Episode 78: Ehren Helmut Pfugfelder

# KL: Katie Linder

# EHP: Ehren Helmut Pfugfelder

# KL: You’re listening to “Research in Action”: episode seventy-eight.

# [intro music]

# Segment 1:

# KL: Welcome to “Research in Action,” a weekly podcast where you can hear about topics and issues related to research in higher education from experts across a range of disciplines. I’m your host, Dr. Katie Linder, director of research at Oregon State University Ecampus. Along with every episode, we post show notes with links to resources mentioned in the episode, full transcript, and an instructor guide for incorporating the episode into your courses. Check out the shows website at ecampus.oregonstate.edu/podcast to find all of these resources.

Thanks so much for joining me in the studio today Ehrin.

**EHP:** Yeah, it’s a pleasure to be here.

**KL:** So, I’m really excited to dive-in and talk a little about mobility technologies. I know the topic of your most recent book is about how we communicate the relationship between technologies and mobility so I want to know what were you exploring there?

**EHP:** Well, it’s a it’s a big questionso, um, I guess a good wayto start is to talk about auto mobility and um there’s a lot of social science researchers who are working on concepts of mobility and that can go anywhere from personal mobility to transportation and transportation is more of the side that I’m interested in and auto mobility is basically the kinds of mobility’s that are afforded and constrained by the automobile. So, um we’re all implicated in this in the West too you know you can’t get away from it in so many different respects, right? Even in a small college town like the one I live in, even if you take a bike to school or if you walk or if you take the bus you’re still implicated in a system that assumes the car is the default way to get around and there’s so much built into that assumption. The relationships with, people how we get our food, how products are distributed to us, how we take vacations, how we work, where we live. So much is built into the assumption that automobiles are the default. So one of the things that I’m kind of interested in and was exploring in this book is how that default assumption how we sometimes take that up and how do we sometimes reject it. A quick aside I have neighbors that just moved in across the street and they moved in by bike and they have a car-

**KL:** Wow

**EHP:** andon one hand that’s really kind of unusual and kind of neat, but it’s a really explicit choice to reject some elements of auto mobility, but so many other times we don’t have that choice. So, what I’m interested in is how that relationship between auto mobility, the automobile technologies and all the structures that go along with it. How they impact us and how we can kind of describe that relationship is persuasive. My background is primarily in rhetoric and composition and usually when we talk about rhetoric we talk about uh persuasive communication that’s written or verbal. Sometimes visual as well, and what I was kind of interested in is what are the assumptions that we make or what are the um the relationships that are developed by all of these automobile technologies that we tend to just pick up and sort of subconsciously take in so it’s a very unintentional form of persuasion and it’s sort of a more subtle form of persuasion than me just sort of giving a speech or me reading a book on a particular topic. Um so I don’t know if an example might be a good one so um when I talk about interfaces in the book um if you’ve ever seen a Prius or if you’ve driven a Prius or most hybrid cars-

**KL:** I own a Prius [laughs]

**EHP:** [laughs] so you’re pretty familiar then with what’s going on with the dashboard that encourages you to drive in a more eco-friendly manner, right?

**KL:** Yes, yes.

**EHP:** And a lot of hybrids have these, they sort of came up with the new digital dashboards in the last eight to ten years. And they’re metaphors, they’re subtle in some ways, but they’re unique enough that we pay attention to them. And if you kind of play the game, because a lot of times there’s sort of green balls that sort of spin and that should show us we’re capturing energy from regenerative braking or when we’re not stomping on the gas from the red-light and what we sort of take from that is we pay attention to these metaphors and we engage in these activities because we are persuaded by these metaphors in one way or the other. The one I really like is for a while, I’m not sure they’re still doing it, uh Lincoln was doing one where it was a little tree and you would get little cherry blossoms on the tree as the tree grew as you sort of performed more eco-friendly driving maneuvers so I was kind of interested in well what are these persuasive moments, how can technical communicators basically the people that, you know in the past were just um there to write a good memo or to take notes and more recently have had much more active engagement in say a large technical project like the design of a unique digital dashboard how they can kind of help nudge practices so that ultimately the users of these experiences get a more beneficial experiences and it sort of pulls us away from the really strict structures of auto mobility where we have to drive to work by car, we have to get our groceries by car. And there’s – that’s just one example of how we can be more eco-minded, but there’s other examples too that sort of show how we can have a stronger influence in that area.

**KL:** So this sounds incredibly complex to me [It’s weird]. Yeah but it’s really interesting and I love talking to people about these really niche areas because like who knew, right? And you’re like doing this whole book on this area. But what’s interesting to me about it is that it seems like you’re pulling from this really diverse range of things. I mean you’re talking about issues of design, you’re talking about issues of marketing, and you’re talking about issues of rhetoric, communication and the environment, and even like a discourse analysis in some ways. How all these things come together, and that’s, you know, that’s a really complicated thing, I mean can you talk to that or speak to that a little bit?

