



Water Protection: An Inquiry Unit with Pre-service English Language Arts Teachers

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Abstract

This six-week water inquiry unit with pre-service teachers in an English Language Arts (ELA) elementary education methods course explores the guiding question: *Why is it important to protect water, and how can water be protected?* Core whole-class texts include *We are Water Protectors* by Carole Lindstrom (2020) and *Thirst* by Varsha Bajaj (2022). Multiple assessment projects that support pre-service teachers' informational reading and writing are included.

Keywords

inquiry, pre-service teachers, water, sustainability, climate change

For the past five years, we've taught and iterated a water protection inquiry unit in our pre-service English language arts methods course. We've written about why we focus on the urgent topic of water justice and how we intentionally "layer" a variety of multimodal texts to support "worthwhile learning" (see Muhammad, 2020, p. 145) in this unit (Schutz & Woodard, 2022), as well as about how the unit supports meaningful inquiry, knowledge-building through text-rich inquiry, and collaborative, multimodal informational writing (Woodard & Schutz, 2022). In our recent book, *Teaching Climate*

Change to Children: Literacy Pedagogy That Cultivates Sustainable Futures (Woodard & Schutz, 2024), we shared a revised version of the unit that would be appropriate for fourth graders. However, we have never had a chance to share about and reflect on our full unit design for pre-service teachers. We hope that this piece will support pre-service literacy teacher educators who are interested in teaching about climate change and sustainability. In particular, we hope they will see how units like this can support novice teachers to read a variety of texts (including informational, stories, and poetry/art, as well as print and multimodal) in different instructional formats (including whole class read alouds and book clubs), write extensively (including notebook writing, informational writing, and multimodal writing), and understand through experience how a curriculum oriented to interdisciplinary inquiry and knowledge-building can support engaged and meaningful learning.

Narrative Framing

In our most recent iteration of the unit, in our first session, we read and learned about inquiry-driven instruction. Then, we posed our guiding question (“Why is it important to protect water, and how can water be protected?”) and read aloud *We are Water Protectors* by Carole Lindstrom (2020).

In the second session, we learned about informational texts (e.g., analyzing informational text structures and children’s informational writing, identifying the topic vs. main idea of an informational text about a contemporary water issue, etc.). PSTs (pre-service teachers) submitted their preferred expert group topics.

In the third session, PSTs met to collaborate on a project related to the class novel, *Thirst*, which they had finished in advance of this session (see table below). Then, they met with their Water Expert groups and began reading/listening to/watching their assigned texts together. They also analyzed informational writing in preparation for their upcoming informational writing assignment.

In the fourth session, PSTs shared their projects related to the class novel, *Thirst*. They signed up for the informational writing assignment, each responsible for a letter in a Class ABC Water Justice Book. They met with their Water Expert groups to begin working on their presentations.

In the fifth session, PSTs worked in their Water Expert groups to synthesize and document their learning in their presentation.

In the sixth session, PSTs shared their Water Expert group presentations and their Class ABC Water Justice Book. They reflected on their learning across the unit. Across and prior to the first three sessions of this unit, we engaged in a class read aloud of *Thirst*. We read this novel across five sessions, sometimes reading and discussing chapters aloud in class, and other times assigning reading for homework. Graduate student Evelyn Pollins used “A Discussion Guide to *Thirst*” (Qarooni, 2022) to design the class novel read aloud activities.

Title	Water Protection
Unit Time	6 weeks
Grade Level(s)	Pre-service Elementary Teachers
Core Texts Read by Whole Class	<ul style="list-style-type: none"> • <i>We are Water Protectors</i> by Carole Lindstrom and Michaela Goade (illus.) (2020) • <i>Thirst</i> by Varsha Bajaj (2022)
<i>Supplementary Texts for Assigned Expert Groups</i>	
Group 1: Water Scarcity	<ul style="list-style-type: none"> • Documentary: “Living Without Water” (Kingsley & Richards, 2016) • Text 1: “California to Tackle Water Scarcity by Converting Seawater” (NewsELA, 2014) • Text 2: “Dwindling Freshwater Resources” (NewsELA, 2019a) • Text 3: “Mexico City's Long-Running Water Issues are Getting Even Worse” (Green, 2024) - 3-minute listen
Group 2: Indigenous Cultures and Water Protection	<ul style="list-style-type: none"> • Documentary: “Awake: A Dream from Standing Rock” (Dewey, Fox, & Spione, 2017) • Text 1: “‘We are all of water’: Meet Josephine Mandamin, Water Walker” (Pogue, 2014) • Text 2: “Native Americans Protest North Dakota Pipeline, Cite Effects on Water” (NewsELA, 2016)

