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Intersections between Science and Social Justice: A Conversation with Liza Finkel

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Intersections between Science and Social Justice: A Conversation with Liza Finkel

Abstract

In preparation for the special issue: Cascading Crises: Power, Equity and Liberation, the Editors of NWJTE sat down for a conversation with Dr. Liza Finkel, a Science Teacher Educator in the Graduate School of Education and Counseling at Lewis & Clark College. Dr. Finkel's passions include science (especially geology), finding intersections between science and social justice and helping new teachers learn to include those connections in their teaching, knitting, cooking, birding, and reading mystery novels with women protagonists.

Keywords

Social Justice, Science, Teacher Preparation

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In December, the Editors of *NWJTE* sat down for a conversation with Dr. Liza Finkel, a Science Teacher Educator in the Graduate School of Education and Counseling at Lewis & Clark College. Dr. Finkel's passions include science (especially geology), finding intersections between science and social justice and helping new teachers learn to include those connections in their teaching, knitting, cooking, birding, and reading mystery novels with women protagonists.

Maika Yeigh (MY): Thank you so much for talking with us about your work! The special issue of the *Northwest Journal for Teacher Education* is called *Cascading Crises: Power, Equity and Liberation* and how climate change is impacting and creating cascading crises, mainly for indigenous communities, people in poverty, and other traditionally marginalized people. How do you approach working with teacher candidates in your methods class in relation to climate change and other issues of equity?

Liza Finkel (LF): Working around issues of equity and social justice is a focus of all of the things that we do in my class. In the fall semester, we focus on how social justice and science are connected in current issues that we read about in a newspaper or magazine, or hear about on the radio. I model my expectations for the assignment by taking them through a brief presentation where we identify the science and social justice ideas in the story. We then talk about how we might use a story like this with our students. How might we fit it into the curriculum that we currently have? Or how might we use an activity like this as a current event activity that we do once a week or once a month? And how do we help students see the connection between social justice and science? The goal here is both for students to start to become more aware of how science and social justice are intersecting, and also for them to start becoming more attuned to examples that they might see in their daily lives.

As an example, this year one of my students took a look at the Klamath River dam removal project (Neumann, 2024), and asked us to consider questions like: Why are we removing those dams? Why did they make those dams in the first place? What are the connections to the science curriculum that we're teaching? And what are the social justice issues; it's not just about restoring the river for salmon, but it's about addressing wrongs done to the indigenous communities that live along the river, both because their lands were flooded, but because a food source was taken, and important aspects of their culture were ignored. We looked at how the dams affected the ecosystem, how they affected the people, and then how dFinally, we talked about how to create either a unit or a lesson or a sequence of lessons about this, and where it would fit into the curriculum.

MY: I love that. It makes me think about how things change over time. What differences do you see with the current generation of teacher candidates? I find that the generation right now really exciting, because they are so switched on to issues of equity and social justice. So do you find that with your students? And then do you see the schools that they're in as places that foster attention to equity? And if not, how do you help them navigate that?

LF: I would say yes, they are highly attuned now. And I think they have an easier time finding examples, and the examples they find are typically stronger. I'm not sure if that is because of the times we live in, or if it's because of the particular students that we attract to this program where

social justice is something that's embedded in all of our work. I talk explicitly with prospective applicants when they're considering becoming science teachers at Lewis & Clark about how we are going to be looking at the intersection between science and social justice. And a lot of them come with that as an explicit goal. So they definitely are more attuned and more eager and ready. They still struggle with two things. One is actually seeing the science; they can see the social justice issue and they know that it's an environmental issue. What they struggle with is determining the science content that it connects to. So they get that this is an issue about ecosystems, but what *about* ecosystems? Where would it fit into your unit on ecosystems? And would it be best to use it as a starting point for students or would it be best to be in a summative assessment for students? Would it be something that you integrate throughout a unit and come back to several times? And granted, that's what they're here to learn, but they struggle with the pedagogical piece, and then they also just really don't see the science content very clearly.

Another one of the big questions candidates struggle with is, will my mentor let me do this? Can I do this because the curriculum is pretty scripted? It's not scripted in the sense that they literally have to read from a script. But there is a set of units. And there is a sequence of activities, and they are expected to do those units and activities, and in many cases, a shared assessment with another teacher or group of teachers that are teaching the same class. I think that's problematic for student teachers, especially problematic because they feel a lot of resistance and frustration at not being able to do the things they really want to do. I try to help them think about how they could make these kinds of changes to a school's curriculum. . Even once they become teachers, they need to develop strategies that they can use to talk to their colleagues about trying something new, or talk with administrators about wanting to make time for social justice. Even when interviewing for jobs, I encourage them to ask about if this is possible, or if this is a focus at the school, so that they don't find themselves in a place where you can't do those things. I still find schools can be limiting in making the space for that kind of teaching.

