Constellating Literacy: A Diffractive Analysis of Policy Implementation and Classroom Practices in Early Literacy Education

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Authors' Note

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Abstract

This critical ethnographic study examines the influence of policy-driven literacy reform at an elementary school in the Southwest United States. It explores how campus accountability to state legislation (re)shapes instructional culture and teaching practices at both macro and micro levels. Findings reveal tensions between top-down policy implementation and the lived realities of educators, resulting from misaligned resources, training requirements, and increased reliance on digital assessment tools. The study applies a diffractive reading approach, reframing the interplay between policies, socio-material conditions, and classroom activity. It argues unexamined fidelity to narrowed assessment and instruction in early learning can marginalize relational and multimodal literacy practices essential for equitable and culturally responsive teaching. The study concludes with implications for literacy educators and policymakers, emphasizing the need for responsive, context-sensitive approaches to early literacy instruction.

Keywords: early childhood, critical ethnography, literacy policy, diffractive reading

"Time and the world have always been the problems with structuralism, in all manifestations…" - A.L. Becker, 1991

Introduction

Spring Creek Elementary (all names are pseudonyms) is one of 79 public elementary schools in a large urban district in the Southwest United States. In 2019, the state education department legislated the implementation of "science of reading" (SoR) tenets into K-3 literacy instruction (TX HB3, 2019). In the fall of 2021, the Spring Creek community returned to face-to-face teaching after a year of virtual schooling due to the COVID-19 pandemic. In addition to social-emotional concerns, fluctuating attendance, and ongoing mask-wearing debates, the teachers were required to administer new digital assessment programming and undertake an uncompensated 60-hour "SoR training" online (Lopez, 2022; TEC, §38.003, 2019). National media was amplifying stakeholder fears about "learning loss," noting issues related to equity, access to technology, and mental health (Skar et al., 2022). For teachers and administrators, their ability to address these "losses" took center stage, amplifying public focus on the district's plan for literacy reform. To accommodate legislation, the School District had until the end of 2023 to train its teachers and select an appropriate "high-quality curriculum" as outlined in the Bill.

What was happening at Spring Creek reflects a nationwide push to center "structured literacy" (e.g., evidence-based, systematic, differentiated, and explicit instruction) and raise national reading scores. It is the story of intention and impact, policies and people. However, traditional methodological tools have not moved the needle in addressing the issues teachers and children face daily when adjusting to these policies. Post-foundational research can address these concerns by asking researchers and readers to move beyond the representations of policy into how people *experience* the material levers of policy implementation (Woulfin & Gabriel, 2022) in their everyday lives. It is not intended to be a criticism of policy but an effort to acknowledge the limits of policy and top-down implementation. This study combines two years of critical ethnographic data with post-foundational theories to re-read teacher experience through a diffractive lens. It illuminates the contours of Spring Creek's policy-driven system and honors the cultural, material, and temporal dignity of the teachers and children at the center.

In the first section, I briefly overview current literacy policy implementation and the growing tension within early childhood literacy research. I then explain relational and material theory in terms of early childhood learning practice and pedagogy. In the methodology section, I share a dual methodological stance, combining ethnographic methods with diffractive reading. I then briefly share my methods, context, and participants. In the third section, I present findings in two ways. The first is an ethnographic summary of the school's instructional culture regarding literacy instruction and policy implementation. The second is a diffractive reading of these conditions in one kindergarten classroom, re-read through socio-material, post-foundational theories of learning and activity. I close with discussion and implications for literacy educators and the field writ large.

Review of Literature

Policies that mandate changes to teacher practice (focused on quantitative student outcomes) often neglect or disregard research on teacher learning and the micro-politics of school culture and classroom activity (Kelchtermans, 2005; Valenzuela, 1999). Policymakers may push for unreasonable timelines for implementation or simplify the essential role of leadership (Woulfin & Gabriel, 2022). This is especially true regarding support for pre-kindergarten and kindergarten (Brown et al., 2024; Nicholson et al., 2022), where many administrators have not had training in early childhood learning and child development (Brown, 2024; Lieberman, 2017). These factors impact the efficacy of disseminating and implementing instructional changes. By forgoing or misunderstanding the complexities of early childhood teacher praxis (Cochran-Smith & Lytle, 1990; Kelchtermans, 2005) in efforts to shift learner outcomes, policies can inadvertently bolster a "teacher-as-technician" mindset (Apple, 2013) that disregards teacher experience. This omission and implicit de-professionalization of practice is problematic for teacher attrition and retention issues, especially when professional vacancies are at an all-time high (National Center for Education Statistics, 2023).

