CLIME TIME
CLIMATE SCIENCE LEARNING IN WASHINGTON STATE
CSSS-Sponsored Session

Justice-Centered Climate Science Learning

Ellen Ebert, Ph.D.
Director, Secondary Education & Science, OSPI

Meredith Lohr
Executive Director
EarthGen

Philip Bell, Ph.D.
College of Education
University of Washington

October 29, 2021 3:30 - 4:30 pm
Oregon Convention Center, E142/143
Who We Are

Ellen Ebert, Ph.D.
Director
Secondary Education Content; Science
Office of the Superintendent of Public Instruction

Philip Bell, Ph.D.
Learning Scientist, University of Washington

Meredith Lohr
Executive Director
EarthGen

Lots of Others
www.climetime.org
Land Acknowledgment

The land now known as Portland sits on unceded territory of the original peoples of this land – the Multnomah, Wasco, Kathlamet, Clackamas, Cowlitz, Bands of Chinook, Tualatin Kalapuya, Molalla, and many other Tribes who made their homes along the Columbia (Wimahl) and Willamette (Whilamut) rivers. The descendents of the First Peoples of this land form a vibrant community today and we are so grateful to them and thank them for their stewardship of this beautiful land.
Land Acknowledgement
Honoring the Stewards of the Land

University of Oregon Unbound Blog

Heeding the words of the Columbia River Inter-Tribal Commission
IllumiNative "Disrupt Invisibility" Toolkit

BE A GOOD ALLY
NATIVE PEOPLES - INVISIBLE NO MORE

+ DISRUPT INVISIBILITY
+ TURN OVER THE MIC
+ SMASH STEREOTYPES
+ DEMAND ACCURATE HISTORY

www.illuminatives.org/take-action

https://illuminatives.org/take-action/
All students prepared for post-secondary pathways, careers, and civic engagement.

Transform K–12 education to a system that is centered on closing opportunity gaps and is characterized by high expectations for all students and educators. We achieve this by developing equity-based policies and supports that empower educators, families, and communities.

- Ensuring Equity
- Collaboration and Service
- Achieving Excellence through Continuous Improvement
- Focus on the Whole Child

Washington Office of Superintendent of Public Instruction
Equity Statement

Each student, family, and community possesses strengths and cultural knowledge that benefits their peers, educators, and schools.

Ensuring educational equity:

• Goes beyond equality; it requires education leaders to examine the ways current policies and practices result in disparate outcomes for our students of color, students living in poverty, students receiving special education and English Learner services, students who identify as LGBTQ+, and highly mobile student populations.

• Requires education leaders to develop an understanding of historical contexts; engage students, families, and community representatives as partners in decision-making; and actively dismantle systemic barriers, replacing them with policies and practices that ensure all students have access to the instruction and support they need to succeed in our schools.

Washington Office of Superintendent of Public Instruction
Norm Setting

- Assume positive intentions
- Engage in the struggle and discomfort that work in climate justice often entails
- Grant each other grace as we learn together
- Lean in and support others to lean in
- Learn with the intent to take action
Intended Outcomes

- Background of ClimeTime Proviso
- Framing of ClimeTime in Climate Justice
- Explore Climate Justice League activity
- Connect your own work (or potential work) to lessons from ClimeTime
ClimeTime

The initiative, the proviso, the funding

2017  Invitation from the Governor
2018  4 Million Legislative Proviso
2019-21  6 Million in continuation funding
2021-23  6 Million in continuation funding
**ClimeTime**

**Framing equity and justice through system coherence**

- Equity: Intentional collaboration with underrepresented populations
- Required Collaboration: Educational Service Districts (public) and Community Based Organizations (non-profits)
- Open Educational Resources (OER) requirement
- Classroom practices as a form of equity - formative assessments & phenomenon anchoring, lifting student voice
- Professional Development formats and supports
ClimeTime

- K-12 Science Education
- ESDs, CBOs, Tribal Schools
- STEM Seminars
- Field Studies

About ClimeTime

ClimeTime is facilitated by the Office of the Superintendent of Public Instruction (OSPI) in collaboration with the UW Institute for Science + Math Education. OSPI manages the network and the grant funding flows through all nine Educational Service Districts (ESDs) in Washington and seven community-based organizations, which are launching programs for science teacher training linking 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.