I want to come back to something else in response to your first question. As I mentioned, in the fall semester, we focus on identifying an issue that has science and social justice in it, and then thinking about how to integrate that into teaching. In the spring, I want them to think not so much about curriculum, and *what* we teach, but about instruction, and *how* we teach so we focus on how to create a classroom that's equitable and that provides access and opportunities for all students. I want them to think about what an inclusive classroom looks like. I have chosen four areas to focus on: How do we create an inclusive science classroom for neurodivergent students? How can we create a barrier free science classroom for students with all physical abilities? How do we create an accessible and inclusive classroom for girls in science? And how do we create an anti-racist science classroom? I model the assignment with the first question and they each choose one of the others and lead us in an exploration of the opportunities and challenges of creating this kind of inclusive classroom. Although that's not directly related to climate change, I think it's really important for them to realize that creating a classroom where everyone has access to learning involves thinking about both of those things: What's the content? And how do we make it meaningful and engaging for students?

MY: You're also empowering your teacher candidates to come up with those ideas and think about putting them in the driver's seat and sharing that knowledge.

LF: I want them not to just be passive recipients. And when I do the sample lesson, which is going to focus on students on the autism spectrum, I want them to think about how we create a classroom that's accessible and why it is important to do that. When I talk with them about supporting neurodivergent students I share a passage from a book I love: *Diary of a Young Naturalist* written by a young person on the autism spectrum (McAnulty, 2022). In this passage he talks about his love of learning and the barriers to learning he experiences in school, in contrast to being in the natural world. Once we hear his voice we can think about what we would do differently as teachers and explore how we could change our instruction to make it more accessible to students like the author of the passage we read. And whether we have an ethical and moral imperative to figure out how to support these students. I have come to think of social justice now as a question of how to create classroom learning opportunities where all students have access and the opportunity to learn and engage and express their understanding in a way that is appropriate for them so that they have access to science content that is important for all humans to understand.

MY: Well, it's so interesting when you think about engaging in science ... my own science experience in school versus outside of school or my own children's experience in school versus outside school. It's like school killed science. My kids loved being out in nature, and looking for the worms and looking at the leaves and watching things rot and those things, but then they get into school and it's very dry. And it's like that engagement is forgotten. And that is an equity issue. I feel like I can nurture science at home ...

LF: The message so many kids get is "this is not a place for me." We should not want that to be the case. It seems that there is more interest in looking closely at who participates in science and who doesn't. For example, Bird Alliance of Oregon has done a lot of work to analyze who actually participates in their activities and who doesn't. Based on that work they are creating more opportunities for increasing the diversity of the experiences that they offer, the people who lead those experiences, and also their cost structure, in order to make more of their activities accessible to more people. As a result they've increased participation in their offerings by people who did not feel welcome previously. The *New York Times* did a series of articles on bird watching that stemmed from the racist experience of a Black birdwatcher in Central Park (Cooper, 2023). An article in *Nature Magazine* (Oza, 2023) shows that you can map where bird species are found in a community and see how different species line up with maps that show previously redlined neighborhoods. Historically, redlined neighborhoods frequently had less tree cover and a more limited variety of plants, and less access to water. It's interesting to think about the question: what is it that controls where the birds go? That's actually a science question about understanding habitat, biodiversity, and habitat loss, which are science concepts that might be included in an ecosystem unit. Now we're also connecting it to a social studies unit by understanding the history of the urban landscape, and how that was controlled by the laws people make. There are still equity issues today based on the history of redlining. It still lives with us in our landscape.

MY: I'm guessing kids in schools, especially teens, would be fascinated by those issues that happened here in Portland and that continue now. Some of those things end up being missing in the curriculum. Also, curriculum that gets pushed away and hidden from kids. These curriculum issues have been tugging at my brain recently. When teachers are doing all their planning

together, which in our area has been a real push, it can feel problematic. I'm not even sure where the push is coming from and wonder if the push is coming from the teachers themselves. The problem I'm finding is that teachers are so into staying in step together that our candidates have a difficult time implementing their own ideas. That's not unusual, but I also hear it from first-year teachers who do not feel as though they have the freedom to do anything different than their team has planned. Even if what those plans are do not work for them. If we want to build a new teacher's capacity, they need to be able to try things and figure out what works and what doesn't.

LF: It is definitely true in science that teachers are being told to plan and implement together. Sometimes this comes from the district and other times from the individual school. In some districts where they have purchased new curriculum, the district has said, we spent a lot of money on this, and you have to do it exactly as it was given. Exactly. Which means the handouts, the slides, the pacing, everything exactly as it was given. And then maybe if you really want to change it later, you can. But then the problem is you've deskilled teachers. I also think teachers fall into this because we've created schools where they don't have enough planning time.

