Addressing Disciplinary Literacy: An Examination of Teachers' Instruction in First Grade

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Disciplinary literacy instruction during kindergarten through second grade enables students to begin developing facility with consuming, producing, and learning from texts in academic disciplines across their school careers and for full civic participation. Extant intervention studies and descriptions of practice in the primary grades offer understanding of disciplinary literacy instruction when it is enacted with researchers' help and/or by teachers with expertise in disciplinary literacy. To address disciplinary literacy in the primary grades, insight into what primary teachers focus on and how they support students' disciplinary literacy learning during their naturally-occurring instruction is needed. This exploratory collective case study examined the disciplinary literacy learning opportunities available in first-grade teachers' instruction. Participants included four teachers in four elementary schools situated in a large city in the Midwest. Audio records and field notes were collected over a period of five months during teachers' literacy instruction. Open coding, progressive refinement of codes, and categorical analyses revealed limited instructional emphasis on disciplinary literacy. When learning opportunities were observed, teachers' foci and support centered on the social foundations of disciplinary literacy and included sharing of information and student practice. Also, problematic disciplinary literacy learning opportunities were noted. This study underscores the urgent need for additional attention to disciplinary literacy as it is situated within the primary grades, with particular import for how first-grade teachers enact disciplinary literacy instruction.

Keywords: primary grades, disciplinary literacy, integrated instruction

Introduction

One repeated call amidst contemporary debates about disciplinary literacy instruction in today's schools involves greater attention to disciplinary literacy in kindergarten through second grade [K-2] (e.g., National Council for the Social Studies, 2013; National Research Council, 2012). The call extends longstanding attempts to address students' literacy learning within content areas such as science and social studies by incorporating what is known about practitioners' text consumption and production from the start of elementary school. Scholars have argued that disciplinary literacy instruction is foundational "not only to disciplinary learning but also to civic participation and efforts to attain social justice" (Moje, 2015, p. 257). The instruction contributes to students' growth in world knowledge, acclimatization to variations in texts and literacy practices, evaluation of the trustworthiness of information, pursuit of personal interests,

and effecting of social change (Goldman et al., 2016; Moore & Schleppegrell, 2020; Welsh et al., 2020).

Greater attention to disciplinary literacy in the primary grades is intended also to bolster students' learning and achievement in school (e.g., Brock et al., 2014; Shanahan & Shanahan, 2014). Lemley et al. (2019) contend,

> It is unrealistic to expect children, and even adolescents, to develop competence with the literate practices necessary for the complex textual demands expected in secondary and postsecondary institutions unless work on discipline-specific reading and writing is undertaken in the elementary classroom. (p. 12-13)

By fourth grade, many U.S. students display difficulty accessing information and answering questions in science, and their difficulties persist into later grades. On the 2019 National Assessment of Educational Progress [NAEP], fourth- and eighth-grade students' average scale scores for reading for information (219 and 266) were well below the *Proficient* achievement category (238-267 and 281-322; National Center for Education Statistics, 2021). On the 2015 Science NAEP, 62-66% of the students' scores corresponded to the *Below Basic* and *Basic* categories. Early addressing of students' reading for information and in science is needed.

In the present study, the call for greater attention to disciplinary literacy in the primary grades was addressed by focusing on practice. If the call is to be heeded, an understanding of primary teachers' foci and support when disciplinary literacy learning opportunities are present in their instruction is required. Addressing the opportunities already available in instruction is as central as increasing the amount of attention that is provided. Wright and Domke (2019) argue that "questions remain about how to support young children to engage in disciplinary language and literacy and what is best taught at each grade level" (p. 26). Also, Brock et al. (2014) claim teachers face the need to account for differences between adolescents and elementary students, constraints in young children's text and instructional histories, and limited availability of grade-specific guidance in the research literature. Understanding of teachers' foci and support yields baseline insights that can be used to inform curricular and professional development efforts. Consequently, instruction in four first-grade classrooms was examined. The study provided unique insights into the disciplinary literacy learning opportunities available in first grade.

Disciplinary Literacy

Shanahan and Shanahan (2012) define disciplinary literacy as "an emphasis on the knowledge and abilities possessed by those who create, communicate, and use knowledge within the disciplines" (p. 8). Their definition extends emphasis on generalizable literacy strategies applicable across disciplines by stressing that disciplinary literacy also requires a unique repertoire of strategies and tools used by practitioners as they accomplish work (e.g., Shanahan et al., 2011; Wineburg, 1991). Academic disciplines (e.g., history, physics) are tasked with constructing and sharing knowledge, and they are "made up of people who engage in socially and culturally meaningful practices" (Rainey, 2017, p. 54) in order to identify and investigate questions central to their disciplines; create and disseminate knowledge claims; and evaluate, contest, defend, and use the claims. For example, to develop theoretical models of the natural

world, scientists produce and consume texts such as raw data, lab notes, press releases, and refereed journal articles containing text features such as diagrams, tables, equations, and models (Goldman et al., 2016). Scientists' discourse includes methodological descriptions, reference to scientific principles, signaling of the scope and likelihood of their approximations, and "use of nominalizations, passive voice, and technical and specialized expressions" (p. 233). In contrast, to create interpretations and the historical record, historians consume and produce texts such as biographies, cartoons, diaries, and maps. They critically "read traces of the past" (p. 234) recognized as incomplete and reflective of authors' perspectives by "identifying and understanding when, why, and who authored the document or physical artifact" (i.e., sourcing); "compar[ing] and contrast[ing] perspectives on events" (i.e., corroboration); and understanding "the time, place, and societal and physical conditions that existed at the time" (i.e., contextualization; p. 236). Historians' language includes argumentative features (e.g., refutations), authors' viewpoints, chronological markers, and narrative structures. Practitioners' use of texts and literacy practices are connected to their construction and sharing of knowledge.

Disciplinary Literacy Instruction

The call for greater attention to disciplinary literacy in U.S. schools is not a new one. Moje (2008) argues for the use of disciplinary literacy instruction in middle and high schools, suggesting it is "a matter of teaching students how the disciplines are different from one another, how acts of inquiry produce knowledge and multiple representational forms… as well as how those disciplinary differences are socially constructed" (p. 103). Such instruction mirrors teachers' practices but contrasts with established instructional approaches (e.g., Fang & Coatoam, 2013; Spires et al., 2018). During content area literacy teaching, teachers focus on and support adolescents' learning of generalized reading and writing strategies believed to be useful across many disciplines (e.g., note-taking, summarizing). In contrast, disciplinary literacy instruction involves their firsthand experience with using texts and practitioners' literacy practices as disciplinary tools to construct and to share knowledge.

