

**Transcript for Research Speaker Series – Digital Arts-Based Research in Education  
BCcampus event hosted February 27, 2024**

**Facilitator: Rachel Horst**

**Host: Gwen Nguyen**

**GWEN NGUYEN:**

Hello, everyone. My name is Gwen and I'm a learning and teaching advisor at BCcampus. It is my pleasure to welcome you all to the second session of BCcampus Research Speaker Series Winter 2024 on the topic Digital Arts-Based Research in Education. Before we start, I'd like to go over a few housekeeping items. First thing is this whole session will be recorded, so you're welcome to keep your camera off. And feel free to rename yourself to "Participant" if you prefer. We also have live captioning enabled for accessibility. A very special thank you goes out to my two incredible teammates, Britt Dzioba and Kelsey Kilbey Britt has been a wonderful partner for this Research Speaker Series project and Kelsey has been our wonderful support behind the scenes for all our research series webinars.

I also like to begin with a territorial acknowledgment. This slide actually displays two beautiful photos. One captures a very vibrant and lively city in Vietnam, my homeland where I recently spent time with my family for Lunar New Year. One represents the traditional territories of the Lekwungen-speaking peoples, including the Songhees, Esquimalt, and W̱SÁNEĆ people, in late February, where many of us at BCcampus live and work. When I returned last week, I found myself missing my parents and the dynamic hustle of Saigon. However, the serene beauty and the peace of this place, despite the dark and the wet and gloomy weather, reminds me that the brighter days are always ahead. Spring is around the corner. I'm very grateful to be back and connecting with you from this beautiful, beautiful land today. Please share your introduction and territorial acknowledgement in the chat if you wish. Typically, we share the survey link at the very end of the session. But recognizing that some of you might have tight schedules, I'd like to mention this. Now we invite you to participate in the short anonymous survey and the link is available in the chat. Your feedback will help us shape the future professional development events at BCcampus.

Turning back to our session focus, digital arts-based research in education. To navigate this exploration, we're very happy to have Rachel Horst with us. Rachel is a faculty member and also a researcher in the Department of Language and Literacy at the University of British Columbia. Her research delves into the intersection of digital technologies and creative process, emphasizing the role of cultivating imagination in shaping the future of education. Please warmly welcome Rachel Horst with us as she guides us through the understanding and embracing digital arts as a methodology in both research and teaching. Here you go, Rachel.

**RACHEL HORST:**

Thank you so much, Gwen, for that lovely introduction. I'm actually not a faculty member just yet at UBC, but I am a doctoral candidate and soon to be defending in the next month, so I'm very excited to be sharing this work with you now in anticipation of my defence coming up. Yes,

my name is Rachel Horst. I'm a doctoral candidate in the Language and Literacy Education Department at the University of British Columbia. And this presentation is entitled Digital Arts-Based Research in Education. I'll just give you a quick shape of the presentation. I will start with a land acknowledgment. We'll do a little chat storm activity. I'm going to offer some guiding questions and themes to carry us through the presentation. I'll share a theoretical parable and then a selection of three research projects. And then there will be questions at the end. As questions occur to you throughout the presentation, I'll wait to take them at the end. But as they occur to you, please do type them in the chat. And I think Gwen will be gathering them up and then we can revisit them at the end. Thank you.

I'd like to start with the land acknowledgment to first acknowledge where I live, work, learn, and play. First my home. I'm an uninvited guest on the traditional ancestral and unceded territory of the Sechelt and Squamish peoples. I'd like also to identify and acknowledge the Musqueam peoples where the University of British Columbia Point Gray Campus is located. These lands are deeply entangled in my work and thinking, and I'm incredibly grateful to be here breathing this air and taking up space. I also wish to acknowledge the land that supports and sustains the digital spaces I inhabit. Today, we are connected through a vast and complex assemblage of cables, computers, servers, and all the energy that goes into maintaining this infrastructure, much of which sits on stolen land and is animated by a devouring and extractivist logic of settler expansion. I wish to stay attentive to the proliferating harms of this reality, but also to lean into the potential gifts and healing that can come of our digital togetherness. I hope to grapple and continue grappling with the contradictions embedded in this desire. I intend this acknowledgment to move through all of my work and inquiries, keeping me humble in my assertions and always, always seeking to cultivate openings for creativity in our land-based and digital relations with each other and the world.