MY: Absolutely.

LF: And it's very much in their best interest personally to get the lessons planned and put a lot of investment in upfront. And once they're planned you don't have to use your planning time for planning. Instead, you can use it for grading, taking a break, helping a student, going to the bathroom, and other things that you might need to do as a human being. So because teachers don't have enough time to plan, it's actually motivational for them to plan in advance and plan together. And when a student teacher comes in who wants to do it differently= the mentor tells them no, *this* is what we do. We've got it all planned. This is a teacher's motivation that I can totally understand. There's also a control motivation from the district. They want to know what everyone's teaching. The notion is that if a student moves from one school to another in the district, the curriculum needs to be the same and they need to be on the same page, which is a motivation I don't share.. It's a combination of deskilling, inadequate planning time, a desire for control, combined, so that teachers have very little power and authority over their work and teaching.

MY: I agree. And when thinking about equity issues, some of the districts we are talking about claim to be equity forward. If you look at all of their words, all of their language, their hiring practices, the main throughline is "equity". But having teachers all on the same page doesn't account for differentiation or students learning English, or neuro-diverse students. It doesn't account for connecting the curriculum to real things in your local community that kids might be interested in.

LF: Right. We want to get students involved in activism and engaging in their own communities to identify and solve problems. All things we know are central to equity and central to creating classrooms where all students are engaged and have access and can learn. But this is a bug challenge when everyone is supposed to teach the same lessons, and use the same memorization-driven assessment. It's much more about if you can tell me that you memorized this fact or know the meaning of this word or can check this box. It's no wonder that schools are having attendance issues.

MY: And, it's no wonder that teachers are leaving. So, you are clearly passionate about issues of access and equity. How did you come to your own passion for equity and social justice? I know there's probably not one single thing and that it's a lifelong path ...

LF: I don't actually know. I mean, certainly, my family. My mother belonged to the Women's International League for Peace and Freedom (WILPF, 2024) and was very active in the League of Women Voters (LWM, 2024). My father, Donald Finkel, was a university professor and poet (Washington University, St. Louis, 2024). I remember when I was growing up there were riots at Washington University where my father taught and they burned down the ROTC building (O'Neil, 2023). My father got called out in the middle of the night to bail out one of his students who was arrested. So that was part of my growing up. The only time I ever remember my mother crying was watching Bobby Kennedy's funeral on the TV. I still know where we were when we saw it. I know that my brother's hero growing up was Martin Luther King. All of these things were an important part of my growing up.

I grew up in a liberal part of St. Louis, Missouri, which is a funny thing to say, because St. Louis was not a particularly liberal place even then. But where I grew up in University City my neighborhood was populated with people who taught at Washington University, or were lawyers or doctors or architects, or painters or other kinds of artists. My next door neighbor was a middle school math teacher. I participated in Take Back the Night (TBTN, 2024) marches and No Nukes rallies; I was in Washington, DC for one of those huge rallies. At that point in my life I was not going to be a teacher so I wasn't thinking that I would use teaching as a way to do this work.

And then I was studying to be a geologist I can tell you all kinds of awful stories about what it was like to be a woman in a graduate program in Geology, from sexual harassment to demeaning of women from the faculty, to seeing a faculty that was all men. I did not stay. Not many people stayed.

I guess it came from those experiences and from something within me. It took a long time to articulate my view of social justice and see what it meant in my work as a teacher. It has really been in the last 10 years that I have become able to articulate to myself and others what I mean by "social justice," why I think it's such an important piece of being a science teacher and what it looks like in the classroom. And my vision of what it looks like in the classroom is constantly evolving. It is definitely changing all the time. When I worked in New Hampshire at the teacher education program there, or when I worked in Michigan, social justice wasn't an explicit goal for me. I was part of a group that planned an event to commemorate the forty year anniversary of the implementation decision of Brown vs. Board of Education. That was the first time I took an explicitly activist position as an educator.

In Michigan, I was also part of an NSF grant where we worked with the science teachers at a local public alternative school. There was a great recent documentary called *Welcome to Commie High* (Harrison, 2020). We created a three year integrated science curriculum that focused on getting kids out into the community. Then I moved to Maine and taught in a school with students' whose backgrounds were very different from mine. For many of them the most exciting thing about going on a field trip to Boston was riding an escalator because there were no escalators in town. We took the ninth graders on a field trip to Boston every year for visit colleges. Their parents wanted to come too; many hadn't been to Boston and they wanted the

tools to take their kids on a college visit, so they came with us. It was such a great experience to learn how to support kids who were not being served ...

MY: Nor were their families or their communities, I imagine ...

