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Article abstract

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Exploring the Relationship Between Teacher and Multilingual Student Discourse During Small Group Text-Based Discussions

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Abstract

Few studies investigate how teacher discourse moves relate to subsequent student discourse moves in real-time small-group reading instruction with multilingual learners (MLLs). Grounded in sociocultural theory and classroom discourse research, this study examines how fourth-grade MLLs engage in reasoning discourse during text-based discussions. We argue that by examining reasoning discourse holistically - beyond speaker turns - we can capture teacher-talk moves that facilitate or constrain student reasoning. This examination illuminates discourse practices such as “procedural instruction” and “reference to text,” with important consequences for MLLs. Our study has implications for scholarship analyzing classroom talk and literacy educators facilitating discussions where MLLs engage in sophisticated and complex reasoning discourse.

Introduction

Rigorous literacy learning in K-12 schools and beyond requires students to interpret text, engage in discussions and debates about text, use text-based evidence to support claims, and provide reasoning to substantiate claims. Research shows the Common Core State Standards (CCSS) require students to use complex discourse that includes sophisticated linguistic functions to explain evidence-based reasoning while working collaboratively (Hakuta & Santos, 2012; Kibler et al., 2014). A rich body of research demonstrates that opportunities for multilingual learners (MLLs)¹ to engage in rich

¹ We use the term multilingual learners (MLLs) to acknowledge that students use (or have used) languages in addition to or other than English at home and in their communities. Other terms that have been used to classify this group of learners include English Learners, Emergent Bilinguals, and English Language Learners.

discussion about texts with peers promote literacy and language development (e.g., see Baker et al., 2014; Genesee et al., 2006; Howe & Abedin, 2013; Kuhn et al., 2013; Michaels et al., 2016; Nystrand, 2006; Reznitskaya et al., 2009). Other research has studied how dialogic reasoning (DR) provides a framework for teachers of MLLs to promote text-based discussions by engaging students in argumentative yet productive dialogue while simultaneously developing oral and written language proficiency (see Ossa Parra et al., 2016). Evidence showed through careful and purposeful scaffolding during DR lessons, teachers could gradually release students from a more teacher-directed discussion to a student-directed discussion, thus leading the way to a deeper, more meaningful understanding of a given text. Such a collaborative meaning-making process in which students build upon one another's ideas through negotiation during small group discussions promotes students' ability to participate in reasoning discourse.

The current study focuses on fourth-grade MLLs, engaged in DR during small-group text-based reading discussions. Small groups were used in this study as a strategy for teachers to provide targeted instruction to a group of students with similar literacy and language learning needs. Given the ubiquity of small-group reading discussions and the ongoing struggle for teachers to support students to generate reason and elaborate in discussions about texts (Ossa-Para et al., 2016), more research is needed to illuminate the discourse processes that may support this literacy development. In particular, we need to better understand how teachers facilitate small group text-based reasoning among MLLs to understand how to best support these learners. Our exploratory study offers implications for those who seek guidance on how to support MLLs' text-based discussions.

While a vibrant body of research documents the importance of student-talk and teacher-talk in classroom discussions, few studies investigate how teacher discourse moves relate to subsequent student discourse moves in small group instruction involving MLLs (Ossa-Parra et al., 2016). Our study examines small group reading discussions involving MLLs to understand how teacher discourse and MLL student discourse (moment-to-moment talk) are related. We ask the following research questions:

1. What discourse moves related to reasoning do teachers use with MLLs during small group discussions?
2. How do these teacher discourse moves facilitate or constrain student reasoning?
3. What discourse moves related to reasoning do multilingual learners use during small group discussions?

Literature Review

To frame our paper, we address sociocultural theory, the link between classroom dialogue and literacy, reasoning discourse, and classroom tools for productive classroom dialogue.

Sociocultural Theory

Our study is guided by sociocultural theory and classroom discourse research. Sociocultural theory conceptualizes language and literacy learning as culturally- and historically situated practices that are mediated through cultural tools like language itself

(Gutierrez & Rogoff, 2003; Vygotsky, 1962; 1978). We conceptualize talk as a tool for expressing, analyzing, and transforming thinking and learning. Mercer and Howe (2012) explain, “language acquisition and its use are seen as having a profound effect on both collective thinking and individual thinking” (p.13). Through collective thinking during a discussion, students build a deeper understanding than possible when engaging with text alone. Our research is also informed by sociocultural discourse analysis (Mercer, 2004), “how spoken language is used as a tool for thinking collectively...to study how people pursue joint educational activities” (p. 138) so that we can better understand classroom dialogue as it pertains to literacy.

Linking Classroom Dialogue and Literacy

Research has found that discourse between teachers and students works as a powerful tool to develop reasoning and improve academic performance (see Howe & Abedin, 2013; Mercer & Dawes, 2014). Although several studies document that teachers who encourage students to elaborate on their ideas in text discussion saw an improvement in student comprehension (see Ankrum, et al., 2014; Chinn et al., 2001; Wolf, et al., 2005); this research has not focused on supporting higher-level thinking and reasoning amongst MLLs participating in small-group discussions. Michener and colleagues (2018) examined how 31 teachers using nine specific teacher-talk moves (during whole-group instruction time) predicted student reading comprehension in upper elementary classrooms. Two talk moves, ‘teacher explanations,’ and ‘follow-up’ were found to positively affect student reading comprehension. As such, text comprehension occurred through the guidance and support of a more knowledgeable expert (i.e., the teacher) (Vygotsky, 1962). Notably, while students often responded correctly to their teacher’s text-based questions, the students were not necessarily engaged or encouraged by their teacher to participate in higher-level thinking and discussion.

When discussing text-based talk that occurs amongst peers under teacher guidance, Mercer and colleagues (2019) reiterated that group work without adequate preparation will not support productive dialogue amongst students and that teachers must be prepared to support this dialogic pedagogy of collective thinking. Other MLL research has found that peer discussions around reading texts improved reading comprehension and breadth in oral and written vocabulary (Zhang, et al., 2013). Peers arrived at a joint understanding of the text by contributing specific understanding or language expertise and collaboratively creating a deeper, more sophisticated understanding of the text.