In early childhood classrooms, pedagogical activity is a diverse assemblage of materials, epistemologies, and instructional approaches (Lenz Taguchi, 2010). As calls for "structured literacy" and fidelity to packaged curriculum encroach upon early childhood classrooms (Bassock et al., 2016; Oosterhoff et al., 2023), educators are left wondering how to protect culturally responsive (Paris & Alim, 2017; Cheruvu, 2019), developmentally appropriate, play- and response-based pedagogies (Dyson, 2013; Flint, 2020; Pyle et al., 2017). Similarly, as "delegation of professional decision-making" is exported to digital screeners (Fenwick & Edwards, 2016, p. 125), this raises new questions about the role of practitioner expertise. Research on socio-materiality and relationality in early childhood education emphasizes the essential roles of the educator (Pyle & Danniels, 2017) and the semiotic diversity of the materials in a classroom space on literacy learning (Dyson, 2013; Kuby et al., 2015; Wohlwend, 2008; 2023), yet rarely

is socio-material theory positioned next to levers of policy to examine the contradictions and tensions therein (Kuby et al., 2024). This study positions the levers of policy implementation in early learning as material and pedagogical agents in producing literacy knowledge with and alongside teachers and learners. It also centers the pedagogical labors of teacher decision-making amid these contemporary conditions.

Theoretical Framework

For this study, I draw on sociocultural and socio-material theories of activity and pedagogy (Engeström, 2000; Fenwick & Landri, 2012; Street, 1984; Vygotsky, 1971) to juxtapose and examine two phases (macro and micro) of ethnographic data. In taking this post-foundational perspective, I aim to "make thinkable" (Braidotti, 2014, p. 172) the relationship between representational knowledges and material experiences through the actions and voices of participants. In taking this stance, hegemonic "logics" of representational knowledge are not rejected but acknowledged as part of the sociocultural experience of teaching and learning. This epistemological perspective asks *what is produced* in relation to the socio-material conditions of the local culture (Braidotti, 2019; Deleuze, 1988; Fine, 1991).

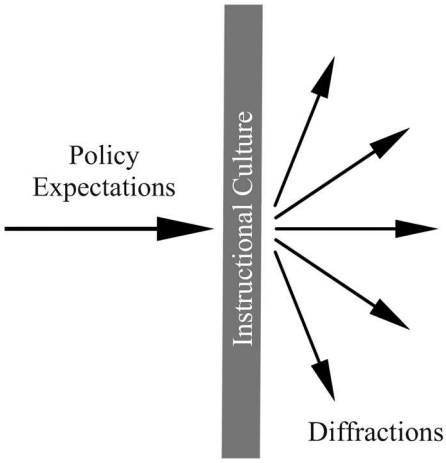
Methodology

The temporal, intellectual, and material labor of the ethnographer will always be incomplete and imperfect; interpretation and positionality are always in question. However, being with the community and privy to the dailiness of schooling over many days is an opportunity to marvel at the concert of teaching and learning. Ethnography, as the methodological framework for this study, provides a generative snapshot, yet it struggles to move beyond its entangled history with representationalism. Post-philosophies, on the other hand, are a reminder that the livingness of knowledge is tremendously more than patterns and themes; it provides an opportunity to re-see experience as more than human, more than what meets the eye and mind at any given moment. By re-reading data and diffracting initial ethnographic "findings," such research provides an alternative perspective to the story.

Diffraction is the "material arrangements of knowledge production" (Cannon, 2022, p. 1). Diffractive *reading* is an analytic tool. Applying a diffractive lens means the researcher rereads coded (conditioned) data with alternative critical theories and asks: *What knowledges are produced because of these particular conditions? What are the relational differences?* (Barad, 2014). During a diffractive reading, researchers collect "iterative (re)configuring of patterns of differentiating-entangling" (Barad, 2014, p. 168). They reposition the human, non-human, and more-than-human as *becoming within* select cultural, material, and discursive frames (Barad, 2007; 2014). In other words, it is reading and rereading (turning and re-turning) the data by thinking with alternative prisms. I designed the following graphic "apparatus" to help readers visualize the concept as well as the analytic process for this study. On the left are the literacy policies and expectations. The middle represents Spring Creek's instructional conditions—populated and *populating* with humans, histories, discourses, biases, community demographics, contextual needs, and so on. By reading the policy expectations through the ethnographic data (the primary "apparatus") with relational and material theory, I seek to re-see, rearrange, and collect differences producing within the story (Cannon, 2022).