LF: Nor were their families or their communities. I learned a lot there. It was not about racial equity, but it was around class. And also very community-embedded. When I got to the University of New Hampshire, our focus was helping teachers become school leaders, but from the classroom. I think there was a focus on social justice but it was not explicit. I taught a course called Educational Structure and Change at the UNH where I taught about equity and access around educational structures and where they come from. And then I came to Lewis & Clark and ... this is what this place is about. I guess it didn't really become the core of who I am as an educator until I came here.

MY: When I think about an entry into social justice, it *is* about access, it *is* about empowerment. All of those things you are describing, helping kids see colleges, helping their parents see that and imagine that for their kids and the kids imagine themselves there. That is an equity issue. That is a social justice issue. And helping teachers be leaders in their own classrooms. We want the strongest teachers in the classrooms and we want them to be leaders and build capacity so their students will be successful. All of those are important equity issues that are easily overlooked, but those have all been integral to your work throughout your career.

LF: When I was at UNH I taught and then directed a summer program called Live, Learn & Teach.. As a part of that program we ran five summer schools where our teacher candidates team-taught community-based units. It was an amazing program, and that is where my foundational skills and beliefs in planning for community-engagement came from. Students would spend a week planning a community-based curriculum based on what they learned about the community where they would be teaching. Those community searches (that's what we called their investigations) were the first time I became aware of the extent of the houseless issue in rural Maine and New Hampshire.

MY: My first job in Portland was at the credit recovery night program. And I would get there early and sit at my desk and plan and eat an apple. I would typically put the core on the corner of my desk because the garbage can was across the room. And one night a kid came in early and asked if he could have my apple. I kind of looked around to see what he was talking about and realized he wanted to eat the rest of my core. I had never really seen hunger in a child in that way before.

LF: When I taught in Maine, we had a lot of kids on free & reduced lunch and we had a breakfast cart that would come around to every classroom every morning. We took a break for kids to line up to get their breakfast.

MY: One more question. Working with teacher candidates, if you could think about one main thing you hope they take away as they enter their own classrooms, what would it be? There are so many!

LF: What's the most important? They come with a love of Science and they come with a lot of Science knowledge, so I don't have to worry about those things. I know they leave with a lot of skills in planning and I think that's important. But I think the most important thing is to learn to see, really *see*, every kid in your classroom. One of my colleagues at the University of Michigan, Aaron Schutz, said "The person you need to talk with the most is the person you want to talk with the least." I want my students to remember that. We all make assumptions about students. How can I teach myself to step back and ask myself "what am I missing here?" That's what I want them to remember. I think that social justice is about creating classrooms where all students have the opportunity to learn. If you don't step back and question your own assumptions about your students, that will never happen. It's easy to say that the most important thing in classrooms is relationships – and it is—but do you really know them? And what do you know?

MY: Liza, thank you so much for sharing your work with us. It's powerful to think about new teachers coming into the profession with such strong preparation and willingness to focus their classrooms on the needs of their students and the issues that are important to them.

Resources:

Bird Alliance of Oregon. (2024, January). *Bird Alliance of Oregon*. <https://birdallianceoregon.org/>.

Cooper, C. (2023, May). Three years after a fateful day birding in Central Park, birding continues to change my life. *New York Times*. <https://www.nytimes.com/2023/05/26/opinion/birds-freedom.html>

Harrison, D. (2020). *Welcome to Commie High* [Film]. Public Broadcasting Service. <https://www.pbs.org/video/welcome-to-commie-high-gp7acp/>

League of Women Voters. (2024, January). *League of Women Voters*. <https://www.lwv.org/>

McAnulty, D. (2022). *Diary of a Young Naturalist*. Milkweed. Minneapolis: MN.

Neumann, E. (2024, January 13). *No turning back: The largest dam removal in US history begins*. [Radio broadcast]. NPR. <https://www.npr.org/2024/01/12/1224494403/klamath-river-begins-to-flow-again-with-dam-removal-project>

O'Neil, T. (2023, May). The night Washington U. became a flashpoint in the Vietnam War protests. *St. Louis Post Dispatch*. https://www.stltoday.com/news/archives/the-night-washington-u-became-a-flashpoint-in-the-vietnam-war-protests/article_745cb208-42c8-54aa-adfc-ef90cbaeb8cc.html

Oza, A. (2023, September). Legacy of racist US housing policies extends even to bird data. *Nature*. <https://www.nature.com/articles/d41586-023-02825-w>

Take Back the Night. (2024, January). *Take Back the Night*. <https://takebackthenight.org/history/>.

Washington University St. Louis. (2024, January). *Modern Literature Collections Biography: Donald Finkel*. <https://libguides.wustl.edu/c.php?g=1040037&p=7554489>

Women's International League for Peace and Freedom. (2024, January). *Women's International League for Peace and Freedom*. <https://www.wilpf.org/>