%)	157 (46%)	105 (31%)	10 (3%)	2 (1%)
Engage students in science-related computational thinking	35 (10%)	142 (42%)	140 (41%)	22 (6%)	3 (1%)
Ask students to explain their partial understandings and potentially incorrect ideas	89 (26%)	183 (53%)	67 (19%)	5 (1%)	3 (1%)
Have students make explanations and revise them in response to new evidence	74 (26%)	166 (53%)	92 (19%)	9 (1%)	5 (1%)

Table 4. How frequently do you engage in the instructional practices in science and STEM teaching below?

Question	All of the time	Most of the time	Sometimes	Never or hardly ever	Not applicable
Ask students to explain their partial understandings and potentially incorrect ideas	89 (26%)	183 (53%)	67 (19%)	5 (1%)	3 (1%)
Have students make explanations and revise them in response to new evidence	74 (26%)	166 (53%)	92 (19%)	9 (1%)	5 (1%)
Provide opportunities for students to use data to inform their thinking	58 (17%)	179 (51%)	103 (30%)	3 (1%)	5 (1%)
Engage in conversations around science findings or engineering solutions	69 (20%)	157 (46%)	105 (30%)	10 (3%)	2 (1%)
Test the ability of students to apply key science ideas to new situations	38 (11%)	166 (48%)	130 (37%)	10 (3%)	4 (1%)
Engage students in science-related computational thinking	35 (10%)	142 (42%)	140 (41%)	22 (6%)	3 (1%)

Table 5. How confident are you about teaching the Next Generation Science Standards (NGSS) climate science-related topics at your current level?

Question	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?	46 (13%)	147 (42%)	134 (38%)	25 (7%)

Table 6. Grade level(s) currently teaching/current role

Grade level	Elementary (Grades P–5)	Middle (Grades 6–8)	High (Grades 9–12)	Other (Multiple grades)
Responses	139 (39%)	111 (31%)	86 (24%)	24 (7%)

Table 7. Are you a Washington State Fellow?

Fellow status	Yes	No	Fellow Emeritus
Responses	64 (18%)	286 (79%)	10 (3%)

Table 8. How many hours of climate science-related training have you completed in 2018-19?

Number of hours	0–3	4–6	7–9	10–12	13–15	Over 15
Responses	122 (34%)	124 (34%)	32 (9%)	30 (8%)	8 (2%)	48 (13%)

Responses to Open-Ended Survey Questions

The Climate Science Surveys gathered feedback about steps participants would take after the trainings. Respondents also offered suggestions about opportunities to improve the professional development. This section provides the open-ended questions included in the survey, a summary of the responses, and a bulleted list of the verbatim responses.

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

Participants discussed activities and resources that they would use in their classrooms in the near future. They referenced local examples, such as bringing in guest speakers and having classroom discussions, as key strategies in their science classrooms. Many expressed they are excited about Argument-Driven Inquiry (ADI).[2] The following are verbatim responses to this question.

- "I really like the walk sharing our boards. Having two partners doing the presenting and two partners traveling. What a great strategy for our ELL students and aren't all of our students English Learners?"
- "I plan to use the instructional techniques presented to help improve engagement, student interest and higher order thinking. I also plan to include experts in the field and select examples that are as close to the students' geographic location."
- "I love the idea of story lines to connect the different standards and lessons in the kits. I will be using this immediately to help tie in some of the concepts especially with the field trips that we already use."

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

Participants offered suggestions for improving the professional development. They were interested in receiving training to adapt curriculum and instruction to students in different grade levels, and they were eager to learn how to modify lessons for English language learners and students with disabilities. Many recommended providing more time for peer discussion and planning instruction. The following are verbatim responses to this question.

- "I am a social studies teacher who is partnering with our science teacher to implement the ADI model in both of our classrooms. I wish there was ADI/Inquiry training at the ESD that specifically addressed how to bridge ADI into other disciplines and/or use an inquiry model in those areas."
- "Highlight ideas on how ADI can meet the needs of SPEDs, HCs, ELLs, and students of color."

[2] ADI is a multi-step process used in STEM classrooms to move from identifying a question to data collection to reporting. Please visit https://argumentdriveninquiry.com/instructional-model for more information.

- "Maybe turn this into a two-day program so that we can get more in-depth and hands-on experiences."
- "Reiterate and remind us each session how to 'break down' the NGSS standards in order for us to truly comprehend these standards. I know it is 'old news' for some participants, but it is very useful for those of us that are newbies."

Fellows Survey Responses

Table 9 and Table 10 provide the number and percentage of responses for each question in the Fellows Survey.

