

STEPHEN

So we have heard from the introductions and the backgrounds of the people sitting around the table, their numerous interests and numerous starting points or ways to connect to issues of water, of community, of access. And so the range of disciplinary interests I find quite fascinating.

CARPENTER:

And in terms of the work that I've been doing with curriculum, it really speaks to this notion of interdisciplinarity, and some folks use the term transdisciplinarity. But in some ways, when we're interested in key issues, social issues, those disciplines go away. It's about people. It's about something beyond science or beyond art or beyond whatever that discipline might be.

So our multiple areas of expertise really come into play quite nicely here. This year, not only do I have the pleasure and the good fortune to be able to visit three times here at MIT as a visiting artist. But I'm also a visiting artist and visiting learner at a local elementary school back home.

And essentially, people were asking me, what are you doing at MIT? And what are you doing at the elementary school? And I said, I'm doing the same thing. Yeah. And the key is I'm going-- I want to know at the elementary school, specifically, what they can teach me about what I think I know about what I'm doing. And that's what we're doing here too. I'm eager to learn about what you can teach me about what I think I'm doing, but also what we can teach each other, what we can learn from each other.

Quite often, in some educational spaces, administrators, teachers, other folks in various levels of making decisions forget, explicitly or otherwise, that learners bring knowledge with them to every single learning context. So there's as much learning going on in one direction as there are in multiple directions. So we all have valuable information to share. So I'm eager to have that conversation.

So it's about the filters, right? It's about how these ceramic water filters inspire multiple curriculum possibilities, not just a curriculum or instructional possibilities for how do you make the filter, and how do you use them? But there are other ripples, pardon the pun. There are other ways that the filters might inspire learning.

For example, the filters are designed to sit inside a plastic water receptacle like the one you see here and the one you saw in the video. But what if you asked artists to create a ceramic

receptacle in their own style if you gave them the specifications, and they created the vessel in their own style?

And then you could actually have an exhibition of these receptacles. And that exhibition could tour to different locations. And in doing so, you could promote the exhibition. But you could also then talk about the global water crisis. You could talk about lack of adequate access to water. You could talk about the ways that artists and other folks are engaging in work to respond to these issues.

And so these exhibitions went on for a number of years. My colleagues and I were talking about reviving this practice. The idea is if someone purchases one of the receptacles, that money essentially is a donation back to a water project.

This is a vessel that I created as part of that work. And it's inspired by the sanitation workers' strike in 1968, *I Am a Man*. And it relates in many ways to found object art, assemblage work from some of the modernist artists. That's a top of a trophy I found at a secondhand store with a guy with a little fedora. It was perfect, right? And I made these little signs. But the idea being, how can the work of art itself function as a way to speak out and speak back to social issues?

Inspired by-- this one was inspired by the water filters and water filter receptacles. So those links become entangled. But they also allow for other trajectories of thinking to happen. Well, we can talk about protests. We can talk about, well, what is a basic human need? What is a human right? What is privilege? What do you need and what do you want? Those are two different things.

And I think those kinds of conversations with students are quite powerful. Who has access? Who sets up the limitations? What is necessary? Who takes action? These kinds of questions, I think, are central to not only a curricula within art within education, but also curricula within the various disciplines that are represented around this table.

AUDIENCE:

I'm leaving on the 13th to go to Puerto Rico to a central mountain town, Cidra to bring solar lamps, water filters, and solar panels, and solar panel kits to a certain sector of a barrio in Cidra. So the idea of a filter that fits in a luggage, because I'm limited to what I can personally carry-- three 50-pound bags. And I'm paying \$75 for the third one, two, three, whatever, to do that, because the bothersome part for me, this is not my background. I don't know.

So we have rechargeable batteries at home that we've been very true to. We only use our

rechargeable batteries. That's as far as that goes with us. And then the filter water inside it. But water is basically good. But seeing all these shipments of bottled water and the requests for batteries in an island and just the waste that that will create and that no one thinks about. And how can at least in one corner of the world-- or in this case, that island, can we try to do something?

Because I talk to my family. And they go to a river, and that's where they bathe. And that's where they get water to clean. And clean and bathe. That's it, because they won't drink it, because they don't know if something died further up the mountain. And they don't have access to that. And then there's sun everywhere, right? So just that immediate thing, and it's called Sector Bloquera, because at the bottom of the hill, there's a huge hardware type of like-- [SPEAKING SPANISH] just like a lumber yard type of thing.

