Where's the Time to Care?
The Temporal Politics of Caring for Educational Technologies

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Biography

Hong-An (Ann) Wu is an arts educator, media artist, and interdisciplinary researcher that seeks critical, playful, and careful pedagogical approaches with and through technologies, such as video games and Tarot, for social justice. Her work sits at the intersection of game and play studies, feminist science and technology studies, and media and arts education. Currently, she serves as an assistant professor in the School of Arts, Technology, and Emerging Communication at the University of Texas at Dallas, a co-director of the Studio for Mediating Play, and a co-director of Situated Critical Race and Media.

Abstract

Drawing from my action research project teaching and learning modding digital games for social justice with teens in a library setting in the US Midwest, this paper examines repeated moments of technological troubles and its demand for care during teaching to trace the temporal politics of caring for educational technologies. Instead of disregarding moments of technological troubles in pedagogical encounters as irrelevant logistics, this paper centers these moments by attending to emerging digital technologies' request for care

animating these moments to unpack the temporal order negotiated, made, and remade through its commonplaceness in teaching practices. By reading moments of technological troubles through feminist science and technology studies scholarship on care, temporality, and technologies, I argue that my habituated teacher subjectivity that used lesson plans as a technology and my habituated networked subjectivity that used emerging digital technologies in my lesson plans structured a temporal order that was inhospitable towards emergent artistic knowledge production through practices of care. Yet, as these moments point toward a visible seam in the temporal order of technological progress, I contend that art educators are also invited to care for mending this seam that might lead to the knowledge of an alternative logic. To do so, I conclude by advocating for art educators to make the time to care through rethinking lesson plans as educational technologies.

Keywords

Care, temporality, educational technologies, digital technologies, lesson plans

From 2014 to 2017, I taught on and off as a visiting arts instructor for various afterschool programs for middle school students at a public library in a Midwest college town in the United States of America. Given the library's abundant resources and proximity to a nearby public middle school, it was *the* hangout spot for middle school students after school. As a graduate student in an art education program centered on community-based arts programming in the nearby college at the time, I also frequented the library and began developing an ongoing re-

lationship with the other people that inhabited the space as part of my graduate program. The constellation of my research interests in critical pedagogies through digital media, the middle school students' passion for all-things related to digital games, and the teen librarians' commitment to hosting relevant afterschool programming for these middle school student patrons were aligned. This alignment resulted in our collaboration on a series of stand-alone workshops and ongoing semester-long programs that focused on exploring artistic productions around digital gaming cultures through emerging educational technologies.

In particular, after separate conversations with some of the middle school students, the librarians, and my dissertation committee, I began developing a dissertation action research project that drew upon my game-based art pedagogies at the library. Specifically, I developed, led, and wrote my dissertation on a five-week workshop series, titled *Minecraft Modification Workshops*, in the Spring of 2016 with 7 participants that have participated in similar afterschool programs before. By focusing explicitly on modding digital games as an act of critical play (Flanagan, 2009) that intervenes in gaming cultures' "marginalization of many minority gamers" (Gray, 2012, p. 262), the aim of this workshop series was for us, the middle school student as workshop participants and myself as the workshop facilitator, to critique and rewrite various video games, especially their favorite title: *Minecraft*. Specifically, our workshop was focused on dissecting the normative play scripts embedded in the visual representations of peoples, objects, and environments found in *Minecraft*'s universe, and our hope was that we will create more just and inclusive gaming worlds by redesigning these visual elements. These workshops involved us reflecting on what digital gaming cultures excludes, learning the file structures of *Minecraft* as a software, using image editing platforms to reskin the default player avatar and other visual images in the game, and more.

However, the aim of the workshop series and each workshop objective was repeatedly undermined by moments of technological troubles. The laptop I borrowed from the university

wouldn't turn on. The files couldn't be saved. The Internet connection kept dropping. Even though technologies refuse to work all the time, in and beyond moments at the library, this particular set of encounters consumed my attention to their refusal as they were during this workshop series that I planned to write my dissertation on. I felt responsible and anxious, and extra annoyed when the tools I've depended on multiple times suddenly gave up on me, on us, on our established trust. Perhaps because this set of rather ordinary and mundane encounters of technological troubles also occurred under the competing temporality of scholarship, it opened up "a time denied by global media events that happen and disappear at the speed of light" (Chun, 2016, p. 72) and prompted me to ruminate on the significance of these everyday pedagogical encounters with emerging digital technologies even after the workshop series ended.