State Funding:

- 2018-19: $4m
- 2019-20: $3m
- 2020-21: $3m
Lifting Diverse Student Voice

Governor’s STEM Innovation Alliance - Utilize student voice in initial passage year 1 and to show accomplishments year 2
ClimeTime Grantees 2021-23

Community Based Organizations
IslandWood
Pacific Education Institute
EarthGen
Nooksack Salmon Enhancement Association
Padilla Bay National Reserve
Gonzaga Center Climate Learning

Tribal Schools
Pascal Sherman Indian School
Chief Leschi School
Chief Kitsap Academy

Educational Service Districts
North Central ESD 171
Northeast ESD 101
Northwest ESD 189
Central ESD 105
Vancouver ESD 112
South Central ESD 123
Puget Sound ESD 121
Olympic ESD 114
Capital Region ESD 113
Beneficiaries in 2020–21 School Year

Number of School Districts: >200 some school districts participated more than once.

Number of Schools: 2,021
Number of Students: 203,810 (approximately)
Number of Educators: 6640 (numbers impacted by COVID closures)

Other: TOSAs, Administrators 836 approximately

Since 2018 -- Approximately 22,000 educators received training
Visit Our ClimeTime Websites

OSPI Landing Page

ClimeTime 2021–23 | OSPI (www.k12.wa.us)

Full project overview see ClimeTime website

www.ClimeTime.org
The Book of Hope

Jane Goodall shares her “Reasons for Hope” focusing on:

Human Intellect,
Resilience of Nature,
Power of Young People, and
Indomitable Human Spirit.
EarthGen equips young people with the education and experience to become leaders for sustainability and justice.

Meredith Lohr
Executive Director

Learning sparks action
Climate Justice League Overview

- Build knowledge and share resources about climate justice
- Professional Learning Community model (Regional cohorts)
- Classroom implementation & evaluation
Climate Justice League Overview

- Local context and connections
- Support for social emotional learning
- Solutions and action

What is your vision for climate justice education in your classroom?
Partners, Collaborators, + Speakers

Dr. Isabel Carrera Zamanillo
Assistant Director for Diversity, Equity and Inclusion
Stanford University

Dr. Megan Ybarra
Department of Geography, Univ of Washington

Sanjana Bhajaj
Youth activist, Tomorrow Project

Terrell Engmann
Co-founder, Basilica Bio

Jordan Jackson
Co-founder, Basilica Bio
When Hard Jobs Turn Hazardous

As drought, record heat and wildfire smoke seize the Pacific Northwest, farm owners and fieldworkers struggle to adapt. Sometimes the response feels improvised or inadequate.

The New York Times, September 4, 2021
Who’s at Risk?

- Climate change ➞ hotter summers in the PNW.
- Climate justice asks, **Who is most impacted?**
- Record your *noticings* and *wonderings*.
A tractor hauling freshly harvested watermelons passes the only form of shade on this farm in Sunnyside.

Photograph by Jordan Gale
During the 2-6 a.m. shift on a pear orchard in Zillah, Washington.
Photograph by Jordan Gale
N95 masks were handed out to workers in Sunnyside, Washington, over the summer when the air quality began to deteriorate. Photograph by Jordan Gale
A worker inside the employee housing unit where several bunk beds are crammed into a room. Photograph by Jordan Gale.
Blueberries scorched by high temperatures in Albany, Oregon.

Photograph by Jordan Gale
Turn and Talk

- Take a look at your list of noticings and wonderings.
- Share one observation and one wondering with your partner(s).
- Discuss.
Framework: Who’s at Risk?

Graphic from An Unfair Share Report
EXAMPLE: COVID-19

Vulnerability
- Older than 65
- Pre-existing health conditions
- People who don’t speak English
- Lack access to health care

Exposure
- Residents of long term care facilities
- People who are incarcerated
- Live in multifamily households
- Essential workers

Risk
Terms

**Vulnerability** = Your ability to withstand and recover from climate-related hazards

**Exposure** = Your likelihood to encounter climate-related hazards (think location)

**Risk** = where vulnerability and exposure overlap
Hot & Hazy Summers

Vulnerability

Risk

Exposure
Building Resilience through Action

How would you define Resilience?