I was going to say sawdust. I'm like, oh, I can easily get--

[LAUGHTER]

--I can get tons of sawdust from the [SPEAKING SPANISH]. But yeah, the access and how, in a limited time frame can one-- as I look at that little one right there just to do that, because-- right. And that weighs nothing.

STEPHEN It weighs nothing.

CARPENTER:

AUDIENCE: Yeah. So I guess that's my of this. And then I see [INAUDIBLE], like [INAUDIBLE] Hartford. I'm from Hartford, so he has Hartford roots. And Dred Scott, it's a really exciting presentation. And he contextualizes it really incredibly. But this really drew me because of the immediacy of what's happening out there.

STEPHEN Absolutely, yeah. Well, what we're seeing in Puerto Rico right now is just-- for me, it's beyond words, beyond adjectives. I can't-- it's indescribable. I spoke with a colleague, and friend of mine a few days ago. His family is in Puerto Rico. And he says it's-- he talked about-- before we heard the reports in the news about the gas issues and the water issues, he told me about both of those.

I also appreciate your comment about sending water bottles and batteries. And that just creates more waste. It's helpful. But unless you think about what happens beyond the life of that material, that's being irresponsible at some level, right? So the rechargeable, the

recyclable, the renewable is important.

Yeah, these little filters are made from the same mixture as the large filters. They're just on a smaller scale. You see in the back on that table. We made some mini filters yesterday. We still have some clay and sawdust. We can make some more today if you want.

They would need to be tested to make sure that they have the proper flow rate. But the other thing is we have to make sure that the water that is there, that these filters would filter out the bad stuff in the water that's there, OK? So I'm happy to make some small filters, if you'd like to take some with you. And you'd have to see. But you also need to take some test kits. And I have some test kits. If I don't have them here, I can get them. We can get them to you.

But the idea is that you need to test the water. It would be equally irresponsible to say, oh, here's something to take with you and it doesn't work. So we have to figure out what's in the water. And that's the basis for setting up the filter facilities. But the idea of being able to take some of these in your backpack and on your carry-on and being able to distribute it and have immediate response, that's a big deal. And so what you're up to and the work that you're going to be doing is very important.

But these things are fragile too. So the packing that it would take would require taking up some space as well. So there's always give and take, push and pull. I was talking to someone yesterday about a very similar part of the conversation. And one of things we started to do when I was at Texas A&M, before I moved to Penn State, was revolving around this very thing. And we thought, you know what. May I borrow your bottle for just a second?

This opening is about the same size as larger bottles. I don't have one here, so like a liter bottle. What if we turned it over, and you cut it right here? Or you cut it just enough that you could have a little flap, all right? And then what if we took the same material, and instead of what some folks are doing with making disks-- they look like hockey pucks that you can put inside PVC piping-- what if we made little corks? They look like little wine corks, but it's made out of this material. That could fit into this bottle.

So you lift the hinge. You put the cork down there. And then we have our own little portable receptacle. So it would take this bottle that then gets discarded that creates waste. Maybe it becomes a repurposed individual?

Yeah, you're just creating cork. How many wine corks could you take in your backpack? Hundreds, right? So it's that notion of scale and responsibility and access and immediacy. Maybe after a couple of weeks or maybe in this case, unfortunately, a couple of months, there would not be that need. And you'd have ways to deal with the recycling. But anyway, what you're talking about is a very important issue and set of concerns.

I first became familiar with the term "creative disruption" from David Darts, who is an art educator, and his doctoral dissertation and work looking at the practice of culture jamming, which grows out of an entire practice of responding to capitalism and advertising. So David looked at this idea of visual culture jamming, where you add-- instead of looking at culture-specific broadly-- visual culture, more specifically, and the way one might look at the visual components of a culture differently through some sort of what he called creative disruption. Creative meaning, his sense, coming from an artistic or cultural production perspective, but yeah, you can be disruptive. One might argue, you know, any kind of disruption is creative. But certainly, the creative in this sense comes from a more generic notion of artistic or cultural production.

AUDIENCE: How many decades ago, approximately, for that?