Reasoning Discourse in the Classroom

Reasoning discourse (sometimes referred to as argumentation discourse) can play a key role in classroom learning but requires students to have a sophisticated understanding of how to use evidence found in an assigned text while drawing upon assertions that may rely upon knowledge and experiences beyond the classroom text (Newell et al, 2011). Previous studies highlight the importance of reasoning discourse when students propose claims, support their claims with evidence, and pose questions considering alternative perspectives (Chin & Osborne, 2010). During reasoning discourse, students demonstrate their thinking by identifying a position (or claim) on a given topic *and* providing evidence

from within or outside of the text to support one's position (Chinn & Anderson, 1998). In this study, we conceptualize reasoning discourse as a collaborative meaning-making process in which students may build upon one another's ideas through negotiation during small group discussions to develop a deeper understanding of a text.

Tools for Productive Classroom Dialogue

Our study is informed by a rich body of research that identifies specific types of classroom discourse—or teacher and student “talk moves—” related to literacy and learning outcomes (Anderson, et al., 1998; Michener et al., 2018; Chinn & Anderson, 1998; Howe & Abedin, 2013; Mercer & Dawes, 2014; Ossa-Parra, et al., 2016; Wolf et al., 2005). For example, reasoning discourse includes constructs such as ‘exploratory talk’ and ‘accountable talk’ (Littleton & Mercer 2013; Michaels et al., 2016). Littleton & Mercer (2013) identified three types of student-student talk: disputational, cumulative, and exploratory. Disputational talk is defined as students disagreeing and/or making individual decisions; cumulative talk is when students summarized ideas and generally agreed; and exploratory talk is when students engaged in critical dialogue, asking questions of peers and building upon peers’ ideas.

Previous scholarship has defined productive classroom dialogue as instances where students collaboratively shared ideas and provided evidence to demonstrate their points of view (e.g. Mercer & Howe, 2012; Ossa-Parra, et al., 2016; Vrikki et al., 2019). Vrikki et al. (2019) documented that “a strong relationship was found between the types of teachers’ invitations and students’ replies” (p. 9). Similarly, studies have found that MLLs often require scaffolds such as explicit teaching of argumentation as a genre, graphic organizers, and metacognitive strategies to identify examples of reasoning elements (i.e., labeling claims, evidence, and explanations) to construct a more coherent argument (see Brooks & Jeong, 2006; Nussbaum & Kardash, 2005). Such scaffolded supports are especially critical for supporting MLLs as they navigate learning new content in a new language. Ossa-Parra et al. (2016) offer teachers guidelines for small group discussions with elementary students and suggest that explicitly teaching students how to interact with others during small group text-based discussions facilitates more student-to-student talk.

Methods

Study Context

The data from this article is part of a larger mixed-methods study implemented in the Mid-Atlantic and Northeastern regions of the United States in four schools in each region. Institutional Review Board approval for the study occurred prior to receiving approval from the school districts and building administrators. All participants signed consent forms. All students (n=239) were bilingual fourth- or fifth- graders (Spanish-English n=216 or Portuguese-English n=23) and labeled by their districts as current (n=100) or former English Learners (n=139). The larger quasi-experimental study investigated the effects of an intervention during small-group literacy instruction that took place over the course of one school year. Teachers (n=22) delivered the intervention and the same teachers were also responsible for control group instruction. Of the 22 participating

teachers, all were fully certified and 11 held master's degrees. Six teachers identified as white; one as Asian/Pacific Islander; two as Black, and three as Latinx. Nine spoke a language in addition to English. The years of teaching experience in K-6 ranged from two to 15+ years.

The small-group literacy intervention included three thematic units, each with two text-based cycles and one writing cycle. Each text-based cycle contained five lessons (see Table 1 below). Day 1 and Day 2 of the cycle were "reading days;" students read the text and watched an informational video. The text and video presented opposing viewpoints or different perspectives on the same topic. For instance, if the text discussed why wolves should be reintroduced into an area where their population was dwindling, the video would present the perspective of people who felt the opposite- wolves should not be reintroduced into the area. Day 3 was a teacher-led lesson focused on students' morphological awareness, and Day 4 focused on syntactic development. Day 5 was the culminating discussion; a time for students to collaboratively make meaning of the content taught in the previous four lessons. Intervention group sizes were kept small as recommended in the report published by the Institute of Education Sciences that synthesized research on teaching academic language and literacy to multilingual students in elementary and middle school (see Baker et al., 2014). The larger study found that participation in the intervention had a positive effect on academic language and reading comprehension (Proctor et al., 2020).

Prior to beginning the intervention, all teachers participated in an orientation designed to form a sense of community across teachers at individual school sites while sharing the intervention's underlying principles and lesson alignment. As a result of the orientation, teachers could explain their roles within the research design and were prepared to implement lessons with fidelity. Professional development was embedded within the implementation of the intervention to provide ongoing and context-dependent support. Researchers facilitated meetings with teachers in small groups or individually to support implementation, develop and refine expertise for teaching reading to multilingual students, provide opportunities for self-reflection, and assess the feasibility of implementation within the context of individual classrooms.

In the present study, we deeply focus on two Day 5 discussions in the first thematic unit as a site to explore talk-rich data and to examine student and teacher discourse. Day 5 discussions were guided by a set of ground rules of how to participate in a small group (e.g., respecting the speaker, yielding the floor, and participating without teacher nomination). Each discussion began with the teacher posing a "big yes/no question" that required students to choose a position and provide critical-analytical (textual) and/or aesthetic (lived experience) evidence based on information gathered during the previous lessons to support their position and participate in reasoning discourse. During the discussion, the intervention curriculum directed the teacher to serve two roles: 1) as a note-taker, recording student responses on a whiteboard or chart paper to be used as a reference during the discussion, and 2) to redirect attention and keep students focused on the task at hand.