Moje (2015) describes disciplinary literacy instruction as an apprenticeship process, arguing that "disciplines are highly specialized—and fairly exclusive—cultural groups, and just as one has to learn the conventions and practices of a new culture, so does one have to learn the conventions and practices of a discipline" (p. 258). Moje notes the apprenticeship entails helping adolescents to appropriate the disciplinary community's conventions and practices but also to use their knowledge and skills to effect change in the disciplines. Moje suggests teachers address both goals through her 4Es instructional heuristic, by (1) "engag[ing] the practices of the discipline under study," (2) "eliciting the knowledge and skills youth bring to the disciplinary inquiry and then engineering the necessary knowledge… for engaging in the inquiry," (3) "getting students to examine closely words and ways with words," and (4) "asking students to evaluate when, why, and how disciplinary language is and is not useful" (p. 260). The heuristic includes addressing of disciplinary conventions and practices and students' development of tools for effecting change, leveraging of student language and thinking, and scaffolding of inquiries.

Additionally, scholars claim teachers' disciplinary literacy foci and support involves (a) helping students to develop understandings about why and how texts and literacy practices are used to construct and to share knowledge; (b) use of explanations, modeling, student rehearsals,

reflection, authentic tasks, a variety of texts, and firsthand encounters with disciplinary ideas and practices; (c) consideration of the language and narratives shaping practitioners' construction, sharing, and uses of knowledge; and (d) recognition of the meaning and value of students' experiences (Fang & Coatoam, 2013; Hillman, 2014; Moore & Schleppegrell, 2020). Scholars also acknowledge facility and expertise within disciplines takes time and children concurrently need to develop widely-applicable literacy skills (e.g. word-reading) and world knowledge (e.g., Shanahan & Shanahan, 2008). The apprenticeship process includes instruction that leverages and adds to students' knowledge and skills, orchestrates their firsthand inquiries, and emphasizes their critical evaluation and personal uses of disciplinary literacy.

Disciplinary Literacy Instruction in the Primary Grades

Moje (2015) argues that "primary grade teachers should begin the apprenticeship work… and the process should progress not in rigid or linear ways but with the recognition that increasing facility with the tools of language and discourse will mediate and develop students' apprenticeship into the discipline over time" (p. 271). The push for earlier onset of the apprenticeship work aligns with the Next Generation Science Standards framework (National Research Council, 2012) and the *College, Career, and Civic Life Framework for Social Studies State Standards* (National Council for the Social Studies, 2013). Wright and Domke (2019) found the frameworks (a) included expectations for K-2 students' argumentation, explanation, evaluation, and disciplinary language learning and (b) emphasized an apprenticeship model. Moreover, the push for early apprenticeship is consistent with research showing the benefits of integrating K-2 students' science and social studies learning and literacy instruction (Strachan, 2015; Vitale & Romance, 2012; Wright & Gotwals, 2017). For instance, in a study of SOLID Start, a researcher-created curriculum featuring drawing, guiding questions, inquiry experiences, read-alouds, and writing, Wright and Gotwals (2017) found early apprenticeship supported students' knowledge and use of "disciplinary oral language (i.e., the ways that scientists talk)" (p. 516). After the two four-week units, the SOLID Start students outperformed their peers on measures of making of scientific claims, offering of evidence, receptive vocabularies, and science vocabulary use, with p-values <.001 and effect sizes ranging from .76-1.86.

Lastly, descriptions of practice in the primary grades have included the same kinds of foci and support found in disciplinary literacy instruction in middle and high schools. For example, Welsh et al.'s (2020) description of a second-grade disciplinary literacy unit featured "central inquiry questions, meaningful use of read-alouds, and the meaningful use of writing (and drawing) as tools for learning science practices and content" (p. 724). Also, Brock et al.'s (2014) instructional portraits in second, fourth, and sixth grade featured question-driven units foregrounding "how disciplinary experts think, act, talk, and write" (p. 23) and firsthand opportunities to "use reading, writing, and talking as tools to explore disciplinary content" (p. 25). Teachers' foci and support involved read-alouds of texts available in their classrooms, class discussions, writing activities, and students' firsthand experience with using texts and practitioners' literacy practices as disciplinary tools to construct and to share knowledge.

Present Study

To gain insight into practice, the present study examined existing opportunities for disciplinary literacy learning in first-grade classrooms. The research question was: *What foci and support do first-grade teachers use when their instruction includes opportunities for disciplinary literacy learning?* The study extends prior research by examining naturally-occurring instruction. Rather than seeking to intervene in teachers' practices or to describe teachers' designing of exemplary instruction, the study purpose was to seek insight into the opportunities already available in instruction. Unlike K-2 intervention studies and descriptions of practice, analyses of naturally-occurring instruction enables insight into teachers' daily activities when their expertise cannot be assumed and curricula is not designed by researchers.

The present study is founded on the assumption that all literacy practices, including those related to disciplinary literacy, are socially constructed over time (Vygotsky, 1978). In the classroom, students' early apprenticeship into disciplinary communities is situated and constructed through teaching, peer-to-peer engagement, and by firsthand experience (Gee, 1991). Through guidance from more knowledgeable others, children learn about disciplines and how practitioners use sign systems (e.g. written language) and tools (e.g. hypothetical thinking) to accomplish their work. Teachers' offering of information (e.g., explanations of how scientists talk), experiences with kinds of texts (e.g. informational), and sharing of understandings about disciplinary literacy (e.g. as a human construction, historians' practices) and students as learners and future practitioners shape what students come to know and understand about practitioners' use of texts and literacy practices within their disciplines. Also, teachers' language and interactions can shed light on their teaching foci and support (e.g., Dwyer et al., 2016; Gavelek & Bresnahan, 2009; Metz, 2020). Analysis of instruction as it is enacted within teachers' established activities reveals trends that can inform future conversations about effective and equitable opportunities for disciplinary literacy learning in K-2 classrooms.

Methods

This collective case study took place over five months in four first-grade classrooms (Dyson & Genishi, 2005; Yin, 2013). It explores the moment-by-moment interactions during time designated for literacy instruction in which opportunities for disciplinary literacy learning occurred. In these interactions, teachers' ways of speaking, reading, and writing influences what is valued, taken up, and what is possible in future interactions (Maloch, 2005). This study was a part of a larger cross-case analysis of contextual factors (e.g., school demographics, state policies, text availability) shaping students' experiences during integrated science-literacy instruction (Stefanski et al., 2019). This analysis focused on the collective interactions in order to provide stronger evidence from multiple classrooms that amplify disciplinary literacy learning opportunities in teachers' naturally-occurring instruction (Savin-Baden & Major, 2013).