**STEPHEN
CARPENTER:** About one. [LAUGHS] Well, no, yes, the term is about 15, 20 years old, in the sense that I understand it to be.

AUDIENCE: It's been a very popular term in business management. Harvard Business School, they've been teaching courses in creative destruction as a strategy for entrepreneurship. So if you want to take on the big companies, you need to do something that disrupts the whole logic of how whatever that service or product is is organized and presented.

**STEPHEN
CARPENTER:** Part of the work that I do at my current university and previous universities in art education is to prepare teachers of art, but even K-12 teachers. And so with that preparation, there are methods courses or curriculum development courses that essentially are structured to respond in many ways to very specific skills or content.

And that's all fine and good, except, what I find more interesting are the questions that emerge that can be center points for curriculum. So instead of thinking of curriculum development and management, it's the idea of theorizing curriculum. So spinning it around in terms of the questioning, most teacher preparation programs that I'm familiar with, because there are these standards and points for accreditation, students must meet specific responses. And

they're pretty rigid, those curricula.

But I think that there are ways to play in and around. I've worked this way for a while. Around, by still responding to those expectations for certification, but at the same time, open it up so that teachers become knowledgeable and prepared and have experience to have an ongoing engagement with learning and developing interesting and exciting curricula that responds to social practices. For

Example, the idea of focusing on a theme or a concept or a question, rather than on a specific outcome or skill. Just making that shift is a big challenge for a lot of teacher preparation programs, because what you're doing is you're essentially saying, the predetermined content that we have and the predetermined skills that we have is not all there is to our discipline, that there could be more to it.

And it also suggests that it's not really the idea of learning that's important in education. It's about teaching content. So I like to turn also the shift from teaching to learning, to making the project about learning. And so this is how I'm going about it myself, Larry, working with undergrads and grad students to put questions at the center of their curriculum. So it becomes an inquiry-based approach. Or it becomes a thematic approach.

And often, it's inspired by social issues. I can show you an example or two, if you'd like, and specifically to water. So one of the things that I've enjoyed doing is using-- we've had a back and forth, Larry, about access to education in broad spaces. Online is one way that that happens.

So MindMeister is a free application. And so my early work in curriculum theorizing and development looked at spatial hypertext. So what if you took a concept like-- and more than a concept. I mean, water is a broad idea, a big-- so what if we put water at the center here?

And what I did was, I said, look, at a group of students, we said, if we put water at the center, what are the ideas and questions and concepts that emerge from just us thinking about water? So there might be technology concerns and issues related to pollution. There are contemporary artists who are looking at and thinking about water.

There's information then at the next level that relates to our understandings of water. And so what you're seeing here is an interconnected web of information inspired by the simple notion of water. What if you as a teacher-- you can be a teacher, you can be an artist, you can be

whatever-- what does water make you think of? What questions emerge? What do you know about water? What are you curious about about water?

If you start curriculum in that place-- what do you know? What don't you know? What would be interesting to know? And you go off in these various dimensions. And you start to learn along the way. And you're not doing it by yourself. You're learning with a group of people. So everyone in class has access to this web. Everyone in class, over the series of days that we're working on this, can see how it continues to be populated. And we all have access to everybody else's information.

This is a curriculum right here of water that could be navigated, that could be-- and again, I'm not showing you all of the details. But you could select certain components of it, highlight those components. There might be some key questions. You might like some of the things that one person looked at.

All right, so here are some issues about pollution, sanitation in civilizations. This piece also allows us to put embedded video and other content. So the idea would be, if the preparation of teachers or the work that teachers do as they prepare to be certified and licensed moves away, in my view, from only focusing on discipline content, only on discipline skills, but privileges the questioning and the nurturing of inquiry and learning, I think what we have is we have a different sensibility. You have teachers who aren't limited by their own disciplines and are seeking ways to make those connections. And in doing that, a curriculum that comes from this mode of development can then respond to any state or local standards of learning, any national curriculum concerns.

The example I want to show you-- you ever been to an elementary art exhibit, and you see all of the images look very similar? You see all the paintings and the drawings, whatever. Rarely, do we see art criticism. Rarely, do you see young children's art historical papers on display. It happens every once in a while.