To extend this digital acknowledgment, I have noticed in my investigations of the entangled and digitally saturated landscape of contemporary meaning-making practices in education and teacher education, Both formally in research with teacher candidates, more informally as personal observations with friends at parties. Last Saturday, when we got into a very heated debate about these issues, many of us, designers, educators, and researchers have complex and conflicted emotional responses when thinking about digital technologies and how they are increasingly entangled in our lives, bodies, educational practices, inner worlds, especially in education. These emotions have, I think, intensified first by COVID and the sudden move to online education. Now of course, by generative artificial intelligence and large language models. Then, of course, the dysfunctional and messed up qualities of our popular discourse. People seem to be increasingly disillusioned with digital technologies and the internet. I'm going to ask you to take a moment to jot down a few words, five to ten words that come to mind. Why can't I see the chat here? I want to be able to read the chat. Well, I can't see the chat, but I will figure it out. Why? Please share five to ten words that come to mind when you think about the future of technology, your relationship with the digital, your entanglements with computation. I'll read some of those out if I can find, oh, they're there. Five to ten words that come to mind when you think of the future of technology and just go ahead and type them into the chat as a chat storm.

Let's see, "daunting," beautiful. "interwoven." Yeah. "Accessible." Okay, so as beautiful, "Slippery." Oh, I love that. Beautiful, Those are wonderful. As words continue to occur to you, just throw them in the chat. I would love to read back on them later. "Challenging," yes. "Vague." It sounds like we could have a very good conversation about your feelings around technology.

With this complex emotional landscape in mind, I'd like to share a few questions to guide us through the presentation. I encourage you to think about all aspects of your research and inquiry journey, from questioning, ideas, curiosity, inspiration, and then to mapping the terrain of the literature. Whether you reach out to artistic forms of media to bring into your research. From design, your approach to data collection or creation, and then through to the rendering representation of your data. Here are some guiding questions for you to think about if you wish. How does technology mediate my research, teaching, or informal inquiries? How am I an artistic being? How do I express my creativity? Where are there openings for creative and artistic experimentation with technologies in my research and teaching?

Part of my motivation in my research and pedagogy is to challenge a sense of technological determinism. And a sense of expert-driven technological futures or technology that is disconnected from the earth, embodiment and situatedness. As an educational researcher, my goal has always been to increase creative agency when it comes to digital literacies. To critically and with curiosity, explore the ways we are, for better and worse, entangled with our technologies in inextricable ways. I wish to remain critical, while, as I said, leaning into the potential benefits, possibilities, and potential for newness and difference.

With that, I'd like to share a theoretical parable. Consider this digital photograph of a 19th century Japanese sculpture that is a modelling of an ancient Buddhist parable of the blind men and the elephant that I'm sure you're familiar with. In the story, the king says, "Tell me people what is an elephant like?" Each inquirer touches a different place on the elephant's body and describes what they feel. "The elephant is like a water jar, a winnowing basket, a plow share, a plow pole, a store room." Then of course, they argue about the differences, saying an elephant is like this, an elephant is not like that, an elephant is not like this, an elephant is like that. They fought each other with their fists, and the king was delighted. I invite you to consider how this relates to your approach to research. Personally, I think the only place where the people were wrong in the story is in their vociferous assertions of each other's wrongness. Contrary to some interpretations, which suggest that the elephant is not a water jar or a winnowing basket, I would offer an artist's perspective, which might offer that these analogical, metaphorical, and poetic attempts to describe the elephant help us to understand both the elephant and our entangled relationality with the elephant and each other in our different ways of knowing what an elephant might be like. We might also look at the sculpted transmediation of the narrative, moving from one medium to the next. Itself as a representation of the inseparable nature of the people and the elephant. They are all mutually co-productive here. It matters that the stone is also telling the story of the elephant, and the elephant is telling the story of the stone.

In my theorizing, I'm drawn to Karen Barad's concept of the ethico-onto epistemological nature of research. And to this assemblage of a word, I add the aesthetic. In my research, I try to explore all these different ways of knowing and how they're mutually entangled and inseparable in our inquiry practices.

And then I'll share another quotation from Karen Barad, This is from her *Meeting the Universe Halfway*. A beautiful book. They write:

“Theorizing is a form of experimenting, is about being in touch. What keeps theories alive and lively is being responsible and responsive to the words, world's patternings and murmurings. Doing theory requires being open to the world's aliveness, allowing oneself to be lured by curiosity, surprise, and wonder. Theories are not mere metaphysical pronouncements on the world from some presumed position of exteriority. Theories are living and breathing re-configurings of the world.”

This poetic description of theory might also be describing artistic practice as a form of living and breathing re-configurings of the world.

Finally, in the context of this presentation, I draw your attention to the digital nature of the stone sculpture of the ancient Buddhist parable. In these images, the narrative is diffracted by artificial intelligence via the DALL-E text-to-image model. This digital signal of an ancient story shared via electronic signals across virtual space, connecting with your own knowing memory and embodiedness inside your homes and offices. Your own research and belief systems and aesthetic desires. These layers of digital representation and transformation are an important aspect of my praxis of digital arts-based research.