	<ul style="list-style-type: none"> Text 3: "Ojibwe Elder Sharon Day and the Mother Earth Water Walkers" (Treichel, 2013)
Group 3: Water Pollution and Inequality	<ul style="list-style-type: none"> Documentary: "Flint's Deadly Water" (Ellis, 2019) Text 1: "Five years after Flint Water Crisis, Unresolved Issues Remain" (NewsELA, 2019b) Text 2: "How Cholera Spread So Quickly through Haiti in 2010" (NewsELA, 2019c) Text 3: "Coal Producer to Pay Hundreds of Millions for Pollution" (PBS News Hour, 2014) - 6-minute listen
Group 4: Water and Renewable Energy	<ul style="list-style-type: none"> Documentary: "Thirst for Power" (Hames, 2019) Text 1: "Types of Renewable Energy" (NewsELA, 2020) Text 2: "Why Hydropower is the Forgotten Giant of Clean Energy" (Brigham, 2022) Text 3: 'Water Batteries' Could Store Solar and Wind Power for When it's Needed (Charles, 2022) - 4-minute listen
Group 5: Oceans and Biodiversity	<ul style="list-style-type: none"> Documentary: "Troubled Waters: A Turtle's Tale" (Fielding, 2019) Text 1: "Just 13% of the Ocean is Untouched by Humans" (Taylor, 2018) Text 2: "UN Biodiversity Report Reveals World has far to go" (Sternberg, 2020) Text 3: "How Much Plastic is in the Ocean" (PBS Digital Studios, 2017) - 5-minute listen
Climate Literacy Terms	water scarcity, water quality, water contamination, droughts, desalinization, reciprocity, advocacy, decontamination, renewable energy, groundwater, wastewater
Objectives	By the conclusion of the unit, PSTs will be able to respond to the unit's guiding question: <i>Why is it important to protect water, and how can water be protected?</i> By engaging in a class novel study, explorations of informational texts, and group text-based inquiry, PSTs acquire knowledge about issues and solutions related to water protection and the ways in which social structures of power influence access to safe water. In addition,

	<p>PSTs will: (1) determine story themes by attending to textual details, including character traits, relationships, and interactions, summarizing the text, and synthesizing understandings, (2) use text structures and features of informational text to comprehend and composed texts that address the guiding question.</p>
<p>Materials and Resources</p>	<p><i>Class Novel Project</i> Teachers had 3 options for a group project to demonstrate their engagement with our class novel, <i>Thirst</i> (Bajaj, 2022):</p> <ul style="list-style-type: none"> ● Option 1: Illustrated blackout poem ● Option 2: Quadrama (i.e., representing four parts of the story three-dimensionally using pictures and words in each quadrant) (see Figure 1) ● Option 3: Comic of a key scene <p><i>Water Expert Group Presentation</i></p> <ul style="list-style-type: none"> ● Slide 1: Hook ● Slide 2: Concept Map ● Slide 3: Review of Readings ● Slide 4: Sculpture ● Slide 5: Curated Text Set ● Slide 6: Ecological Restorying ● Slide 7 (optional): 3-Panel Comic <p><i>Class ABC Water Justice Book</i> Create a two-page spread that includes:</p> <ul style="list-style-type: none"> ● the chosen letter and the word selected ● at least 2 printed or drawn images ● information teaching readers about the topic ● at least 2 different informational text structures (description, sequence, cause and effect, problem/solution) ● at least 4 informational text features (headings/subheading, photos/illustrations, captions, timelines, diagram, flowchart, table, bolding). ● citations



Figure 2: PST Culminating Projects: Blackout Poem, ABC Book Page, Quadrama

Going Forward

As our PSTs share their projects, presentations, and ABC Water Justice Book pages on our last day of class each semester, we are impressed by the meaning they have made not only about water protections during the unit, but also about the importance of providing learners with opportunity to be curious using text-rich inquiry learning. As they reflect individually and as a class, PSTs express how this kind of learning—learning about "something"—differs from what they typically see in their school placements, where emphases on literacy processes and practices dominate. They recognize that they've grown their understandings about water protection. They come to value and seek out perspectives on challenges that are often silenced. They are practiced in navigating texts that they'll need to support readers, writers, and makers in their elementary classrooms.

The joy they exhibit as they recognize all they have learned, as well as the questions they identify as needing further investigation of to explore topics related to climate justice and sustainability with children, affirm our ongoing commitment to incorporate a focus on issues related to climate and environmental sustainability into our courses and propel us forward as we begin to plan for the subsequent year.