Before beginning the first text-based cycle, teachers and students spent a day engaged in a practice of dialogic reasoning. Teachers began by explaining what it means

to engage in dialog, showing a video clip of an exemplar discussion where students engaged in dialogic reasoning and established guidelines for participation in discussion like “I talk freely without raising my hand” and “I listen carefully without interrupting.” Students were then prompted to participate in a practice discussion where teachers prompted students to pick a stance or an opinion about a given topic and engage in conversation using reasons and evidence which were defined for students in order as a cause or explanation for an action, opinion, or event; and facts and details that give proof of or a reason to believe something. Teachers were prompted to record key ideas and then engage students in a conversation after the discussion where they summarized the arguments by restating their position, taking a final poll, and evaluating the group performance (i.e., what worked, didn’t work, how the discussion was different from their usual class discussions). Ideally, the practice would facilitate student participation and engagement in later dialogic reasoning discussions that occurred on day 5 of each text-based cycle.

Table 1
Lesson Cycles Used in the Study

UNIT 1: Nature					
Cycle	Day 1	Day 2	Day 3	Day 4	Day 5
Cycle 1: Wolves	<i>Text</i>	<i>Text & Video</i>	<i>Morphology</i>	<i>Syntax</i>	<i>Group Discussion (Analysis of Observation: Ms. H)</i>
Cycle 2: Species Revival	<i>Text</i>	<i>Text & Video</i>	<i>Morphology</i>	<i>Syntax</i>	<i>Group Discussion (Analysis of Observation: Ms. B)</i>

Setting and Participants

The two elementary schools in this study, both located in the same Mid-Atlantic school district, Crest Landing and Rockdale (pseudonyms) have approximately 500 and 800 students respectively, with populations of about 55% and 60% ESOL² students and 85% and 89% of students receiving Free and Reduced Meal Service.

Studying two elementary, state-certified, intervention teachers for this paper provided an opportunity to illuminate learning contexts. Ms. H, a reading specialist at Crest Landing Elementary provided direct reading support to students and teachers in classrooms. She began her career as a classroom teacher before receiving a master's in

² The school district uses the term ESOL as a category to represent children who speak English as an additional language, as designated by student’s family when registering for school. The district uses the term English Learner (EL) to identify students within schools who have taken the WIDA (2015) ACCESS for ELLs Assessment.

Reading Education and reported 13 years of teaching experience. Ms. H self-identified as an “American native-English speaker” with minimal experience learning a second language. Ms. B, an ESOL specialist at Rockdale Elementary self-identified as a “Russian immigrant who learned English as a foreign language (EFL)”. Ms. B earned her bachelor’s degree in engineering and EFL, as well as a master’s degree in engineering in Russia, and pursued her graduate degree in TESOL in the U.S. She had been an ESOL teacher at Rockdale Elementary for five years.

The fourth-grade students in this study were all Spanish-English bilinguals (n=13), currently or formerly designated as ELs. This district used the WIDA (2015) ACCESS for MLL’s assessment to categorize bilingual students across six levels of English proficiency: level 1 *entering*; level 2 *beginning*; level 3 *developing*; level 4 *expanding*; level 5 *bridging*; level 6 *reaching*. In this district, students were reclassified from EL status when they reached a level of 4.5 and thus received limited supplemental support. Students participating in the study each had a WIDA ACCESS score of level 4 or above and had not yet met grade-level literacy expectations according to school-based measures (i.e., District Benchmark Assessments and the 3rd Grade State Assessment). In this study, Ms. H pulled six students from their regular fourth-grade English language arts (ELA) block to receive the intervention twice weekly. Ms. B pulled seven students from their fourth-grade ELA block to implement the same intervention four to five days a week.

Data Sources

We focus on a 35 and 45-minute video-recorded lesson from Day 5 in the lesson cycle for a close analysis of student and teacher discourse. These videos are representative of the larger data set that took place after the initial orientation, but before any context-dependent professional development was provided. This was important since PD was individualized to meet teacher needs, we did not want to use a video that was filmed after a teacher had received PD on a specific talk move such as how to facilitate sustained student conversations. At least one of the authors was present during the lesson as a non-participating observer, sitting in the back of the classroom to record meetings and take field notes. Observational field notes, surveys, and interviews with teachers supplemented our analysis of the videos allowing triangulation of our interpretations of the specific lessons. Although Ms. B’s video recording was 45 minutes, she began the “Day 5 Group Discussion” at minute 6:35; whereas Ms. H started the Day 5 lesson as soon as the video began. Timing is discussed below as we consider how teachers prepared students for the small group discussion.

Coding and Analysis

Scholars using sociocultural discourse analysis (Mercer, 2004; Mercer & Howe, 2012) recommend using coding and frequency counts to analyze the variety of talk and to map general patterns across large data sets. Additionally, a close qualitative analysis of discourse is needed to reveal how students think and reason through interactive talk.

To guide our analysis, we referred to recent work that offers methodological tools like the “Scheme for Educational Dialogue Analysis” (Hennessy, et al., 2016) which

defined ten codes for identifying dialogic moves. Our study's analytical framework is informed by Vrikki et al. (2019) who defined the following codes specifically related to dialogic moves used in reasoning discourse: Elaboration Invitations; Elaboration; Reasoning Invitations; Reasoning; Co-ordination Invitation; Simple/Reasoning Co-ordination; Agreement; Reference Back; Reference to Wider Context; Other Invitations.

The rich body of research investigating classroom discourse related to literacy and learning outcomes (Anderson, et al., 1998; Michener et al., 2018; Chinn & Anderson, 1998; Howe & Abedin, 2013; Mercer & Dawes, 2014; Ossa-Parra, et al., 2016; Wolf et al., 2005) informed our coding and operational definitions for reasoning discourse, or classroom talk when students propose claims, support their claims with evidence and pose questions considering alternative perspectives (Chin & Osborne, 2010). We collaboratively did several rounds of coding to analyze every line of discourse in the transcripts, attending closely to emerging patterns and adapting the discourse analytic frameworks from the literature (e.g., Michener et al., 2018; Ossa Parra et al., 2016; Vrikki et al., 2019). Our team of three researchers coded the transcripts separately before discussing discrepancies in our coding. Hennessy et al., (2020) suggested that researchers critically evaluate the types of coding schemes used to analyze dialogic practices. Accordingly, we came to a consensus to consolidate a list of codes for teacher and student discourse moves and excluded codes from previous literature that did not appear salient. Our final list of codes is summarized in Table 2: Teacher Discourse Moves and Table 3: Student Discourse Moves.