The projects I'm going to share with you today are deeply collaborative. Much of it emerges out of the Digital Literacy Centre at the University of British Columbia, where I worked in research for years working with Dr. Kedrick James and a group of talented, amazing, beautiful, creative folks, Dr. Esteban Morales, Dr. Yuya Takeda, the brilliant Effiam Yung, and many others. One of the fundamental insights of my praxis is the suggestion that like Deleuze and Guattari suggest there are no individual annunciations. Research is a vastly entangled collective assemblage.

So the first project I will share with you is around computational thinking. What Counts? This project emerged out of ongoing exploration into the learning potential of digital DIY and makerspace environments as a way to encourage teacher candidates to develop their own and their students' computational thinking.

Computational thinking has been identified by educational scholars as an essential aspect of contemporary digital literacies. Here's a definition by Jeannette Wing. She writes, "Computational thinking is the thought processes involved in formulating problems and their solutions so that the solutions are represented in a form that can be effectively carried out by information-processing agents." Basically, this is the capacity to communicate effectively with

computers. This is an important aspect of digital literacy, and in school is most often and most obviously taught in computer coding classes. Many along with Jeannette Wing have been arguing for a long time that computational thinking should be considered an essential capacity up there with reading and writing and arithmetic. And that it should be taught across the curriculum and more inclusively to reach all students and not just those drawn to computer coding classes.

In the Digital Literacy Centre, we were exploring DIY and makerspace approaches to computational thinking. These are collaborative dynamic spaces that don't require much instruction in order to dive in and start building things through play experimentation, tinkering, improvisation with makerspace technologies that are designed for this haptic hands-on learning, computational thinking emerges in and with the technology. We were using little bits, which are designed as a tangible user interface, which enables people to haptically play and touch digital information through the physical environment. They're essentially electronic Lego. Each bit has a function in a circuit, and they snap together magnetically. If the circuit works, a light turns on, sound erupts, the motor engages, and you start building more complex circuits that have a wider variety of applications. I invite you for a moment to think about your own computational capacities, your thinking capacities, your ability to speak with your computer. I can share that I've always been interested in digital technologies, making, creating, playing, and otherwise using digital tools. But I don't know how to code, not really. I can muck about with scripts and things, but I'm not literate in the language of code. Yet I'm on computers virtually all the time, and I'm able usually to make them do what I need them to. I came to this concept of computational thinking, wondering what counts as computational thinking? I wanted to inquire into how computational thinking might express itself through different creative modalities, both inside and outside of the circuit. I was also interested in story and futures imagining. While makerspace philosophy has an inclusive and democratic ethos, it can also really promote an accelerated building, making, producing, a sense of technological progress and production, the creation of more stuff. I wondered how contextualizing our making within imaginative futures might interface with the computational thinking. And how other creative, metaphorical, storied thinking processes might interact with computational thinking.

This video, you'll get a sense of what the space felt like. So this was an exploratory collaboration with fellow grad students in LLED who I considered collaborators in this experimental phase of research and theory development. The first half of the event, we played with the bits, talked, laughed, shared, and created. Then the second half of the time, I invited them to creatively write about the future of what they had made. I invited them to interpret that however they wished. One of the collaborators wrote a children's story. Another shared an extended metaphor and personal reflection from his life all around his developing skills with cooking and he connected that to algorithmic thinking. Dr. James wrote this amazing kinetic poem and performed it for the group. And then my friend Billy Rowlock. William wrote an origin story that I found particularly moving. Billy, who is co-author on the paper we published about this makerspace event, hadn't been entirely interested in building with the bits themselves. But he wanted to learn about them and what they did. But he wasn't focused on building a circuit. He

was more interested in the narrative potential of the circuit. He was attentive in the narrative that he wrote. He was attentive to each of the collaborators in the room. He technologized the people in the room as opposed to personifying the bits. He placed us into the bits. He narrates the ways the bits interacted to create a circuit or patch, as he calls it. His story expresses a relational computation in which our togetherness was the circuit. I'll read a little excerpt from it. It goes:

Hi, oh, what are you?

I'm an output bit, but I'm an output, but I'm actually a bit too, but I don't look like bits like you, that's for sure.

Well, why not?

[Clip shooooooooosh]

That feels good.

Oh, my temp is going down.

What kind of bit are you again?

Okay. Okay. I accept that you're a bit without colour. I think you're okay.

But why didn't we know about you before? I mean, you fit so perfectly, It's almost like you were meant to be part of our patch. I guess you'll have to talk to Keynen. Her patch has been working with me for, well, I think for forever.