Figure 1:

Diffraction Graphic



A bit of physics: When waves (e.g., light, sound, heat, etc.) encounter a barrier or gap, the waves bend and break into pieces, (re)shaping and diffracting *with* the conditions. Both the wave *and the conditions* are changed. Although the graphic visually represents waves and matter (which comprise and permeate our very bodies), the graphic also represents a quantum (i.e., energetic and unpredictable) model of knowledge propagation. This epistemological perspective honors the complexity of the social, cultural, material, and discursive world as dynamic, entangled, and ongoing. A diffractive perspective on knowledge production contrasts with a static or objective *reflection* of knowledge. In schools, one might say what is "learned" is infinitely more complex than the intention.

Because diffraction is an entangled, relational state of changing and moving, it is not a complete rejection of expectation (a state of non-change) nor a complete acquiescence (reflection). Post-foundational research often describes this both/and nature as interiority/exteriority or inseparability (Barad, 2003). For this study, I engage a diffractive reading on policy implementation within Spring Creek Elementary's culture of instruction and ask: *What is produced (and producing) within these conditions, and what does this mean for literacy education in early childhood learning spaces?*

Context

I chose Spring Creek Elementary (all names and places are pseudonyms) as my field site because of my long history with the instructional conditions and family populations. School demographics for the 2022-2023 school year were: 44% white, 41% Latinx, 6% Asian/Pacific Islander, 3.3% African American, and 6% two or more races. Thirty-two percent of students' families qualify for free or reduced lunch costs based on reported income, and 9% are labeled as Multilingual Learners (MLs). The Special Education population is listed at 13%. Ethnographic participants include administrators (n=2), literacy specialists (n=2), caregivers (n=3), and k-3 classroom teachers (n=7), including Ms. S, who has taught kindergarten at Spring Creek for 11 years. She identifies as white and monolingual and serves as team leader.

Data Collection and Analysis

This study was conducted in two phases after the university's institutional review board approved the study as one conducted in accordance with the university-based ethical guidelines and regulations (approval number 00002732).

I used community-based ethnographic tools such as participant observation, field notes, semi-structured interviews, and local artifacts in the study. In phase I (2021-2022), I focused on the Spring Creek instructional culture, and in phase II (2022-2023), I focused on the activity within Ms. S.'s kindergarten classroom. During Phase I, I attended campus meetings (n=22) and held semi-structured interviews (n=32) with community stakeholders (n=15), including administrators, teachers, and caregivers. I culled illustrative excerpts (n=158) for inductive coding (Creswell & Poth, 2018) and used critical discourse analysis (Gee, 1989; Rogers, 2011; Rogers & Wetzel, 2008; Van Dijk, 2001) to identify themes related to literacy teaching and learning.

In Phase II, I deductively coded and marked field notes and conversational transcripts with Ms. S, relating instructional culture (macro) to classroom activity (micro). I pulled illustrative excerpts (n=110) from the field notes and transcripts for deductive coding and diffractive reading with relational and material theory (Beauchemin, 2021; Burnett & Merchant, 2020; Leander & Boldt, 2013). The findings of this dual analysis are presented in two sections. Phase I is a brief ethnographic summary of the campus culture related to literacy instruction and policy implementation. It reflects what "bubbled to the top" of campus discourse. Phase II is a diffractive reading, zooming into classroom activity and Ms. S's experiences. In this section (Phase II), I illustrate literacy teaching and learning as entangled, or "constellating," with material, relational, and temporal agency (Barad, 2007).

Phase I Findings

The following section of findings is focused on the discourses and practices surrounding literacy policy implementation and the community's broad reflection on these experiences.

Instruction

Reading instruction (rather than writing or multimodal composition) consistently took precedence in most stakeholder conversations. In addition to wanting children to "love" to read and to feel "confident" in themselves as readers, comments and concerns regarding the 60-hour training on structured literacy comprised a significant portion of the conversations. Participants felt frustrated with the "pendulum" of information (i.e., an emphasis on phonics) that the SoR training seemed to convey. They had *heard this all before*, they seemed to say. Besides one new teacher's gratitude for the information, most participants felt the training was a waste of teachers' time or that they had more pressing matters. Many felt children's behavioral and social needs were being dismissed. For instance, in some classrooms at Spring Creek, revised activity meant certain embodied behaviors (e.g., initiating and responding to scripted English-only prompts, quiet and still bodies) were more frequently required than they had been in the past.