**EHP:** Sure, yeah. It is complicated, and it’s also complicated to explain in simple ways I guess. One of the things I try to do in the book too is look for a lot of examples and look for a lot of case studies. One of the big – I have there’s a big case study in the book where I was able to work on a, let’s see if I can get this right, it was all electric autonomous pod car network designed to coordinate with the bus system at a large Midwestern university.

**KL:** Okay we’re going to have to unpack that

**EHP:** Yeah we can come back to that, we can come back to that one too as well, but maybe another example is a little simpler is a few years ago UPS redesigned some of their logistic systems. They love calling themselves the logistics company, and logistics is a whole field. Um really it’s also an um. It’s not a classical rhetoric concept, but a lot of classical rhetoricians; Aristotle, etc. wound up talking about logistics in different ways. Um the way I kind of see logistics though is, how do you see how you get from point A to point B? And you know, we talk about logistics in terms of packaging. It’s incredibly complex getting something from across the world, 9 different forms of transportation, and all sorts of codes in order to make sure one thing gets to your doorstep, but it’s also how we get from here to work, or you know. And we have to negotiate a number of different relationships and technologies in that organization. So um one example about how logistics is kind of different is I mentioned UPS, one thing that they do is they figured out pretty famously a few years ago how to reduce the number of left hand turns that there drivers make [I remember this]. It was a big story! I mean it’s sort of novel, and simple, and you’re like “oh that will probably help delivery time, it will save gas.” and they basically derigged the algorithm that their drivers use, and then they put in how many packages they have to deliver and where. Um that’s a really intense scale. Um and you know our GPS units in our cars do the same exact thing for us. But logistics is actually a little bit more, I don’t know, ephemeral than that? It’s really about our sense of how we’re persuaded to get from point A to Point B and the pathways that we take that are more helpful, pleasurable in different ways that make our lives more fulfilling. So um to give an example of um, and this is an unusual one, I’ve pulled some examples from history too from like the early 1900’s. There were a lot of different competing ways in which cars were powered, right? We had electric power, we had steam power, we had internal combustion engines and there were certain engines that were better in certain places, right? So um for whatever reason uh electric taxi cabs, turn of the century, Manhattan, they did really well. In fact they were – it was the dominant form of taxi cab for a while, and it was really kind of nice because they work really well in snow, they have better tires, um they didn’t go for long trips, they made a lot of short trips in a really compact area, and they can get electricity because there are a lot of charging stations. And um what’s kind of bad about that situation is the companies that decided – that ran those electric taxi cabs said, “You know this works in Manhattan, it will work in other places too.” But it didn’t work in other places too, they tried to import that model to Cincinnati, and to Cleveland. Roads were worse, batteries didn’t do so well, um the charging stations were few and far between, and the trips were longer. All of a student those logistics didn’t make sense. Also with early electric cars, um and this is also a problem with today’s electric cars too, but much, much smaller sort of issues, the plugs that you got from the charging station to put into your car. Up until 1912, there were somewhere between seven and ten different plugs. So you probably in going to go to a charging station and wanting to plug into your electric car, you didn’t know what you were going to get. It could be a – you know you could wind up with a whole bunch of different plugs and you didn’t know where that next charging station might be, and you didn’t know maybe where that next charging station might be. So what you had to do and this is actually the advice at the time, is you would carry bits of copper around with you, crammed it into the plug, and then put it into your car and hope you could rig something to make it work. It’s a pretty unsatisfying logistical experience in terms of having to carry around this bag of copper parts that you sort of don’t know what you’re going to get, and don’t know where the next electric stop is going to be. Tesla had the same problem when they were just starting their charging network. In some, you know, pretty well publicized moments there was somebody from the New York Times that did a piece of how he got stuck in his – on the highway in his Tesla because he couldn’t find a charging station and it didn’t charge well enough. It’s really a problem of logistics, and if we see those kinds of problems as pectinate to ourselves, then you’re probably not going to buy, for example, an electric car, but we have a lot of faith in internal combustion engine logistics. Maybe more than we should, but we know “Oh I’ll get gas very close by. There’s a gas station on every corner. I know the range with my car.” That whole range anxiety that came up too. Really it’s a matter of, do you feel comfortable in the logistics of your car, and does that persuade you to keep doing those kinds of logistics? So I don’t know if you know anybody that owns an all-electric car, they have to think differently about where they go [Yeah], and that’s persuasive in different capacities.

**KL:** I think it’s really interesting that you’re talking about these really micro components of design and decision making, but also the – you’re kind of unearthing some of the assumptions that we’re living with day to day that we aren’t even thinking about. in terms of assuming that our cars will even function, you know, that they’re going to get us where we need to go, and that technology is really changing in some ways our mindsets, and our decision making, and even I’m sure neuro pathways in terms of how we’re thinking about these things.

