The ‘End(s)’ of Time in Education: Diffractive Pedagogies for (Re)Narrating Beings in School

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Abstract: In this editorial, we collectively wonder about The End(s) of Time in educational settings. To do this wondering, we unpack the idea of the ‘End’ and its various definitions. Then, we move to thinking about how time and narrative entangle within educational spaces to create opportunities for knowing within and across generations of beings—adults and children—on the school landscape. We describe the concept of ‘diffractive pedagogies’ and then share examples of diffractive pedagogies within and across four disciplines (history, language arts, computer science, and earth science) and then we draw outward from school into family and community knowing.

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Introduction

What is ‘The End(s) of Time’ in education? By End(s), we mean many things: the purpose or intention; the boundary or limitation; the conclusion or furthermost point; or even the death or conclusion. Determining the ‘End(s) of time’ for education begs a host of questions considering serious issues regarding the ‘End(s) of education’ in general and the ethical use of new and emerging practices. For example, if students can do work using advanced internet technologies from remote locations, and/or in less time, how does this usher in the End(s) of time in education? Or, when students have access to so-called time-saving technologies that can assist processes of reading and writing, what is the actual nature of the time saved under these conditions?

Naming Time Across Time

Notions of time are varied and complex. There have been strident debates in physics and philosophy about whether time is constant or variable; dependent or independent; intrinsic or extrinsic; physical or metaphysical (Dowling, 2011; Roark, 2011). In Western life and schools, time is commonly conceptualized as Chronos, or a well-ordered succession of happenings in line with cosmological motion (Muris & Kohan, 2021). However, the ancient Greeks also advanced the concept of Kairos, or the ‘right time’ (Kinneavy, 2002). Two elements make a time the right time; first, the time is opportune in terms of achieving the effects it wants. Second, that time somehow brings justice to the universe. Kairotic moments can be both seized and created.

Bergson (2014) pointed out that the complexity of language emerges as we represent our worlds as stories in ordered time. Narratives are stretched out in time between various points, elongated time in some places, and compressed in others (Glaser, 1936). While Bergson (2014) represented this phenomenon of stretching and compressing as a flaw of language or even of humanity, Cajete (2010) presented a view of time and storytelling for many indigenous
peoples as co-creative and symbiotic; rather than language serving as a barrier, an incident elevated within a community and shared as story honors knowing in time and place within and across generations—imagination and creativity become essential to maintaining a spiritual ecology.

Stories are carried in and of the body over time. In a flash, a nuclear explosion could be over, but also go on forever (Barad, 2017). Bodies near ground zero are vaporized into molecules, while bodies downwind ingest radioactive isotopes that become cancers—little time bombs (Barad, 2017). The temporality of radiation exposure is not about immediacy, but a reworked hazard that affects generations to come (Barad, 2017). “Radioactivity inhabits time-being and resynchronizes and reconsiders temporalities/spacetime-matterings. Radioactive decay elongates, disperses, and exponentially frays time’s coherence. Time is unstable, continually leaking away from itself” (Barad, 2017, pg. 108). Thus, natural phenomena can confirm the elongation of time that is compressed in language and story. Over time, we must find language to represent such horrorisms—political violence, degradation, and suffering—even when language seems to run out while the horrors do not (Butler & Athanasiou, 2013; Cavarero, 2009).

**Conceptualizing Time in School**

The violence of time emerges in schools as part of how the institution gains control over the culture (Apple, 2003). Again, Chronos is supreme. Students are assigned to classes by age. School schedules are divided into hourly or even minute-by-minute increments. Days and weeks are, in turn, grouped into terms and semesters with secure ending points to provide finality through lettered marks or grades (Murris & Kohan, 2021). Accrediting agencies may require increased seat time and school years to be lengthened under the logic that more time in school will be compensatory for children’s achievement, despite the lack of evidence for this (Cabrera-Hernández, 2020; Pan & Sass, 2020).