Instead of disregarding moments of technological troubles in pedagogical encounters as irrelevant logistics, what happens when we recognize the request for care animating these moments and center them in our analysis? Instead of approaching these moments as exceptions to our pedagogical practice as usual, what happens when we pay attention to the temporal order negotiated, made, and remade through its commonplaceness in teaching practices? Instead of considering these moments as hiccups to our preconceived lesson destinations, what happens when we attend to the emergent directions these critical junctures make apparent? Drawing from my action research project, this paper examines the repeated moments of technological troubles and its demand for care during teaching to trace the temporal politics of caring for educational technologies. By reading moments of technological troubles through feminist science and technology studies scholarship on care, temporality, and technologies, I argue that my habituated teacher subjectivity that used lesson plans as a technology and my habituated networked subjectivity that used digital technologies in my lesson plans structured a temporal order that was inhospitable towards emergent artistic knowledge production through practices of care.

Care and Technologies in Education

Care is important for, in, and as feminist knowledge production. As María Puig de la Bellacasa (2017) emphasized in the book *Matters of Care: Speculative Ethics in More Than Human Worlds*, "caring is a long-standing concern of feminist thinking, as are objectified beings and the material-semiotic effects of our knowledge politics" (p. 53). In this sense, feminist knowledge production concerns care in three main ways. First, feminist thinking is an act of care that attends to the politics of knowledge production. Second, feminist thinking centers material practices of care "as a devalued doing, often taken for granted if not rendered invisible" (de la Bellacasa, 2017, p. 53). Third, feminist thinking mobilizes care as an analytical framework informed by situated and often devalued material practices of care.

Building on Berenice Fisher and Joan Tronto's (1990) expansive definition of care, this article approaches care as "a species activity that includes everything that we do to maintain, continue, and repair our 'world' so that we can live in it as well as possible" (p. 40). Specifically, I consider caring as situated material practices of laboring over "our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life sustaining web" (Fisher Tronto, 1990, p. 40). I use the term situated material practice to frame care as "situated actions" (Suchman, 2007, p. 84) that take place in "communities of practices" (Wenger, 1998, p. 45). In these communities, care-givers produce "situated knowledges" (Haraway, 1991, p. 111) through their practice, especially when they approach restrictive structures, such as schooling, as "pliable" (Lucero, 2016, p. 189) artistic materials for manipulation and play. Here, I draw on the word "situated" to reference Donna Haraway (1991) and Lucy Suchman's (2007) point that knowledge is always partial, relational, and temporal as it is produced in action by someone from somewhere at some point in time, namely in a historically, geographically, culturally, economically, and politically specific context. In addition, I draw on the word "practice" from Etienne Wenger's (1998) theorization of "communities of practice" (p. 45) to emphasize

the collectivity within which these situated actions are performed and rendered meaningful. Furthermore, I draw on the word "material" to extend Jorge Lucero's (2016) invitation for art educators to "'play' with the parameters and materiality" (p. 188) of structures, institutions, and situations that they find themselves in as artistic mediums for knowledge production. Here, "care is embedded in the practices that maintain webs of relationality and is always happening in between" (de la Bellacasa, 2017, p. 166).

Throughout the workshop series in my action research project, care was consistently sought to attend to the tender web of relations we were weaving together. In particular, participants reached out for my care as they encountered various difficulties, particularly technical ones related to maintaining a reciprocal relationship with digital technologies. When their laptop froze, my care was sought. When they couldn't load a file, my care was sought. When their internet wouldn't connect, my care was sought. When they couldn't join the digital game that most others in the group were playing in, my care was sought. They sought my care as they were oriented towards digital games and the various affinity groups surrounding these games, they desired the technological literacies to participate in the conversations that these digital games and gaming cultures were predicated upon, and they needed one-to-one attention to bridge the gap between their current experiences with these technologies and their desired experiences with these technologies. To maintain the tender webs of relations between the workshop goal, digital technologies, participants, and myself, caring as situated material practices often translated to resolving, or at least attempt to resolving, a series of technological troubles with participants.

As part of the larger constellation of feminist knowledge production, care had been a central theoretical framework to approach teaching, learning, and schooling for the past few decades in the field of education in the United States. Informed by gendered caring practices centered on relationality, Carol Gilligan's (1982) *In A Different Voice* demonstrated how masculinist principles of individuality, objectivity, and rationality were established as universally true and su-

perior in Lawrence Kohlberg's (1984) widely-adopted hierarchically staged moral development theory. In education, this theory was used as a rubric to assess one's moral development and to erase the value of moral reasoning that prioritized relationality, which were feminized knowledge often demonstrated by women. Around the same time, Nel Noddings' (1984) paradigm shifting publication *Caring: A Feminine Approach to Ethics and Moral Education* uprooted generalized educational theories predicated upon dominant developmental models to describe what a good education should look like. Upon incorporating critiques about the dangers of essentializing femininity as naturally caring that reinforces caring as solely women's work, Noddings (2013) revised her theory to emphasize relationality over femininity in the later edition of the book, and she foregrounded caring relations based on situated living experiences as central to a meaningful education. While not explicitly writing on care as a theoretical concept, bell hooks' (1994) feminist scholarship in critical pedagogy on teachers as healers that engage students' holistic beings and living conditions by refusing schoolings' demand for separating the mind from the body extends this commitment to approach education through the lens of care. For both hooks and Noddings, withholding assumptions about what the student needs, holding space for vulnerable and embodied dialogs, and practicing active listening constitute the conditions for which a caring relation may emerge.