The research team consisted of three university researchers with prior teaching experience and a science educational consultant. The university researchers' expertise focused on disciplinary literacy, equity, and professional development. The consultant, an expert in elementary science education, observed in each classroom, took fieldnotes of observations, and provided insights into patterns related to science integration. Multiple researchers and insights from the consultant

allowed for the consideration of alternative explanations and increased confidence in the interpretive process (Miles et al., 2020).

Participants

Four first-grade classrooms were selected as a representative sample of the school district located in a densely-populated, racially- and economically-segregated, Midwestern U.S. city (Corbin & Strauss, 2014). The four elementary schools (PS.1, PS.2, PS.3, and PS.4) served students from low ($n = 2$ schools), middle ($n = 1$ school), and high ($n = 1$ school) socioeconomic backgrounds (see Table 1). First-grade classrooms were chosen so that depth could be attained in the results rather than looking across multiple grades with dissimilar instructional foci and support linked to grade-level developmental differences. In each of the schools, administrators identified a first-grade teacher who had at least seven years of teaching experience and who was reputed to use best practices in literacy instruction (e.g., Savin-Baden & Major, 2013). The goal was to maximize the likelihood of observing disciplinary literacy learning opportunities with minimal instructional time spent on classroom management. The four teachers identified by administrators were White females with 7-24 years of teaching experience. This was reflective of the larger district in which the majority of students were identified as Black or Hispanic but the majority of teachers identified as White. The lead researcher met with each teacher individually to explain the purpose of the study and to gain informed consent.

Table 1
School Demographic Overview Based on Percent of School Population.

School	Free/Reduced Lunch Enrollment	Reported Student Racial and Ethnic Backgrounds[a]		
		Black	Hispanic	White, Non-Hispanic
PS 1	88	50	40	2
PS 2	87	77	15	5
PS 3	5	7	3	82
PS 4	50	46	11	35

[a]Demographic categories including fewer than 2% of the reported student population are not included.

All of the teachers incorporated story and informational picture books into their literacy instruction. PS.1 and PS.2 followed a state-mandated curriculum that included a basal reading program which came with leveled books intended for small-group lessons. Teachers in PS.1 and PS.2 used a combination of read-alouds, guided reading groups, and whole-group lessons from the state-mandated curriculum. PS.3 and PS.4 used an inquiry-based curriculum, which included trade books (published for wide readership) and additional science and social studies instruction outside of time designated for literacy instruction. The teacher in PS.3 relied on independent reading and writing with minimal teacher support during time set aside for literacy instruction. Her support of disciplinary literacy learning was not observed. The teacher's instruction in PS.4

included mini-lessons, individualized and/or partner reading and writing coupled with conferencing, and occasional whole-group sharing. Writing instruction was only observed in PS.4. All four teachers (a) stated administrators expected them to integrate science and social studies learning into literacy instruction; (b) did not espouse a specific approach or intent to use disciplinary literacy instruction, and (c) reported limited related professional development.

Data Collection and Analysis

Constant-comparative analysis and triangulation of investigators and data sources, followed by searches for disconfirming evidence, provided insights into the disciplinary literacy learning opportunities available in teachers' instruction (e.g., Denzin, 2001; Glaser & Strauss, 1967; Zhang et al., 2016). Ten non-participatory observations were conducted in each classroom (40 observations, each lasting 90-120 minutes) over a period of five months during the spring of 2016. The observations occurred during time designated for literacy instruction because teachers had indicated their focus on addressing students' literacy, science, and social studies learning within the time block. To document classroom interactions, audio recordings and fieldnotes describing classroom literacy events, text use, and informal conversations with teachers were taken during whole- and small-group lessons. After each observation, fieldnotes were expanded to include researchers' theoretical, methodological, and personal memos. To check and confirm the consistency of observation procedures and similarity in data collection routines, researchers' initial observations were made alongside that of the lead researcher. When procedural variances were found, they usually involved questions about simultaneously-occurring literacy events (e.g., reading groups and seat work), and researchers agreed to focus on teacher-student interactions.

Analysis was ongoing throughout the study and is summarized in Table 2. Researchers first reviewed audio records and field notes to locate instances of teachers' integration of science and social studies learning and literacy instruction (cf., Cervetti et al., 2012; Purcell-Gates et al., 2007). The research team confirmed the instances were integrated instruction; transcribed each instance; and checked for consistency across audio recordings, fieldnotes, and transcripts. Teachers' integration occurred during use of both story and informational picture books, so instances featuring either kind of text were used. Integrated instruction was included in less than 10% of the overall data collected, resulting in approximately 200 pages of transcripts of classroom interactions. Next, researchers isolated and examined lesson segments involving disciplinary literacy. Researchers individually and then collectively determined the unit of analysis based on a sequence of exchanges in which teacher and/or student talk related to disciplinary literacy. The starting point of the unit was when a teacher or student utterance displayed the inception of a focus on (a) practitioners' texts and literacy practices, (b) students' construction or sharing of knowledge, (c) differences among disciplines, or (d) acts of disciplinary inquiry (Moje, 2008). An overt claim about disciplinary literacy (e.g., "Historians do this") did not have to be included. The ending point of the unit was when utterances shifted to a new disciplinary literacy focus or to a focus unrelated to disciplinary literacy. The number of turns of talk included in each unit ranged from 3-44 turns. To confirm unit boundaries, researchers separately reread the exchanges preceding and following each unit and checked for their similarity to the unit's focus until consensus was reached.

Table 2
Overview of Data Analytic Processes.

Phase	Tasks
Phase 1: Research design	• Reviewed literature on integration of science and social studies learning and literacy instruction (Corbin & Strauss, 2014). • Defined/selected what would count as our cases, data needed, and developed process for data collection.
Phase 2: Data management	• Reviewed fieldnotes and kept impressionistic records. • Consulted with science consultant for her impressions on science-specific integration. • Continued to refine what constitutes integrated disciplinary learning opportunities in first grade. • Isolated and selectively transcribed instances of interdisciplinary instruction.
Phase 3: Initial Coding	• Independently open coded: form, phrasing, discourse patterns, and content. • Conducted literature review of prior discourse units of analyses. • First and second author met repeatedly to define properties of codes, select examples, and continue to refine codes. • Searched for disconfirming cases. • Third author independently applied codes to subset of data.
Phase 4: Refining of Coding	• Independently open coded: function, form. • Conducted literature review of prior coding methods. • Refined and re-focused coding on teacher moves. • First and second author met to define properties of codes, select examples, and continue to refine codes. • Searched for disconfirming cases. • Third author independently applied codes to subset of data. • Repeated meetings to discuss and reach consensus on finalized list of codes.
Phase 5: Axial Coding / Representation	• Analyzed relationships between codes. • Recoded with finalized list of codes. • Analyzed fit between excerpt and designated code. • Determined representative scenarios from classrooms to reflect the interconnectivity of codes within each lesson.