**EHP:** Yeah well we talk about, I mean, this is something I only touch on a little bit, but mm we can talk about mental maps. We have a mental map of our city based on the kind of affordances about how we get from point A to point B or you can add in point C, D, E, F and G, because you know your city particularly well after you’ve lived there for a while, so you kind of know where you can go and how you can get there, and weirdly that changes so much about how we live our lives. So it is – it does kind of come down to some of these, I don’t know, small nuance elements of our relationships with different type of mobility technologies. Um so uh – car sharing services, when they first started up, it was really about them designing a really elegant logistic for the people that show up and want to you know, check out a car for a couple of hours, and you think about it and you’re like “It’s a brilliant idea, only because the logistic is so simple for people who need it.” Um you know there’s a car sharing station within walking distance, you know you can check online, you can reserve it with your phone, you can – some of them have pass keys some have more elaborate sort of ways in which you basically check out a car and then drop it off. For somebody that doesn’t own a car in an urban area, that’s an incredibly persuasive logistic that is actually just incredibly temporary too, because it doesn’t require the sort of volume and the infrastructure of let’s say a bus network which might not get you exactly where you need to go, if you have big packages – let’s say you want to buy something for your apartment because you live in a city, but that’s going to be too tough to carry on a bus; that’s the kind of perfect solution for that. So it’s really – they identified a logistic that people wanted. You know, and I don’t want to call it just pleasurable, but on some level it makes us happier to have those kinds of options, and that’s really what that element is about.

**KL:** Well you are really opening my eyes to the relationship here between technologies and mobility’s, and the different kind of things that you’re exploring. Uh we are going to take a brief break, when we come back we’re going to hear a little bit more about Ehren’s work. Back in a moment.

# Segment 2:

**KL:** Ehren, you mentioned this pod car project that you were involved with in segment 1 and I said, “We need to unpack it a little bit” so tell us a little bit more about that.

**EHP:** Sure um, actually it is one of the reasons why I got interested in talking about mobility and persuasion. Um I was teaching a class on technical writing and the students said “Have you heard about this student group?” that evolved from mechanical engineering and a senior design project at the school I was at, and I said “No” and he kind of explained it to me, and it was a – it’s autonomous, it’s self-driving, it had multiple redundant ways of making its way in the world, it was all electric so big old’ banks of batteries that you pull out and put back in, and it was a pod car so it would look like a little bean, right? Sort of like – it would putter around campus. We had to give it a kind of sound as well because it was pretty silent, so if you’ve seen electric cars, you know, they sneak up on you sometimes [Yes, yes]. Um it had one big old’ door that would open up, and I kind of wanted to make the “whoosh” sound and dry ice smoke to come out because it was so futuristic! You would call it up with your app, with an app on your smart phone for where you wanted to go, and it was designed to work with the bus system. So the master plan for the university was going to push the roads further out and have a big centralized university, and 40 something thousand students, and they said “well how we are going to get it around? Because it’s going to take a long time to walk from one end to the other.” This design project was born out of mechanical engineering, they said “Well we can actually build a bunch of them.” Um and ultimately it didn’t happen. Um and the reason that the project didn’t do well, failed. You know, I don’t like to use the word failed because I think we got useful things out of it. Uh it failed for interesting reasons I guess you could say, and a case study in the book, you know I sort of do a little hypothesis as to how we could have better prepared those technologies for the relationships that people were going to have with them. Um and ultimately it suffered from some elements of mechanical engineering kinds of thinking, which can be a really narrow, explicit way of making things. A lot of the vehicle was very much over built. It was designed to take on snowy weather that it probably would have never seen because it was only designed to ride in the bike lanes on campus. Um unfortunately there was a pretty big gender disparity with the groups, so the initial steps into the vehicle were over two feet high. Which when we tested with users, if you’re wearing a skirt for example, that’s a very difficult thing to do. And we were ironing out some of these problems, but ultimately there wasn’t enough interest from the community because it wasn’t a persuasive form of transportation in even a big campus, people were hesitant to see these pod cars sort of rolling around campus, and sort of distributing people. It could also hold four people at a time, and there was the sense of; well what happens if some drunk students tip it over, or what happens if someone vomits in it, what happens if - it was all glass on top - what happens if you have a hot day, would it just roast the people in there? So these were the just fundamental problems, but we were solving them as we went along. Um ultimately though it just wasn’t a persuasive enough technology for that instance.

**KL:** So this reminds me a little bit about the concerns we have with self-driving vehicles in general, and just my sense from some of the things that I’ve read is we feel like the technology is going faster than we’re kind of willing to cultrate ourselves to that technology. So it’s not that we don’t have the technology to do these things, it’s that we’re just not culturally ready to have these things around us, and so we raise kind of the concerns you’re talking about here, but also others as well about well what about this, and what about that? Like the policy cannot keep up with the technology, and so we’re in some ways kind of falling behind in what technology is capable of doing, and I think – I’ve read this similar thing about flying cars and flying vehicles as well, is like we may have the technology, but that doesn’t mean it’s going to happen.