When I asked him about this narrative, he said, "I wanted to get everyone in there. That's part of what little bits was doing for me. Connecting me." This storied interpretation of the idea of the patched circuit was really intriguing to me. I loved how he drew upon his Indigenous knowledge and his characteristic storytelling mode with this inclusive and inviting ethos, making everyone in the room a part of this narrative algorithm. Does this count as computational thinking?

It's not my intention to make a claim about what is and is not computational thinking, like the blind man and the elephant. But I'm curious about how metaphor, analogy, and story can be important aspects of a more rich and relational digital literacies more broadly. It's also interesting to point out that since this project, the ways we converse with computers continues to evolve and there's much anxiety about this conversation and how human beings will be impacted. I would also point out that this thinking about what counts as computational thinking is analogous to the question of what counts as artistic thinking. I know many of you identified that you were hoping to discover ways to engage artistic practice as non-artists. This question of what counts as an artist and who gets to think, practice, engage with artistic modalities is important. How skilled must you be in the techniques of your chosen art form to participate in the conversation in a meaningful way. This tension, this tension runs through the discourses of computational thinking, digital literacies, as well as arts-based research.

Some key points from this project that I'd like to highlight in terms of digital arts-based research. This methodological approach can open windows in our inquiries to allow digital computational, relational, and artistic ways of knowing to share space and inform each other. I think that an arts-based approach can keep us curious about the fuzzy edges of our definitions.

Lingering questions inspire further inquiry and also the importance of collaborative experimentation in the building of inquiry. My thinking and theorizing evolved from that initial exploratory space. I feel that that was an integral part of my evolution as a scholar. If you're interested to learn more about this project, Here's a paper called "From Play to Creative Extrapolation" that you can take a look at.

All right, The next project that I'd like to share with you is called The Patch. And you heard William refer to the Patch as a circuit in his narrative. This was a creative writing as embodied digital analog processing workshop.

In this project, we took up metaphor, the metaphor of a circuit, and extended it into a digital arts-based creative writing workshop. We presented this workshop about 10 times with a total of around 80 teacher candidates, and published a methods paper in the *McGill Journal of Education*. The concept of the Patch comes from music. Here's a definition from the Roland website:

“A sound made up from a combination of oscillators and/or samples combined with filters, envelopes, and effects that is preprogrammed into a synthesizer. The term is derived from an older style analog synthesizers that you had to physically patch together with cables to create sound.”

This image is a schematic I created of the workshop processes As circuit as patch, each square indicates a different process. The Xs are digital processes, these horseshoes are analog processes, and then the triangles are performance processes. Then these zigzag lines indicate a transmediation from one modality to another. These zones of modality shift really allow glitch and interference and the world to intervene in the creative processing. We really highlighted and celebrated those glitches in our workshop.

In the workshop, we started with an initial input text, input data, input signal. This was a short narrative written by Jorge Luis Borjes *On Exactitude in Science*, or also known as *On Rigor in Science*. I consider Borjes's fiction a kind of arts-based engagement with theory. They are theory fictions. And they do this magnificent job of modelling concepts with many windows for contradiction and absurdity. I find this mapping metaphor, this mapping narrative to be especially meaningful when thinking about the virtual and the digital. And I'm just going to read the narrative to you because it's wonderful.

“In that empire, the art of cartography attained such perfection that the map of a single province occupied the entirety of a city. The map of the empire, the entirety of a province. In time, those unconscionable maps no longer satisfied. The Cartographers Guild struck a map of the empire whose size was that of the empire, and which coincided point for point with it. The following generations who were not so fond of the study of cartography as their forebears had been, saw that that vast map was useless and not without some pitilessness was it that they delivered it up to the inclemencies of sun and winters. In the deserts of the west, still today, there are tattered ruins of

that map, inhabited by animals and beggars; in the land there is no other relic of the disciplines of geography.”

Importantly, in exploring the origin of this story, we discovered that the idea of the largest useful map can be traced to Lewis Carroll's earlier work called *Sylvie and Bruno*, in which a character explains, "We use the country itself as its own map. I assure you it does nearly as well." The point I raise here is not to attribute the narrative to any original source, but to suggest that stories move among us through time, across technologies, interacting with context and the world, wrapping around objects, transforming and oscillating. Again, Deleuze and Guattari suggests that there is no individual enunciation, but rather that our enunciations are collective assemblages. In the Patch workshop, we foreground and play with this collective assemblage as methodology.