Hereafter, the unit of analysis is referred to as an *instructional moment* (Boyatzis, 1998). The term *moment* has been used because it highlights three characteristics of teachers' instruction. Teachers' foci and support for disciplinary literacy learning occurred within lessons

that typically foregrounded emphasis on widely-applicable literacy skills (e.g., word-reading), tended to appear suddenly and to last for only a few minutes, and were scattered across time.

Initial independent-coding of transcripts encompassed the phrasing, content, and form of teachers' instruction. Because initial analysis revealed instances in which teachers had opportunities to focus on and support disciplinary literacy during instruction but did not do so, these opportunities were also analyzed. After initial coding, researchers iteratively coded transcripts through a series of collaborative meetings across two semesters. Between each meeting, researchers (a) independently applied codes; (b) added, deleted, and combined codes; (c) tested codes against the data set; and (d) revisited audio records and fieldnotes to investigate the presence of additional instances of integrated instruction, transcript quality, and fitness of the proposed codes. During each meeting, researchers compared the existing codes and the coded data; discussed coding questions, codes' alignment with existing research, and emerging patterns; and worked toward consensus on a finalized coding list. In the last five meetings, the first two authors examined the codes against increasingly specific definitions, and the third author provided an informed, but somewhat distanced, perspective on the coding and coded data and confirmed proposed codes' alignment and representativeness (Denzin, 2001; Moustakas, 1994). All three researchers agreed on the fit and application of each code used in the analysis. The finalized set of codes, which can be found in Table 3, included categories describing teachers' instruction during the learning opportunities.

Table 3
Description of Codes.

Code and Definition		Example from Excerpt
Correcting student responses: Responding to student's attempt at disciplinary work through correction.	T:	Good. What's round and green? Show me in the picture what matches that. That's not round; this is round and green! What is that?
	St:	But they dying.
Responding through behavior management: Responding to student's attempt at disciplinary work through closing down talk and/or redirection.	T:	"I think I know the perfect digging spot."
	St:	In the backyard.
	T:	Shh.
Failing to acknowledge students: Teacher does not take-up/acknowledge student's attempt at disciplinary work.	St:	Some, uh, caterpillars make a cocoon and, in two weeks or three of four or five, it breaks, and a pretty butterfly comes.
	T:	Okay, put your hands down and think. I asked you, "Where are insects?" Go back and tell me where are insects?
	St:	Everywhere.
	T:	Read back what it says.

Code and Definition	Example from Excerpt
	St: "Insects live everywhere."
Answering student questions: Acknowledging and answering student questioning related to science and social studies disciplines.	St.1: He's in jail? Why? St.2: He killed somebody. T: Or they think that he did. Duff had been in a big fight.
Public inquiry: Teacher- or student-initiated questions made into public inquiry.	St.1: What's a buggy? T: Which part do you think is the buggy? St.2: That buggy, but the… T: The horses are pulling the… St.3: Buggy. T: Buggy. So what do you think that means?
Constructed nature of disciplinary knowledge: Questions or comments focused on the content, processes, and structures of science and social studies disciplines.	T: So you got to vote too? St: Mhm. T: Did your voting look like this or did it look different? St: It looked different. St: They just wrote it on the chalkboard, and they said pumpkin, tomatoes, and daisies, and if you wanted a pumpkin you'd go over there, if you wanted a daisy you'd go over there…
Discipline-specific use of texts: Using texts in ways similar to that of expert practitioners in science and social studies disciplines.	T: [Student], what did you just say that you noticed? St: There are a lot of words. T: Did anyone else notice that there are like a zillion bazillion words in this book? Not only on the sides but kinda separated off, there are. St: There are small pictures with small words.

Code and Definition	Example from Excerpt
Language as a tool for disciplinary practice: Using language to engage in the work of expert practitioners in science and social studies disciplines.	T: Wait, wait. Hold on. Go ahead, finish your sentence. St: Um, when you add heat to it, it gets warm; it gets hard. T: I wanna save that because that kind of connects to the glass blowing that we were looking at a while ago.

Results

Analysis of the disciplinary literacy learning opportunities revealed that teachers' foci included scientists' and historians' reading, speaking, and writing, and their support involved explanation, modeling, and student rehearsals during brief spaces in read-alouds, discussions, and writing sessions. Also, problematic instances were found in which teachers' foci and support for disciplinary literacy learning (a) addressed students' firsthand experience without attention to its resemblance to practitioners' literacy practices, (b) emphasized students' widely-applicable literacy skills (e.g., word-reading) and world knowledge while limiting their attempts to enact disciplinary literacy, and (c) attended to practitioners' use of one literacy practice in isolation from concomitant perspectives and practices while reading biased or inaccurate texts.

Below, excerpts from four of the teachers' lessons are provided. The lessons and excerpts were selected in order to highlight teachers' foci and support for disciplinary literacy learning and to enable subsequent discussions of how the teachers' instruction informs the call for greater attention to disciplinary literacy in the primary grades. The four lessons depict disciplinary literacy learning opportunities that involved (a) showcasing of the social nature of disciplinary literacy, (b) students' leveraging of texts and literacy practices as tools for disciplinary work, (c) limiting of students' use of firsthand knowledge as a tool for disciplinary reading, and (d) scaffolding of students' use of contextualization without corroboration and sourcing in the (mis)construction of historical knowledge.

Lesson One: Showcasing the Social Nature of Disciplinary Literacy

The first lesson occurred in PS.4 and emphasized that people use particular literacy practices to engage in disciplinary reading and writing. With students gathered in a circle on the carpet, the teacher led an exploration of a variety of informational picture books while creating a chart depicting student-identified features of the books. Then the teacher dismissed students to read independently from their book baskets before calling them together again to explain their writing assignment. The three instructional moments included below illustrate the teacher's focus and support for learning (a) practitioners have and use distinct literacy practices and (b) disciplinary literacy is connected to practitioners' construction and sharing of knowledge.

Excerpt 1: Foregrounding Scientists' Distinct Literacy Practices

The first excerpt consists of an instructional moment where the teacher focused on students' knowledge that scientists' speaking practices are distinct from their everyday experience. The interaction occurred at the beginning of the lesson as the teacher discussed one informational picture book after another, commenting on the books' topics and features. In this brief exchange, the teacher explained the difference between scientists' and students' pronunciation of the same word.