Central to Noddings' evolving care theory (1984; 1995; 2013; 2019) laid a persistent attention towards what does it mean to be in a genuinely reciprocal caring relationship between two people: teacher and student, especially when the former is the one-caring and the latter is the cared-for. To emphasize the distinction between caring for humans and caring for nonhumans, Noddings (2013) used the expression "'aesthetical caring' for caring about things and ideas" (p. 21), such as academic subject matters and content areas. Building on this distinction but explicitly tracing the politics of care through the schooling experiences of Mexican immigrant and Mexican American students in the United States, Angela Valenzuela (1999) argued that too

often "schools are structured around an *aesthetic* caring whose essence lies in an attention to things and ideas" (p. 22). Given the structured curricular demand to achieve proficiency over ideas and mastery over things, "teachers tend to be concerned first with form and nonpersonal content and only secondarily, if at all, with their students' subjective reality" (p. 22), which prevented the establishment of a caring relation. While educational scholarship on care emphasized the distinction between human and nonhumans to poignantly exemplify and productively address the problems when care is primarily directed towards predefined things and ideas as connected to notions of achievements in formal schooling at the expense of students' personhood, I extend their concern by foregrounding the interdependence of humans and nonhumans to raise questions about our practices of care with and through, what is often understood as, nonhumans.

Building on feminist scholarship that questioned the concrete boundaries drawn between human and nonhuman (Haraway, 1991), I am concerned with situations where caring for technologies are intimately connected to caring for another person and a larger collective. As experienced in my action research project, caring for the digital technologies we included in our artistic practice was central to maintaining and extending our collective goal of intervening in digital gaming culture through modding. Here, feminist scholarship on care from disability justice and science and technology studies that centered the interdependency between human and nonhumans may aid in addressing this critical intersection. In the book *Care Work: Dreaming Disability Justice*, Leah Lakshmi Piepzna-Samarasinha (2018) recounted "experiments that have taken place over the past decade by sick and disabled predominantly Black and brown queer people to create networks of care" (p. 33) that included, but not limited to, building accessibility. Drawing from these experiences, she poignantly pointed out that when care, such as working with people and technologies to build accessibility, is conceptualized as an individual responsibility, as opposed to a collective accountability, it simultaneously reifies normative

boundaries of an individual while disregarding the ways in which our personhoods are interdependent with each other and with a range of sociotechnical systems. Without a recognition of this interdependency, care can be weaponized against the diverse complexities of our bodies to uphold an ableist social order.

Relatedly but through caring practices with technologies as sociotechnical systems in clinics, homes, and farms, Annemarie Mol, Ingunn Moser, and Jeannette Pols (2010) argued that we must "talk about both care and technology at the same time" (p. 15) as our caring practices are interdependent upon technologies. For one, we give care *through* these technologies, "from the thermometers and oxygen masks to laboratory tests and video cameras" (Mol, Moser, Pols, 2010, p. 14). For another, we care *for* these technologies, as they "do not work or fail in and of themselves" (Mol, Moser, Pols, 2010, p. 15). It is through our willingness to adapt technologies as tools "to a specific situation while adapting the situation to the tools, on and on, endlessly tinkering" (Mol, Moser, & Pols, 2010, p. 15) that our caring practices are interdependent and co-constituted with technologies. Given that care is centrally concerned with relationality to denote an attention to both the visible and invisible tethering between humans and nonhumans, "living in nature-cultures requires a perspective on the personal-collective that, without neglecting human individual bodies, doesn't start *from* these bodies but from awareness of their more than human interdependency" (de la Bellacasa, 2017, p. 167). Here, "interdependency is not a contract, nor a moral ideal—it is a condition" (p. 70). In the case of my action research project, the workshop goal, digital technologies, participants, and myself were interdependent upon each other. We cared for these technological things because we and our humanness were co-constituted with these things.

Caring for Educational Technologies

With an acknowledgement of our interdependency, I examine care alongside the emerging digital technologies in our artistic practice "to rethink and reframe them together" (Mol, Moser, Pols, 2010, p. 15). Specifically, I draw on Joan Tronto's (1993) *Moral Boundaries: A Political Argument for An Ethic of Care* as a useful framework to illustrate the processes by which care unfolded in our pedagogical encounters. She theorized "four analytically separate, but interconnected, phases" of care: "caring about, taking care of, care-giving, and care-receiving" (Tronto, 1993, p. 106). She said, *caring about* "involves noting the existence of a need and making an assessment that this need should be met" (Tronto, 1993, p. 106). In our pedagogical encounters, technologies sought our care. When the batteries were dead, it sought care. When the software needed to be updated, it sought care. When the laptop's time setting was out of sync that prevented it from speaking to other machines on the network, it sought care. Our recognition of these digital technologies' need for care were derived from a defaulted and questionable assumption that there is a normative state of smooth functioning for these technologies for which it was deviating from. At the same time, we assessed that this need for care should be met because we depended, in part, upon these technologies to participate in various social worlds, including our workshop community, local library community, external gaming communities, and more. In other words, we recognized its disconnectedness from our web of relations and noted its request for care.