SoR Training

When pushed to expand on their frustration with the SoR training, many participants described the hours-long modules as "information overload." They highlighted misalignment between the SoR expectations and the resources provided by the district. Some resources were "warehouse" fodder or incomplete sets of boxed materials showing up at their classroom door without directives. The district, they argued, was

simultaneously expecting them to measure their students' progress in new ways but neglecting to provide clear, ongoing, and updated support that matched the training. While juggling the labor of the 12 online modules, disorganized schedules, and classrooms full of children "who had not had kindergarten" (or other grades due to a year of virtual learning), the teachers struggled to gain footing around how to implement the SoR knowledges presented in the training. To an outsider, this could be attributed to teacher ability, when instead, based on my research with teachers, it was the ineffectiveness of the system to disseminate the message and incorporate the changes. To withstand these colliding pressures, many teachers drew from practices, resources, and curricula they found most familiar, whether or not they were "aligned" with the district's goals or if the approaches led to more equitable instruction.

Assessment

The passage of the state's new reading policy in 2019 coincided with the district's rollout of one-to-one digital devices for all K-12 students, just in time for COVID-19 virtual learning. This digital pivot, especially with the return to face-to-face teaching, contributed to an instructional culture that spent *more* class time on iPads and Chromebooks, school-wide, than in the past. In 2021, initial phonics screeners in the primary grades were outsourced to online programming on student devices rather than taken side-by-side with their teacher as in previous years. Per one participant, the children were "screening themselves" as digital measurement tools, including earphones and AI-voiced phonemes, supplanted teachers' ears, voices, and professional discernment. Teacher observations of children's digital behaviors during assessment (e.g., attention, focus) served as supplemental data to select whose scores required further testing and whose may have been a "fluke." Interpretations were unexamined.

Writing

As more time was spent preparing students for online reading testing across all grade levels, new concerns arose around how writing instruction should fit or adapt with these new assessment tools and measures. Teachers shared that the written policy and the SoR training emphasized the primacy of *decoding*. Their planning felt subsumed by the pressure to spend more time on reading instruction than writing or oral language development, key components of early literacy development (Pyle et al., 2024; Rand & Morrow, 2021; Teale & Sulzby, 1986). Many sheepishly told me that writing was cut or that paper-pencil instruction had to split time with touch-screen programming. This *material* shift, partnered with the frustrations and labor fatigue incurred by the SoR training, meant that composition and time for fluent writing were often sacrificed for other activities, such as keyboarding (3rd-5th), handwriting (K-2), and isolated grammar instruction.

Contingencies for Teaching

Analysis shows an instructional culture that defaulted to "what we have always done" to stay afloat and healthy and "fly under the radar" of district scrutiny. The teachers routinely expressed fatigue and frustration with all the moving parts. Caregivers and administrators were empathetic, the most pressing concern being the children being "unprepared" for grade-level standards because of COVID-19. Children who "lacked" the behavioral/social/academic markers of readiness became key characters in participants' arguments for feeling frustrated by the state performance expectations. Teachers' conditioning and willingness to teach grade-level content when the children's bodies did not align with familiar pre-pandemic behavioral patterning or pre-SoR training produced professional uncertainty. It seemed their accountability to the precision and compartmentalization of the structured approach simultaneously reduced students'

access to multimodal and expanded learning opportunities, eliciting a binary dissonance. Below, I provide a table summarizing these and other campus-wide themes.

Figure 2.

Codebook Summary of Ethnographic Data and Instructional Themes

Ethnographic Themes (discourse)	**Instructional Culture (activity)**
Culture of Whiteness Equity is seen as a *topic* Tension on labor and time Complicated "master" schedule	Race- and culture-evasive talk Labor and decision fatigue Accommodating with familiar practices Cutting writing instruction
Binary rhetoric Emphasis on phonics Reform is a pendulum Misaligned curricular resources	Polarizing instructional discourse Emphasis on reader/listener behaviors Teacher uncertainty/disregard for "SoR" "Grade-level" contingencies
Information overload Managing/interpreting data Digital assessments	Increasing whole-group instruction Confusion about writing instruction Increased time on devices

In sum, the instructional changes expected from the "SoR" training and the levers of policy implementation (i.e., aligned resources, leadership, measurement tools) did not scaffold the teachers' pedagogical realities. These conditions mediated everyday activities related to the policy's representational body/knowledge/material "truth" (Scollon, 1999).

Diffractive Reading (Phase II)

In this section, I present a diffractive reading of the above ethnographic data, as seen through activity in Ms. S's kindergarten classroom. For this diffractive reading, I describe policy-driven instructional literacy as *constellational*. This heuristic helps me convey relational and material theories of learning when viewing classroom activity (Beauchemin, 2021; Gutiérrez & Rogoff, 2003; Jackson & Mazzei, 2012; Mazzei, 2014). I add literature as needed to support the diffractive analysis and provide footing for the reader. This section argues that teacher learning and child learning are co-constructing and entangled with the materiality and relationality of the learning environment, (re)producing and (re)populating knowledge in praxis.