1	*Teacher*:	And I just grabbed a few, there are more. The Olympics. I chose this one
2		because the summer Olympics are about to start and that's my favorite
3		thing in the whole world. My favorite sports are in the Olympics. Markets.
4	*Student 1*:	Penguins.
5	*Teacher*:	Oh, orangutans.
6	*Student 2*:	Orangutanggggs. Not orangutan.
7	*Teacher*:	You know I've heard it said both ways… umm… I just say it like when I
8		hear the scientists talk about it. They say orangutan. But I grew up saying
9		orangutanggg like you. So, and, penguins.

The teacher leveraged one student's comment to highlight the contrast between scientists' and laypeople's language use. In Lines 1-5, the teacher identified books' topics. When one student corrected her pronunciation, she explained why she had said the word the way she did (Lines 6-9). Rather than saying the word was correct, the teacher publicized that scientists have specialized ways of speaking which include unique pronunciations. She then disclosed her own learning by claiming she had once said the word the same way as the student, implying that, like her, students can appropriate scientists' language use. The instructional moment, although brief and not directly connected to scientists' construction and sharing of knowledge, offered exposure to the idea that scientists have specialized ways of talking which can be taken up by learners.

Excerpt 2: Encouraging Construction of Knowledge During Disciplinary Reading

The excerpt below, which occurred subsequent to the prior excerpt, includes an instructional moment emphasizing the connection between disciplinary literacy and practitioners' knowledge construction. The teacher displayed an informational picture book and led a discussion of the Table of Contents. Her instruction included student rehearsal, modeling, and a focus on scientists' construction and evaluation of a knowledge claim.

1	*Teacher*:	So we'll just look at this…. this is called "In the Wild Penguins"…. Before I even start the book, I see this funny lookin' page.
2	*Student 1*:	Contents.
3	*Teacher*:	Right at the beginning. But it doesn't look like normal like the stories that
4		are like "Once upon a time" or "Once there was a…" It just doesn't look
5		like that. I see lots of hands going… like it's going to fly off your body if
6		you don't tell me, c'mon tell me what you wanna say.
7	*Student 2*:	It's a Table of Contents.
8	*Teacher*:	A Table of Contents! I love tables because we have one at home and I put

9		my breakfast cereal—
10	Student 1:	Not that kind of table!
11	Teacher:	Not that kind of table? What does a table of contents even mean?
12	Student 1:	A Table of Contents is like when you get to know the chapters, so like if
13		there's a chapter called babies you look to see what number is next to it
14		and you look to see it's on that page.
15	Teacher:	[Student 3]?
16	Student 3:	Um, a Table of Contents is—it has everything in the book listed down that
17		you want to know and you see about the penguins and you see what
18		number it's on and if you wanna learn about that thing you go to the pages
19		and you'll learn about that.
20	Teacher:	So what I hear some of you saying is that a Table of Contents has page
21		numbers and things that the author wants you to know. So this one's about
22		penguins, and the author has all of these chapters or sections of the book
23		listed that the author wants you to know. Let me read them to you so you
24		can know what the author wants you to know. "Penguin Relatives,"
25		"Where Penguins Live," "Coming Ashore," "Eggs," "Babies," "Growing
26		Up," "Molting"—there's a word that I don't hear that much—and "More
27		Penguin Facts." So it sounds like to me that this person has taken all of
28		these things about penguins—look we just magically turned to this page,
29		eggs—and sorted the information into different sections and chapters. And
30		this one is all about penguin eggs. I wanna pick up another non-fiction
31		book and see if it's got a table of contents….

The teacher's enactment of her lesson extended beyond exemplary teaching of informational text features to encompass two disciplinary literacy learning opportunities. The teacher's instruction offered firsthand experience with using texts to construct knowledge. In Lines 1-8, she drew attention to a page in the book, described how the page differed from her expectations, sought help from the students, and revoiced students' labeling. Then the teacher intentionally shared a misconception and asked the group to teach her about the label's meaning (Lines 9-11). Rather than directly defining Tables of Contents and how to use them, the teacher created a space in which students were encouraged to articulate their own knowledge claim. Her focus on the informational text feature rather than on world knowledge enabled the learning opportunity by leveraging the first-grade students' prior reading experiences. Then the teacher's instruction offered exposure to scientists' evaluation of knowledge claims.   In Lines 12-31, she called on two students, paraphrased and clarified their explanation, and tested the explanation by applying it to the book on display and to another informational picture book. Rather than automatically accepting students' knowledge claim, the teacher modeled the next step in scientists' knowledge construction (evaluating the claim's approximation of how texts are consumed in science). The instructional moment addressed students' learning that scientists construct knowledge claims and investigate the claims' fitness during disciplinary reading.

Excerpt 3: Emphasizing Sharing of Knowledge During Disciplinary Writing

The following excerpt involves an instructional moment where the teacher's instruction emphasized the connection between disciplinary literacy and scientists' sharing of knowledge.

The moment occurred as the teacher gave directions for the work session at the end of the lesson and included her highlighting that, like scientists, students can use writing practices to share their knowledge.

1 *Teacher*: …What do *you* know a lot about? What is something in your life that you
2 know a lot about? That you could almost write a whole book about….
3 *Student 1*: I know a lot about natural disasters.
4 *Teacher*: Do you think that maybe someday you could write a book to teach other
5 people about natural disasters?
[*Students continue to talk excitedly about what they know (e.g., space, dinosaur skeletons, predators), and teacher explains assignment.*]
6 *Student 2*: Are we allowed to tell our friends what we're writing about?
7 *Teacher*: Absolutely! Writers talk to other writers about what they are writing about.
8 I think that's definitely a good idea. [*Student 7*]?
[*Students continue to ask questions, and the teacher provides answers.*]
9 *Teacher*: Okay, that's a really good point because some writers write with pictures
10 and words and some writers just focus on the words. For today I just want
11 you to do your best and if you get to a point where you need to edit it or
12 revise it, you can scratch it out. Two more because I really want us to get
13 started. [*Student 1*] then [*Student 2*].
14 *Student 1*: Um, like after we're done with all our pages or something we might need
15 like a table of contents or something.
16 *Student 2*: That's a great idea.
17 *Teacher*: If you get there, you can.

The teacher's instructional talk clarified that sharing of knowledge about phenomena such as natural disasters involves scientists' text production and use of peer collaboration, textual knowledge (e.g., Tables of Contents, graphics), and revising. In Lines 1-5, she suggested students could share their knowledge by writing a book, called on a student to identify his area of expertise, and suggested that area as the focus of his writing. In Lines 6-17, students asked questions about the writing practices involved in their sharing of knowledge. As the teacher responded, she drew attention to and confirmed the applicability of each writing practice. The instructional moment offered exposure to scientists' use of the writing practices in order to share knowledge during disciplinary writing.