However, the phase of *caring about* merely concerns the direction of one's attention, whereas *taking care of* extends this recognition to "assuming some responsibility for the identified need and determining how to respond to it" (Tronto, 1993, p. 106). In our case, we assumed responsibility to care but were often uncertain on how to care for these technologies and sought additional help; we often *took care of* technologies' expressed needs by relaying the work of care-giving that addressed those needs to someone else. In the third phase of caring, Tronto

(1993) defined *care-giving* as "the direct meeting of needs for care" through physical labor that required the "care-givers come in contact with the objects of care" (p. 107). Here, whether or not one is able to meet the needs for care depends greatly upon the need at hand, and coming into contact with the objects of care without the prerequisites for care-giving rarely result in the need being met. In our case when our care-giving acts were based on directing these technologies to an assumed normative state of functioning, we often lacked the specific technical expertise, institutional clearance, and/or other prerequisites to directly meet the needs of care in a timely manner. As such, participants sought my care as the technologies were seeking their care that they were uncertain about how to provide; they tried to *take care of* the troubles by handing it to me, the closest person they considered adequate for *care-giving*. I sought the care of librarians, IT personnel, and Google as the participants were seeking my care that I was uncertain about how to provide; I tried to *take care of* the troubles by handing it to experts that I considered knowledgeable for *care-giving*. In other words, we continuously straddled between the phase of *taking care of* and *care-giving* with these technologies as our object of care and the technical experts as the subjects of care-giving.

The last phase of care refers to *care-receiving* on part of the object of care. Tronto (1993) said, the acknowledgement and response from the object of care in this final phase is central as "it provide the only way to know that caring needs have actually been met" (p. 108). Based on our previous assumption about technologies' normative state of functioning as the rubric to read the response from our objects of care, our *care-giving* sometimes resulted in the caring needs being met while most other times resulted in the expressed needs unmet in the duration of our workshop. For example, we were able to move the laptop off from the table into our lap and sat across the room next to the outlet to plug in the power brick for one of the laptops. But we were unable to open the other laptop's back cover to inspect the problems preventing it from turning on even after being plugged in to the power supply for hours, given that we didn't have the

proper tools nor time near the end of the workshop session to do such work. Nor were we able to figure out where, exactly, on the laptop's file structure that we were supposed to install the software update to successfully open the software. And we were unable to bypass the laptop's administrative password requirement or gain access to that password in time to reset the laptop's system time, which was required for the laptop to function, for the workshop session, as these laptops were loaned from the university as their private property.

Despite the lack of our desired *care-receiving* response from these technologies, our persistent practices of care were extremely generative in pointing out two key issues. First, based on the responses we did receive from our objects of care, our trials and errors in practicing to give care pressed us to rethink our assumption about a normative state of functioning of these technologies. As we engaged in repairing these technologies as an act of care, we were learning how to do "the work required to maintain technologies of all kinds—from heroic efforts in moments of breakdown and crisis to the mundane and hidden maintenance work that keeps things running day-to-day" (Henke & Sims, 2020, p. 2). As we Googled alongside each other to try to figure out a way to get the proprietary software to work without the update requirement, we also learned the ways in which digital technologies as layered systems of expert knowledge and private property worked to maintain a social order surrounding digital gaming that was inhospitable to those of us that did not possess the correct capital, both monetary and cultural. Given that "social order is an ongoing practical accomplishment, consistently maintained through interaction and negotiation among participants" (Henke & Sims, 2020, p. 18), we were also involved in maintaining that social order when we gave care as a form of control with the expectation about what a supposedly correct response from our object of care should have been. However, we began to question if this was a social order we wanted to maintain. We began to rethink the assumption that there was a normative state of functioning for these technologies that we must pour our life forces continuously to serve, maintain, and extend. By acknowledging the

lack of care-receiving response as itself a form of response, we were provided the opening to revise our assumptions about technologies as well as the followed interpretation that the caring needs wasn't met. And it was through these openings that we could practice the idea that care is not cure and as care-givers the best we could do was engage in the "persistent tinkering in a world full of complex ambivalence and shifting tensions" (Mol, Moser, Pols, 2010, p. 14).