Throughout, I use "literacy constellation" and "constellating" as descriptive phrases to mark what is visible to interlocutors (stars/light) and what is present but unexamined (or unrealized, unrecognized) when designing for and experiencing literacy activity. Drawing from theories on activity and pedagogy (Engeström, 2000; Fenwick & Landri, 2012; Vygotsky, 1971), literacy constellations cannot subtract social and material literacies of usage, socio-political context, or the histories and discourses therein (Burnett & Merchant, 2020; Levant, 2016). They are simply arrangements of activity, whether or not all entangled components are acknowledged. Constellations are not qualitatively good or bad; they are a heuristic. Readers agree to mottle the light just a bit to (re)see what often goes unexamined.

Literacy as Constellational

I invite readers to pause assumptions related to "isolated skills" teaching and to consider, instead, the whole constellation of material, social, cultural arrangements undergirding the activities that populate a literacy learning experience. Readers might draw from their understanding of *cognitive load*—a key component of the SoR training—as conceptual kin (Sweller, 1988; 2011). To this notion of cognition, consider what else is required of bodies and materiality to achieve the metalinguistic objective of the lesson.

Bodies

Per the campus-wide changes to instructional approaches, accessing the standards through revised material and language patterning meant revised lesson timing and requisite behaviors, which *increased* cognitive load for many children, not less. For example, in Ms. S.'s classroom, the children's mandated use of digital programming (self-screening, learning the systems) shifted how and *when* Ms. S observed and responded to her readers and writers' engagement with text. Access to her familiar assessment practices, sitting side-by-side, nuancing the complex relations between children's bodies, voices, and text, was replaced with digital screeners and discussions with administrators. She felt her knowledge of the children's schema, histories, and experiences carried less capital. She had to share her assessment of the children and her professional discernment with the voices, eyes, and ears of an algorithm, marking children "at risk" for reading difficulties. Data populated quickly to her administrators, materially redesigning the social construction of the learners (Dudley-Marling, 2004). She felt this did not represent the children or her teaching authentically.

Temporality

Instructional minutes consumed with Ms. S's students on individual devices reduced the time she and the children spent vocalizing and connecting their learning with classmates. In our reflective conversations(n=65), she became increasingly frustrated by the culture of immediacy regarding assessment and the disjointed "master" schedule. Some days, she had 90 minutes for her literacy block; others were split with special areas classes (i.e., art, music, physical education, library) on an alternating schedule. Despite these concerns, she kept tight to the expectations of her local scope and sequence. She planned extensively, culling the documents in order to decipher the materiality (i.e., paint, pencil, scissors, glue, touch-screen, drag-and-drop, microphone, earphones, dry-erase board, etc.), time, and usage embedded within the representations of concept attainment. Building continuity took on new challenges.

Despite this labor, the revised assessment requirements, both digital and material, reduced Ms. S's relational access to the students' fluent use of language when it came time to evaluate their progress. For Ms. S., this felt like an inexplicable contradiction. To Ms. S., the material and temporal format of "structured literacy" meant the children had less time on multi-day projects and less time to build continuity, fluency, and *purpose* into their literacy work. They were not writing as much, she lamented. At the time of the study, the district had not yet "settled" on a mandatory curriculum. Still, it was imminent, and administrators were "looking" for a program that met "research-based" criteria. Ms. S. spent time examining the monomedial assessment of certain skills (e.g., letter names and sounds) listed in the scope and sequence. Then, she worked to curate the constellated *uses* of the skills over time, into and out of activity.

Relationality

Building reciprocality of languaging includes how the children vocalize their understanding and belonging within a group and the materiality of practice, even during

individual tasks. Room 207 is not silent. Ms. S. and the children often voice their learning independently and collectively, building and expanding the group's peripheral and recursive learning (Lave & Wenger, 1991). These modes of shared attention sensitize the children to significantly more expressive linguistic rigor than the curriculum alone provides. For instance, in Ms. S's classroom, shared meaning collects like puddles. Playful wakes of verbal repetition (e.g., a chorus of "me too!" or "not me!"), populate the soundscape like a family of mockingbirds. These spontaneous wakes, or trails of shared languaging, are borne of activity, often carrying particular tonal and syllabic emphases, story content, and humor. Ongoing, reciprocal think-aloud and the fluid use of *relational key* are pedagogical approaches to schooling's unique (non-binary) blend of intellectual and social languaging (Becker, 1991; Bloom & Beauchemin, 2016; Beauchemin, 2021). Shared language spills directly into *and out of* activity. Like ripples in a pond, the collectives of non-scripted languaging snowball and melt, snowball and melt, into and out of the shared experience.