Merit is awarded for doing tasks quickly, such as answering quickly, obeying directives, and moving one’s body in the space (Csikszentmihalyi, 2015; Orelus, 2013). For students who speak multiple languages, need additional processing time due to cognitive or physical differences, or find it culturally jarring to be hurrying all the time in a tightly controlled setting where they are under constant pressure to catch up, time can be even more controlling and cruel (Anggarista & Wahyudin, 2022; Quijada Cerecer, 2013; Wandix-White, 2020). Discipline is meted out specifically to ‘take’ children’s time, through such punishments as writing the same sentence 1,000 times or by serving detention or suspension (Bell, 2020).

Seeking to understand time and schooling, Murris and Kohan (2021) proposed that *time* and *childhood*, including adolescence, were connected in the lived experience of educational institutions, alongside constructions of colonialism and capitalism (Ivinson, 2020; Orelus, 2013; Zembylas, 2018). Meaning making for young people requires time that they might not be allocated. Under such conditions, young learners often lack meaningful opportunities to participate in their own development because their bodies are believed to be innately destined to
become whatever they will become—while at the same time—their bodies are under the constant influence of products, programs, applications, and services that will ensure youth grow in the expected Kairos (Murris & Kohan, 2021). Another perspective comes from Barthélémy (2012), where beings—adults and children are:

considered as individuated [and] can in fact exist according to several phases that are present at the same time, and it can change phases in itself; there is a plurality in being that is not the plurality of parts. (p. 226)

In such a space of existing along multiple dimensions simultaneously, we might use our understandings of time to help us understand and imagine a multiplicity of possibilities for children as we all strive to survive, belong, and develop (Cajete, 2010; Ivinson, 2020). This is possible because of the phenomenological fluidity of the bodies in time and space (Neimanis, 2017). Even so, moving through these temporalities in settings as tightly controlled as schools can be requires a kind of tunneling through the boundaries between our no longer (child) bodies, and our understandings about (child) bodies. These bodies may or may not be present anymore in the school settings matter to us in space and time (Murris & Kohan, 2021). The goal is not for us to be childlike, merely remember childhood, or relate to children through objects or games, but to develop an affective pursuit of praxis.

We call our strategy for this tunneling to praxis ‘diffractive pedagogies.’ Using such pedagogies, we embrace multiple simultaneous frames of time-making and even time-traveling through intergenerational reading, thinking, storytelling, and knowing (Cajete, 2010; Ivinson, 2020). We use the text of selves and knowing to read through and with those of children for insight. After sharing more about the diffraction process specifically and its relatedness to making The End(s) of Time in education, we various encounter tunnels for diffractive pedagogical work.

**Binding Time Through Diffraction**

Diffraction has to do with the way that waves combine when they overlap and the apparent bending and spreading of waves when they encounter an obstruction. Diffraction can occur with any kind of wave—water, sound, light. In physics, diffraction describes what happens when phenomena encounter obstacles and produce differences. Interactions are created by agential cuts that produce boundaries of entities—spaces for meaning. Barad (2018) further described diffraction as (re)configuring “patterns of differentiating entangling” that demonstrate that “there is no absolute boundary between here-now and here-then. There is nothing that is new; there is nothing that is not new” (p. 5).

Instructional settings are spaces of assemblage where matter intra-acts, entangles, and makes differences (Martin, 2019). Among this entangled matter are the authors/readers/texts. Such texts in a classroom can be printed texts on paper or displayed through advanced internet technologies. We can neither be “outside observers of apparatuses nor independent subjects that intervene in the workings of an apparatus, nor the products of the social technologies that produce them” (Kaiser, 2021, p. 40). Therefore, to do reading—or meaning-making—as a diffractive practice, teachers and students work together to locate insights of texts or theories through one another instead of against one
another. Moreover, they would work specifically to entangle time and affect (Zembylas, 2018). The goal is to draw boundaries on or make an agentive cut that reveals a non-hierarchical network of irreducible differences (Merten, 2021). These differences will reveal various possibilities or The End(s) of Time in Education.

**Diffractive Pedagogies for Pedagogical Ends**

Collectively, what are called modern educational disciplines are bodies of stories (Cajete, 2010). That potential for knowing in those stories entangles with teachers and learners as lines of flight for spacetimematterings that (re)center child knowers and knowing. Here, we share examples of diffractive pedagogies within and across four disciplines (history, language arts, computer science, and earth science) and then we draw outward from school into family and community knowing.