**EHP:** Oh yeah, yeah. There’s some great um metaphors to design with that can kind of help bridge some of those gaps and it’s difficult to work with because there is also going to be a bit of a lag between the engineering, “We can do this!” and the public’s “Well maybe not right now for this moment.” One of them is actually kind of fun. It’s called the H Metaphor, and it’s basically the horse metaphor, and you think, “Huh that seems odd because that’s very much a pre-car kind of thing.” Um but – it’s described as, if you fall asleep on a horse in a park, and the horse is walking through the park, right? Um the horse won’t accidentally walk into the lake, or run into other bicyclists. It will either stop if it’s weirded out, or it will kind of just keep going on a path. We want our autonomous cars to do the same thing. When in doubt, do something incredibly safe, and we don’t quite trust them to do that yet. And the vehicles themselves don’t necessarily reassure us with that kind of metaphorical interaction. So we’re not getting that sense from the autonomous cars yet. They’re breaking too hard for certain things, they’re hesitant in ways we don’t want them to be hesitant, um and I don’t know, there’s also a really awesome concept too and this comes from – jeez. From classical Greek. So there’s the sense that Athena, goddess Athena, gave us the ability to control animals. She gave us this thing called the bit, and this bit, you know, sort of goes around the horse’s mouth and goes on top of their mouth, and when you pull back on the reigns the bit sort of puts pressure on top of the horse’s mouth and tells it to slow down. Well the autonomous cars, especially the ones that are designed without steering wheels, like Google sort of panned the looking autonomous car, they don’t give us the sense that they have the bit. There’s no bit going on there, and we kind of want a little bit of that, or you need to build in some of those to transition people away from supposedly having full control over the vehicle, really it’s a shared control, to this moment where eventually we’re not going to have much control. And a lot of interesting studies show that we’re most comfortable with this space where we have some control, and then the car is able to do some self-parking, maybe it has a smart cruise control, but we’re not quite there yet.

**KL:** So here’s my question about that, because some of the studies from kind of an online teaching and learning perspective in terms of control, and um agency and things like that, will say that even if you have the kind of possibility of control, like you’re not going to use it. So for example, like there’s a steering wheel in the car [Yeah]. It’s not functional, but it’s there. Like it’s just sitting there and you can see it and it feels familiar because you’ve always had a steering wheel, but if you do something with the steering wheel it will not control the car. Like there’s not a whole lot you could do with it. That’s what’s fascinating to me, like if we just put familiar things in these environments, will it help people to feel more comfortable?

**EHP:** You know, I think it probably will! I uh – ultimately the first time you grab that steering wheel and it doesn’t do anything, that might break that relationship a little bit [Maybe. Maybe!] But uh, so at the moment a lot of autonomous car designs; they can’t quite deal with unexpected situations, right? So if there’s road construction that the car doesn’t know what to do with, it will stop. And that’s a very good kind of horsey thing to do. Uhm but at the same time we do want to have those moments where we’re like, “Alright. It’s raining, or it’s snowing, or there’s road construction, or this road’s really narrow. I want to have just some control.” The downside to that is that as cars become more autonomous and as we let the autonomy sort of take over most driving situations, we’ll get worse at understanding those moments, just because we’ll have less practice at that, and we’ll probably get worse at actually then taking control of the car. So most accidents are driver error, and one of the things that autonomous cars are trying to take out is the vast majority of that driver error, but ultimately we kind of want to make our own mistakes, at least at this point. Um we probably all feel better when all cars are autonomous and all have our same kind of rules and instructions in place, so that way we’re all playing with the same rules. Right now if, you know, I’m in a dangerous situation and the autonomous car doesn’t know what to do, you know, that feels bad, weirdly to the driver. And I guess that’s less persuasive in terms of do you want to buy an autonomous car, or do you want to engage in those kinds of activities and um are you happy to let that car make all of those decisions?

**KL:** I think that’s so interesting, to think about these kind of liminal spaces that we’re in where we’re not quite moved on to the next technology, but we’re trying to figure it out, and there certainly are examples of older technologies that are completely phased out, like we don’t do those things anymore. And so because of that, we have kind of lost that. I mean, we’ve evolved to something different in terms of using technologies. Um but, this I think is a good example of something where we aren’t to the point where we’ve completely evolved to the next step, and so there’s this really weird growing pain in the middle of trying to figure out, “Well what do I really want to give up, and what do I want this technology to do for me?”