In the workshop, we take that initial input story as a palette and then start mixing colours. We use a platform called Language Workbench, which takes advantage of digital processing applications to create new and innovative forms of literary art. You see here, this is a patched together algorithm that you can create on the platform and you put in your text here. And then it will automatically replace all the antonyms, then replace all the hyponyms and synonyms. And then it will output a new text that's augmented from the initial input. It creates really fun, new, surprising meanings and insights into the original text. From here, we move the text through a number of processes, both digital and analog. One of the ways we move into the embodied from the digital was to play the words, as you see here, on the screen one after another, flickering them faster and faster, and we invited participants to let the words wash over their eyes. And then write down the words that appeared louder or grabbed hold in their mind over others.

Here in this next image, you can see they're writing down the words that they're grabbing from the screen in this embodied node generation. From these nodes, we made these poetic networks. This workshop was done both in person and online during COVID. This node network text analysis is a common feature of computational text analysis. This platform called INFRA Notice analyzes texts as networks using algorithms and AI to draw meaning from text. We invited the poetic, the embodied, the glitch aesthetic instinct to interfere with these computational and automated processes. We foreground that creativity as a creative resistance to the algorithmic machine.

In the Patch we employ digital platforms and tools to create diffraction patterns of the original source material. Diffractions are a useful metaphor in digital arts-based research in which we're not seeking to replicate the territory, but to engage in artistic practices that change and alter the terrain. Diffraction here, a concept from feminist science and technology theorist Donna Haraway, one of the luminaries in my thinking. She works with this optical metaphor of diffraction. Here's a great quote. "Diffraction involves passing one text through another, creating new relations and provoking 'ripples' of thinking moving outwards in novel directions."



Each of the processes might be one of these obstacles through which the circuit moves and is diffracted and transformed.

Here I'll play a short clip of one of the workshops.

[VIDEO STARTS]

♪ The meaning of feminism as prescribed by male philosopher." ♪ "Where do I equate..." "The issue of igniting over indulgence." ♪ "And now tone results from the prescriptive." [Inaudible talking] ♪♪♪

[VIDEO ENDS]

That last screen there was INFRA Notice where we were performing the poems and then using automated text recognition to project them into this node network. You could see all these glitches and interference patterns as the creative poetic signal moved through these processes. Then the sounds that you heard there, we sonified the texts using a platform that we're continuing to develop. It's called Singling. There isn't enough time to share that project with you, but if you're interested in text sonification as another research tool for creative data analysis, do reach out and I'll share that work with you. It creates sounds from textual data, is what it does. To close a discussion of this project, I'd like to share this rendering of the process. I created this visualization, which was published in our article, to map the word "map" as it moved through the processes of the workshop. This initial green here is the word "map, maps mapping." Then it moved through algorithmic, excuse me, through the algorithmic extrapolation, the analog filtering, poetic networks, and finally radiating out into these lines of poetry, such as, "Tattered magnetic maps of social being. Citizens playing into being mathematical entreties, art maps all subjects, it's effect a tattered mathematical function." You can hear echoes of the original source material in these new poetic lines that we created collaboratively together.

To identify some of the key themes for a digital arts-based research praxis here, we were really interested in the productive and generative possibilities of creative entanglements between the digital and the analog. This was a generation of creative data. We employed a glitch pedagogy, which is really a wonderful approach to digital processes and digital literacy. We problematize the idea of authorship and digital authorship, investigated creative reading and writing methods that are digitally mediated. Then we really wanted to look into embodied, tactile, visceral approaches to computation. If you're interested in learning more about that work, you can visit this paper, "The patch and artful synesthetic mapping of linguistic data through collaborative digital, analog literacy processes."

All right, I'm going to now share with you this project, Writing the Futures Imaginary: Digital Arts-Based Inquiry, and the Futures Literacies of Teacher Candidates. This is my doctoral work and I'll be defending it next month. I'm pleased to share a little of it with you here in the context of this talk, and I'd love to hear your thoughts or questions about it.

This work explores the concept of futures literacies. I'll briefly say that futures literacies, for me, refers to the entire spectrum of ways we might perceive, sense, enact, dream, and create the future in the present. This builds upon and extends from future studies. Here futures literacies in my work, I use this concept to indicate the vast array of creative and performative ways we reach imaginatively into the yet to be. If you're interested in this as a concept, you can check out this interdisciplinary review that Derek Gladwin and I published in the *Journal of Curriculum and Pedagogy*.