Another issue that warrants additional attention through our engagements with our technologies was that situated material practices of care takes a lot of time. Echoing Piepzna-Samarasinha's (2018) emphasis, "care is work" (p. 141), and the temporal dimension of this work, both in preparing to become able to do the work as well as the time it takes to complete the work, needs to be further recognized. While there is no "one right way to do 'it'—it being the ways we offer or organize care" (Piepzna-Samarasinha, 2018, p. 66), care as thoughtful and persistent "negotiation about how different goods might coexist in a given, specific, local practice" (Mol, Moser, Pols, 2010, p. 13) takes time. The key point of contention and negotiation in our practices of care was temporality. We couldn't get the help or information we needed during the time of the workshop. We couldn't move onto the next step of the modding process without having resolved a technical difficulty first, but the workshop was going to end in ten minutes. We couldn't linger on solving this issue because we had two other games to play through before the end of the workshop. In sum, we were often short on time. But it was through moments when we had the time or made the time to respond to the request for care by our technologies that we learned about their complexity as sociotechnical systems embedded in the logics of our social order as well as the extensive amount of time we would need to trade in before we can provide 'proper' care for it to return to the presumed normative state of functioning. At the same time, as Christopher Henke and Benjamin Sims (2020) emphasized in their book *Repairing Infrastructures*, "the path from breakdown to repair is a messy, conflicted, and potentially creative process that can also open up opportunities for (sometimes radical) social

and technological change" (p. 15). As we delved deeper into the weeds of trying to get the software to work the way we needed it to work for our workshop purpose as mentioned in the previous paragraph, we also figured out other software that were available and accessible to us for our purpose. Without resolving the initial request for care based on an assumed normative state of functioning, we ended up branching off to a different way of interacting with our technologies that still fulfilled our purpose. Here, our care-giving acts of technical repair served as "agents of change and innovation" (Henke & Sims, 2020, p. 15) that directed us to a different way of engaging with our technologies. In this sense, care as a situated material practice is a "critically disruptive doing that can open to 'as well as possible' reconfigurations engaged with troubled presents" (de la Bellacasa, 2017, p. 12). But, this is possible only if and when we made time to care and to give care.

The Temporal Politics of Caring for Educational Technologies

Extending the two issues advanced in the previous section, I turn to trace both the politics of temporality and educational technologies to excavate how these politics intersected with and intervened in our practices of care. As many scholars have argued, the temporal order is a key site of political negotiations, and the technologies we orient towards habituate us to particular temporal orders (Carey, 2008; Kafer, 2013; Sharma, 2014; Wajcman, 2014; Chun, 2016; Piepzna-Samarasinha, 2018). For example, in tracing telegraph's early development and dissemination during the late 19th century, James Carey (2009) argued that this emerging technology, at the time, "invented the future as a new zone of uncertainty and a new region of practical action" (p. 168), which contributed to the development of "monopoly capitalism" (p. 158). By effectively separating communication from transportation that allowed for standard time across geographies, the telegraph moved commodity trading "from trading between places to trading between times" (Carey, 2009, p. 168). In effect, this technology "altered the spatial and tempo-

ral boundaries of human interaction, brought into existence new forms of language as well as new conceptual systems, and brought about new structures of social relations, particularly by fostering a national commercial middle class" (Carey, 2009, p. 156).

More recently, in *In the Meantime* Sarah Sharma (2014) challenged the naturalized assumption that we all have the same amount of time, that our time is experienced uniformly, and that we are constantly speeding up with the increase of technological mediations. Examining the spatialization of time through accounts of jetsetters, taxi drivers, and yoga instructors, Sharma (2014) emphasized that time is "a site of material struggle and social difference" (p. 10). Specifically, Sharma (2014) argued that "capital invests in certain temporalities" (p. 139) and bodies to construe "a normalizing and differential temporal order" (p. 18), whereby "capital caters to the clock that meters the life and lifestyle of *some* of its workers and consumers" while "others are left to recalibrate themselves to serve a dominant temporality" (p. 139). Taken together, these scholars emphasized that the technologies we use route the flow of attention, care, and capital towards particular prioritized places, bodies, and agendas *over time*. To understand the order that technologies inherit and the hierarchy that technologies extend, we need to trace the dominant temporalities that they institute.

In the field of art education, the dominant temporality manifest as the "White temporal imaginary" (Mills, 2014, p. 29, as cited in Denmead, 2021, p. 132). Drawing from his own pedagogical encounters complicating Dick Blick lesson plans on Ojibwe cultural artifacts with pre-service art teachers, Tyler Denmead (2021) argued that a key aspect of the colonial and neocolonial project is establishing White time as *the* temporal order. From the way intellectual histories of art education was traced to the ways in which cultural artifacts were featured in art education lessons, White time had structured many art education curriculum, pedagogy, and scholarship to summon and legitimate White subjectivities as the frontier. By "starting history at zero in particular locations" (Denmead, 2021, p. 132) to establish White time as the

compass for the modern frontier of progress, it produces "White subjectivities who are always more advanced and therefore entitled to discover, conquer, occupy, traffic, civilize, develop, liberalize, and so on" while "the racialized colonial is always deemed to be catching up to the modern world" (Denmead, 2021, p. 132).