**EHP:** Yeah. I actually – I didn’t realize that’s actually one of the connections between other elements of things I researched too; we’re in the moment of deliberation. We’re not quite sure how to move forward and there’s a number of different options available to us now, and sorting those options is really kind of difficult. Um I also think that’s why I’m just kind of excited about those kinds of moments too, If only because they offer interesting opportunities, and they offer change. I think ultimately for techno-communication, sort of my home field, um we talk about these things as sort of the role as the responsibility of a technical communicator. Um we’re talking about advocacy in a lot of ways. We’re talking about advocacy for avoiding, say what are called mobility deserts. So there’s certain cities in this country where if you want to get a job and you want to afford a place where um basically that’s – there are certain communities in this country where if you get a particular kind of job and you want to be able to afford an apartment to work at that job, you have to live 30 miles away, because there are no other locations there affordable for you, and there may only be cars for you to get to your job; so you can’t take the bus, there’s no train. It’s a mobility desert. You’ve got one option, and you’re then locked into this particular system. So techno-communicators, that doesn’t sound like something you would have to pay attention to, but if you’re on a mobility project you should! That seems like a good thing to advocate for in kind of a complex minimal space.

**KL:** Well there are an incredible amount of layers to this. I want to thank you so much for coming into the studio and taking some time to share with us about your work.

**EHP:** Oh it was awesome to be here, I love talking about this stuff!

**KL:** Thanks also to our listeners for joining us for this week’s episode of Research in Action. I’m Katie Linder, and we’ll be back next week with a new episode.

# Show notes with links to resources mentioned in the episode, a full transcript, and an instructor’s guide for incorporating the episode into your courses, can be found at the show’s website at [ecampus.oregonstate.edu/podcast](http://www.ecampus.oregonstate.edu/podcast).

# There are several ways to connect with the “Research in Action” podcast. Visit the website to post a comment about a specific episode, suggest a future guest, or ask a question that could be featured in a future episode. Email us at riapodcast@oregonstate.edu. You can also offer feedback about “Research in Action” episodes or share research-related resources by contacting the Research in Action podcast via Twitter @RIA\_podcast. Finally, you can call the Research in Action voicemail line at 541-737-1111 to ask a question or leave a comment. If you listen to the podcast via iTunes, please consider leaving us a review.

# The “Research in Action” podcast is a resource funded by Oregon State University Ecampus – ranked one of the nation’s best providers of online education with more than 50 degree programs and over 1,000 classes online. Learn more about Ecampus by visiting ecampus.oregonstate.edu. This podcast is produced by the phenomenal Ecampus Multimedia team.

#  “Research in Action” transcripts are sometimes created on a rush deadline and accuracy may vary. Please be aware that the authoritative record of the “Research in Action” podcast is the audio.

# Bonus Clip #1:

**KL:** In this bonus clip for Episode 78 of the “Research in Action” podcast, Dr. Ehren Helmut Pflugfelder discusses his new research on geoengineering. Take a listen.

**KL:** Okay, Ehren, your new book is focused on geoengineering as a deliberative moment in western policy and science; quite a mouthful, but I have every faith you can unpack this for me a little bit. What is this really about?

**EHP:** Well I’ll try, it is a work in progress. Um so – geoengineering, it sometimes goes by the name of climate engineering, and it’s basically a bunch of different engineering and climate science strategies that say, “Okay. If the earth gets warm. When the earth gets warmer…” (They say, “If the earth gets warmer” we pretty much say “when the earth gets warmer”) “To the point where we have to start doing adaptation strategies, can we also do something that quote on quote artificially lowers the temperature?” There’s a bunch of different ways that can happen, it’s usually broken up into two sort of major flavors. Ones called solar radiation management and the other ones typically called Carbon Dioxide removal strategies. And Carbon Dioxide removal strategies, uh carbon sequestration, basically filters on smoke stacks, all the way to we’re going to dump a bunch of iron filings in the ocean so that plants will eat it, die, fall to the bottom of the ocean with their CO2 and therefore we’re absorbing more. These solar radiation management strategies go all the way back to, “Let’s cover the deserts in white sheeting to make the desert more reflective so that we bounce more heat out into space” all the way to “We’ll fake a volcano by putting sulfate particulates up into the atmosphere, and that will keep the atmosphere from absorbing as much heat.”