In Tables 2 & 3, the code (TAg & SNo) relates to what Vrikki et al. (2019) call "agreement." We coded speech turns *TAg* where the teacher agreed or accepted the student's statement, which is similar to what Michener and colleagues (2018) call "low-level evaluation". Similarly, we coded a student's yes/no response to a peer or teacher as (*SNo*) to indicate (dis)agreement with nonexistent elaboration. We used the code Student Agreement (*SA*) to show when a student agreed with *and* built upon a peer's position or claim. The *TAE* code identified instances when teachers asked students to state their position and provide evidence. This code is adapted from what Ossa-Parra et al. (2016) code as "prompt" and what Vrikki et al. (2019) code as "reasoning/ elaboration invitation." This discourse move is also related to what Nystrand & Gamoran (1991) call "authentic questions". The *TRW* code indicated teachers repeated, rephrased, or wrote down what the students said. For consistency across coders, we applied the codes described above to each "speaker turn" when one speaker started and stopped speaking. We found that reasoning discourse does not fit neatly into a single turn or utterance. We acknowledge the limitations of coding discourse by "speaker turn" or "line by line" when, in fact, reasoning often occurs over several turns and could be co-constructed across participants (Mercer, 2004). To better understand ways that meaning is co-constructed across reasoning discourse during interactions, we found that we needed to examine interactions more holistically (rather than at the level of the discrete utterances). We discuss this further in the qualitative results section.

Table 2

Teacher Discourse Moves Related to Reasoning

Discourse Move (abbreviation)	Description/ Definition	Example from the Transcript	Code Application Frequency (Ms. B)	Code Application Frequency (Ms. H)	Total Occurrences Across Settings
Rephrase, write, repeat (TRW)	Teacher repeats, rephrases, or writes students response	<p>“So, I’m gonna refer back to some of the points that you made in your discussion.”</p> <p>“Okay.. you’ve brought up...you said that people thought that the wolves were gonna kill people. And did we learn anything about that?”</p>	27	22	49
Teacher procedural language (TP)	Teacher manages the task or explains procedures & routine	<p>“Okay. Two more minutes.”</p> <p>“I’m gonna post the question over here.”</p>	14	25	39

Ask for evidence/ Prompt for position-taking (TAE)	Teacher asks students to state position and provide evidence	<p>“What’s your final claim?”</p> <p>“I want everyone to prepare your final thoughts, your position, your claim...com e up with the most meaningful evidence that you can to support your thinking”.</p>	10	20	30
Encourage participation (TEP)	Teacher opens the floor to expand participation , to make sure all students have speech turns	<p>“Since this is our final thought portion let’s just open it up to some people who haven’t talked just yet, and then we’ll come back to you, okay?”</p> <p>“So going around the table is there anyone else that has a last thought</p>	12	14	26

		on this question?"			
Clarification/Check for understanding (TC)	Teacher asks for clarification to check for understanding	<p>"Okay, so they have like obligations, right? They have an obligation to these animals?"</p> <p>"So is there anything in here that we need to talk about? Do we understand the gist of the question?"</p>	11	14	25
Reference text (TRefT)	Teacher refers to text (or media) to make connections with reasoning	<p>"So now we want to go back into this book. ... I want you to think about our video, and I want you to go into the text, and I want you to find some evidence that supports your claim..."</p>	10	7	17

		“If no, then I want you to think about the video, and I want you to go into the text and find evidence that’s going to support your claim of no....”			
Acknowledge/Agree (TAg)	Teacher accepts or agrees with student’s statement(s)	“Ok. Right” “Good.”	9	6	15
Summarize/ Tally positions (TS)	Teacher summarizes students’ positions on the focal topic or gives final counts of how many students presented reasoning for their position	“Alright so let’s take the tally.... Yes or no.” “Just to wrap it up – our final count: four of you said yes, those kinds of animals should be returned, okay, to those habitats and environments and two of you said no.”	5	3	8

Table 3

Student Discourse Moves Related to Reasoning

Discourse Move (abbreviation)	Description/ Definition	Example from the Transcript	Code Applicatio n Frequency (Ms. B's students)	Code Applicatio n Frequency (Ms. H's students)	Total Occurrence s Across Settings
Reference text, video, materials (SRefT)	Student refers to text (or media) to make connections with reasoning (e.g., “re- telling” of part of the reading)	“I think we should revive extinct animals because in the text it says we can learn about animals, and we can um make the animals alive for yeah”	24	42	66
Reasoning (SRe)	Student provides a reason and an explanation or justification *Can be double coded with SRefT	I think yes/no because [evidence] “I say no because why would we waste perfectly good money on reviving animals when they may do	22	32	54

		harm to humans and other animals”			
Yes/no without elaboration (SNo)	Student responds yes/no with no evidence given	“No.” “I say no because [teacher interrupts]”	12	20	32
Query/Challenge (SQ)	Student asks questions to raise doubt or challenges (disagrees with) another participant’s position without providing evidence	“Yeah. Didn’t you think of that first?” “Are you sure?” “I’m just saying.”	9	12	21
Agree (SA)	Student accepts or agrees with peer’s statement & includes elaboration or building upon what another peer said	“I also agree with...” “I think that <i>also</i> ...”	0	8	8

Findings

In this section, we begin by presenting patterns in teacher and student discourse moves during small group discussions. We then illuminate how teachers and students engaged in reasoning discourse during the small group discussions and how specific teacher moves facilitated or constrained student reasoning.

Using code frequencies, we noted two interesting findings. First, code frequencies of the teacher discourse moves (identified in Table 2) were similar across the two teachers with one significant difference: Ms. H asked for evidence (*TAE*) twice (20 occurrences) as many times as Ms. B (10 occurrences) and Ms. H's students referred to the text (*SRefT*) almost twice as many times as Ms. B's students (42 and 24 occurrences). This finding demonstrates that students appeared to respond to the teacher "asking for evidence" *explicitly* by engaging in reasoning discourse such as referring to the text. Second, whereas Ms. H asked for evidence, we found Ms. B's most frequent talk moves were rephrasing (*TRW*- 28% of talk moves) followed by procedural talk (*TP*-14% of talk moves), some of which included norms around waiting turns to speak. The high frequency of teacher discourse moves categorized as procedural (*TP*; 19% of all talk moves across both teachers) suggests that teachers spent a disproportionate amount of talk time on procedures. Procedural talk was connected to the time teachers spent preparing for student discussion and reminding students to reference the text.