In my project, I wanted to explore, both explore and cultivate, the creative futures literacies of teacher candidates. I designed a writing workshop, a futures literacies workshop, that took up some of the ideas of the Patch and digital analog processing as a creative imagining technology. In this work, it applies to the future imaginary through futures fiction. I took two classes of teacher candidates through a series of imaginative prompts using both analog and digital media in different ways to activate their literacies and their imagining. On the right, you see the first page of a questionnaire that opened the workshop, investigating their feelings, hopes, anxieties, predictions about the future. This first question became extremely important in my analysis. This asks participants to draw the shape of 200 years on a grid with a Y axis of time, Sorry, X axis of time, and a Y axis of well-being, 100% positive at the top and negative at the bottom. On the right side of the screen, you see an interactive website I created for participants to play with answering about the future as a text, as different kinds of texts, different answers output different character descriptions. Here you see a new pattern weaver as a character description. I designed this as a game that I wanted participants to resist and interact with, and activate their own futures subjectivities in response to their play in this game.

Finally, I created a tarot card game. The participants can click through these four cards as many times as they wish. Then it outputs a prompt to prompt their imagining. For example, a prompt might be, "The future is a few years from now, you are a species on the verge of extinction. You are feeling unsure. You focus your attention upon a song."

And then they wrote their stories in the website interface and then submitted them. And of course, I only investigated and analyzed the stories of the people who had agreed to participate in the study. Now I'm going to share a few ways that I engaged creatively with the data through a digital arts-based lens. I took up the idea of rendering the data rather than representing it. Here this is a beautiful Springgay et al. describe this rendering as "Theoretical spaces through which to explore artistic ways of knowing and being in research." To render is also an artistic approach to representation. I was interested in my analysis of presenting and storying the data in a way to allow for multiple meanings and sensations to move through the representations. My analysis was deeply entangled in these data renderings. Here you see, I digitized these initial gestural drawings of 200 years, which I interpret as drawn narratives. The process of tracing each story was very important in my sense of touching the data and being with the data and relating with the data. Recalling the elephants, touching of the elephant, and their description of theory as a touching. In this dissertation, I described these lines as the

electrocardiographs of our collective futures imagining in the workshop. I found that alone the line tells one story and then together they tell a kinetic relational energized, another story that is that rich with meaning.

Here you see a couple data points visualized. At the top here, understandably, you can see that the participants largely think often or always about the future within their own lifespan, but the future beyond their own lifespan, you can see that sometimes rarely a now and never shows up. Half of them only sometimes to rarely to never think about the future beyond their own lifespan. But what was interesting is that you can see here, most of them either agree or strongly agree that they care about the future beyond their own lifespan. In other words, many of the teacher candidates in this study care about futures that they only sometimes to rarely think about. So the Futures Literacies workshop became a way for these teacher candidates to explore and creatively express that care.

Here you see tension occurring in this participant's narrative of the future of humanity and then the future of the planet. And you can see the planetary future has bottomed out at 100% negative. This tension between planetary and human futures moved throughout the project, and I engage with it quite amply in the dissertation. Here you'll see an array of emergent factors in her futures literacies. But what is relevant here in terms of arts-based research, is the creative and aesthetic engagement with the data and the data rendering as inextricable from the meanings that are communicated.

Finally, I'd love to just share some raw creative data. This was written by the same participant as the previous slide. This background image was created with Midjourney. I asked the text-to-image bot to create an image of a river pouring down from the sky. The research occurred November 2021 and there were these atmospheric rivers pummeling Vancouver and the surrounding areas with unprecedented amounts of rain. This weather is entangled with the imaginings of these participants in important ways. She writes:

“We are all just drifting, slow moving liquid bodies in a liquid world. Shapeless minds. If this is the end, we are glad it is blue. It reminds us of the deepest ocean, the deepest space. And under the blue pressure we can rest, liquefy, slip in and out of each other without losing any part of ourselves. Cut only by pirate ships dripping with gold, leaving honey yellow trails through our blue black ink. If this is the end, we are glad it is gooey, thick with time, thick with space, thick with loss and lined with gain. There is no fear, there is no hurt. There are no hearts to race and no heads to spin, no eyes to watch, and no hands to mold. We are only what we are, eternal and slippery. If this is the end, we are glad it is now.”

Finally, I would like to share one concept that I developed in my research, which is fictopoeisis. This is my offering to a large array of methods. Fiction as a method being used across the disciplines from design fiction, speculative fiction, science fiction, Donna Haraway's Worlding, double fictions. To this, I bring the idea of fictopoeisis, which is the bringing forth of new

fictions as fictions to live with, understand the world, and understand the limits of our understanding. We model the world as radically open and always exceeding our capacity to represent the way things are and might be.