Environmental Condition (ex. high temps) → Hazard (ex. excess heat) → Risk Vulnerability + Exposure (ex. farmworkers) → Build Resilience

- Investigate Options
- Prioritize + Plan
- Take Action

Recommended Resources:
- Washington Health Disparities Map
  https://toolkit.climate.gov/
- https://www.allwecansave.earth/for-educators
Thank You!

@EarthGenWA

www.earthgenwa.org
Engaging students in learning about and contributing to equitable solutions for a changing climate

Philip Bell
Learning Sciences & Human Development
“To address our climate emergency, we must rapidly, radically reshape society. We need every solution and every solver. As the saying goes, to change everything, we need everyone. What this moment calls for is a mosaic of voices—the full spectrum of ideas and insights for how we can turn things around” (page xxi)
Engineering is broadly defined in the Framework: “any engagement in a systematic practice of design to achieve solutions to particular human problems.”

— NRC, 2012, p. 46
Keeping Climate Science Learning and Instruction Focused on Creating Solutions and Building Community Resilience

http://STEMteachingtools.org/brief/68
Design Commitment 1: Students’ climate anxiety and despair can be mitigated by learning about collective and individual climate solutions... Spend 3/4 of instruction on exploring solutions.

What are the implications of this design commitment for how you do/would approach your instruction?
White Allies, Let’s Be Honest About Decolonization

I want to experience the solidarity of allied actions that refuse fantastical narratives of commonality and hope.
The Decolonize Issue: In Depth

White Allies, Let’s Be Honest About Decolonization

Perhaps these goals and values are among the greatest gifts of Indigenous spirituality and wisdom. I want to experience the solidarity of allied actions that refuse fantastical narratives of commonality and hope. Determining what exactly needs to be done will involve the kind of creativity that Indigenous peoples have used to survive some of the most oppressive forms of capitalist, industrial, and colonial domination. But above all, it will require that allies take responsibility and confront the assumptions behind their actions and aspirations.
Design Commitment 2: In instructional efforts, focus on how non-dominant communities have developed solutions and built resilience in the face of climate change impacts. Focus on the perspectives, values, and goals held by the most impacted communities.

Disrupt narratives...that center on white saviorism and romantic narratives of hope.

What are the implications of this design commitment for how you do/might approach your instruction?
There are strong forces working to frame science as neutral and apolitical (e.g., not tied to informing climate solutions).

We keep science separated from responding to social matters of deep consequence at our own collective peril.

We must bring students into sustained sequences of learning, ethical deliberation, and concrete action focused on collective and just solutions to the climate and biodiversity crises.
Introducing the FossilFuel Non-Proliferation Treaty

Tuesday 9th Nov, 9.30-11am GMT
Glasgow Film Theatre, Screen 3

REGISTER
COP26COALITION.ORG/PS

https://fossilfueltreaty.org & @fossiltreaty on Twitter
Our Climate Science Ed Resources

Navigating the Political Dimensions of Climate Change Teaching and Learning

How can environmental educators practice intersectional environmentalism?

How to productively reframe eco-anxiety as a science communicator or educator

Using science investigations to develop caring practices for social-ecological systems

Teaching STEM in Ways that Respect and Build Upon Indigenous Peoples’ Rights

Getting their hands dirty. Engaging learners in authentic science practices outside the classroom

How place-based science education strategies can support equity for students, teachers, and communities

Scientific literacy involves understanding global climate change & what people can do about it

Keeping Climate Science Learning and Instruction Focused on Creating Solutions and Building Community Resilience

Using Local Phenomena to Communicate Climate Solutions

Focusing Science and Engineering Learning on Justice-Centered Phenomena across PK-12

http://stemteachingtools.org/sp/climate-learning
Professional Learning Resources to Support NGSS / Framework Implementation

• Co-designed by practitioners & researchers
• Tested & refined over time
• Easily shareable—over social media, email, paper

Overview: How can we promote equity in science education?