Ms. S does not (yet) stick to a commercialized script with fidelity, though there are moments when she draws from scripted material. She mediates the curriculum (exteriority) and the children's languaging (interiority) through ongoing, playful repetition of words and phrases and relatable local analogy, such as: "the spaghetti side of your [paper] plate." In more direct lessons, she expands her tonal and syllabic emphasis to the skills at hand (e.g., open or closed vowel sounds) with relational dexterity. The children's playful languaging is drawn into her own, earnestly and immediately. These actions legitimize the value and wholeness of the children's expressive and familial languaging, as well as repeated attention to short- and long-term memory as they work through kindergarten standards.

Usage and Material Stewardship

For years, Ms. S. has planned longitudinally. She loves multimodal composition (Kuby & Vaughn, 2015; Pahl, 2009; Zapata et al., 2018). She has developed expertise in process-based approaches and multimodality through her work with hundreds of kindergarteners over the last decade. Embedded in her ongoing pedagogical languaging (above), Ms. S stewards semantic *usage* of material items. All markings in Ms. S.'s classroom (quick sketches, shared lettering, a folded corner, the gradient of the color green, for instance) carried shared meaning and kinetic potential. She strings continuity throughout her teaching: "Yesterday you cut out your words, today you are going to write your words…you'll make your diagram using your nicest handwriting. People will want to read your diagram… I want you to write your words in pencil *for now*…" The group's ability to convey knowledge through markings, materials, sounds, and signs (semantics) over time contributed to each individual's *access* to their own literacy skills. She notes:

> At the beginning of the year, their drawings are where they begin to recognize [their message], so it's about trying to get it [to a place] for someone else to understand and see it, and so *they'll* know what it was when they come back to it. Multi-day writing is hard. If we want to go back in, for kindergarten editing or revising, [color and care] helps them remember. What is it teaching them about being a writer when we keep it here [points to a district assessment worksheet]?

In Ms. S's classroom, the group's constellation was intimately their own and nontransferable; it was thick with spoken and unspoken understanding. It was never just about the letters; it was also *always* about the letters.

From a post-foundational perspective, functional literacy acquisition depends on revisited attention to physical matter from day to day. The children learned that marks on the page *today* would build into marks on the page *tomorrow*, and the labor of

remembering and translating the messages to themselves and others was the work of a literate being. This attention to the long-term, behavioral and social dimensions of literacy development dignified the children's ideas and participation *beyond/with* traditional skills-based measures. The children were iteratively taught through Ms. S's think-aloud, shared experience, and generous attention to place, matter, and memory to keep their materials (i.e., papers, ink pens, projects, iPads) safe, monitor the dexterity of their use (e.g., adding to multi-page booklets, tracing letters, photography, audio recording), and build messaging over time for digital and physical audiences (themselves included). The responsibility to one's materials, to (re)membering an idea with physical care, is functional and meaningful literacy. It is entangled in a person's awareness of material and intellectual stewardship.

In reflection, Ms. S. felt integrating consumables and one-time-only tasks (i.e., commercial worksheets) reduced the children's commitment and accountability to the work and shared space. The lessons themselves felt disposable. In some ways, she felt her professional experience was becoming disposable. To Ms. S., the stuff/labor/relation of any activity contained more than concept attainment— the entanglement contained more about human, non-human, and more-than-human relationships than just the skill at hand. For the earth (and its inhabitants) that exist upon stewardship, how might the "infrastructure that function[s] pedagogically" (Fenwick & Landri, 2012, p. 6) share instructional space and dignity with the objectives of literacy policy? Material relationships to knowledge shape how we relate/behave/respond to the world, not just what we know. Literacy is response-ability.

Note: It has been two years since the study closed. At this time, the district has officially adopted a packaged curriculum. Ms. S. has been asked to "stick to the script." At the end of the day, she picks torn worksheets up off the floor.

Discussion

Teachers are first-line mediators of contemporary educational theory and policy. Ms. S's ongoing hesitancy with the policy implementation marks her discernment of how practice entangles with instructional culture. The urgency for explicit and exacting forms of instruction (Archer & Hughes, 2011; Archer, 2019) set forth through levers of policy implementation did not fully align with her communal and familiar patterning of relational key (Beauchemin, 2019; 2021). Relational patterning, apparent through teacher language ideologies in literacy classrooms, often mirrors mediated power and language expectation or "laminated" talk in classrooms, per Bloom and Beauchemin (2016). In many ways, these sociolinguistic, "laminated" conditions are wrought by the assessment features used to measure children's attainment of standardized skills. This reveals the need to condition the children's bodies, voices, and behaviors to these relational patterns if they are to be fully prepared for evaluation. Ms. S was hesitant about what ways of being and doing (or "stars" of the relational and material constellation) would be lost in acquiescing to these discursive patterns. Her hesitation is a *diffraction* that reveals both possibilities. Uncertainty is a mark of Ms. S's deliberation on loss and benefit, as well as her awareness that I will be privy to the effects of what she decides. My presence and my positionality as a researcher, therefore, diffract expectations as well.