Lesson Two: Leveraging Text and Literacy Practices as Tools for Disciplinary Work

During this lesson in PS.2, the teacher's instruction enabled students' firsthand experience in using texts and reading practices as tools for constructing knowledge in science. Unlike the first lesson, teaching occurred in small groups and included students' reading and discussion of leveled books from their basal reading program. The two instructional moments below were chosen because they illustrate the presence of opportunities for student rehearsals of disciplinary literacy and the absence of support for student understanding of how the experience resembled scientists' reading when constructing knowledge.

Excerpt 1: Supporting Questioning and Answering During Knowledge Construction

The excerpt showcases an instructional moment where the teacher's focus included disciplinary reading. The moment, which occurred at the end of the session as the small group discussed what had been read, involved scientists' practice of using questions to guide their reading when creating knowledge claims.

1	*Students:*	[*reading*] "But all the insects have six legs and two antennas, and they all
2		have three body parts called the head, the thorax, and the abdomen."
3	*Teacher*:	Now, let's answer what we've all been wondering about. Is a spider an
4		insect?
5	*Students*:	NO!
6	*Teacher*:	No, because all insects have?
7	*Students*:	Six legs.
8	*Teacher*:	Good. Okay, is a butterfly an insect?
9	*Student 2*:	Yeah.
10	*Teacher*:	Okay, so what must it have?
11	*Student 2*:	A thorax, and a head.
12	*Student 3*:	A stinky part.
13	*Student 4*:	Some, 6 legs.

The teacher orchestrated students' use of the leveled book and their own thinking to create an answer to a question previously posed by a peer. However, the teacher's instruction did not include students' comparison of their experience to scientists' reading practices when constructing knowledge and their recognition of how the experience might be useful in the future. In Lines 1-4, the teacher revoiced the question one of the students had asked earlier. After students responded, she requested the explanation behind their answer (Lines 5-7). Then the teacher named an insect and repeated the question (Line 8). When students offered a one-word response, she again requested an explanation, and students identified the insect characteristics listed in the book (Lines 9-13). The instructional moment addressed students' learning about scientists' asking and addressing of questions but provided limited support for their appropriation of the practice for use in future disciplinary reading.

Excerpt 2: Making Space for Disciplinary Reading

The excerpt highlights an instructional moment where the teacher's focus created space in the lesson for students' firsthand experience with disciplinary reading. The moment, which occurred at the beginning of a second small-group session as the teacher was listening to students' reading, consisted of student rehearsal of scientists' reading and text use when constructing knowledge.

1	*Student 1*:	Hey, [Teacher], what kind of bug is this?
2	*Teacher:*	A preying mantis.
3	*Student 2:*	Okay, I think this one won.
4	*Student 1*:	Yeah, that's an evil one. That's the evil one.
5	*Teacher*:	Good. Keep reading.

6 *Student 2*:   I want to be a preying mantis.
7 *Student 1*:   Yeah, I want one. Kill all the stick in—not them—uhh, all the spiders.
8 *Student 3*:   [*reading*] "Most… egg sacks… lay eggs."
9 *Student 2*:   Ooh, I'd eat one of these.
10 *Student 1*:   Eww!
11 *Student 1*:   If I were a preying mantis, I'd eat that.
12 *Student 2*:   If I was a preying mantis, I'd want to eat all these bugs.
13 *Student 1*:   Yeah!
14 *Student 2*:   That looks really good—good like a hot dog.
15 *Student 1*:   Yeah, the skin is like a hot dog.
16 *Student 2*:   Look at these little bugs. I think this will be nice.
17 *Student 1*:   Whoa, whoa, whoa, what page?
18 *Student 3*:   [*reading*] "Stick insects are very—"
19 *Student 2:*   That's a lot.
20 *Student 1*:   What would you want to eat? A dragonfly? Or a bee?
21 *Student 3:*   [*reading*] "Insects live in the air. There are insects like flies and…insects?"
22 *Teacher*:   Let's break this up.
23 *Students*:   [*reading*] Coc-ro-ch-
24 *Teacher*:   Cockroaches.
25 *Student 1*:   Let's go.
26 *Student 2*:   Look at this bug. He fits in. See? You see him?
27 *Teacher*:   I'm listening.
28 *Student 3*:   [*reading*] "There are insects like grasshoppers and beetles in gardens."

The teacher's instruction left room for students, on their own, to articulate and revise their thinking about the book's photographs and to create a collective understanding of the preying mantis' dominant position in the food chain. In Lines 1-2, the teacher identified the pictured insect. Then the teacher continued to listen and to help students read the pages (Lines 5, 8, 18, 21-24, 27-28). As she did so, three students in the group developed their own hypothetical reasoning, using language like "I think…" and "If…," while playfully imagining their lives as insects and drawing attention to the insect's predatory-prey relationships and adaptive camouflage (Lines 3-4, 6-7, 9-17, 19-20, 25-26). The teacher's comments, which were spaced out, abbreviated, and focused on word-reading, neither leveraged nor shut down students' self-directed, exploratory, and joint production of their knowledge claims that also allowed them to participate in reasoning beyond the knowledge presented in the text (Vygotsky, 1978). Also, the teacher's instruction did not include discussion of the similarity between the students' experience and scientists' reading and speaking when constructing knowledge. Students used their own language and read and constructed knowledge claims, but they did not have the opportunity to become aware that their thinking and talk resembled scientists' disciplinary reading and could be useful in the future. The instructional moment addressed students' learning about scientists' use of text, prior knowledge, and each other's ideas but provided limited support for appropriating these practices for their own uses when constructing knowledge in science.

Lesson Three: Limiting Use of Firsthand Knowledge as a Tool for Disciplinary Reading

This lesson, which occurred on the same day and in the same classroom as Lesson Two, illustrates how teachers' foci and support addressed students' widely-applicable literacy skills (e.g., word-reading) and world knowledge but did not allow for their attempts to use firsthand knowledge when reading to construct knowledge. The teacher and another group of students had read a leveled book from their basal reading program and were engaged in a 10-minute post-reading discussion. When the focus of talk shifted to the book's description of slugs, she asked students to share their knowledge but then only accepted the information from the book.

1	*Teacher*:	Then he saw some?
2	*Students*:	Slugs.
3	*Teacher*:	Slugs. What do you know about slugs?
4	*Student 1*:	They slimy.
5	*Teacher*:	If you don't remember, read page 8.
6	*Student 1*:	They slimy.
7	*Teacher*:	Did it say that?
8	*Student 1*:	"Look under the leaves. These bugs are slugs. They don't like the sun."
9		They don't like the sun!
10	*Student 1*:	Slugs don't like the sun.
11	*Teacher*:	Excellent. Good.