We found that the most frequent student discourse moves (identified in Table 3) were the same in both groups of students; students referencing texts (*SrefT*- 36% for Ms. B's students and 37% for Ms. H's students) and students' reasoning (*SRe*-33% for Ms. B's students and 28% for Ms. H's students). Our finding that students seized more opportunities to use reasoning discourse (rather than simply answering with yes/no) is encouraging and differs from earlier studies that have shown that teachers often limit MLLs' discourse to yes/no answers (see Daniel et al., 2016).

We noticed that students co-constructed reasoning discourse across the discussion; thus, we closely examined how meaning-making occurred line-by-line and across the small group sessions. Additionally, we looked more holistically across the small group discussions to understand discourse practices in context. Accordingly, we analyzed the small-group discussions to examine *how* teachers and students use reasoning discourse during interactions and *how* teacher discourse is related to students' reasoning discourse. For this article, we selected excerpts to answer our research questions while illustrating the discursive patterns we noticed in ways that teachers: (1) facilitate student reasoning, and (2) constrain student reasoning.

Facilitating Student Reasoning Discourse

In our analysis, we sought to understand how teacher discourse facilitated student reasoning discourse. We identified examples from both teachers in which students demonstrated competence using reasoning discourse with strong references to evidence in the text (*SRefT*). We found students' reasoning discourse was often in concert with teachers' describing, explaining, and asking for "evidence" (*TAE*), asking for clarification (*TC*), or rephrasing and writing students' responses (*TRW*), encouraging participation (*TEP*), and connecting back with the text (*TrefT*).

Setting up the prompt with strong reference to the text. In the first excerpt (Table 4), Ms. H set aside time for students to think and return to the text. In her discourse, she explicitly referred to the text/video (*TRefT*) seven times. These specific referrals reminded the

students to find evidence taken from the text to support their claims (*TAE*). Ms. H explained to students that for either position (yes or no), they should go through similar steps of reasoning, looking for evidence in the text to support a claim, and preparing to draw from both texts to engage in reasoning discourse. Repeating the steps for each position offered the students a structure to successfully carry out this task related to reasoning discourse, which prior research has suggested for MLLs (Walqui, 2006). Her use of the word “actively” also indicates that the teacher conceptualized reading and reasoning as actions that require students to engage in the text to find evidence to support their perspectives.

Table 4
Excerpt 1

Time from start of discussion	Utterance <i>Bolded text is to highlight reasoning discourse</i>
4:30	Ms. H: So now we want to go back into this book . Everyone has some blue sticky notes. I want you to think about this question... If you're thinking yes, then I want you to think about our video , and I want you to go into the text , and I want you to find some evidence that supports your claim that yes, they should be reintroduced. If no, then I want you to think about the video and I want you to go into the text and find evidence that's going to support your claim of no... I should see you actively looking in your text , I should see you actively thinking, okay? Thinking back about that video that we watched.
6:30	[Students write on blue sticky notes] Hugo: What is... What are the... What is that animal that ate all that grass?
7:00	Ms. H.: Oh, that's why you have your text right in front of you . [students write independently] Ms. H.: We're gonna just lay some of these [photo cards] out in the middle of the table as well. These are all pictures from the activities that we did and some previous lessons . Okay, so that might kind of help jog your thinking while we're talking . I know they're kind of small but Hugo: Oh. Maya: Can we pick both of them? Hugo: I couldn't find the animal names ((overlaps with Maya))
7:30	Ms. H.: Can you pick a yes and a no? You can definitely find evidence to support both and then contribute to both parts of our conversation, sure. Okay? [students are writing and looking through photo cards] Hugo: [stands up and leans towards middle of group table to look more

8:00	closely at the photo cards] B... b... b. All of these are upside down. [picks up a card]
8:30	[[students continue writing and looking through photo cards]] Ms. H: Is that what you were thinking of? [referring to the card with a photo of Bison] Hugo: Yeah.
11:19	Ms. H.: Okay, so let's take about 30 to 45 more seconds um... just to kind of get some ideas flowing, do our background and more, more,
11:30	thinking. You'll have more thinking time while people are talking, you can always be you know, using your text if you need to. [students continue looking through photo cards and writing] Hugo: I would say yes because um, when the wolves were gone the, the, the, the b-, the buson ate all the grass and, and the, the other animal couldn't have a lot of shelter and food. Ms. H.: Okay, so... Hugo: And the birds didn't have like enough grass to make their nest.

Describing and Explaining “Evidence”. During minute 11 (Table 5), Ms. B presented the “big question” and then guided students through the process of preparing for the discussion by completing the “Discussion Preparation Worksheet”. Ms. B explained the steps students should take to externalize their thinking as they recorded evidence to support their position “why yes or why no” (*TAE*). Additionally, she explained that providing evidence could come from the text (*SRefT*) or examples from their own lives (*SRe*), even rephrasing the term evidence into a student-friendly definition, “something that proves your point”. Explicitly directing students toward the use of academic language, in this case, reasoning discourse language, facilitated student. We observed how teacher discourse was related to subsequent student reasoning discourse when, for example, Ms. B gave explicit guidance on how to engage in reasoning (e.g., at minute 21, “when you say your evidence, use the words according to the text”). Ms. B called attention to language form and function and Samuel (the first to share) supported his position by referencing the video (*SRefT*) that had explained a reason the farmers had killed the Tasmanian Tigers was that the tigers were killing their chickens. Additionally, Samuel brings in his own ideas as Ms. B had encouraged in minutes 11 and 21 to draw a reasonable line of argument that if the tigers ate all the chickens, then they too could become extinct.