**KL:** Okay so, my mind is like blown right now, hearing this. I mean it sounds very reasonable, but also very sci-fi.

**EHP:** Intensely sci-fi stuff. Um what’s weird – so one of the strange things about this was – so we’re not good about employing measures so that we’re reducing the amount of CO2 that we put into the atmosphere, right? We don’t have great international agreements; the things that we are doing as a global society aren’t enough. Climate scientists are insanely frustrated with this, and they tend to be environmentalist. So you get a lot of climate scientists going, “Nothing’s happening, nothing’s happening, nothing’s happening. What do we do?” these are engineering strategies that are meant to buy us time until we can figure out how to reasonably draw down our reliance on CO2 emitting technologies. Now that’s sort of the, “we’ll buy us time” it’s a sort of cirrhotic argument, it’s sort of a right timing sort of argument in terms of rhetoric. Um so the other side of that are groups that are intentionally putting off doing anything about CO2 emissions, uh because they think it will hurt the economy, uh or people who deny that deny CO2 causes global warming. So people who deny anthropogenic climate change. Their strategy is to also delay or put things off because they think it will cost us more money to do anything about CO2 that we put into the atmosphere because we have so many technologies that are relying on it and the gross national product is reliant on those technologies. Um so if it does happen that we don’t do enough to combat global warming, at some point global warming becomes significant enough that we have to say, we need a strategy to be able to relatively cheaply, and relatively is in the you know billion or so dollars kinds of thing, to where we can cool down the earth artificially. And the annoying thing about it is that we can’t seem to agree to do something about it globally in terms of policy that’s affected, in terms of our country we’re not doing much that’s policy effective. Um in terms of basically believing that global warming is happening and that there is scientific consensus, our country is anywhere between 50-60% at any given time um in terms of the public opinion, which isn’t great. And we don’t know on the whole, um most people don’t tend to know what geoengineering or climate engineering is about. In polls it barely registers in the double digits. If you sort of explain it then most people say “oh yeah. I’ve heard of something like that before.” So we’re sort of doing this – we’re backing ourselves out of a situation where it’s becoming more and more possible, and it will probably be – the most unnerving thing about the whole situation is that there are no international agreements to not do particular kinds of climate engineering, and there are a number of startups with a lot of money who are researching it at the moment; in a very Silicon Valley kind of way, where it does feel a little bit outside of government control. It’s a bit unnerving, and kind of what I’m working on is right now trying to understand how several different perspectives uh recognize the importance and value of CO2, and how that plays basically into their policies on what kind of global – what kind of geoengineering strategies they would agree to. Um I can kind of go into that in a little bit more detail. So I’d say you’re looking at four different opinions; you’re looking at an environmentalists opinion, and I would consider myself a frustrated climate scientists opinion, which I’m very empathetic to, a fiscal conservative sort of capitalist opinion, and a climate change denier opinion. Two of those don’t have anything to do with geoengineering. They’re antithetical to their belief systems, and that’s environmentalists, because what we should be doing is actually getting rid of CO2 in our atmosphere not ignoring it and then putting up some kind of grand strategy to make everything fine. Um and climate change deniers, because CO2 doesn’t cause global warming in that situation. Two are interested in researching, so the frustrated climate scientists and the fiscal conservative capitalist, they want to know “will it work?” For different reasons. Ones more economic and ones more of an environmentalist position. The thing that I’m sort of looking at is how they’re articulating the value of CO2 in their arguments, uh so in the environmentalist position it’s very much tied in with the carbon footprint. For frustrated climate scientists position it’s very much tied into climate modeling, and there’s a lot of work going on to kind of identify particularly what’s going on to sort of identify what CO2 is doing at any particular moment. From the fiscal conservative perspective it’s about carbon trading, so it has a specific monetary value to the way in which you measure a cubic foot of carbon, and the climate change in that model – it’s just not there, right? CO2 doesn’t cause global warming, so you don’t have to worry about it. And what’s sort of unnerving about this to me too is that these perspectives can be persuaded in different ways. So the frustrated climate scientists have environmentalist to persuade, and this fiscal conservatives tend to want to persuade the climate change deniers. The thing that gets me annoyed and that is also kind of exciting, in a scary way, is that the solar radiation management geoengineering strategies, it doesn’t matter whether you believe CO2 causes global warming, because you can block out the sun with a particular strategy – not the whole sun, but a portion of the sun – and you can keep emitting CO2. You can still maintain and anthropogenic climate change denial perspective, and buy into this strategy. And for me that’s – in terms of buying into the persuasive strategies of these perspectives, that’s an unnerving one.

**KL:** So it seems to me that your book might be equal parts interesting and horrifying, for people who are interested in this and trying to figure it out and it’s very timely in terms of trying to think about this. So you’re in kind of early stages of working on this book [Mhm], what does that kind of mean for you to be in early stages? Are you drafting it, are you just kind of thinking through these issues, collecting you know sources and ideas?

**EHP:** Yeah, well, I’m trying to – I’m putting together a book proposal actually. Hopefully in the next month or two I’ll be sending it off. It’s going through introduction, a chapter that actually basically explains geoengineering in broad strokes, a chapter that pretty much says “this is my theoretical framework” in which I’m going to try to approach the kinds of deliberated persuasive techniques that are being engaged in these different perspectives of geoengineering, and then one that is kind of what I was describing in terms of these different positions on CO2, because CO2 becomes this sort of volcrum object in a way in which depending upon your beliefs about CO2 that’s going to affect so many other things about what you’re going to say about geoengineering strategies. Um and because this is very much a deliberative moment, I’m sort of catching up with things as I’m writing them. So for me it’s a matter of staying on top of the geoengineering news, um reading a lot of policy papers and position papers. Um all the way from IPCC papers, to environmental group’s papers, to conservative think tank pieces and trying to identify where these positions actually lie, and then trying to hopefully good analytical work to be able to bring something more out of this, cause I don’t want to just say “Look at this crazy situation that we’re in.” I also want to say something about “Here’s how we affect positive change in this situation or “Here’s how we can kind of mitigate the disparities between these perspectives” so that we can find a potential way to do the right thing in a situation, and to be hones the more I read the less I’m certain about what the right thing is. If only because I’m getting more and more convinced by the frustrated climate scientists because if you believe in anthropogenic global warming it’s hard not to be a bit of a pessimists at the moment. Um but I want something positive to come out of that pessimism too.