This study helped make sense of the tensions between language ideologies (conditions of language learning required through policy) and how humans experience the socio-material conditions of activity (Fenwick & Landri, 2012). The conditions of physical time and labor inside activity relate to mediated knowledge(s) and power (expressed through representational concepts) and vice versa. For example, an instructional culture focused on, say, "learning loss" positions the children as empty vessels and promotes urgency to "refill" the gaps. This language-focused condition of *scarcity* is evident in efforts to go "back to basics" and remediate the teachers' knowledge in the area of deficit

(in this case, reading development) through digital modules and screeners, packaged curricula, and revised evaluation checklists. Ms. S revealed how the instructional culture evoked her feelings of scarcity regarding what she did and did not know. This condition of the instructional culture meant that other interpretations of learning, other vehicles, material apparatus, or perspectives on learning were denied in favor of explicitly narrowing and naming concepts. This reifies knowledge as *property* and the activity within as purely individual rather than a production of ongoing socio-material entanglement. By narrowing concepts (phonemic awareness and mouth formation, for example) in order to measure them, the body/meaning/activity itself is divorced from its authentic source. Packaged patterned exercises are a smoke and mirrors trick that, per my data, obscures examination of other knowledge-powers shaping the socio-material experience. In other words, what *does* happen, in whatever constellation of modal, sensorial, relational, and material confluence, *is* the lesson we are teaching our young children. Learning is always happening. Routinely reducing the examination and analysis of literacy to particular representational containers masks the interiority/exteriority of social oppression and control.

Human relationships to/with the non-human and more-than-human exist within the social conditions of any (designed) learning spaces. Post-foundational theory and diffractive reading remind us that nothing exists in isolation; otherwise, there would be no meaning. The cultural urgency to target "gaps" through isolation evokes the need for particular kinds of physical and material behavior, time management, and measurement. From this standpoint, "what works" is simply an artifact of some stimulus working under particular historical conditions. Such behaviors and materiality (in all diversity of possibility) are also forms of learning that carry histories and meanings. If we "isolate" a task for measure under one onto-epistemological apparatus, we must simultaneously re-evoke the *conditions* through which it was first observed. This is evident in statements such as: *"I can't teach them [these standards] until they can sit and listen…".* From the principle of constellated learning, activity and materiality are continuous, full, and perpetually expanding. Sitting still and listening reveal a particular *kind* of laminated knowledge power; it is not a state of preparation. Nor is it responsive.

Laboring for educational equity within elementary literacy instruction is creative, context-dependent, and attuned to the material production of knowledge. This means the efficacy of the labor depends on understanding (and responsively curating) the *functions* of socio-material tools in relation to the clock, human bodies and histories, not just the content. This also means that time is key to any form of measuring learning. In a literacy classroom, this relationship underscores the importance of culturally and linguistically sustaining pedagogies (Paris & Alim, 2017; Park, 2024) for learning and development. It means that if we endeavor toward equity, even to *be* culturally relevant, access to one's languaging—one's full expressive repertoire—must take continuous and intentional priority in literacy learning. Further, the objects and materials of personal and local *meaning* must generously fill attention and must be seen as agentic. Controlled silence, dismissal of culturally responsive lesson planning, and behavioral contingencies for teaching and learning are not written into policy; however, the social powers they convey are disseminated through materiality and relationality every day.

Implications

This study has implications for teachers expected to use monomedial, monolingual materials for activity and assessment within linguistically and socially diverse classrooms. Like Ms. S, teachers can expand learning across time by intentionally amplifying relational and multimodal pedagogies within their skills-based instruction. By remaining critical of how prescribed digital programming tools shape language and relationality in use, teachers can curate their integration with other modes (e.g., paper, paint, image, voice recording, photography) as expanded learning projects over time, if

not in scripted "reading" time, then across subject areas. By acknowledging and understanding the limitations of monomedial skills-based isolation during explicit teaching or assessment, teachers can harness students' socio-material languaging developed during shared experiences to build and expand content knowledge, center writing and drawing to mediate and steward short and long-term memory.