Building on Denmead (2021), I contend that emerging technologies as presumed neutral and universalizing tools for advancing societies, economic gains, and educational purposes figure centrally in solidifying this dominant White temporal order. From the telegraph to *One Laptop Per Child* to *Facebook*, emerging technologies were often positioned under the myth of Manifest Destiny as simultaneously desirable and inevitable progress of the modern world to legitimate actions that supported and extended their adoption and dissemination at the expense of reifying the hierarchy between the center and peripheries of modernity (Freishtat & Sandlin, 2010; Chan, 2013; Ames, 2019). Here, to catch up with the modern world is to subscribe to the "global spread of multiple exclusionary logics of Eurocentric modernity" (Chan, 2013, p. 13). To catch up with the modern world is to recalibrate our time to the temporal order of technological advancement under Western science and engineering. To catch up with the modern world is to continue to replace the old with the latest technological gadgets innovated in Silicon Valley and mass produced out of China.

As such, art educators have been expected to care *about* and *for* the various emerging and digital technologies for teaching and learning for the past few decades under the logic of catching up with the White temporal order of technological development masked as an universalizing frontier time. From the 1970s desire to harness the revolutionary potential of photography and filmmaking for social change (Lanier, 1969) to the recent surge of STEAM research and practice to intervene in the global investment in science, technology, engineering, and mathematics (Liao, 2016; Kalin, 2019), art educators have been pressed to catch up with various technological development in order to remain relevant in the shifting terrain of educational landscape

or risk becoming a defunded relic of time. To do so, art educators, alongside other education practitioners, have been encouraged, if not demanded, to sync up with the temporality of technological innovation by staying tuned into the latest developments in educational technologies, acquiring new technological literacies for curricular development, and troubleshooting unwieldy technological objects during pedagogical exchanges (Gregory, 1996; Delacruz, 2004; Black, J., & Browning, 2011).

But, where's the time to care? As mentioned in the previous section, care takes time, and to care well takes extra time. However, for art educators, especially those laboring in K-12 settings with regimented boundaries around administrative support, standardized curriculum objectives, and pedagogical durations, time was always lacking (Delacruz, 2004). There was never enough time before lessons to care about these latest technologies, let alone enough time during lessons to care for these technologies. As one teacher described in Elizabeth Delacruz's (2004) study on K-12 teachers' experiences with incorporating emerging technologies in the classroom, "Where my district 'fails' us is training. We are given many great programs and systems, but we are not taught how to use them" (p. 12). For others, the lack of infrastructural support translated into "equipment broke down, programs did not work when planned, server networks were down" (Delacruz, 2004, p. 13). While these disparities were contextually specific, they pointed towards the larger working reality for many teachers, whereby at the actual site of the pedagogical exchange they were left on their own to resolve any issues related to the emerging technologies that they were using. However, resolving these issues that arose during teaching *takes time away* from delivering instruction to reach the originally set forth learning objective, which teachers were subjected to deliver under various initiatives and policies' faulty presumption that technologies will work smoothly on its own.

Based on my action research amongst other educators' accounts noted above, I argue that the feeling of lack of time and the reality of lacking time to care was not a bug but a feature

of these emerging technologies directed for educational purposes. In the book *Updating to Remain the Same*, Wendy Hui Kyong Chun (2016) argued that new media technologies structure a particular networked temporality across machinic technologies and human bodies through programmed and habitual repetition that is oriented towards crisis, namely "moments that demand real-time responses" (p. 74). However, paradoxically, "crises are both what network analytics seek to eliminate and what they perpetuated" (Chun, 2016, p. 69). As this networked temporality indexes as opposed to being real time, it orients people towards an exterior technologically mediated time that is always pointing elsewhere, at some other time, but never here, now. Relatedly, Anita Say Chan's (2019) ethnographic study on the development and promotion of educational technologies as a commercial venture in the EdTech industries emphasized the role of hype in directing attention, care, and capital towards a particular techno future at the expense of our lived present.

Specifically, Chan (2019) argued that "the work of such devices becomes apparent only when seen or witnessed outside the temporal orderings and architectural stagings of hype" (p. 169), namely it can only be understood in teaching practices. And as many teachers have experienced, the work of such devices is the additional pressure on time, and the need to draw on time outside of work to care about and for these technologies at times. For the teachers incorporating emerging technologies in their practices in Delacruz's (2004) study, their descriptions highlighted a resentment of being oriented towards another time and a desire to orient towards the present, during teaching, with the technologies available at hand. Their account of their lived experiential time was marked by a tension between the global celebratory discourses on technology manifested as district mandates towards adoption and the local needs to actualize the purported optimistic functions of technological mediations.