**KL:** Well, Ehren, I’m definitely adding this to my “To Read” pile whenever it’s available. However many years it takes you to get it done [Hopefully just a couple]! Yeah, well thank you for sharing so much about this new work.

**EHP:** Yeah, absolutely!

**KL:** You’ve just heard a bonus clip from episode 78 of the “Research in Action” podcast with Dr. Ehren Helmut Pflugfelder discussing his new research on geoengineering. Thanks for listening!

# Bonus Clip #2:

**KL:** In this bonus clip for Episode 78 of the “Research in Action” podcast, Dr. Ehren Helmut Pflugfelder discusses his latest research of Reddit. Take a listen.

**KL:** Ehren, I was really intrigued by one of your most recent articles which is called, *“Explain like I’m Five”; Technical Descriptions in the Wild* and it’s about research that you’re doing into Reddit. Um I’m assuming that some of our listeners may not know what this is, so first can you start by describing Reddit?

**EHP:** Sure. So Reddit is sometimes a controversial – I guess you would call it a social network. Um it’s primarily a message board. It’s a weird dynamic message board though, in that um everything gets voted on all the time by everyone. Not, you know, compulsory, but there’s so many votes happening, and that’s really the way Reddit works. So if you go to Reddit you’ll see a list of just a bunch of different topics, and then there will be point values associated with them, and then there will be lots of topics on those comments, and then there will be lots of point values associated with those and so on and so on. You get caught endlessly; it’s a giant loop. And um one of the things that I was interested in was there’s a particular sub-Reddit, and a sub- Reddit are specific topic oriented message boards basically underneath this sort of main message board, and there’s thousands and thousands of these. One of the most popular ones is called ELI5 or “Explain Like I’m Five”, and it’s basically there for what we would call a technical explanation or a technical description. People come there, they ask a question that is sort of not obvious, and that they can get some actual supposedly non-subjective information about. And um there’s some rules to the sub-Reddit, but primarily what the goal of the community is to try to answer that question. So a couple of example questions, some people have asked; older T.Vs, why does it feel like static when you turn it off? Um millions of years ago when the oxygen content of the earth and the atmosphere was higher, did fire behave any differently? Um what was the cause of the Stock market crash in China from a few years ago? How was does colorization of black and white photographs work? A lot of them are sort of technical in nature or scientific in nature, but there’s also sociological ones, historical ones, um philosophical ones, sort of fewer than those of the ones where you can say “Here’s the sort of current knowledge on a particular topic” um and the goal of those of everyone in the sub-Reddit is that once you see a good question like “Why does that static feel happen when you turn off and on an old TV?” You can be like, “Alright, I think I can try to answer some of this.” And usually you can’t provide a full answer, but you can provide a partial answer, so you offer one. Somebody comes and adds stuff to yours. Somebody else comes and says, “Actually, I don’t think that’s right. Here’s another source.” And basically over thousands and thousands of comments the answer sort of gets built, and the best answers are the person who was trying to do the answering is really active, and they look at all the comments and they try to pull those pieces into their answer, and they edit it, and make it better, and they add, you know, citations, and links, and examples, and they try to do all of this while explaining it not to a literal five year old, but to allay audience. So using no jargon or if they use a specific term they have to define it. Really it’s a lot of stuff that we talk about in technical communication research. Like when we talk about technical descriptions in industry or education, we teach our students to do the same stuff. Which is kind of cool.

**KL:** So I’m very curious about – what does it mean to research this? Because I mean, as you’re describing it I’m thinking, “That’s really interesting” you know, in knowing like; I can picture Reddit. I know what it is. And I encourage our listeners – I’ll link to it in the show notes so that people can go take a look. But I’m thinking about, what are the questions you’re asking? You know, like is it about process? Is it about how people are interacting together? You know? What are the things you are trying to peel apart here?