Table 5
Excerpt 2

Time from start of discussion*	Utterance <i>Bolded text is to highlight reasoning discourse</i>
11:00	Ms. B: Should we bring back extinct animals? [Points to Student Worksheet]. So, you can just read this text , or you can find some evidence for either side.

	Remember we are talking about why yes and why no . We will discuss all of this evidence . And then something from your own life , use an example from your own life . Like maybe you know something maybe you saw a video or a tv program
11:30	Just so you can write here [Points to Student Worksheet] your own ideas and evidence- some ideas something that proves your point .
12:00	Ms. B.: Again, I really ask you to go back to the text and look for some evidence that proves something that can prove your words . Again, at first you stick to one of the positions yes or no just decide on your side . Yes, they should bring them back, no they should not bring them back and then just find some evidence or proof [Students work silently]
16:00	Ms. B.: I invite you to go back to the text . To talk about ideas why not or yes, they should bring them back just writing some sentences . Evidence is you can copy this . Evidence is not what you said, it's what somebody else said . So, you just use it as proof to your own ideas .
16:30	And I really like how (student) is doing it today so...today you're doing a very good job. [Students write]
17:00	And I like how (student) is underlining some sentences in the article , very good. Good job , and (student) is circling some words .
17:30	We also watched the video remember ; a video of the lesson involved. Maybe you remember something about that video , some ideas from that video . They also can serve as your proof today . [Students continue to write in silence]
21:00	Ms. B: Finished? Ok. Alright so let's with the discussion... So, when you say your evidence, you can use the words according to the text, or based on what the text says .
21:30	When you do the discussion, you can say I agree with, I disagree with because I can add to what? So, my opinion is like? You can use this talk, but you don't have to. Alright? Okay, so let me take the pencils. Anything else?
22:00	So now we are going to talk. Again, this is our question. Should scientists revive extinct animals, bring them back, the animals that die or not? While you tell your ideas
22:30	Remember we are not raising hands ; we just listen and when once they are finished then you just take your time. And when you are sharing your ideas, I will just be writing down your ideas here and then we'll take a poll to see how many of you say yes, and how many of you say no.
23:00	Samuel: No, we should not bring back like the Tasmanian tiger because they killed chickens and probably if they brought the tiger back, they might eat more chickens and then they'll become extinct .
23:30	Diego: I say no because why would we waste perfectly good money on reviving animals when they may do harm to humans and other animals Ms. B.: So...what? So you're saying no uh can you conclude your ideas? Uh you should focus on uh Diego: On the animals in the Red List . [glances at text]
24:00	Ms. B.: Okay so on the animals still alive, right? But, in nature . Okay. Camilla: I think we should revive extinct animals because in the text it says we can learn about animals and we can make the animals alive, yeah .

24:30	<p>Samuel: um I say no because</p> <p>Ms. B.: Okay okay just wait one second. I didn't get it. Who was saying that?</p> <p>All S: [Camilla]</p> <p>Ms. B.: Yeah, so you said yes, why? I didn't get that.</p> <p>Camilla: Um we could revive the animals</p> <p>T: Yes, what?</p> <p>Camilla: Revive the animals</p> <p>Ms. B.: Uh huh [pause]</p> <p>Camilla: That are extinct</p> <p>Ms. B.: Why?</p> <p>Camilla: because [pauses < 1 sec.]</p>
25:00	<p>Ms. B: For example, if you revive this one if you revive uh like tiger the Somalian tiger or Saber Tooth Tiger, why should we, why that?</p> <p>Camilla: Because they they they killed them because they were eating the chickens but they were just like looking for food</p> <p>Ms. B.: Uh huh</p> <p>Camilla: and it was not their fault because if they don't get food they will die.</p> <p>Ms. B: Okay, so they have like obligations, right? They have an obligation to these animals. People uhh like do that, right? So, we kill them, people kill them, and now they have the obligation to bring them back.</p>

Teacher asks questions to encourage clarification of ideas. In minutes 23-24 (Table 5), we see how Ms. B asked Diego to clarify his position (*TC*) by focusing on the text after which Diego referenced textual evidence “the Red List” (*SRefT*). After this back and forth between Ms. B and Diego, we see Camilla offering an opposing position using the phrase “because in the text it says” (*SRefT*), indicating that her statement met Ms. B’s earlier explanation that evidence is found in the text.

Teacher puts students’ words into writing. During minutes 24-25 (Table 5), we see additional examples of Ms. B facilitating reasoning discourse; including asking for students to clarify their positions (*TC*), restating students’ responses (*TRW*), and asking for evidence to support a claim (*TAE*). A pattern that we identified across teachers was that writing students’ ideas on a whiteboard or chart paper seemed to be an important tool to recognize student ideas and support reasoning discourse. We found *TRW* as an important teacher discourse move that acknowledged and legitimized students, similar to what Vrikki et al. (2019) called “synthesizes or summarizes collective ideas” and Michener and colleagues (2018) described as “high-level evaluations.”

We also found that making space for participation, especially among language learners who are more reluctant to speak, was an important way to support reasoning discourse. For example, Ms. B provided Camilla with space to work through her ideas, she stopped Samuel from interrupting and focused on Camilla’s contributions to the discussion. This is also illustrated in Table 9 as Ms. H transitions the students from discussion to wrap up their final thoughts.

Teacher encourages all students to participate. In minutes 23-24 (Table 6), Ms. H facilitated conversation by requesting all students' participation (*TEP*). She explicitly provided Maya, a more reluctant volunteer, with time to think by asking Alex, a more active participant to "just give her a second." Previous research has shown that when teachers employ wait time there are significant changes in the students' use of language (Echevarria, Vogt, & Short, 2013; Rowe, 1986). In discussions with language learners, increased wait time allows time for students to process language, organize thoughts, and plan speech.

Table 6
Excerpt 3

Time from start of discussion*	Utterance <i>Bolded text is to highlight reasoning discourse</i>
23:00	Ms. H: Alright [Alex], let's be in that... Since this is our final thought portion let's just open it up to some people who haven't talked just yet , and then we'll come back to you, okay? Can you just hang on to that for a second? You have anything to share? Alex: No. Can I?
23:30	Ms. H.: Okay, just give her a second. Okay. So, I saw that you took some notes , okay? So, we'll all share our um, our final weigh-in, our final thought or answer to the question um after we do our self-reflection. So, going around the table is there anyone else that has a last thought on this question? Should animals, like wolves... Alex: Me.
24:00	Ms. H.: ...who eat other animals, be reintroduced into areas where they will encounter humans and livestock? Yes? Maya: I think yes, yes [pause] um no , because wolves can also like, like if they're near farms, if they're near farms they can kill other farm animals.