But, the vocalized tension with time that teaching practitioners' experienced is often glossed over under the logic of hype justifying educational technologies. Even though "the repeated

promise of revolution that accompanied the introduction of new teaching technologies would be followed by a later realization of the inability (disappointing to some, relieving for others) to meet elevated expectations" (Chan, 2019, p. 162), the logic of hype animating discourses on educational technologies "manages to conjure and sustain a pronounced sense of belief, despite the evidence" (p. 163). Given, as Chan (2019) argued, hype is always oriented towards a better future based on the promise of technological progress. This promise is predicated upon the assumption that there is a universal normative state of functioning for these technologies, and it is the work of the specific locales to update themselves and their surroundings to support the use of these technologies when these technologies are not functioning correctly. In other words, technologies work, and if they don't work, it's on you. You're the problem. By emphasizing the additional affordances of these technologies in a normative state of functioning as seen in the RD centers, this orientation construes "a temporal ordering that can render former failures forgettable, and disguise the recycled performances of hype" (Chan, 2019, p. 169). As such, no matter how "distant or out of step the actual present might seem from the eventual future promised, hype urges focused investments of present work and labor in the name of achieving such promise" (Chan, 2019, p. 166). Namely, additional time, attention, and care by teaching practitioners is required to outfit themselves and their spaces to fulfill the promise of these technologies.

As such, the insistence on adhering to the temporal order of technological development results into an aesthetical caring that centers the hollow accumulation of technological objects while alienating both the teacher and students in relation to these technologies in their practice. In other words, the temporal order of technological development and the pressure to adhere to its order left no time for teaching practitioners to practice caring-giving for these technologies with their students. Writing in the late 2000s, Diane Gregory (1996) succinctly characterized the frustration with this hollow form of aesthetical caring:

> Now technology comes along with even more stuff like RAM, ROM, megahertz, megabytes, gigabytes, CD-ROM, quad speed, laser printers, laser disks, digital cameras, microchips, the Internet, the World-Wide-Web, scanners, scsi drives and zip drives. It's enough to completely dull your senses and your spirit for the rest of your life. Enough is enough. Someone has got to stop the perpetual hunt for more and more stuff. Our preoccupation with stuff is another way for us to avoid life. We don't need more stuff. We need to learn how to use wisely the stuff we already have and to consider carefully how we plan to use any new technological tools that become available to us. (p. 52)

Note that while this form of aesthetical caring may be alienating to the people that come into direct physical contact with these technological objects, including the teacher and students wanting to figure out how to care about and care for these things in their classroom, it continues to serve the temporal order of technological development that redistribute care and/as capital towards bodies not present. By that I mean, this form of aesthetical caring is the only kind of care that the dominant temporal order allotted enough time for, as it serves to direct capital towards the maintaining the R&D centers of these technologies as well as the livelihood of people involved centrally in its matrix.

Making the Time to Care through Lesson Plans as Educational Technologies

If, as Chun (2016) argued, technologies habituate us as specific subjects, to be a particular way, then we must also consider how another educational technology central to our teaching practices scaffolds our temporality with these emerging digital technologies: lesson plans. Furthermore, if we as educators are prefigured to spend most of our time extending the knowledge on teaching and learning as opposed to developing the technical expertise on emerging tech-

nologies, then we must prioritize our attention towards rethinking lesson plans as educational technologies that we have the expertise to revise and intervene in the dominant temporal order against care. Although seldomly discussed as technologies, lesson plans, through daily use, act as key educational technologies in our practices, whereby expectations around pedagogues' technological proficiencies, scripts for pedagogical practices, and institutionalized pedagogical deliverables intersect to habituate our teacher subjectivities. As a conclusion for the temporal politics of caring for educational technologies investigated above, I end with a brief reflection on the ways in which I come to recognize the important role lesson plans as educational technologies play in making, or eclipsing, the time to care for art educators.

For educators that have experience teaching and/or taken classes on lesson planning, most would have encountered the wisdom that a lesson starts, or at least ideally starts, with a lesson's learning objective. The lesson's learning objective signals the orientation, direction, and target of what is to be accomplished by the group of individuals involved in the lesson by the end of the structured duration, time passed, for each pedagogical encounter, may it be 3 minutes, 3 days, or 3 years. That learning objective acts as the guide to scaffold various classroom activities and pre-lesson preparations. Simultaneously, the learning objective becomes what is used for both student assessments and teacher evaluations. In the context of my action research, the aim of the workshop series and each workshop objective was repeatedly undermined by moments of technological troubles, as previously discussed. Workshop participants and I experienced a tension with time, whereby we felt compelled to give care to the technologies but often lacked the time to do so. For me as the facilitator of the workshop, this tension in time manifested the competing temporal orders of my habituated teacher subjectivity that used lesson plans as a technology and my habituated networked subjectivity that used digital technologies in my lesson plans. But, as made evident with the analysis thus far, we cannot accomplish various technology-dependent learning objectives if we can't find time to care for the trouble technologies come with.