**EHP:** Well on of the great things this “Explain Like I’m Five” sub-red is that there’s millions of people on them, and there’s thousands and thousands of questions, and I don’t know how many answers. Hundreds and millions of answers, right/ um I kind of wanted to see – so, yeah we say certain things in the field of technical communication, we teach our students to do certain things, we teach technical descriptions and explanations a certain way, we have a sense that they work in industry a certain way. What does it look like when nobody’s paying attention? So in not an educational context, not a professional context, how do – how does technical explanations work when they’re sort of in the wild? So I wanted to see – what we hypothesized and we’ve been sort of saying, this is how they work in education and in industry that they work in this way called distributed and coordinative work. So in distributed work, what you’re doing as the writer is you’re pulling together all these different sources. So if you imagine when you’re trying to write an answer for a technical explanation, you might have ten different PDFs open, you might have like a million tabs going on your browser as you’re trying to pull from all these different sources and find the information that’s best, right? You’re pulling from all of these distributed things, and then you’re coordinating all of these things into one action. It’s actually really complex writing work, if you’ve ever tried to write an official definition of something in a few hundred words, like that’s actually really quite hard. You’ll spend days doing that the right way! Um and you’ll try to do it in what’s called plain language. So um its simple, easy to understand language that doesn’t have complicated definitions, and we teach this to our students and it turns out actual that when you look at the answers on “Explain Like I’m Five” a lot of people do these things. So the research process was to gather – so one of the things about “Explain Like I’m Five” sub-Reddits and all the sub-Reddits on Reddit, is that they’re constantly changing because you can vote them, or down vote them all the time. So I grabbed uh one point in time and I said, “I want to look at everything that has 3,500 votes.” Up votes, down votes, whatever. And I grabbed 233 different questions and their top comments, and I did some pretty simple analysis on how complicated the language was, the most frequent phrases, when do certain phrases pop up? And I was sort of comparing the ones that are explained and marked as explained, to the ones that were marked as unexplained. Which kind of means, somebody asked a question, a whole bunch of people tried to answer it, and ultimately it didn’t get answered, and usually at some point most of them do get explained. You can either mark it as explained, or unexplained at some point. So it’s kind of like saying, “Well what’s the difference between the explained and the unexplained ones?” And there’s a difference, and what’s good about that difference is there’s a whole bunch of stuff that we teach in tactical communication courses that tends to show up. So um, the answered ones were longer even though they weren’t up for as long, so the unexplained ones, because they were sort of unexplained, they kept rolling. The explained ones, eventually there’s a moment where it’s like “it’s explained. We’re just going to close this sub-Reddit and stop voting on stuff, because we got it, alright?” So they were longer, but they were less dense. Which kind of means they were in the whole number of words that were used, there were uh fewer number of unique words. So it was simpler explanations, but they were longer. Uh they also – we used more instances of a couple of more important key words. One was the word “edit”. So that people who were writing these explanations went back to their explanations and said “I’m editing this, because I’m adding new information.” There were more instances of the word “thanks”, which tends to show I’m thanking another commenter for their contribution, and then I’m going to incorporate it. And there was more of the phrase TLDR, which I don’t know if you’re familiar with but it’s “too long didn’t read”. It’s basically the executive summary of uh – it’s only a few hundred words, these explanations, but the TLDR is the self-consciously summarizing their work for people who didn’t feel like reading the last few hundred words, and you get this little TLDR and it’s like, “Great! I only get it in one sentence” you know? So it’s a lot of really intentional text construction that goes on here. There’s also instances of links and some other stuff too.

**KL:** That’s really interesting. So, what is kind of the practical significance of this for you? I mean is it impacting kind of what you’re teaching in the classroom? You know, what are kind of the “so what’s?” that are coming out of this?

**EHP:** You know, the “so what’s” for me so far have been teaching oriented. It’s one of those moments where you get to say to your students, “yeah, I know it says that in the textbook and I know—you trust me a little bit in telling you what I think happens in the industry and what good practices are. But guess what? This happens even when no one is paying attention to the explicit practices that we’re telling you to do.” Because it’s good, clear writing practices. And I’m not trying to make some sort of, you know, some giant objective statement about that, but it basically says you have something complicated to explain and you want to explain to a bunch of people, “these are strategies that we know work and we can see them happening even in situations when your boss isn’t telling you what to do or your teacher is telling you what to do” and what’s great about this sort of “explain like I’m five” sub-reddit to is you use it in all sorts of instances in class. Students can do analyses of existing ones, they can try to answer ones and participate, they can engage in a conversation in sort of beyond just the classroom—and its got bigger stakes because they’ll see their own bigger answers incorporated. If they want to take control of one giant answer one question, then they have to do a lot of that distributed and coordinative work and pull in all the possibilities of, you know, partial answers and guesses and things like that, and grabbing all the links and making sure it all makes sense. It’s a lot of writing work. So for me, it’s right now—it’s fundamentally a pedagogical kind of aspect.

**KL:** Well, I love to see connections between research and pedagogy and I find your work, Ehren, completely fascinating.

You’ve just heard a bonus clip from episode 78 of the “Research in Action” podcast with Dr. Ehren Helmut Pflugfelder discusses his latest research of Reddit. Thanks for listening.