Teacher connects reasoning with text/media/visual resources. In minutes 6:30-11:30 (Table 4), Ms. H facilitated students' reasoning by offering tangible evidence (illustrations from text) as support for their argument building. When Hugo did not remember the name of the animal he read about in the text, the teacher offered concrete examples from the text with photographs that support students who are still learning language (*TrefT*). The teacher explained that she placed the cards in the center of the table for students to use the cards "to get ideas flowing" to generate the evidence to support their claims. In the discourse that followed, Hugo demonstrated his reasoning and was afforded an opportunity to participate in the dialogue when he referred to the resource (picture of Bison) as evidence.

Constraint on Student Reasoning Discourse

Although our findings demonstrated that students had many opportunities to practice their reasoning discourse, we also found that students' discourse was cut short or left undeveloped. Frequency counts show, there were 32 times when students simply gave a “yes” or “no” answer without offering evidence (*SNo*). Additionally, although teachers aimed to facilitate discussion among peers, we found that teachers dominated talk time. For example, in the case of Ms. B, there were 31 more teacher-talk turns than student-talk turns. Ms. H had a similar amount of talk turns as her students (111 and 114 respectively); however, this split indicates that the teacher was still talking more than each student given there were six students participating in her group. Ideally, in the small group discussion, the teacher would assume the role of facilitator, stepping in to keep students focused and on-task, to prompt deeper thinking about a claim, or ask students to consider an alternative point of view, thus spending significantly less time talking than her students (Ossa-Parra et. al, 2016; Zhang et al, 2013).

We also found that due to time constraints, teachers were willing to accept truncated student answers (without reasoning; *SNo*) to move on to the next task. In this section, we offer some examples to understand the ways that teacher discourse may (unintentionally) constrain student opportunities to develop reasoning discourse.

Interrupting student thinking. In minutes 24-25 (Table 5), Ms. B interrupted student discussion three times. First, she cuts off Samuel who begins to engage in what could be *SRef* as he states his position followed by ‘because’ to ask Camilla to repeat her statement to be recorded on the whiteboard, then does not return to Samuel. The teacher interrupted again to provide evidence (*TRefT*) when Camilla paused for less than a second. Finally, Ms. B ended the discussion when she summarized Camilla’s position (*TS*) and introduced the word “obligations”. Ms. B did not give an explicit definition of obligations nor provide time for students to make the connections between Camilla’s claim, “it was not their fault” and “obligations”. Students did not use the word “obligation” during the entirety of this session. Our finding is quite similar to Lewis & Zisselberger’s (2018) findings where teachers interrupted student thinking and controlled the discourse. By interrupting students, teachers remove the critical time MLLs need to process oral language (Echevarria, Vogt, & Short, 2013).

The constraint of time and tallies. From minute 32 to 33:30 (Table 7), Ms. B reminded students that they would take a tally twice within 30 seconds (*TP*). Taking the final tally is part of the “Day 5” lesson plan. However, Ms. B quickly tallied votes (*TS*) resulting in truncating students’ discursive reasoning. For example, Camilla asked to contribute to the list of ideas; but Samuel interrupted (*SQ*). As a result, Ms. B did not return to Camilla nor ask Samuel to elaborate or relate his claim back to the text or previous students’ responses. Additionally, we see Ms. B putting an end to dialogue when she denied Diego’s request to share “one more reason”.

After the tally is taken, Ms. B, not her students, provided a final summary (*TS*). This teacher summary created a missed opportunity for students to synthesize the discussion or to collaboratively think through the summary with her. Engaging students in

such a collaborative discussion is known to support deeper text comprehension (Chinn et al., 2001) and oral language development (Zhang et al., 2013).

Finally, neither Ms. B nor Ms. H followed up the lesson by having students complete the “post-discussion” section in the workbook in which students were invited to discuss evidence provided by their peers that helped to inform their final position. This missed opportunity obstructed students’ time to reflect upon and practice their reasoning skills, which may be particularly beneficial to bilingual learners (August et al, 2009).

Table 7
Excerpt 4

Time from start of discussion	Utterance <i>Bolded text is to highlight reasoning discourse</i>
32:00	Ms. B.: So, does anybody have anything to add to this idea? Look [Samuel], look here first. Everyone please look here first. And if you don’t see your idea here, you add. If not, we just take the tally. Camilla: Can I?
32:30	Ms. B.: Yes Samuel: Um how about any other animals? So, like if they kill other animals Ms. B.: Eyes up here, they kill other animals. Samuel: If they kills other animals, they might um kill the the animals that are on the red list and that’ll cause more harm and like money is gonna go flying out the window.
33:00	Ms. B.: Alright so let’s take the tally. Um [Valentina], yes, or no? Valentina: Yes. Sofia: No. Nico: Yes Daniel: Yes Matteo: Yes Diego: No Camilla: Yes
33:30	Samuel: No Ms. B: Alright so five against three, yes, we should revive extinct animals. Because first we have an obligation to them. Next, we can learn more about these animals. And last, we can do it with our current technologies. And those people who said no, the reasons that they used were first that we should focus on living species right like the animals that’s still alive and not waste money like you keep on saying. Next, extinct animals kill other animals that are on the red list, and they

	<p>should not be revived because they may become endangered again and it's a lot of waste of money. Ok. Guys you did very well today.</p> <p>Diego: I got one more reason</p> <p>Ms. B.: No</p>
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Discussion

Our study offers a close examination of the ways that teacher discourse and MLLs' reasoning discourse were related during small group reading discussions and showed how teacher discourse can facilitate and/or constrain student reasoning. We found little evidence of students engaging in exploratory talk during classroom discussions (corroborating Howe & Abedin, 2013; Littleton and Mercer 2013; and Vrikki et al., 2019). However, in contrast to earlier studies examining student talk around text (e.g., Daniel et al., 2016), we found that the students used reasoning discourse and referred to the text for evidence at a higher rate than other types of discourse.