For me, fiction is a central modality in my thinking and theorizing and pedagogy. If fiction were like a form of exercise, it would be running. It's free. All you need is a pair of running shoes. And you can do it anywhere. It can be dangerous, and it can take you into dangerous places. You're interacting with the world and the world can intervene. You are in the world, there are others on the road, there are animals in the forest. Often with running, you follow the same route over and over, a reoccurring plot line because it's a good route, or a safe route, or challenges you in exactly the ways you want to be challenged. But even then, the run can be different if you are awake to it and awake to the fact that you are running. The running I'm talking about has no destination. The best part of running is when you forget you're running or wanting to lose a few pounds or training or whatever, and you're just running for the sheer joy and thrill of your own embodiment. Similarly, in this futures literacy workshop, I wanted to create a space for futures imagining and storying that was simply engagement in the thrill and joy of one's deeply creative capacity to imagine the future. When it comes to the future, we're always planning, solving, fixing, anticipating. We instrumentalize our thinking and stories to solve problems. Solving problems is important, essential, imaginative work given the problems we face. However, if we're going to come up with new thinking, new routes into the future, we need to make a little space for playful and uninstrumentalized imagining just to remind ourselves that the future is not yet here.

Key takeaways from this digital arts-based research are creative digital methods, the creativity that goes into making digital tools for participants to engage with, employing imaginative data that the participants imagining as well. The concept of data renderings I think is really useful for this research. Finally, I offer fictopoeisis as a fiction as method that can be meaningfully employed in digital arts-based research. If you're interested in the methodology of this workshop, you can take a look at this paper, "Imagining Difference," which was recently published in the *Digital Culture and Education Journal*.

I don't have much time, so I'm just going to skip the official definition and share some concluding thoughts. So sorry... In terms of the arts baseness of my work, life, and teaching. To me, this is about activating imagination, experimentation, and openness to the world's interventions. The art is an open window allowing the unruly into our studies. I'm wary of definitions and try to understand artistic practice along an inclusive spectrum while honouring the skill and rigor that goes into making art. For me, the goal, however, is not art. Art might be a by-product, but for me, the art is a process of becoming, an accounting of multiple meanings, contradictions, and paradoxes. We need art to explore the fuzziness at the borders of our assertions, truth claims, and all representation. I believe digital arts-based practices are more important now than ever. And I hope I have supported this claim throughout the talk. In the course of five years of doctoral studies, computation has evolved dramatically shifted and become weirder and weirder. Even the most highly trained technologists don't really know

what's going on or how the machine works. I believe artistic practice and creative curiosity will be essential as we continue to cultivate our capacity to converse with each other, the other-than-human world, and with our machines.

With that, here are my citations if you're interested. And that is the end. I'd love to take some questions if we have any out there. I love the words that you came up with. "Slippery, vague, reliant, chaos, immersive." Beautiful. Does anyone have any questions or thoughts or want to share anything about your sensing?

Hi, Hazel. Oh my goodness. Wow, Yeah, thanks. Thank you, Karin. I would love to hear any thoughts you're curious about fictopoeisis. Oh my goodness, I can't believe you're saying that. You are a master. In research, there's lots of people doing work with fiction as a method, but sometimes it's instrumentalized or to solve a problem, or often it'll be like to represent the data or to represent the participants, or to do some work. I wanted to really foreground, I'm really interested in fictioning as method, Burrows and O'Sullivan, I highly recommend this text. They compare fiction to mythopoeisis, which is like the developing of myth. To me, myth is a consensual narrative that takes hold in the world and then we've come to live by myth. I wanted to foreground the inventiveness and play and ephemera of fiction. That's what I mean when I say fiction as fiction. To just engage in, like I said, the thrill and joy of making things up. That's important work, not just pure fantasy. Pure fantasy is important work. That's what I'm doing with that word, is to really foreground fiction as fiction. To think about the future. If that answers your question.

HAZEL:

It does. Thanks. I unmuted. I was like, mute. So I unmuted. Yes. Thanks so much for this. It was really great since nobody else is talking out. I'll talk for a second here. Just this was just really super lovely and I'm excited about you defending. I'm sure it will go super well.

RACHEL:

I hope so. Yeah, thank you. So nice to see you. I'm a big fan. Thank you, Sally. That's lovely. Thank you very much. That's a real compliment. Thank you. Yeah. Anyone have any thoughts? I know in your questions you were wanting to find ways for non-artists to engage in arts-based research. I hope that I made it seem inclusive, that you can start messing around. We're all deeply technologically entangled and I think even just noticing that is part of it. Oh, I see a hand. Manisha, hi.

MANISHA:

Hi. Fascinating presentation. Manisha from Maskwacis Cultural College in Alberta. Elder Rose Saddleback and Jason Wolfe who's a teacher. We'd like to know, have you used this approach with Indigenous students? What response? How was the feedback? Because it's so fascinating. The words you're using are fluid. Liquid like, the visual even honey for the lines on the... It's so... I don't know what words to say, but you make it come alive because digital is inanimate. Making it come alive like you're making things animate. You're making literature interesting,

and you're wondering what ideas we can grab for our teaching practice over here to make teaching English language more interesting. Or teaching literature more interesting.