Researchers must work to understand what policies *cannot* address: a careful and equitable look at the socio-material experiences, including digital measurement programming, and where Artificial Intelligence replaces the labor of a responsive teacher. Consider what knowledges are embedded in the accouterments (earphones, chargers, consumable practice booklets, who is paying, who is making money, and how), the efficacy and care of the tools, and how the time is spent. This is not a criticism of digital tools or programming. It is a call to understand the implementation of their usage for assessment in early classrooms with an ethical lens upon materiality and time. Here is where teachers' voices and wisdom are best suited to inquire, reflect, and shine.

Finally, this study also has implications for administrators and professional evaluators tasked with monitoring and reporting teacher efficacy within literacy domains. Administrators (especially those unfamiliar with early childhood literacy research and practice) must work to challenge the rote, objectivity-centered traditions of teacher evaluation. They must reject the notion that lesson planning or mentoring is unnecessary since "delivery" is scripted. Not only do these practices distort how teachers "perform," they reduce observational frames and engender mediocre, transactional forms of mentorship. This labor cycle restricts growth and cultivates distrust. Building a shared vision for coaching and mentoring around the specific tensions within the local instructional culture can foster the trust needed to enact context-attentive, equity-centered literacy practices (Alexander, 2024). Redesigning evaluation models *with* one's teaching community can foster solutions that meet the "felt needs" (Cohen & Mehta, 2017) of the people who will labor to enact the changes and support actions that utilize "existing tools, materials, and practical guidance" (pp. 2). Both criteria require, for lack of a better phrase, *buy-in* from the humans engaging with the efforts (e.g., professional development, revision of materials). Listening and time are valuable here.

Summary of Methodological Implications

What does a diffractive reading of ethnographic data mean for the literacy field? It means methodology, time, and multiplicity matter to student outcomes. By intentionally layering phases of data collection and recursively juxtaposing the macro (campus level) to the micro (classroom life), I could recognize where, when, and how classroom activity divested from broader expectations and assumptions. These "disturbances" (Barad, 2007, p. 79), or diffractions, are ways of being that both contain *and* reject pieces of cultural expectation and representation. For example, when Ms. S and the children fall collectively into languaging "wakes," they are simultaneously following the required tasks of the schooling standards and rejecting the assumptions of immediacy that are focused on linear growth and observable behaviors of "quality" learning. This paradigmatic reframing is available *only because* the methodology included extended time in the field and multiple analyses upon selected data.

A diffractive reading is laborious and time-consuming because it provides a humanizing, longitudinal look across multiple data points from diverse theoretical standpoints. It demands time. The temporal diversity of human discernment must co-exist with the urgency to remediate and standardize. Teachers are *also* learners. Researchers can prioritize listening to teachers as a labor of educational equity, lest the policy implementation "telephone game" thwart lasting change (Woulfin & Gabriel, 2022, p. 327).

By addressing an additional layer of materiality and stewardship–the living effects of our entanglement with stuff and time–we open up an opportunity to divest from our reliance on (dominant) human-centric constructions of quality and merit to instead welcome an ecosystem of shared responsibility to our *actual* humanness and its role in the system of life. We suddenly realize that the consumable worksheet has significantly more power over our beliefs, attitudes, and ideologies than simply learning the letter A. That is the power of a diffractive reading.

Conclusion

How relationality, materiality, languaging, and time *mediate knowledge* should strike all educators as simultaneously obvious and overwhelming—it is, and *it is*. However, the fragility and intensity of the moment-to-moment concert of teaching a room of young children to read and write remain invisible—disembodied, imagined—to non-educators. Often, the literacy expectations set forth for training, instruction, progress measurement, and state accountability do not include (nay, even acknowledge) how the diversity of these variables discursively and disparately shape implementation and experience (Adair & Colgrove, 2021; Woulfin & Gabriel, 2020). Children may learn to read, they may not, but all the while, they *are* learning. The question for teachers is, what knowledges are mediated within these conditions? And more so, how can activity harness expansive learning within these frames?

Questioning objectivity-as-truth, a post-foundational tenet, shifts how we might view the interconnection of human, non-human, and more-than-human ecologies and how these beliefs/matters/concepts act upon the knowledge-bodies in schools. Additionally, beneath the political rhetoric around "literacy wars" and post-COVID-19 "learning loss," I believe (indeed, I hope), at the heart of it all, there is a deep concern for the living children's well-being in our nation's classrooms. Through expanded-analysis positioning, new interpretations of classroom life can help (re)determine what literacy means for all of us through the words, languaging, and action(s) taken up in/for/with the ecologies of matter within which we are bound. Let me be clear: this study is not about "best practices" regarding how students learn and encode their concepts of print, but rather, how teachers and researchers might re-see their learners' ways of being *with the world* by engaging with the materials and meanings within which we collectively participate.

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