During the instructional moment, an opportunity emerged for the teacher to leverage students' thinking and to explain that scientists use firsthand observation and interaction with the world around them in dialogue with information gathered through the use of texts and through reading when constructing knowledge. In Lines 1-4, the group's discussion turned to students' knowledge of slugs, and a student identified a characteristic not listed in the book. Slugs' slime, which can be dried out quickly by the sun, allows movement along surfaces. The student's attempt to use his experiential knowledge to answer the teacher's question exemplified scientists' use of firsthand knowledge during reading when constructing knowledge. Rather than conceding the significance of the student's response, the teacher twice redirected attention to the book until its words had been accurately identified (Lines 4-11). Her focus could have been expanded to include addressing of disciplinary literacy. Instead, she enforced an exclusive focus on reading and recall of the text's words, limiting students' opportunity to learn about scientists' use of knowledge based on firsthand observations and experience during disciplinary reading.

Lesson Four: Scaffolding Use of Contextualization without Corroboration and Sourcing in the (Mis)Construction of Historical Knowledge

The final lesson illustrates how one teacher's instruction focused on one reading practice used by historians (contextualization) as she was reading a biased text that encouraged students' misconstruction of historical knowledge. Her instruction did not include historians' concomitant practices (corroboration and sourcing) and critical perspectives and served to perpetuate a White, racist narrative of a historical figure. The lesson in PS.1 was one of a series of whole-group read-aloud sessions coinciding with Presidents' Day that involved use of an historical narrative picture book. The book recounted a problematic White narrative of a young Abraham Lincoln as

motivated by a desire to end slavery so that Black people would be treated equally. The teacher modeled one but not all three of the practices historians use to critically "read traces of the past" (Goldman et al., 2016, p. 234) recognized as incomplete and reflective of authors' perspectives, and she helped students to construct an inaccurate knowledge claim.

1	Teacher:	Now, what do you think about Abraham Lincoln and slavery? Do you
2		remember when we talked a little about slavery? Do you remember what
3		he believed about slavery, [Student 1]?
4	Student 1:	White people slaved black people?
5	Teacher:	Well, it's other people keeping other people enslaved. Most of the white
6		people owned…?
7	Students:	Black people.
8	Teacher:	Some black people, okay? [*Student 2*]?
9	Student 2:	In their day, there was slavery. That man traded another black woman for
10		the other black woman and her new owner wasn't treating her right, and
11		Abraham Lincoln wanted to become the president so slavery would be
12		slavery no more. Everybody could go free.
13	Teacher:	Excellent, you're right. People could trade people. They just treated them
14		like stuff, right? Like property, like things, not like real people. And this
15		young woman that you were thinking of, she wasn't really traded with
16		him. She was supposed to be free. She worked in the store, but…
17	Student 1:	She wasn't paid.
18	Teacher:	She wasn't paid, and he wasn't treating her right, okay? Umm—
19	Student 3:	I have a question.
20	Teacher:	—and what did Abe Lincoln think about that?
21	Student 2:	He didn't like that.
22	Teacher:	He didn't like that. Why not?
23	Student 2:	He thought-
24	Teacher:	He thinks it's mean.
25	Student 1:	He thinks everybody needs to be paid when they do stuff for other people.
26	Teacher:	Mmmhmm. So, when he was against slavery, and we said he didn't want
27		to be mean, right? What else could we say about Abe Lincoln, or what do
28		you think that means about what kind of a person he was?
29	Student 3:	He was a thankful person?
30	Teacher:	What?
31	Student 3:	He was a thankful person.
32	Teacher:	Thankful? How do you mean?
33	Student 3:	He was kind.
34	Teacher:	He was very kind.

The teacher emphasized the historical context and repeated the book's representation of the motivation and reasoning of an historical figure. In Lines 1-3, the teacher initiated a new line of talk designed to guide students in using the ideas in the book to co-construct a knowledge claim about Lincoln's character. In Lines 4-34, the teacher summarized and elaborated on the book's representation of people and events during an early period in Lincoln's life, and she elicited students' inferences about Lincoln's thinking and character. Her summarizing, elaboration, and

questioning focused on understanding "the time, place, and societal and physical conditions that existed at the time" (i.e., contextualization; Goldman et al., 2016, p. 236). The teachers' comments and questions included neither discussion of "when, why, and who authored the document" (i.e., sourcing; p. 236) nor consideration of similarities and differences between the book and other recounts of the same people and events (i.e., corroboration). Rather than treating the book as part of an historical record that is an assemblage of peoples' experiences and perspectives over time, the book's portrayal was treated as an a priori and immutable historical fact that could be used to construct knowledge without the need for critical evaluation of its accuracy and consistency. The teacher led students to co-construct an inaccurate knowledge claim that Abraham Lincoln was a kind man motivated by his desire to end slavery and ensure that Black people were treated equally. The instructional moment offered experience with contextualization and the connection between historians' reading and constructing of knowledge. However, the moment did not support students' learning about historians' critical stance and concomitant use of sourcing and corroboration and also promoted misconstruction of the past.

Discussion

The current study sought to shed light on teachers' foci and support during naturally-occurring opportunities for disciplinary literacy learning in first-grade classrooms. Teachers' foci and support occurred within brief spaces in lessons otherwise devoted to students' widely-applicable literacy skills (e.g., word-reading) and world knowledge. Their foci and support emphasized practitioners' literacy practices when constructing and sharing knowledge; included explanation, modeling, and student rehearsals; and, in some instances, leveraged students' language and thinking. Also, teachers' instruction did not emphasize students' inquiry and effecting of social change (e.g., reading multiple narratives of history, using constructed knowledge to solve problems). The results extend the research literature by (a) highlighting the foci and support used within teachers' daily activities when their expertise cannot be assumed and curricula is not designed by researchers, (b) revealing that teachers' foci and support involved brief exchanges of talk dispersed throughout and across lessons, and (c) making visible how their foci and support contributed to problematic learning opportunities.

The study results are consistent with descriptions of disciplinary literacy instruction as an apprenticeship process (e.g., Hillman, 2014; Moje, 2015). For example, in Lesson One, the focus on scientists' language and use of reading and writing practices when constructing and sharing knowledge highlighted differences and similarities between students' everyday experience and disciplinary literacy. Also, teachers' instruction aligns with Moje's (2015) caution against K-2 disciplinary literacy instruction that is "rigid or linear" (p. 271) and that does not acknowledge the role of time in apprenticeships. The brief spaces during daily activities enabled simultaneous addressing of disciplinary literacy learning, widely-applicable literacy skills (e.g., word-reading), and world knowledge. Moreover, their leveraging of students' language and thinking made it possible for the young children to demonstrate thinking beyond the level of the text and beyond what they likely would have done alone (Vygotsky, 1978).