Focusing Science and Engineering Learning on Justice-Centered Phenomena across PK-12

Using science investigations to develop caring practices for social-ecological systems

NSF
@STEMteachtools (Twitter)
facebook.com/STEMTeachingTools
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ClimeTime

All nine Educational Service Districts (ESDs) in Washington are launching programs for science teacher training around Next Generation Science Standards (NGSS) and climate science, thanks to grant money made available to the Office of the Superintendent of Public Instruction (OSPI) by Governor Inslee. This group includes teacher professional development and instructional materials resources developed under this grant.

37 members | 23 affiliated resources

Request to join group

OER Resources
https://www.oercommons.org/groups/climetime/4081/
“Hope is not a lottery ticket you can sit on the sofa and clutch, feeling lucky. It is an axe you break down doors with in an emergency. Hope should shove you out the door, because it will take everything you have to steer the future away from endless war, from the annihilation of the earth’s treasures and the grinding down of the poor and marginal. To hope is to give yourself to the future - and that commitment to the future is what makes the present inhabitable.”

~ REBECCA SOLNIT
Back Pocket Slides
“One last aspect we wish to highlight through the concept of reflexivity is the importance of being intellectually honest and portraying science and engineering practice as they are: Potentially flawed and imperfect human endeavors greatly affected by social, historical, and institutional factors... Many of the ailments that affect our troubled planet today have been indeed produced by advances in science and engineering (which ironically were “designed” to meet the “needs” of greedy “clients,” such as international corporations and the billionaire class).”

“It is essential for children to gather a more balanced understanding of the nature of science and engineering as human endeavors, and of the critical role that ethics plays in our development as caring and responsible human beings—responsible to our communities as well as to our local and global environments (Macfarlane et al., 2019).”

— Rodriguez & Shim, 2021, p. 14
Speculative Design

“[Speculative design] thrives on imagination and aims to open up new perspectives on what are sometimes called wicked problems, to create spaces for discussion and debate about alternative ways of being, and to inspire and encourage people’s imaginations to flow freely. Design speculations can act as a catalyst for collectively redefining our relationship to reality.”

“Speculative design gives designers an opportunity to stretch their imaginations and develop new and boundary-pushing systems and prototypes for the future.”

— Speculative Everything: Design, Dreaming, and Social Dreaming by Anthony Dunne & Fiona Raby
Speculative Feminism
Speculative Fabulation

“The British social anthropologist Marilyn Strathern, who wrote *The Gender of the Gift* based on her ethnographic work in highland Papua New Guinea (Mt. Hagen), taught me that ‘it matters what ideas we use to think other ideas (with).’

It matters what matters we use to think other matters with; it matters what stories we tell to tell other stories with; it matters what knots knot knots, what thoughts think thoughts, what descriptions describe descriptions, what ties tie ties. It matters what stories make worlds, what worlds make stories.”

— Staying With the Trouble: Making Kin in the Chthulucene by Donna Haraway
Philip Bell explores ecosocial responsibilities... on Twitter: "We launched #UWClimateEd by building on our unfolding conversation about how (or if) the concept of HOPE has a place in #ClimateEd using this rehearsal prompt and quotations: 🌿 What is your response when people ask if we should have HOPE about responding to climate change? https://t.co/ReRH41SSjM" / Twitter
Session Abstract (move to end)

Climate change is happening; however, mitigation, impacts of, and resilience to such change are not equal across all contexts. The idea of climate justice, the movement to define and address these differential impacts through specific policies and actions, is an area of great interest to youth and of increasing social importance to include in k-12 education. However, navigating the complex scientific, social and political terrain of teaching climate change through a justice lens is challenging. These solutions and action oriented teaching approaches are shifts in pedagogical models for many science teachers and require support. In this workshop, participants will explore learning activities and resources to build capacity within the educational systems to engage in this much needed work, and specifically to foster inquiry and civic practices for both educators and students. In addition, we will share resources to help educational leaders navigate the implementation of such learning across varied educational systems and community contexts.