RACHEL:

Well, I have lots of tools, and technologies, and platforms that are really amazing to engage learners with. You're welcome to use the Futures Literacies/Creative Writing website. If you want to play with those tools with your students, they're there and they're not connected to me anymore. You just put in your email and then the story gets sent to you. But in terms of specifically working with Indigenous students, I haven't done that specifically. There were Indigenous teacher educators in my group of participants who wrote just beautiful narratives using these tools and interacting with these tools. Yeah, I really like to focus on our entangled. I'd like to lean into the positive. I was the only one at the party saying, yeah, technology, I do like to lean into the positive and explore creative land-based ways of engaging with technologies. We can do technology better, and I think part of creativity does that work. That's why I think it's more important now than ever to do this work. If you're looking for specific resources, please reach out and I'll send you a bunch. I saw another hand. Karin?

KARIN:

Hi. I'm very conscious of the time. We've got a couple of minutes left. Thank you so much, Rachel. I really enjoyed it. Faculty of medicine, supporting with the teaching for medical residents, and very interested in arts-based approach which is supported and promoted much through UNBC. I listened to your presentation with joy. One of the things that was new to me was the methods approach, the expensive word. Thank you for the previous group. I also felt that really animated and what ideas can we grab for teaching. But I'm thinking medical education. I thought one of the questions that I have, I have many, but one of them is, you explain the methods, but how about the reflection and the reflective practice as a researcher or as a medical health professional? Is that a piece that you talk about in your thesis?

RACHEL:

Yes, in my thesis, I did a lot of fiction writing as a way of engaging with the participants, as a way of engaging with the theory. I did a lot of that creative, reflective, and I like to use that diffractive term. Rather than, I wasn't focused on reflection, which is a repetition of the same. I was really interested in diffracting and taking ideas and moving them outwards and coming up with new patterns. I tried to orient myself to that approach in my fiction. I found it, I think it's incredibly powerful stuff I'll just quickly share. During the course of my studies, my father passed, and I took up this idea of fictioning diffractively and told stories of that experience and it was powerful. And in doing that, I looked at research around fiction and grief, and fiction and dying in all those different places, and it's a powerful methodology for medicine. I would highly recommend exploring that further. I have some references to that in my literature, but yeah, there's lots of work going on. I'm so excited that you were inspired by it. Thank you very much.

PARTICIPANT: And best of luck next month. Thank you.

RACHEL: Jennifer, I see a hand.

JENNIFER:

I realize the time is short. Really just wanted to thank you. I wasn't going to say anything. But then you said the fact that your reactions are often positive, and I can see that in your presentation. And sometimes people are surprised by a positive, a positive response when asked the question, what do you think about all this new technology that's coming in? I teach in graphic design out in the valley, so I'm at University of Fraser Valley as a designer and teaching in graphic design in particular, we're often asked these questions like, "Aren't you freaking out? Aren't you scared?" And I'm honestly not. In fact, I'm kind of feeling empowered in a way. But it's really great to see your research and it helps just give me ideas and help maybe create some positivity in the conversations that we're having. Because the interdisciplinary, crossing boundaries and blending people together where we feel very separated out here. And I think there's a lot of fear in certain areas. I'm like, no, no, we can work together. Let's do something. To see your work is just inspiring for me. I really appreciate seeing it and I can't wait to dig in and see some of the resources that you shared because I think that there's so much opportunity for us to just shed these ideas that so that we should be fearful and retracting. And in fact, we need to be going forward and really finding ways to collaborate and do this kind of creative work with people who wouldn't normally call themselves creatives. So I really appreciate that. Thank you.

RACHEL:

Oh, thank you very much for that. That was wonderful. Yes, I agree. I purposefully phrased the question, How do you embody your own creativity? Because we are all creative and we can do this work. Yes, I agree. Thank you so much. Thank you. Thank you. Are there any I think are there any other Oh, thank you.

GWEN:

Thank you very much. This is a very incredible work and very inspiring you like sharing. We are at the end of the time and I know that Rachel has shared some of her contact information. So if we have further questions, you're welcome to contact us or Rachel like for more information or sharing. But next month we have the last talk of this winter series, Harnessing Artificial Intelligence to Supercharge Research Insights. We are very excited for it. Please find more information to register on our site as well. Other than that. Yeah, thank you very much for being with us till now, and we look forward to seeing you in our upcoming events.

RACHEL: Thank you so much. Thank you. Bye.