WHERE'S THE TIME TO CARE?

Though not critiquing lesson plans as a prescriptive technology detrimental to knowledge production, Deborah Osberg and Gert Biesta (2008) argued that knowledge "cannot and *should not be pre-determined before the 'event' of their emergence*" (emphasis original, p. 314) in pedagogical encounters. Given, "knowledge is understood, rather, to 'emerge' as we, as human beings, participate in the world," and it "does not exist except in our participatory actions" (p. 313). Knowledge that emerges in situated encounters, they argued, include not only content matters but also our subjectivities in relation to the content at hand. Following this concept of emergent curriculum as articulated by Osberg and Biesta (2008) to approach my action research ridden with technological troubles, it demanded me to resist the temporal order of my habituated teacher subjectivity as collapsed onto lesson plans and reconsider my internalized expectations around pedagogues' technological proficiencies, scripts for pedagogical practices, and institutionalized pedagogical deliverables as manifested in my lesson plans. At the same time, it led me to rethink my habituated teacher subjectivity in relation to the technologies we were using, and it drew my attention towards how the workshops' learning objective as well as many educators' lesson plans were predicated and dependent upon technologies to behave *in a particular way*, namely ready-to-hand.

The reason why I, an educator working with emerging digital technologies, so naturally devised a lesson plan assuming that technologies would behave in a normative state of functioning points to how I have calibrated towards the networked temporality of crisis that eclipsed the time to and for care. Following the operational mode Chun (2016) outlined for networked worlds, I assumed each encounter of technological failure as merely a "critical exception" (p. 69) to be exempt from and yet classified for later domestication into the "habitual/programmed repetition" (p. 69) of pedagogical practice. My cohabitation with emerging technologies revised my expectations from them while seamlessly incorporated them into my motions that sustained the balancing act of maintaining the interdependencies between us, and I have grown accustomed

to expecting digital technologies as external tools to respond to my directed inputs in certain routinized manners and to constituting parts of my selfhood by internalizing the logic of these tools.

However, moments of technological troubles in pedagogical encounters throw a wrench into the dominant temporal order of educational technologies. These moments point toward a visible seam in the temporal order of technological progress, and we are invited to care for mending this seam that might lead to the knowledge of an alternative logic. How might we respond to these offers for inquiry through care? For one, I argue that we need to make time for such inquiry through care by engaging in "a reorientation to time" (Kafer, 2013, p. 27) that feminist scholars in disability studies characterized as "crip time" (p. 27) through our lesson planning. To do so, we need to challenge the "normative and normalizing expectations around pace and scheduling" (Kafer, 2013, p. 27) by bending the clock to meet bodies as opposed to bending bodies to meet clocks. In practice, this may translate to a variety of changes that shifts the classroom temporality, from revising scripts for pedagogical practices related to assumptions about the uses of emerging technologies as well as lesson plans in the classroom, rethinking how to assess and evaluate situated knowledge made in relation to these technologies against the pre-determined learning objectives, to releasing ourselves from the internalized expectations around pedagogues' technological proficiencies. If we ignore these offers for inquiry during moments of technological troubles by orienting towards a temporal order that prioritizes previously established learning objectives as instituted through lesson plans, I wonder, at best, if we are missing out on the opportunity to collectively reflect on the naturalization and deployment of these tools in shaping our respective subjectivities. Or, at worst, if we are recalibrating to the dominant temporal order by limiting our, including our students', capacities within emerging technologies' logics and their values.

As Chun (2016) cautioned about emerging technologies' networked temporality of cri-

sis, "this twinning of crisis and code/habit has not diminished crises, but rather proliferated them through an unending series of decisions and unforeseen consequences that undermine the agency they promise" (p. 70). As such, following Chun (2016), I echo that we need to recover "the undead potential of our decisions and our information through a practice of constant care" (2016, p. 70). At the same time, it is important to resist the urge to claim that we are victims of technologies or that we are being controlled by them. As Judy Wajcman (2014) articulated in her book *Press for Time* that examined the acceleration of contemporary living under digital capitalism, often "the impact of digital devices are framed negatively, as if we are victims of a 'crisis' that needs correction. Such readings make it difficult to formulate an alternative politics of time" (p. 184). Instead, I contend that we need to hold the tension of time related to technological troubles with care in order to continually reconsider its logics while negotiating our interdependent relations. Most importantly, we need to make the time to care, perhaps through reconciling one pre-determined lesson plan with one actual lesson ridden with technological troubles at a time.

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