References

- Brigham, K. (2022, Jun 2). Why hydropower is the forgotten giant of clean energy. CNBC. <https://www.cnbc.com/2022/06/02/why-hydropower-is-the-worlds-most-overlooked-renewable.html>
- Charles, D. (2022, Oct 14). 'Water batteries' could store solar and wind power for when it's needed. NPR. <https://www.npr.org/2022/10/14/1126523766/water-batteries-could-store-solar-and-wind-power-for-when-its-needed>
- Dewey, M., Fox, J., & Spione, J. (Directors). (2017). *Awake: A dream from Standing Rock* [Film]. International WOW.
- Ellis, A. (Director). (2019, September 10). Flint's deadly water (Season 2019, Episode 16) [TV series episode]. In A. Ellis & K. Ruble, J. Carah, S. Childress, & F. Koughan (Executive Producers), *Frontline*. Five O'Clock Films.
- Fielding, R. F. (Director). (2019). *Troubled waters: A turtle's tale* [Film]. WLRN.
- Green, E. (2024, March 8). Mexico City's long-running water problems are getting even worse. NPR News. <https://www.npr.org/2024/03/08/1234928040/mexico-city-water-problems>
- Hames, M. (Director). (2019). *Thirst for power* [Film]. Alpheus Media.
- NewsELA. (2014). *California to Tackle Water Scarcity by Converting Seawater*. Sacramento Bee. https://midsunschool.weebly.com/uploads/2/8/4/9/28493803/water_scarcity.pdf
- NewsELA. (2016). Native Americans protest North Dakota pipeline, cite effects on water. *Tribune Content Agency*. https://drive.google.com/file/d/1QM6k8L7I-jd3PqMaphtV_bZxNYT1ZhGQ/view
- NewsELA. (2019a). Dwindling freshwater resources. *National Geographic Society*. <https://drive.google.com/file/d/1WlkvSoxsl703FlyfHSp8YWkYoSaYx2M1/view>
- NewsELA. (2019b). Five years after Flint water crisis, unresolved issues remain. *National Geographic Partners*. <https://drive.google.com/file/d/1zzZxdlOu6DJXKfXh1qPDKTxENOp8Gusl/view>
- NewsELA. (2019c). How cholera spread so quickly through Haiti in 2010. *National Geographic Partners*. https://drive.google.com/file/d/1G9Pi-x4B_ZY8c7zSgwdPITKckDR8n6cn/view
- NewsELA. (2020). Types of renewable energy. *National Geographic Society*. <https://drive.google.com/drive/search?q=types%20of%20renewable%20energy>

- Muhammad, G. (2020). *Cultivating genius: An equity framework for culturally and historically responsive literacy*. Scholastic Incorporated.
- PBS Digital Studios (2017, March 28). How much plastic is in the ocean? *PBS Digital Studios*. <https://www.pbs.org/video/how-much-plastic-is-in-the-ocean-jpfpsf/>
- PBS News Hour. (2014, March 5.) *Coal producer to pay hundreds of millions for pollution*. <https://www.pbs.org/video/coal-producer-to-pay-hundreds-of-millions-for-pollution-1401314555/>
- Kingsley, S., & Richards, H. (Directors). (2016). *Living without water* [Film]. Java Films.
- Pogue, C. (2014, May 29). 'We are all of water': Meet Josephine Mandamin, Water Walker. *Mother Earth Water Walker*. <https://www.motherearthwaterwalk.com/?p=2687>
- Qarooni, N. (2022). *A discussion guide to thirst*. https://www.varshabajaj.com/wp-content/uploads/2022/07/Thirst_Teachers_Guide.pdf
- Schutz, K. M., & Woodard, R. (2022). Climate justice now: Layering texts about the urgent topic of water justice. *Illinois Reading Council Journal*, 50(2), 59-65. <https://doi.org/10.33600/IRCJ.50.2.2022.59>
- Sternberg, T. (2020). UN Biodiversity Report Reveals World has far to go. *NewsELA*. https://drive.google.com/file/d/1EtpwlOJwD0l3A2VHWDNVXszOjij_sDII/view
- Taylor, A. P. (2018, July 26). Just 13% of the ocean is untouched by humans. *LiveScience*. <https://www.livescience.com/63171-disappearing-ocean-wilderness.html>
- Treichel, D. (producer) (2013, Feb 28). *Ojibwe Elder Sharon Day and the Mother Earth Water Walkers*. <https://ampers.org/ojibwe-elder-sharon-day-and-the-mother-earth-water-walkers/>.
- Woodard, R., & Schutz, K. M. (2024). *Teaching climate change to children: Literacy pedagogy that cultivates sustainable futures*. Teachers College Press.
- Woodard, R., & Schutz, K. M. (2022). Urgent writing pedagogies in teacher education: Portraits of practice for an inquiry into water justice. In T. S. Hodges (Ed.), *The Handbook of Research on Writing Instruction Practices for Equitable and Effective Teaching*.

Children's & Adult Literature

Bajaj, V. (2022). *Thirst*. Penguin Random House