**Tunneling through to Generational Knowing**

Advanced technologies provide additional layers of spacetime knowing for 21st-century students. Scrolling through social media is an example of “space/time collapsing” (Lupinacci, 2021, p. 286). Teachers may approach developing a literacy tool with the foundational thought that the students of today are experts in postmodern tools because of their generational situation. Imagine a scenario in a school humanities class, where many teachers and students had impacted the choice of guided notes on the Second Indochina War 1954-1975 (called the Vietnam War in the U.S.). A teacher calls on one student to work with. She asks the student to help her find “differences that made a difference” in his binder of notes and other artifacts from the unit. The student and the teacher came up empty-handed until the teacher offered the student the absurd image of Annoying Orange—a formerly virally popular social media series. The student recognized who Annoying Orange was. The student’s expression changed when the teacher asked what, if anything, does this image have to do with this class? Eyes squinting, head turning to the side, the student said, “Do you mean Agent Orange?” The students continued this practice of trying to make sense of images, showing the rest of the students in this class. This diffractive literacy practice was the pursuit of nonsensical connections, starting with Annoying Orange and Agent Orange. Students engaged in meaning-making even if it was not part of the textbook timeline of America’s involvement in the Vietnam War. Yet, it was meaning-making suited to their 21st-century experiences.

**Patterned Tunneling through Blackout Poetry**

Poetry is a site for young people’s representations of subjective temporalities (Conrad, 2012). Blackout poetry is a particularly strong opportunity for masking and unmasking subjectivities and temporalities through its technique of literally covering words in an existing text, often using whiteout or colored markers, to reveal something new in an existing text (See Figure 1). One can imagine blackout poetry “as a critical interpretive practice…that explores patterns of interference,” between texts separated in time, space, and experience from our students (Johnston, 2021, p. 130). It is an attractive time (re)claiming classroom activity because of its accessibility to students who may not see themselves as writers, as it removes the fear of the blank page, gives students the power to affect matter, and engages in a practice considered taboo in school–defacing property. During the act of blacking out, the original text
and agency of the author simultaneously exist in their original time past while becoming the new text in the ever-present future of intra-action with the poet. The possible agential cuts—the poet’s inclusions and exclusions in the blacking out—are manifold, and through blacking out the poet deterritorializes the original’s un/intended meanings and affects and reterritorializes the text as a poem that is suffused with the affects of the poet. Though blackout poetry might be seen as only an entertaining respite from the “work” of class, it has the potential to be used as a diffractive tool through which students can engage in critical conversations with contemporary and historical texts, “not [as] a reflection of the represented in an ideal summary or copy but rather the (situational) creation of something new next to it, entangled with it” (Merten, 2021, p.7).

Figure 1

Blackout poetry example.

Computer Code(d) Tunnels

“A posthumanist methodology does not recognize any primacy to the written text” (Ferrando, 2012. Writing computer code is a tool for disrupting the illusion of linear time enshrined in the written text. Rather than the linear construction of characters dutifully marching one after another on the stagnant page, some of us need all the words at once, in a jumble, believing the sensemaking is between the conversation between words babbling in our mind. Linearity can be painful. In Difference and Repetition, Deleuze (1994) suggested that time is a series of dynamic, coexisting layers. “I make, remake and unmake my concepts along a moving horizon, from an always decentred centre, from an always displaced periphery which repeats and differentiates them” (Deleuze, 1994, p. xxi). Writing code allows us to feed the words one character at a time into digital space, parse them, count them like grains of rice, and reassemble them in any bumbled jumble of text we like. By writing code in classroom spaces, alongside students, we can compare texts word by word, examining each for its own place in the entanglement of thought-making, like treasures in a bejeweled ballerina music box. The power to deconstruct the text is an invitation for a tête-a-tête with the author, putting the reader and author on equal ground to struggle over making with. Like plucking fireflies from the air, words are pulled back from their place in the memory banks of the computer. Computer, keyboard, and mouse become collaborators. Collaborations with code also bring new body aches to add to the callouses already lovingly tended by wooden pencils. Computers bring their unique capacity for simultaneous randomness and order, for generativity, and for surprise.
(Re)Narrating the Science of Story/Stories of Science