However, the results contrast with prior research and theory emphasizing students' future uses of disciplinary literacy and critical evaluation (e.g., Moje, 2015). Disciplinary literacy learning involves not only awareness that practitioners have particularized, socially-constituted literacy

practices but also how these are used to create, disseminate, defend, evaluate, and contest knowledge claims and to effect social change. In K-2 intervention studies and descriptions of practice (e.g., Brock et al., 2014), learning opportunities have been embedded in question-driven inquiries featuring students' firsthand creation, dissemination, and use of their own science and social studies knowledge. The current study's difference may have been related to teachers' location within time designated for literacy instruction. Certainly, teachers' talk tended to focus on widely-applicable literacy skills (e.g., word-reading) during the problematic learning opportunities. Yet, the possibility that the same difference would have been found in other time blocks cannot be dismissed. Teachers used questions to guide students' reading and initiated informal inquiries into word meanings or concepts. Also, during the time designated for literacy instruction in PS.4, the teacher's reviews of lessons that had been taught during her science time block and her enactment of student inquiries did not include disciplinary literacy.

Teachers' foci and support suggest that attention to disciplinary literacy in first grade when their expertise cannot be assumed and curricula is not designed by researchers involves constrained and inequitable learning opportunities. The kinds and level of help afforded to students included instances of minimal support (e.g., not interfering), limited uses of texts and practitioners' literacy practices as disciplinary tools, lack of recognition of students' attempts to enact disciplinary literacy, and biased apprenticeship opportunities. In Lesson Two, students' rehearsal of scientists' reading (e.g., questioning, making claims) when constructing knowledge without the experiences becoming understood as "what scientists do" during disciplinary reading offered those in PS.2—the majority of whom were Black and Hispanic and from low socioeconomic backgrounds—minimal help in recognizing and appropriating the practices for their personal uses in future disciplinary reading. Additionally, in Lesson Four, students' experience of historians' disciplinary reading as involving uncritical use of the author's interpretation of history when making knowledge claims did not offer support for their development of the reading practices of sourcing and corroboration, tools for effecting social change, and awareness of the problematic nature of their historical knowledge. What could be learned and appropriated in the lessons and classrooms was circumscribed and socially unjust.

Implications

The current study suggests the call for greater attention to disciplinary literacy depends not only on advocating for its presence in first grade but also for making the most of the learning opportunities available in instruction. More effective and equitable learning opportunities and apprenticeships requires not only firsthand experiences but also teachers' awareness of who is benefiting, what is being learned, and how it might be used in the future. Addressing the call will require a greater emphasis on (a) students' use of texts and practitioners' literacy practices as disciplinary tools in the constructing, sharing, and use of science and social studies knowledge and (b) recognition of students' enactments of disciplinary literacy. When science and social studies content and informational texts are incorporated into instruction, the focus needs to encompass not just practitioners' literacy practices but also how these tools function in their disciplinary work. Also, greater leveraging of students' talk and thinking is needed. Students' firsthand experiencing of their own and other children's enactments of disciplinary literacy and their discussion of the meaning and value of the firsthand experiences would help them to appropriate the practices for personal uses in the future. To inform instructional planning,

Moje's (2015) 4 E's instructional heuristic and previous studies of elementary teachers' integrated instruction (e.g., Cervetti et al., 2012; Purcell-Gates et al., 2007) could offer guidance in recognizing young children's experience as enactments of disciplinary literacy and in supporting their inquiries and subsequent uses of the constructed knowledge.

Additionally, the call for greater attention to disciplinary literacy in the primary grades will require researchers and teacher educators to help first-grade teachers recognize and enhance the disciplinary literacy learning opportunities available in their instruction. To inform professional development and teacher education, K-2 intervention studies and descriptions of practice, as well as scholars' discussions of middle and high school instruction, can be used (e.g., Brock et al., 2014; Goldman et al., 2016). Also, the study's finding that naturally-occurring instruction has unique dimensions when compared to practice beyond the primary grades should not be overlooked. The tendency for learning opportunities to involve brief exchanges of talk dispersed throughout and across lessons, circumscribed support for students' learning, and inequities in apprenticeship experiences were key insights that can inform future programming.

Study Limitations and Directions for Future Research

The current study examined trends in the disciplinary literacy learning opportunities found in first-grade teachers' naturally-occurring instruction. The sampling of schools and teachers was representative of the district's racial and demographic profile, and data collection included the same number of observations, recording and note-taking routines, and instructional time block. However, there were differences in each teacher's state-mandated schoolwide curricula and in their integration of science and social studies learning and literacy instruction. Also, insights into teachers' prior experiences and knowledge were beyond the study's scope, and why particular opportunities were available remains unclear. Moreover, student learning was not directly measured; what they took away from teachers' instruction is not known.

The study limitations suggest students' disciplinary literacy learning and access to disciplinary literacy apprenticeships remains an urgent need for future research. Given the constraints and inequities observed in teachers' instruction, questions remain about what each class, student group, and child gained from the learning opportunities. Cross-case analyses would shed light on similarities and differences in their learning and apprenticeships and yield greater understanding of the roles of culturally-sustaining practices (Alim & Paris, 2017) and teachers' knowledge of children's literature portraying diverse perspectives in their support of disciplinary literacy learning. Also, future research which includes measures of learning could clarify the relationships between first-grade students' disciplinary literacy learning and teachers' (a) foci and support and (b) leveraging of student language and thinking.

Moreover, increased understanding of first-grade teachers' histories and knowledge is required. Examinations of teachers' conceptions of disciplinary literacy, their own disciplinary literacy apprenticeship experiences, and their instructional decision-making (e.g., use of particular texts) would clarify the extent to which what is known about practitioners' text consumption and production and disciplinary literacy instruction is represented in their prior knowledge. Also, studies exploring attention to disciplinary literacy within teacher education programming would yield insight into teachers' own learning opportunities.

Finally, the current study adds new perspective to the repeated call for greater attention to disciplinary literacy in the primary grades by showcasing the learning opportunities available in first-grade classrooms. As organizations such as the National Council for the Social Studies and the National Research Council, researchers, and teacher educators continue to work toward addressing students' early need for disciplinary literacy learning, further examination of the learning opportunities found in K-2 classrooms is imperative. Thorough understanding of naturally-occurring instruction can inform future efforts to specify and enact the foci and support that will enable primary students to access and benefit from disciplinary literacy instruction.

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