Although we found that many teacher-talk turns were identified as procedural (approximately 19% of all teacher-talk turns) which has the potential to limit sustained student talk, this procedural talk was an important part of laying the groundwork for the discussion and guiding the reasoning discourse to unfold throughout the session. This finding aligns with prior research that found that teachers who provided explicit instruction to monolingual English speakers on how to participate in reasoning discourse had students who successfully participated in this genre of discourse (Brooks & Jeong, 2006; Nussbaum & Kardash, 2005). Similarly, Ossa-Parra et al. (2016) found that when teachers explicitly taught students how to effectively interact with peers during small group text-based discussions, this move facilitated more student-to-student discourse and minimized teacher talk. We predict that in subsequent discussions, we would see a gradual decrease of teachers' use of procedural talk as this talk would be repetitive and most likely unnecessary. This decrease would perhaps open space for student talk.

Our study calls attention to teacher discourse practices that prepare MLLs for reasoning, which have been underexplored in previous research focusing on text-based reasoning. We found that teachers prepared students to engage in reasoning discourse by offering examples of what is considered legitimate evidence, modeling ways to reference the texts, and affording ample time for students to process language (read, think, write). Once again, although this teacher talk limited time for student talk, we believe the reasoning discourse could be stifled if students did not understand the discussion procedures or if the teacher had to interrupt the discussion to return to the ground rules. This finding aligns with previous research that suggests students benefit from explicit instruction on how to use academic discourse (Mercer et al., 2019; Lan & de Oliveira, 2019). The small group discussions in this study required students to reference multiple sources of evidence to support their position while listening and responding to peers to co-construct meaning. Teachers spent time teaching MLLs both how to provide evidence to support one's position and how to respond to a peer in a small group discussion. Indeed, time spent preparing students with guidance on how to participate seemed to pay off as our findings showed that students used a high rate of reasoning discourse and could successfully provide evidence from multiple text sources.

In addition to preparing students, teachers facilitated student reasoning during the discussion by asking students for evidence, asking students to clarify or elaborate their position, and recording students' ideas in writing (on a shared whiteboard or chart paper for the group to see). We found that teachers writing ideas recognized students' contributions and prompted students to expand short statements (go beyond one-word answers) to further develop their reasoning. This finding suggests that teachers can support reasoning by writing students' ideas as they discuss to organize thinking (also discussed as an area for future research in Howe & Abedin, 2013). Teachers also facilitated discussion by creating space for more students to participate, especially for language learners who were reluctant speakers. Further research is needed to understand how teachers prompting for participation may affect opportunities for students with different language proficiency.

Implications

Our study has implications for literacy educators who work with MLLs by revealing the ways teachers use discourse in ways that facilitate and constrain student reasoning. Although the discussions were meant to be student-driven, teachers often dominated or interrupted the conversations with procedural talk. Teachers must find a delicate balance between facilitating or scaffolding support for students to participate successfully in a group discussion and over-scaffolding which is known to constrain student-talk and position students as passive learners (Daniel et al., 2016). For example, while teachers allowed themselves extended speech turns, they often limited students' turns to move on to the next student or to finish counting responses (how many yes/no answers in the group) rather than allowing time for the reasoning that led to the responses. More research is needed to consider innovative practices to deal with time constraints, such as extended dialogic reasoning in response journals.

We speculate that if teachers consider not only how they prepare students for text-based collaborative discourse but also the types of questions they ask to encourage students to provide evidence they can take far fewer talk-turns than their students. A limitation of the small group discussions was that students relied on their own individual notes more than responding to or building upon the ideas of their peers; thus, was difficult to find examples of exploratory talk (Mercer & Howe, 2012). Mercer and Howe (2012) acknowledge that this kind of talk takes time to establish, and the teacher must participate by "establishing the right climate for talk..." (p. 18). Our findings suggest that if students are provided more time and an explicit frame for responding to their peers (e.g., paraphrasing a peers' response, "I agree with X who gave evidence for Y,") might help build the quality of talk among peers.

Our study calls for future research to go beyond turn-by-turn coding to examine the development of reasoning discourse across turns in small group discussions to capture the reasoning process that includes multiple ideas from students that do not necessarily occur sequentially, but rather over a series of turns throughout the interactions. This challenge also calls for future research to consider the concept of "semantic waves" which "represents the key to cumulative development of educational knowledge over time, as it refers to the shifting between 'context-dependent and simplified meanings,' and 'decontextualized and

condensed knowledge’...” (Maton, 2013, p. 9). Our findings showed that teacher and student reasoning discourse moves do not necessarily occur sequentially; thus, further research is needed to analyze how semantic threads are woven throughout the interactions that reveal the connections between student and teacher discourse.

We acknowledge several limitations of this study, given that we only included two small groups with an ESOL and Reading specialist as teachers. However, including a small data sample allowed us to present the intricacies of analyzing student and teacher talk in a holistic manner. Although, studies like Hennessy et al., (2020) have begun to explore the effectiveness of incorporating multiple coding schemes for analyzing dialogic talk with large-scale data sets, more research is needed to determine how holistic coding illuminates the influence of teacher-talk on student-talk. Despite limitations, this study provides insight for combining coding schemes to better analyze data from a holistic manner and for teachers to consider when engaging MLLs in text-based discussion groups.

Our exploratory study has implications for educators who seek guidance on how to support MLLs’ participation in reasoning discourse while demonstrating the importance of small group reading discussions to understand and support MLLs’ thinking and literacy learning. Engaging MLLs in discussions where they reason and talk collaboratively about texts can support oral language development (Boyd, 2012; Cheung & Slavin, 2012), and improve literacy comprehension (Klinger & Vaughn, 1996; Palinscar & Brown, 1989; Zhang, et al., 2013). Taken together, the findings of this study suggest that when teachers facilitate discussions without dominating talk, MLLs can engage in sophisticated reasoning discourse with peers – an important building block for their future literacy development.

Notes

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