Western science teaches that spirituality has no place in science. Afro-Indigenous perspectives are regarded as a type of perceptual blindness (Cajete, 2000). To embrace uncertainty is to have one’s beliefs dismissed as magical or naive (Freire, 2019). While there might be some room for sensory participation, there is no space for the sensual—where children experience themselves within bodies-environment-place-culture (Cajete, 2000). To do science as diffractive pedagogy calls for a (re)spiritualization and (re)consideration of the primacy of humanization within the natural world (Cajete, 2000, Ivinson, 2020). This requires trusting oneself through the land or Tonanzin (Our Great Mother) (Rodríguez, 2014). Through such sensual experiences, trust in one’s ability to be resilient across time in school and throughout time may find a space and time to matter within the project of decolonization (Jupp, 2002). Consider the example of a classroom with mostly Latin@indigenous children who used tortillas to make moon shapes (López Leiva, et al., under review). The children could tear the ‘moons’, fold them, roll them up, place moons in layers, and even eat them (See Figure 2). Embedded within this experience was the opportunity to practice building intuition for concepts like half and whole, but also to ponder the cosmos and their place in it as a collapse the time and distance between themselves and lunar matter. The idea was not to create a replica of the moon in form and substance, but instead to create an in-between space of time with matter for possibilities where children could explore their insider/outsider subjectivities. Anzaldúa (2002) referred to these spaces as nepantla. In nepantla, children can “access knowledge derived from inner feelings, imaginal states, and outer events and to ‘see through’ them with a mindful holistic awareness” (Anzaldúa, 2002, p. 544).

Figure 2

Tortilla Moons

Widened Tunnels to Include Family Practices

Part of acknowledging children’s place in space and time is extending their connections to families. Communication within families—especially multinational families—increasingly relies on technologies, such as text messaging applications that enable information to be shared in a group (Palviainen & Kędra, 2020). Although schools are sometimes leery of text messages for various reasons, there is evidence that texts are the regular and normal language of youth literacy; texts also are correlated with oral reading fluency (Ortlieb, 2012). Thus, in a multilingual message using a multimodal text application to communicate with multiple individuals in multiple time zones across multiple generations, children’s lives are agentfully entangled in complex time and space-making. Are educators and researchers aware of such diffractive knowing with text in these families? Likely not. In another
example, with Muth’s (2016) observations of incarcerated fathers with text messages, diffractive moments opened spaces for the researcher to see fathers’ stories from a particular vantage point when he looked through the messages. Instead of honoring text and other forms of digital messaging, there are often tendencies in schools to territorialize curriculum away from not just digital literacies families have, but anything that families do naturally to live and be (Semetsky & Masny, 2013). Thus, a deterritorialization of the everyday materials that families use would enliven classrooms. The question then, is what digital materialities—beyond keyboard and screen—can educators use to make diffractive tunnels to children’s worlds and their worlds within home and communities as adults?

**Conclusion**

As educators and educational researchers, we cannot expect to engage in strong diffractive pedagogies unless we understand The End(s) of Time in school and our roles in helping young people do meaningful work with spacetimematter (Barad, 2017). After all, it is not, thought that takes time, but rather, time that takes thought (Williams, 2013). In taking on diffractive pedagogies across subject matter disciplines, we can ask important questions, not only about time but also about how we understand supposedly basic concepts, like ‘concrete’ and ‘abstract’ in teaching children (is Agent Orange concrete or abstract? A poem? Computer code? A tortilla moon? A text message?) (Wall Kimmerer, 2013). We must decide how we wish to mark and map time, and we must consider how that time delineation can be used to provide possibilities for children to participate in their ongoing, simultaneous being and becomings in ways that provide real opportunities for healing from all that has been survived by adults and children in schools. While we may respect resilience, we must also stop creating conditions that require it, especially from the same groups, over and over, and offer a vision of schooling that is materially different (Brave Heart, 1998; Wilber & Gone, 2023). When should we begin this work? Now seems like the right time.

**References**

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