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

Question	Very Good	Good	Fair	Poor	Very Poor	Does Not Apply
Meeting the stated learning objectives of the session	832 (65%)	390 (31%)	54 (4%)	3 (0%)	1 (0%)	0 (0%)
Use of engaging and useful activities to facilitate your learning	808 (63%)	364 (28%)	96 (8%)	11 (1%)	1 (0%)	0 (0%)
Introducing you to useful resources such as curriculum materials, research articles, and practice information	823 (64%)	381 (30%)	60 (5%)	11 (1%)	4 (0%)	1 (0%)
Providing timely, relevant information that you will be able to apply in your work setting	812 (63%)	377 (30%)	77 (6%)	11 (1%)	2 (0%)	1 (0%)
Engaging you in discussion with other participants in ways to facilitate your learning	954 (75%)	273 (21%)	46 (4%)	4 (0%)	1 (0%)	2 (0%)

Question	Very Good	Good	Fair	Poor	Very Poor	Does Not Apply
Providing sufficient time for you to process the information collaboratively with colleagues	795 (62%)	375 (29%)	95 (7%)	10 (1%)	4 (0%)	1 (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…

Question	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Addressed
The content standards	516 (40%)	644 (50%)	58 (5%)	8 (1%)	54 (4%)
Research-based instructional practices	631 (49%)	579 (45%)	27 (2%)	4 (0%)	39 (3%)
Instructional practices to make learning experiences more inclusive for students of color	528 (41%)	548 (43%)	56 (4%)	5 (0%)	143 (11%)
Instructional practices to make learning experiences more inclusive for English language learners	518 (41%)	568 (44%)	54 (4%)	5 (0%)	135 (11%)
Instructional practices to make learning experiences more inclusive for students with disabilities	448 (35%)	524 (41%)	87 (7%)	7 (1%)	214 (17%)

Question	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Addressed
A range of assessment and/or resources across the educational system such as state, local, and/or classroom assessments	370 (29%)	486 (38%)	108 (8%)	9 (1%)	307 (24%)
How to share the sessions' information with others (teachers, administrators, parents)	509 (40%)	604 (47%)	82 (6%)	6 (1%)	79 (6%)
Leadership practices to provide equitable access to high quality instruction	581 (45%)	597 (46%)	38 (3%)	6 (1%)	58 (5%)
How to look at data to identify ways to adjust instruction	321 (25%)	395 (31%)	142 (11%)	12 (1%)	410 (32%)
How to try something new or different in my professional practice	711 (56%)	516 (40%)	24 (2%)	4 (0%)	25 (2%)

Responses to Open-Ended Survey Questions

The Fellows surveys gathered feedback about steps that science educators would take after the convenings. Respondents also offered praise and suggestions about opportunities to improve the professional development. This section provides the open-ended questions included in the survey, a summary of the responses, and a bulleted list of the verbatim responses.

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

Survey responses indicated that Science Fellows will be focusing on the quality of student discourse in the classroom. They also valued certain approaches, like Claims, Evidence and

Reasoning (CER), Talk Moves[3] and norm setting in their teacher leadership and classroom activities. One Fellow noted that she would, "Incorporate strategies for student talk into professional development." The Fellows sessions also raised their awareness of the importance of equity in science teaching. The following are verbatim responses to this question.

- "I will work with my school's teachers on how to increase student participation and to ensure equitable student voice."
- "Being intentional about implementing talk in my discussions with students. This is also a TPEP goal so this topic has branches into many important areas of teaching!"
- "I will try to implement more student discourse in my classroom, but first establish norms as a class."
- "I will continue to push student discourse in our classrooms across all grade levels and work on ways to get students to lead each other in discourse."
- "I will be more intentional about building norms for student talk, posting those norms, and reteaching them often. I will also look for protocols that support talk moves to ensure equity and safety."

What worked well for you today? What, if anything, would you change, edit, or add for the next session?

Participants' open-ended responses were very positive. Science Fellows praised the strategies and resources shared by the Regional Science Coordinators in Network convenings. They expressed gratitude for meeting with grade-level and local groups. Their suggestions for improving the professional development included addressing the fast pace of some of the sessions and providing more time for collaboration and action planning. The following are verbatim responses to these questions.

- "I thought it was a great session! I was very engaged. I liked talking about the CBAM[4] and going through the teacher scenarios and what to do to address their concerns. I liked engaging in ADI a second time and feel like the concept is more solidified for me."
- "I enjoyed the varied activities which made me critically look at the application of NGSS in lessons. Also, many strategies to promote student talk and shift pedagogy towards the teacher being a guide on the side. Getting to interact not only with colleagues in my ESD but also those from across the state was very useful and I feel that I have grown as a teacher from this experience. Thank you!"

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[3] Claims, Evidence and Reasoning (CER) is a framework for students' learning and assessment tasks. Designed to promote student ownership of learning, Talk Moves provide classroom conversation prompts so students talk with one another about the topics.

[4] The Concerns-Based Adoption Model (CBAM) is the Fellows Network's framework for supporting teacher leaders to support changes in classrooms and schools. CBAM provides tools that support individuals as they go through predictable stages of concern when adopting any innovation. Please visit http://www.nas.edu/rise/backg4a.htm for more information.

- "I really like the way the gallery walk was done (having someone stay and explain the model)—it felt more focused and kept me engaged in the content. I also liked the protocol for looking at the progressions for engaging in argument from evidence—it strengthened my understanding of the practice and gave me some ideas for how I might help teachers navigate the progressions."
- "I was very happy with how things were laid out for this meeting. I was given many resources, time to discuss them, a connection to the big picture and the book we are reading, time to privately digest the information, and time to update my action plan. I feel like I learned something new, reviewed what I have already learned but may have forgotten, shared my own ideas, and have walked away with a plan of action."
- "More time to learn from each other. We are our own best resource and we rarely get time to seek help from each other—especially from other school districts that may be in different places than we are in the implementation."
- "More strategies! I love being 'strategized'—the idea that I am actually doing an activity the way I would be using it in my classroom is seriously relevant and I tend to be more successful after going though it myself, first!"