This is a water filter display at the Chesterfield County Exhibition. So this is just one teacher. Sean Collins did this. And so he used the water filters as part of his curriculum but also as part of the art exhibition. He got comments from teachers, like, wow, what? How does this-- art? This is part of your art curricula? Well, yeah, why not? This is what we're doing.

And he linked it to Greek vases. And he linked it to expressionist painting. He linked it to all sorts of other components. But by making the art curriculum or the space in which an artist

might think inclusive of appropriate technology and social issues and social responsibility, that's a disruption right there. So can elementary kids do it? Absolutely, they can.

This is a page from the Reservoir Studio, including names of the art teachers who have agreed to work with me or found interest or that have invited me to do water filter performances but also work on curricula with them. And this list keeps growing. I haven't updated it yet. But I have several others who have been interested.

Here's a person who came to a curriculum conference, Denise Gordon. She was a science educator in Texas. She came to this curriculum and pedagogy conference. And instead of presenting a paper on the water filters, my colleague, my mentor Richard Wukich and I, we set up a water filter production facility. And we made filters as our conference presentation. And so people coming in expecting to see a paper presented, they helped me sift sawdust. And [CHUCKLES] we made the filters.

The reason I'm telling you that is because Denise Gordon showed up to that presentation. And she said, I am a science teacher, but I think in these interdisciplinary ways. And I like these experiential, hands-on approaches. And so I sent her four mini-filters at her request, two that had silver embedded in them and two that did not.

And her advanced science students, middle school students, did tests on those water filters. They tested the water from two local sources. They did research on the production of the filters. And they set up-- they found other commercial filters, and they ran the results. And they found that these little filters worked as well or better than those commercial filters on two different sources of water. One was, I think, the local river. And the other was some other sewage space.

But my point is that she empowered her students to take control and to lead the inquiry. And this is middle school. So can middle school students think in these ways and consider their place in the world and their responsibility? Absolutely. And again, these are just two of many possible ways that this might happen. But just responding specifically to that question.

AUDIENCE:

How do we place for the disruptive way of doing things and incremental way of doing that thing? Probably what is existing, taking it ahead and improving on it may be quite incremented and disruptive where you put a full stop and start with something new.

In fact, ceramic filter itself, I don't know whether to call it disruptive, because a filter existed.

And it was modified in some ways. So I'm really confused about these definitions about disruptive, incremental. What is it? And how do you go back, especially in terms of disasters, where I think the need is to go back to basics?

STEPHEN

For me, disruption is incremental. It's a process. It's a verb in my thinking. Certainly one can disrupt with a specific action. And it seems like it's only happening in that moment. But we can think more broadly that once that moment happens, there are continuing echoes from that.

CARPENTER:

So I think it's also site-specific too, the degree of incremental change or disruption that happens. But I don't-- I'm not thinking about disruption, necessarily, as one specific moment. I think of it in a longer term, in a moving, time-based way. So that's one part of your question.

I think the second part had to do with the filters and seeing them as disruptive. And certainly, for folks who didn't have adequate access to clean water and now they might have access, the filters have disrupted that previous narrative of inaccessibility, and have disrupted a longstanding-- a generational experience with being sick and having disease. So it's disrupting that health issue and that human issue. And so there's that.

And then going back to basic, absolutely. I mean, you do what you need to do. And certainly, the water's coming down. Let's get some plastic and collect the water. I mean, that seems like the most appropriate technology that we've talked about today.

I think your examples are right on. And I hope it clarified a little bit how I'm thinking about disruption, not as an idea. I didn't clarify-- disruption for me is not a moment. But it's an ongoing--

AUDIENCE:

It's a continuum.

STEPHEN

It's a continuum, absolutely. Yeah. And it's variable.

CARPENTER:

AUDIENCE:

It was my job too. I mean, it's a job for us to do that. So even though it's disruptive or not disruptive, my job is to provide clean water to people out there. And that's what I'm doing. [CHUCKLES] So whether it is disruptive or not, it's that simple.

STEPHEN

Well, yeah, it is. Yeah, yeah, and I think sometimes I like to be a bit more dramatic, maybe, than necessary.

CARPENTER:

[LAUGHTER]

And to think more broadly or differently, folks didn't have the water. And you allow water to be available. You disrupted their lack of access, so--

AUDIENCE: I think I did my job. [CHUCKLES].

STEPHEN You did your job.

CARPENTER: