ABSTRACT

Title of Dissertation:	ENHANCING PEER MEDIATION AMONG LINGUISTICALLY DIVERSE LEARNERS DURING PEER LED SMALL GROUP DISCUSSIONS IN ELEMENTARY SCIENCE AND SOCIAL STUDIES CLASSROOMS
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Findings from qualitative studies reveal an array of discursive supports that peers employ to mediate language and literacy for one another during collaborative and cooperative learning. Quantitative studies posit that enhanced literacy outcomes can result from students participating in these peer mediated tasks. Studies also suggest that the quality of talk employed by learners during these peer mediated tasks can be measured, and that higher quality talk can lead to enhanced learning. However, no study to date investigates both the discursive supports offered during peer mediated learning and robustly describes how they can lead to higher quality talk among elementary students who are learning in a second language. Moreover, little is known about how student uptake of these supports differs for elementary learners according to their English learner (EL) status. As a result, teachers do not have the pedagogical knowledge

necessary to leverage all the benefits that peer interaction confers upon elementary ELs specifically.

To address this gap in the research, my study explored and analyzed the impact of discursive supports on 52 third and fourth grade learners from two linguistically diverse classrooms during peer mediated small group discussions within science and social studies lessons. My embedded case study qualitatively explored how peers provided and responded to discursive supports from those in both an instructional and a peer role during small group discussions on informational texts. My study also probed the relationship between peer mediation and discussions that were more exploratory in nature. I coded and evaluated the types of discursive supports offered by students identified as ELs and non-ELs during small group discussions. I measured the frequency of the discursive supports provided during peer mediation and investigated student uptake of the supports. Using classroom observation data, field notes, instructional artifacts, and interview data, I examined the relations among the frequencies of different discursive supports for ELs and non-ELs, focusing on those that occurred in talk characterized as exploratory. My analyses reveal that ELs provided similar discursive supports as non-ELs, including support that is more likely to lead to exploratory talk. The findings also suggest a relationship between student uptake of discursive supports during peer mediated learning and exploratory talk, and that student uptake of supports might be an important mechanism to explore further in order to better understand how peer mediation enhances learning for ELs. I offer recommendations for future research and for classroom teachers who wish to implement peer led small group discussions on informational texts in elementary classrooms.

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by

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Dissertation submitted to the Faculty of the Graduate School
of Education of the University of Maryland, College Park, in
partial fulfillment of the requirements for the degree of
Doctor of Philosophy in Education
2023

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Dedication

This dissertation is dedicated to my beautiful, curious, fun, and kind children. You did not even reach my shoulders when I started this endeavor, and now, I am the shortest person in the house. Thank you for your patience and understanding, and always inspiring me to be a better person.

Acknowledgements

I first want to acknowledge my husband and best friend—Micah Himmel. Without you the children would have starved, the house would have fallen apart, and I would have never made it past my first semester. Deciding to spend my life with you was the best decision I ever made. Thank you for helping me believe in myself. I also want to thank my incredibly loving and supportive parents, Marilyn and Andrew Gisi, with a special thanks to my mother who serves as an enduring inspiration to me as an educator.

I next want to thank my advisor, John O'Flahavan. Your patience is unending and insight outstanding. I leave every conversation with you a bit wiser and with a few more questions. I also want to thank my committee: Peter Afflerbach, Melinda Martin-Beltrán, David Blazer, and Donald Bolger. I appreciate you sticking with me and giving me so much grace during these challenging times. In addition to my committee, I also want to thank all the professors in TLPL from whom I learned so much, Megan Peercy, the late Betsy Malen, and Jennifer Turner.

I also want to thank my current colleagues at NCELA: Debbie Jones, Marissa Samala, Adriana Sikes-Freeman, Sally Wade, and Tatyana Vdovina. Thank you for asking about my progress on my dissertation and telling me that everything is going to be alright. My past colleagues also deserve a round of applause. I want to acknowledge the folks with whom I worked at the Center for Applied Linguistics, particularly Carolyn Adger, Lauren Artzi, Jennifer Christenson, Annie Duguay, Sandra Gutierrez, Ann Hengerer, Barbara Kennedy, Marybelle Marrero-Colon, Julie Mazrum, Natalia Jacobsen, and Julie Sugarman. Your dedication to supporting teachers, research, and teaching multilingual learners continues to inspire me.

In addition to recognizing my CAL colleagues, I also need to give a special thanks to my mentor, Debbie Short. Your collaborative and generous nature helped me believe completing a dissertation was possible. Thank you for your contributions to teaching multilingual learners and supporting their teachers.

Lastly, I want to acknowledge the hundreds of teachers with whom I have had the honor of working over the past couple of decades. In particular, I want to thank the teachers who worked with me on this study, and for all the teachers who have struggled through this pandemic. It was humbling having a first-row seat to your challenges. Your continued care and commitment to our nation's learners is awe-inspiring.

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CHAPTER 1: INTRODUCTION

Studies consistently show that the reading performance of K-12 students in the United States is relatively underwhelming. When compared to the other 58 nations who participate in the Progress in International Reading Literacy Study (PIRLS) assessment, fourth grade students in the U.S. are just average readers (National Center for Education Statistics [NCES], 2018). Additionally, out of the six literacy proficiency levels on the Programme for International Student Assessment (PISA), one in five 15-year-olds in the U.S. scored below level 2 in 2018 (NCES, 2020). School closings, interruptions, and remote learning resulting from the COVID-19 pandemic beginning in March 2020 had a detrimental impact on literacy achievement for all students but particularly students from low socio-economic status and from linguistic minority backgrounds (Goldhaber et al., 2022). National Assessment of Educational Progress (NAEP) data reveals that grade 4 student reading comprehension decreased on average three percentage point from 2019 to 2022 for all students, but it decreased seven percentage points for students at the lowest end of NAEP proficiency (NCES, 2022).

Although the use of standardized assessments can be problematic in measuring the academic achievement of marginalized students, including both multilingual learners and English learners (Milner, 2012; Kieffer & Thompson, 2018), performance on standardized literacy assessments indicates that these students did not have access to instructional practices that promote literacy development even prior to the pandemic (NCES, 2017; NCES, 2012). I define *English learners* (ELs) as K-12 students who qualify for specialized English language services per their state's EL identification criteria, and I define *multilingual learners* as K-12

learners for whom English is only one of the languages they speak or are learning to speak. Some multilingual learners may be fully proficient in English and another language(s), while others may have proficiency in a home language and are learning English as a target language (i.e., ELs). Non-ELs refer to K-12 students who do not qualify for specialized English language assistance services. It is important to note that this label of EL can reveal what we know about these groups of students with regards to their proficiency in English, but it can also conceal other attributes of these learners which impact their academic performance (Martinez, 2018). For example, not all ELs struggle in acquiring an additional language. Additionally, the label of EL can conceal that ELs also often comprise a group of learners also known as minoritized learners and that such learners are often underprivileged in traditional K-12 school despite being a majority of learners in their schools. (Jensen et al., 2021). Thus, it is often not only the student's language learning status that results in decreased academic opportunities but also the discrimination they face as a result of factors related to race and social class (Jensen et al., 2021)

Keeping in mind these barriers to learning that students like ELs encourager, the reading performance of multilingual learners who are classified as ELs reveals an opportunity gap. The differential between ELs and non-ELs is 32 points at the fourth grade level and 39 points at eighth grade on the NAEP (NCES, 2020). Moreover, the long-term effects of the opportunity gap in literacy include significantly higher drop-out rates among ELs compared to non-ELs (Callahan, 2013). Addressing the educational needs of students from non-dominant linguistic backgrounds is an imperative when promoting social equity and ensuring that we have sufficiently prepared the majority of students in our public schools for the 21st century (Kibler et al., 2021; Williams, 2021).

In addition to their minoritized status, for particular student populations like multilingual learners and ELs, such inequities often also result from teachers unprepared to meet the unique literacy needs of culturally and linguistically diverse youth (National Academies of Science, Engineering, and Medicine [NASEM], 2017). Only 28 states require specific coursework or professional learning for all teachers on topics like multilingual education and second-language acquisition (Education Commission of the US., 2017). As a result, many mainstream teachers have not learned the methods necessary to teach academic language and literacy to *all* students, and because of this, maintain unequal educational opportunities for some of their students (Kibler et al., 2021; NASEM, 2017).

Moreover, research suggests that COVID-19 had a greater impact on the reading achievement and language development of Black and Hispanic students, as well as students from low socio-economic backgrounds. Specifically, teachers of students who participated in remote learning indicated that their multilingual learners and ELs had reduced opportunities to develop academic language (U.S. Department of Education, 2021). Accordingly, it is important that high impact instructional practices that have been shown to be effective for developing language and literacy for multilingual and ELs, such as peer led interactions (Cole, 2014), are prioritized as U.S. schools continue their recovery from the pandemic. Additionally, as educators continue to teach in a post-truth world, instructional frameworks like accountable talk and collaborative reasoning, which emphasize skills necessary to participate in deliberative democracies and explicitly teach peers how to orally build consensus and work together in meaning making, are more essential than ever.

The extant research on improving language and literacy instruction for elementary learners solidly demonstrates that research-based practices for monolingual students, such as

attention to the five pillars of reading instruction, are also essential for multilingual students (August & Shanahan, 2006; National Institute of Child Health and Human Development [NICHD], 2000). However, research also suggests that "just good teaching" is inadequate to meet the specialized linguistic and cultural needs of multilingual learners and ELs (De Jong & Harper, 2006; Villegas et al., 2018). One solution towards providing all students more equitable access to literacy and language instruction is the implementation of dialogic pedagogical practices, where learning emerges from interactions with others (Barnes & Todd, 1977; Cazden, 1988; Jensen, 2021; Nystrand et al., 1997). Extrapolating from the work of Vygotsky-based researchers, Hennessey et al. (2016) define *dialogic teaching and learning* as an approach where language is able to encourage and extend student learning. It is collective and situated within social-interactions, it encourages problem solving as well as equitable discussions, and it directly challenges monologic thinking and teacher-dominated discussions.

The literature suggests that dialogic teaching and learning that emphasizes reciprocal dialogue, like accountable talk and collaborative reasoning, enhances peer led discussions as it provides learners with a clear purpose to the interaction, encourages the building of ideas with others to create new knowledge, and ultimately helps students to learn (Alexander, 2001; Seedhouse & Walsh, 2010). Such approaches move away from the typical Initiation-Response-Evaluation (IRE) structure common to monologic classrooms and offer learners enhanced opportunities for protracted discussion that engender higher-order thinking and rich linguistic output. However, research demonstrates that students who would benefit the most from such instructional approaches often receive it the least (Valdés, 2004).

One pedagogical practice that holds particular promise for enhancing dialogical literacy instruction for all elementary students, including multilingual and ELs, is the promotion of peer

mediation through student-led cooperative or collaborative literacy activities (Cole, 2014; Nystrand, 2006; Puzio & Colby, 2013; Reznitskaya et al., 2001). As *mediation* is defined as the process of using semiotic tools to support meaning-making and facilitate learning in the cooperation of others (Vygotsky, 1978), a form of strategic and explicit mediation in classrooms is *peer mediation (*Wertsch, 2007*).* This form of mediation occurs among peers, during prolonged social interactions nested within classroom-based literacy activities, can be evidenced through peers assisting, encouraging, and correcting (Cole, 2014; Jensen, 2021; Johnson & Dellagnello, 2013). Peer participation in cooperative and collaborative activities provides the opportunity for peers to learn how to strategically and explicitly mediate literacy development for one another through the use of certain discursive supports. *Discursive supports* for the purposes of this study are discourse moves that facilitate mediation during cooperative and collaborative activities (Martin-Beltrán et al., 2017).

When students participate in these peer-mediated literacy activities, the students are co-constructing a shared set of knowledge about the text's meaning and at the same time develop language proficiency within the zone of proximal development (ZPD) by receiving discursive support from peers (Aljaafreh & Lantolf, 1994; Vygotsky, 1978). In the extant literature, peer-mediated learning occurs in a variety of student-centered activities such as peer tutoring (Fuchs, Mathes, & Fuchs, 1997), cooperative and collaborative learning (Slavin, 1991), and reciprocal teaching (Palinscar & Brown, 1984).

Puzio and Colby (2013) posit that *cooperative and collaborative learning* are generic terms that describe a host of programs and interventions. Both structures work towards organizing student learning through small group and goal-oriented activities that foster opportunities for peers to verbally and socially interact. For the purposes of the present study,

both cooperative and collaborative learning activities will refer to student-centered learning structures, which create environments more likely to engender peer mediation (Cole, 2014). Cooperative and collaborative literacy activities such as literature circles, book clubs, reading dyads, and peer response groups increase opportunities for students to receive mediation from peers compared to more monologic approaches to literacy instruction (Slavin, 1991). The extant literature suggests that when learners experience increased opportunities for mediation, they have more access to features of instruction essential for improving literacy outcomes, such as modeling, explicit instruction, corrective feedback, increased time on task, and higher-order questioning (Archer & Hughes, 2011; Murphy et al., 2009; Vaughn et al., 2012). Additionally, for multilingual learners and ELs, increased opportunities for peer mediation provide more opportunities to receive comprehensible input and produce comprehensible output, which is essential for language learning (Swain, 2000).

Despite the recognition of the potential benefits of peer mediation upon literacy performance for a variety of learners, such student-centered learning activities are still relatively uncommon in K-5 classrooms in the United States and elsewhere (Howe & Abedin, 2013; Vrikki et al., 2019). Some researchers suggest that educator reluctance to embrace more dialogic approaches to literacy instruction may result from not knowing how to implement peer led practices that might provide more mediation opportunities for students (Mohr, 1998; Wilkinson et al., 2017); or may be due to the amount of professional learning required to successfully enact these practices (Vrikki et al., 2019). Accordingly, research suggests that even when teachers embrace a dialogic approach to teaching, they often struggle in providing the appropriate amount and quality of support (Jadallah et al., 2011; Wolf et al., 2006; Zhang et al., 2016).

A synthesis of the research on peer interaction finds that a variety of peer led activities can engender peer mediation for multilingual learners, such as peer tutoring, reading dyads, collaborative discussions, literature circles, peer discussions, and book clubs (O'Flahavan, Himmel, & Yeom, 2018). However, while those studies report on practices that promote peer mediation, not all studies robustly describe the supportive behaviors that emerge from the peer led practices. In fact, none of the quantitative studies in the O'Flahavan et al. (2018) review share any information on the provision for or reception of discursive supports that emerged from these peer-mediated practices. Only a handful of either qualitative or quantitatively oriented studies attempt to measure the quality of the talk that emerges as a result of peer mediation (O'Flahavan et al., 2018).

One analytic category that has been useful to capture and describe high quality talk during peer led discussions is exploratory talk. Posited by Mercer (1996), exploratory talk is talk where students critically and productively engage with ideas offered by peers. While some studies lean on Mercer's (1996) notion of exploratory talk to measure the quality of classroom dialogue, many of these studies focus more upon the teacher-student interactions during classroom dialogue rather than peer-to-peer interaction (Howe et al., 2019). Related, studies that use exploratory talk as an indicator of high-quality classroom discussions also typically do not explore its promotion or reception specifically with ELs.

While the field understands that student can mediate peers' learning during dialogic teaching and learning it does not have a robust understanding of how peer mediation leads to enhanced outcomes. The field needs more studies that examine how peer mediation leads to higher quality discussions among multilingual learners and ELs, and it needs studies that attempt to measure the degree of learner uptake of discursive supports during peer mediated tasks. While

a few studies have explored how discursive supports can promote exploratory discussions among multilingual learners, these same studies did not present direct evidence of peer uptake of mediation (Zhang et al., 2016). By not capturing this, it is difficult to ascertain the impact the peer support had on the learners' understanding of the content, or their language and literacy development (Girolametto et al., 2004). Thus, for the field to have confidence in studies that attempt to link peer mediation to improved learner outcomes, it is necessary for researchers to collect evidence of uptake of these discursive supports.

Acknowledging that not all peer mediated learning is equal in terms of providing equitable literacy instruction for multilingual learners and ELs, more information is also needed about the frequency and quality of discursive supports if these studies are to help teachers implement dialogic teaching and learning. On a related note, research should examine the role of the teacher in fostering discursive moves that support peer mediated learning to better understand how those in instructional roles limit and enhance peer mediation. Studies that investigate how mediation is distributed between instructors and students during peer led discussion can help the field understand how to help persons in instructional roles know when to limit, or enhance, their support of multilingual learners and ELs.

In conclusion, qualitative studies unequivocally establish that students are capable of mediating literacy and language development for one another, and quantitative studies suggest that peer mediation can lead to improved literacy outcomes. However, the way in which peer discussion among multilingual learners and ELs promotes these favorable outcomes is less understood. To better understand how peer mediation leads to improved educational outcomes for multilingual learners and ELs, more research that explores the provision and the reception of

discursive supports in high quality discussions is needed. The following multiple embedded case study will serve as the necessary bridge between these lines of research.

Research Questions and Hypotheses

Peers can and do mediate language and literacy acquisition for one another during collaborative and cooperative tasks. However, no studies explore how micro-level discursive moves by both teachers and multilingual learners or ELs, and their uptake by multilingual or ELs, work to enhance the quality of the discussion. Accordingly, this study begins to bridge the gap that exists in what we know about peer mediation for multilingual learners and ELs by examining the quantity and quality of discursive moves and its relationship to fostering exploratory talk. I hypothesize that with a deeper and more nuanced understanding of the mechanisms underlying the efficacy of peer mediated activities, such as the quality of discursive support and its uptake, future research will be able to establish links more conclusively between dialogic teaching and learning and student outcomes. This understanding will also increase the efficacy and relevancy of professional learning initiatives aimed at increasing dialogic teaching and learning for multilingual learners and ELs.

This study examined the frequency, quality, and uptake of discursive supports among learners with different linguistic and literacy profiles during peer mediated learning. My research investigated the ways that peers, with instructor support by me, provided and received mediation to one another during peer led, text-based discussions in science and social studies lessons. My study also explored how peer mediation promoted exploratory talk among multilingual learners and ELs. Within this study, I specifically sought to answer the following questions:

1. How does the distribution of discursive supports differ between the students and me during peer mediated learning?

2. How do ELs and non-ELs provide discursive supports during peer mediated learning?
3. How does the quality of the discursive supports differ among different groups of learners?
4. In what ways do students uptake the discursive supports?
5. In what ways did the students or I limit or enhance peer mediated learning?

In addition to addressing the gap in knowledge addressed earlier in this chapter, answering these questions will help the field understand how best to facilitate peer led, collaborative discussions. When multilingual learners and ELs participate in peer discussions that promote active and productive discourse, they have enhanced opportunities to benefit from socially distributed cognition that will result in more knowledge and language building among participants (Seedhouse & Walsh, 2010). To explicate the genesis of my research questions, I next present the theory of action that undergirds my study.

Theory of Action

I posit that when some instructional behaviors traditionally reserved for the teacher are transferred to elementary learners, they will learn to more successfully participate in peer led activities that mediate their peers' understanding of the text, and thus they will have more opportunities to receive comprehensible input and generate relevant output, both of which are necessary for language development. When someone in a more knowledgeable role, like a teacher, shapes and fosters students' ability to provide mediation so that interactions are more decentralized, students will have enhanced opportunities to distribute cognition. Receiving mediation from peers in the form of discursive supports during decentralized text-based discussions will enhance elementary learners' opportunities for the acquisition of literacy skills

and strategies on account of the additional opportunities they will have to receive feedback and just-in-time assistance from peers. This just-in-time assistance will enhance understanding of the text's key message, illuminate essential words/language in the text, and build background knowledge necessary to access the text's meaning. These mediated opportunities will allow students to rehearse the skills and strategies that were modeled or offered by peers so that they learn to perform these cognitive processes independently. Moreover, when learners frequently uptake certain discursive supports or tools from peers (for example, ones that promote exploratory talk), their efficacy in literacy practices such as self-expression, comprehension, and problem solving will increase. Additionally, through the process of mediating other learners' acquisition of literacy, peers who provide mediation will deepen their own understandings of the text. Accordingly, literacy outcomes (e.g., increased motivation, self-efficacy) for students who have opportunities to participate in peer mediated learning should improve when compared to students who do not have these opportunities. To establish an environment for peers to offer and receive discursive support from one another that promotes higher quality talk during peer mediation, teachers must implement and coach students through an instructional routine that approximates the support elementary teachers provide during more traditional small group instruction (Richardson, 2009). The following chapters will describe the theoretical framework and literature that shape the focus and design of my study.

Key Terms

Accountable talk: An instructional approach designed to promote academically productive talk. Students learning under this approach are expected to participate in classroom discussions that have accountability to the community, accountability to knowledge, and accountability to accepted standards of reasoning (Micheals et al., 2008)

Active discussion: Classroom dialogue that promotes the productive exchange of ideas and fosters language development.

Collaborative discussion: A dialogic approach to teaching and learning designed to promote productive talk and deeper learning among students (Kibler et al., 2021; Zhang et al., 2016).

Collaborative reasoning: A peer led instructional approach where small groups of learners gather to discuss and debate text-based questions designed to foster student engagement and critical thinking (Clark et al., 2003).

Dialogic teaching and learning: An approach where teachers create conditions for learners to use language to encourage and extend their learning. This type of instruction requires participation by a collective and is situated within social interactions to encourage problem solving as well as equitable discussions (Kibler et al., 2021).

Discursive supports: Borrowing from Martin- Beltrán et al. (2017), these are discourse moves that facilitate mediation during cooperative and collaborative activities.

ELs: K-12 students who have been deemed by their local educational agency to require specialized language services in order to equally participate in K-12 education. See pages 2-3 for a more nuanced discussion of the term EL.

Exploratory talk: Informed by Mercer (1996), talk that allows learners to posit their thoughts and ideas and receive critical engagement and feedback, ideally resulting in deeper learning.

Mediation: The process of learners using semiotic tools to support meaning-making and facilitate learning in cooperation with one another (Vgotsky, 1978)

Multilingual learners: K-12 students for whom English is only one of the languages they speak or are learning to speak. Some multilingual learners may be fully proficient in English and

another language(s), while others may have proficiency in a home language and are learning English as a target language (i.e., ELs).

Newcomer student: Even though no official definition exists, the federal government typically defines newcomer students as those new to the U.S and requiring specialized language services (U.S. Department of Education, 2016). These students are also known as recently arrived immigrant students. While some newcomers are not also acquiring English for the first time when they enroll in U.S. schools, many do and all of the newcomers in my study were new to English.

Non-ELs: K-12 students who have either never qualified for specialized language assistance programs or who have successfully exited a specialized language assistance program after meeting the criteria defined by their state's educational agency.

Peer discussion: When students collaboratively negotiate roles, rules, and conventions of discussion in order to promote more peer dialogue and reduce instructor talk (Almasi et al., 2001).

Peer mediation: A form of explicit and strategic supports peers provide one another with the goal of helping the learner participate in language and literacy-related activities (Cole, 2014; Wertsch, 2007)

Uptake: The response by the learners to the discursive support (Devrim, 2014).

CHAPTER 2: THEORETICAL FRAMING AND LITERATURE REVIEW

In this chapter I will detail the theoretical framework that informs my study's research questions and design. My framework attempts to account for how linguistic and literacy mediation are related to literacy acquisition, as well as how the promotion of higher quality talk can be impacted by peer mediation. I conclude this section by examining the theoretical basis for considering group composition when planning for peer mediation.

Theoretical Framing of Mediation

To fully understand the benefits that peer mediation confers to those students learning in a second language, social interactionist and sociocultural perspectives of learning will inform the research design and methodology of my study. As many multilingual learners and all ELs are not yet proficient in the language of schooling (i.e., discourse specifically associated with the content of schooling and related instructional tasks), any literacy intervention designed with these students in mind must account for their linguistic needs. Accordingly, theories of second language acquisition inform the design and implementation of this study. From a social interactionist perspective, the Interaction Hypothesis (Long, 1996) supports my position that protracted speech events like text-based discussions are ideal formats for learners to receive the mediation necessary for language acquisition. Such interaction provides enhanced opportunities for language learners to receive mediation in the form of comprehensible input, and they can foster the comprehensible output essential for EL oral language development (Krashen, 1982; Long, 1996; Swain, 1985). Empirical studies in this tradition find that conversation facilitates

language learners' ability to notice and thus acquire the linguistic forms that provide the building blocks of literacy, such as morphology, syntax, and vocabulary (Gass et al., 1998).

From a sociocultural perspective, multilingual learners benefit linguistically from mediation during peer interaction as new knowledge is co-constructed through collaboration with more capable interlocutors within a ZPD (Vygotsky, 1978). Thus, sociocultural perspectives of language learning suggest that through social activities, like active discussion and collaborative discussions, multilingual learners construct linguistic knowledge and develop language proficiency in the target languages (Cole, 2014; Swain, 2000). Furthermore, researchers suggest that collaborative structures like literature groups, book clubs, and peer discussions are particularly useful for engendering peer linguistic mediation because oral interaction in these instances more accurately mirrors what happens during authentic conversations (Almasi et al., 2001; Cole, 2014; Swain, 1997). In such collaborative tasks, the interlocutors are free to change topics when they like, and neither interlocutor is solely considered a "novice" (i.e., someone new to the discourse genre) or "expert" (i.e., someone who has demonstrated proficiency in using a particular discourse). For example, Echevarria (1995) found that after participating in text-based discussions, bilingual learners began to view each other as sources of knowledge, whereas previously only the teacher held the "expert" role in the discussion. Additionally, during collaborative tasks, all interlocutors are invited to maintain topic coherence, which can enhance opportunities for learners to receive more mediation (Swain, 1997). Thus, these protracted and collaborative speech events maximize speakers' opportunities for producing comprehensible academic discourse (Swain, 2000), which in turn develops their abilities to provide and receive mediation from peers and enhances their language and literacy acquisition.

The opportunities to receive and produce mediation during these extended dialogues are especially beneficial when compared with the opportunities for language elicitation during brief "turn and talks" that tend to dominate US classrooms (Zwiers, 2008). Accordingly, teachers who organize learning according to a sociocultural perspective engender more frequent opportunities for mediation as their role in the discussion moves from controller to facilitator (Bitter et al., 2009). The movement of the teacher from the center of the discussion to the sidelines necessarily increases student opportunities for talk, since conversational moves no longer flow through a single interlocutor. Accordingly, this shift in teacher roles can further increase opportunities for mediation and distributed cognition necessary for enhanced literacy outcomes.

With regards to the impact of peer mediation on literacy development, sociocultural perspectives emphasize the social nature of learning to read. Within this theoretical perspective, parents or other caregivers provide children with their first guided experiences in acquiring literacy (Rogoff, 1990; Vygotsky, 1978). Just as language acquisition is mediated by others, researchers also posit that no direct relationship with the printed word exists. Rather, it is mediated through interactions with others: "Given the assumption that social interaction supports and increases cognitive development in students' learning, it follows that discourse-based instructional approaches facilitate effective reading comprehension instruction" (Wolf et al., 2006, p.1).

Accordingly, learning to read begins as a psychological process that occurs between people, and only later shifts to within the person (Au, 1998; Lantolf & Poehner, 2003). Such processes are often promoted in the classroom through expert scaffolding (Cazden, 1988; Langer & Applebee, 1986), proleptic teaching (Rogoff, 1990), and instructional activities that encourage the distribution of cognition among both experts and novices (Cole & Engeström, 1993;

Hutchins, 2020; Michaels et al., 2010; Seedhouse & Walsh, 2010). When children interact with the teacher and others during tasks such as text-based discussions, through a gradual process of internalization, learners acquire the mental processes necessary to regulate one's own cognitive functioning and learn to independently apply the skills towards the task of learning to read (Leont'ev, 1981, cited in Swain & Lapkin, 1998). In contrast to more monologic instruction where student talk is often reserved for peers with high status (Lotan, 2006), or for students fortunate enough to get the teachers attention, dialogic activities like text-based peer discussions can ensure that the responsibility for meaning making is more equally distributed among all students. Additionally, guided experiences with a community of learners, such as those during peer mediated activities, provide all students with enhanced opportunities to employ and receive supportive moves to acquire and rehearse the skills and strategies required to make meaning from texts. These opportunities to distribute cognition among the learners make it easier for peers with less expertise to also participate in tasks that lead to enhanced comprehension (Hutchins, 2020).

Literature from interventions targeting struggling readers suggests that such opportunities for collaborative meaning-making must explicitly teach students the importance of text structure and features, how to self-monitor their comprehension, and to identify relationships between different ideas in the text (Ritchey et al., 2012). The literature also suggests that learners benefit from explicit instruction on how to participate in collaborative discussions that foster more distributed cognition among learners during these tasks (Jadallah et al., 2011; Wolf et al., 2006; Zhang et al., 2013; Zhang et al., 2016). Furthermore, when instruction helps learners participate in dialogue that is more exploratory in nature, it can lead to enhanced learning outcomes (O'Connor et al., 1996; Rojas-Drummond et al., 2003; Zhang et al., 2016).

While interactions with a capable other are frequently how sociocultural theories account for a child's acquisition of literacy, other theorists suggest that peers are sometimes better positioned as mediators and distributors of cognition due to their ability to provide the right amount of just-in-time scaffolding (Rogoff, 1990). Since scaffolding is necessary to help children develop the skills and strategies necessary for high-level comprehension of texts (Snow, 2002), the more opportunities learners have to receive scaffolding through peer mediation, the more guided assistance learners will have towards becoming proficient readers. Accordingly, more recent research suggests peers can take on some of the mediating roles traditionally reserved for the teacher (Cole, 2014; Puzio & Colby, 2013; Jadallah et al., 2011; Pyle et al., 2017; Wexler et al., 2015; Zhang et al., 2013; Zhang et al., 2016). When peers do take on such roles, they are able to achieve enhanced literacy outcomes compared to students who are not enabled to enact such instructional roles. Moreover, empirical studies indicate that multilingual learners benefit academically when completing group tasks with both bilingual and monolingual speakers of the target language, as those environments provide rich opportunities for peers to produce and receive mediation in the target language (Cohen, 1986; Cohen et al., 1989; McGroarty, 1989).

Theoretical Framing of Grouping Compositions

When mediation takes place among peers, it is often thought to occur primarily between expert and novice interlocutors (Vygotsky, 1978). Accordingly, past peer-mediated interventions relied on strong-weak student pairings (Almaguer, 2005; Calhoon et al., 2007; Saenz et al., 2005). However, recent research suggests that the expert-novice dichotomy is not an entirely useful construct when exploring the effects of peer mediation (Sato & Ballinger, 2016). Some research suggests that "near peers" can be particularly beneficial for engendering peer interaction

and mediation (Vaughn et al., 2009), while other studies find that students of varying proficiency and ability levels can serve as helpful mediators for their peers (Gort, 2008; Olmedo, 2003; Watanabe & Swain, 2007; Martin-Beltrán et al., 2017).

While mediation can occur between students with different literacy and language profiles, qualitative studies indicate that peer mediated interventions work best when the language proficiency levels of the students are not widely divergent. For example, Lucero (2015) found that collaborative activities with emergent bilingual students of high and low proficiencies in Spanish often silenced the low proficiency students. Similarly, Bigelow and King (2016) discovered that paired reading activities among newcomers with shared first languages was relatively ineffective for both learners, as the stronger student became easily bored and thus was not motivated to provide the support the weaker student needed to accomplish the literacy task. It seems then that the success of peer mediated interventions, especially with regards to those aimed at improving literacy outcomes, must carefully account for student groupings. Accordingly, a more robust discussion of the impact of peer mediation on the literacy development of monolingual and multilingual students follows in the literature review.

While traditional instruction for elementary learners often emphasizes the role of teacher mediation in literacy and language development (Bitter et al., 2009; Richardson, 2009), as described earlier, theories aimed at explaining language and literacy acquisition suggest that teachers can help students, including multilingual learners, be effective mediators of language and literacy development for one another. Consequently, the following sections will summarize and explore the extant literature on the impact of language and literacy mediation provided by peers to multilingual learners in a variety of instructional contexts, including general education, English as Second Language (ESL), one-way immersion, transitional bilingual, and two-way

immersion. While literature does exist on peer mediation in English as a Foreign Language (EFL) classrooms, such instructional contexts are beyond the scope of this review, as instruction in EFL classrooms typically assumes that learners are already fully literate in at least one language, and thus literacy instruction is often not an expressed goal of such programs.

In addition to exploring peer mediation in a variety of instructional contexts, the following review of the literature will also explore peer mediation implemented in a variety of research interventions. As the review will demonstrate, multilingual learners in a variety of settings, grade levels, programs, and language and literacy interventions can and do mediate literacy acquisition for one another. Except for a few studies that will be analyzed and critiqued at the end of the chapter, the following studies explore either the that discursive supports that multilingual learners provide during peer mediated learning or the outcome of peer mediation; none robustly examined both. Therefore, little is known regarding the ways that classroom instruction and contexts can inhibit or foster peer mediation, or about the differential impact of these factors on the uptake of discursive supports in specific student populations, like ELs. The extant literature on peer mediation also does not fully account for the impact that peer mediation can have on promoting exploratory talk and thus more likely to promote enhanced meaning-making among learners.

After describing my search procedures, I will describe and analyze the extant literature on peer mediation and multilingual learners and ELs. I will conclude this chapter with a critique of the methodologies employed in the reviewed studies to better frame the methodological choices I describe in Chapter 3.

Literature Review

In this section I describe my search procedure for locating empirical studies that describe the mediation provided to K-12 learners, as well as those that attempt to link mediation to higher quality talk and literacy achievement for monolingual and multilingual learners. After outlining my search procedure, I describe the literature related to the impact of mediation among multilingual learners and/or those students who qualify to receive specially designed language assistance services in English (i.e., ELs). Specifically, I examine studies from a variety of methodological backgrounds with different student populations and under various interventions. I then synthesize the roles that the instructional context, group composition, student uptake of mediation, and the teacher play in the promotion of peer mediation. This review will also focus on mediation within instructional frameworks like exploratory talk (Mercer, 1996), accountable talk (Michaels et al., 2010), and collaborative reasoning (Zhang et al., 2013). After the review of the literature, I provide a critique of the methodologies used in this line of research in order to identify where different approaches are needed and build a case for my study.

Search Procedure

I began the search process by consulting Google Scholar and WorldCat and using databases such as ERIC, EBSCO, Linguistics and Language Abstracts, Professional Development Collection, and PyschInfo. Search terms included “accountable talk,” “bilingual learners,” “collaborative dialogue,” “collaborative discussion,” “collaborative learning,” “collaborative reasoning,” “cooperative learning,” “conversational discussion groups,” “elementary learners,” “ELs,” English language learners,” “ESL,” “exploratory talk,” “distributed cognition,” “dual language learners,” “group-worthy tasks,” “linguistic mediation,” “literacy,” “literacy mediation,” “literature circles,” “multilingual learners,” “peer discussion,”

"peer dialogue," "peer helping behaviors," "peer interaction," "peer linguistic mediation," "peer literacy mediation," "peer mediation," "peer talk," "peer teaching," "peer tutor," and "quality talk." These search terms were based on findings from initial scans of the literature and from my advisor. I combined these search terms in multiple ways in the various databases until I started seeing the same studies listed multiple times. Although I was satisfied that I found all the existing studies, I reached out to faculty and peers to confirm my findings.

To appropriately narrow the focus of the literature review, I concentrated on studies that report on peer mediation that emerged from collaborative or cooperative peer discussions. The first set of studies I present show that peer-mediated discussions can lead to improved literacy and language outcomes for multilingual learners and identified ELs. However, as previously mentioned, this set of studies offers limited insight into how peer mediation might have engendered the improved literacy outcomes. The design and implementation of these studies makes it impossible to trace how peer mediation led to enhanced outcomes for K-12 students learning in a new language. These studies also do not richly describe the instructional practices that persons in the instructor role implemented to ensure that students were capable of providing mediation during peer discussions. Furthermore, the value of these studies is limited because they did not capture evidence of student uptake of peer mediation.

The second set of studies, while not seeking to establish causality between peer mediation and improved language and literacy outcomes, do provide robust descriptions of the ways that multilingual or English learner peers mediate for one another during cooperative or collaborative tasks. While these offer a way to begin to trace how discursive supports can work to improve language and literacy for multilingual learners and EL students, the path is still incomplete. For example, a rich description of the role of the teacher is often absent, as is an attempt to ascertain

the quality of the supports by peer or teacher. Similar to the first set of studies, these qualitative studies do not systematically capture student uptake of discursive supports during peer mediated learning.

Let us turn now to causal studies and consider their evidence linking peer mediation to higher quality talk or improved academic outcomes.

Studies Investigating Mediation and Literacy Outcomes for Multilingual Learners

A segment of the literature that is particularly relevant to my study concerns attempts to link the implementation of collaborative, cooperative, or pair work to literacy outcomes for multilingual learners. These studies seek to make causal claims regarding peer mediations as they emerge from collaborative or cooperative interventions and examine their impact upon literacy outcomes as measured by more distal assessments of reading and writing, such as standardized tests like Dynamic Indicators of Early Literacy Skills (DIBELS) and Gates McGinitie Reading Test (GMRT). The studies use different researcher-created interventions to create an environment for peer mediation to occur and do so in different instructional contexts and language programs.

A review of these empirical studies reveals that peer mediation resulted in increased early reading skills like phonics, alphabetic naming, and phonological awareness (Calhoon et al., 2007; Greenwood et al., 2001; Madrid et al., 2003; Madrid et al., 2007; McMasteret al., 2008; Sáenz, et al., 2005); reading comprehension (Almaguer, 2005; Klinger & Vaughn, 1996; Klinger et al.,, 1998; Klinger & Vaughn, 2000; Sáenz et al., 2005); vocabulary (Klinger & Vaughn, 2000; Kong & Fitch, 2003), fluency on writing tasks (Early & Saidy, 2014; Prater & Bermuda, 1993); and multiple components of literacy (August, 1987; Calderon, 1998; Vaughn et al., 2009; Vaughn et al., 2011). The following sections report on the interventions researchers used in the

context of the literacy skill they were attempting to link to peer mediation. If the research attempted to link mediation to quality of discussion, I will address and evaluate their findings, ultimately confirming my previous assertion of a gap in the literature. Accordingly, I will detail the interventions employed in each study and report on their findings. I will also critique the researchers' interpretations of their findings vis-à-vis their study design or implementation.

Early Reading Skills and Peer Mediation. One particularly productive area of research is the impact of peer mediation on early reading skills, with two researcher-created interventions comprising a significant portion of the empirical studies: PALS and CWPT. PALs and its version for younger learners, K-PALS, has a robust set of studies that measure its efficacy with a variety of learners at the elementary school level. Originally PALS was designed for grades 2-6 with the aim of modifying reading instruction to better support the needs of children with learning disabilities (Fuchs & Hamlet 1989; Fuchs et al., 1997; Fuchs et al., 2001). Later, a version for kindergarten learners (K-PALS) was developed and implemented to make the program more developmentally appropriate for these younger learners. The PALS and K-PALS programs require that stronger and weaker students be paired to complete structured literacy activities like Story Sharing after the teacher models each code-focused activity. During pair work the classroom teacher monitors student performance and provides feedback. While they intend for stronger students to help struggling ones, PALS has also been shown to increase the skills of the stronger students. Since its original inception, the program has been used with not only children with learning disabilities, but with struggling readers in general (Mathes & Babyak, 2002) and ELs (Calhoon et al., 2007; McMaster et al., 2008; Saenz et al., 2005).

The other intervention concerned with fostering early reading skills for multilingual learners is CWPT. Similar to PALS/K-PALS, in CWPT students are assigned reciprocal roles of

tutor and tutee to work with one another to perform code-focused interactive activities. Previous research on monolingual populations suggests that CWPT works well for mild to moderate learning-disabled children and low performing non-learning-disabled children (Mathes et al.,1994).

The efficacy of PALS and CWPT is dependent upon teacher learning and implementation of the programs. Accordingly, teachers typically receive a few days of professional development to become familiar with the instructional activities. A 2008 study on the efficacy of K-PALS analyzing data over a period of two years from two research sites found that technical support of the teachers' fidelity to model had significant effects on reading achievement (McMaster et al., 2008). Thus, the following subsections detail studies that report on early literacy outcomes from PALS and CWPT interventions with multilingual learners and/or ELs.

PALS and K-PALS. Calhoon et al. (2007) conducted a PALS study that sought to investigate the impact of PALS with first graders who participated in the program three times a week in their two-way immersion Spanish-English classroom. Working with 76 students and six teachers, researchers collected pre- and post-intervention data on the students' literacy performance using the DIBELS assessment. The researchers provided a one-day training to the three treatment teachers and offered them technical support through the 20-week intervention. The researchers also conducted fidelity checks of the treatment teachers and collected self-reported data on reading instruction in the control group.

Data from DIBELS reveals a statistically significant difference between control and treatment student performance on the phonemic and letter naming subtests. Researchers also found moderate effects on all four DIBELS subtests for the PALS treatment. Additionally, main effects for time (i.e., assessments administered in the Fall, Winter, Spring) were significant for

multilingual learners in the PALS condition compared to the contrast group, and large to moderate effects were found for multilingual learners, with the exception of the phonemic segment fluency subtest, where English proficient students seemed to gain more than the multilingual learners. While the researchers noted the small sample size as a limitation, they also highlighted that students categorized as ELs in PALS, even though they gained more than the English proficient students in the contrast group in phonemic segmentation and letter naming fluency, still performed quite low over time on the oral language fluency subset. Given the impact of oral language fluency on reading comprehension, the researchers concluded that ELs with very low letter naming recognition and phonemic awareness might not benefit as much from peer meditated literacy practices than multilingual learners with greater language proficiency.

McMaster et al. (2008) tested a modified version of PALS with 2,959 students and their 259 teachers, nested within 67 schools, to discover the impact of K-PALS on literacy achievement for students of teachers who received different levels of professional learning support. These levels comprised a group who only received a one-day workshop, the booster group who received two follow-up workshops, and the helper group who received booster support and had a research assistant in their classroom to assist with implementation. ELs comprised 22% of the sample population and were in each control and treatment classroom. Similar to PALS, in K-PALS teachers paired stronger readers with weaker readers to complete code-based activities like Sound Boxes and Reading Sentences. Researchers conducted fidelity checks with treatment in teachers in the treatment conditions.

Data analysis reveals that all learners in any of the K-PAL conditions outperformed the students in the control group on researcher-created measurements of the Rapid Letter Naming

and Rapid Sounding Naming. In addition, students assigned to teachers who were more faithful to K-PALS implementation also made statistically higher gains on the letter and sound naming tests when compared to students of teachers with lower levels of fidelity to the K-PALS program. Additionally, the researchers found a positive relationship associated with teachers in the helper group with regards to levels of fidelity. Thus, more professional learning support helped teachers consistently implement K-PALS, which in turn helped boost early reading skill acquisition for these learners. As student achievement on the intervention's assessments was not analyzed based on student characteristics like English learner or special education status, it is not possible to conclude to what degree different student populations benefited from peer mediation offered through K-PALS.

CWPT. The other early reading skill intervention that investigated the impact of peer mediation is the Greenwood et al. (2001) study that included five classrooms with 107 multilingual learners in total. Using a learning management system (LMS), the researchers monitored CWPT implementation over a period of 15 to 21 weeks with the dependent variables being students' pre- and post-test scores on vocabulary and spelling tests aligned to the CWPT curricular resources. In addition to collecting pre- and post-test performance, the researchers also measured teacher fidelity and satisfaction throughout intervention.

The intervention included purposeful pairing for the purposes of facilitating peer tutoring on sight and spelling words. Thus, the teachers paired low and average performing students and average and high performing students together, and they paired newcomer ELs with bilingual learners to tutor one another on new words. Tutoring students were placed into four testing groups (successful, underchallenged, under mastered, and underchallenged/under mastered) based on their performance during the previous week's spelling test. During tutoring, tutees

earned points for their team by responding to the tasks their tutors presented. The student roles were highly scripted to ensure that tutees received frequent consistent feedback in the way of error correction. After the first 10-minute tutoring period concluded, the students switched roles and the tutor became the tutee.

While researchers concluded that CWPT led to increased sight word acquisition and improved spelling for these first grade multilingual learners, the researchers did not include a contrast group. Hence, the gains the students achieved pre and post might be similar for students who did not participate in the tutoring at all. The researchers also concluded that the teachers who received weekly consultations on how to use the spelling data to manage group and pair compositions had students who achieved more on the sight word and spelling post-test. Moreover, while researchers presented anecdotal evidence that CPWT engendered more language production in multilingual learners when compared to more teacher-directed instruction, they concluded that use of a language measure in future research would be helpful to further explore this peer mediation outcome.

Madrid et al. (2003) and Madrid et al. (2007) also implemented a version of CPWT with 12 and 16 bilingual Spanish-English third graders respectively to study the impact of peer tutoring on spelling outcomes. They compared outcomes from three groups: (a) competitive team peer tutoring where team members worked to accumulate points for their team; (b) cooperative team peer tutoring where team members worked to accumulate points for all participants (across teams); and (c) standard teacher-led instruction, during which each student worked to accumulate his or her own individual points. The teachers trained the students in the tutor and tutee roles for the two peer tutoring conditions. The researcher monitored student implementation of the peer tutoring to confirm that peers were following the instructions for the spelling routine.

Using data from the spelling assessment, the researcher found that competitive team peer tutoring increased spelling accuracy for these students from 13% during pre-tests to 80.2% during post-tests. The mean percentage scores for cooperative team peer tutoring increased from 12% during pre-tests to 92.8% during post-tests. During the standard teacher-led sessions, the mean percentage scores increased from 14% during pre-tests to only 36.2% during post-tests.

The 2003 study by Madrid was similar to the 2007 study, except that the two intervention groups consisted of active and passive peer tutoring. Active tutoring was similar to the cooperative group in the 2007 study, while passive tutoring included a peer who was instructed to watch another student spell the words. Madrid found that both the passive and active tutoring groups engendered a 50% increase in words spelled correctly from pre to post.

Many limitations exist with regards to these two studies. The first is the low statistical power, given there were less than 20 students in each study. The second is the lack of a control group. However, it is noteworthy that both passive and active tutoring led to similar results in increasing spelling accuracy (Madrid et al., 2003), and that working with a peer instead of the teacher led to statistically significant gains on spelling (Madrid et al., 2007). Although these studies do not conclusively show that peer mediation results in increased spelling ability, the studies do suggest that peers might be more effective mediators of spelling when compared to teacher-directed instruction.

Reading Comprehension and Mediation. Another significant benefit identified in these causal studies of peer mediation is increased reading comprehension. Similar to the early reading skill research, the extant literature on reading comprehension includes research-created interventions like the aforementioned PALS, reciprocal reading, and Collaborative Strategic

Reading (CSR). Each intervention will be described and analyzed below with regards to its impact on literacy performance for multilingual learners and ELs.

PALS and Reading Comprehension. Working with 132 multilingual learners, Saenz et al. (2005) sought to replicate results from prior PALS studies that had previously excluded bilingual learners. Thus, twelve teachers and their students in transitional bilingual programs were randomly assigned to the PALS treatment or to the control group. The treatment teachers received professional development on three PALS activities: Pattern Reading with Retell, Paragraph Shrinking, and Prediction Relay. These activities required pairs to review and summarize information from the text, sequence events, restate main ideas, and make and check predictions. Researchers collected outcome data in the form of The Comprehensive Reading Assessment Battery (CRAB) on 11 students in each of the 12 classes. In each of these classes two students were classified as learning disabled, three as low-achieving, three as mid-achievers, and three as high-achieving students. The researchers also collected information regarding reading instruction in the control classrooms in the form of lesson plans. Researchers compared the lessons plans with the fidelity measures collected on the treatment teachers and found a statistical difference with regard to the percentage of class time dedicated to peer interaction activities. Accordingly, 78% of instruction in PALS classrooms was teacher-directed, and 92% of control classroom instruction was teacher-directed. Peer-mediated instruction accounted for 22% of classroom time in PALS classrooms and only 6% in the control.

The researchers administered CRAB pre- and post-intervention to all 132 students and found that on measures of reading comprehension, bilingual learners with learning disabilities (LD) in PALS classrooms outperformed bilingual learners with learning disabilities in non-PALS classrooms. Effect sizes for low, mid, and high achieving student were also significant.

However, on measures of reading fluency, a lack of statistical significance between the two conditions existed. Although the researchers offered no qualitative data to substantiate their assertion, they posited that the statistical increase in reading comprehension for PALS treatment occurred because paired reading activities offered learners optimal environments to learn language—they had more opportunities to negotiate meaning and receive comprehensible input and output from peers (Saenz et al. 2005).

The researchers offered a few qualifications on interpreting their data. First, they believe that fidelity to intervention and implementation would not have been as high without the technical assistance the researchers provided. Additionally, the language learner population in this study was homogenous (i.e., all native Spanish speakers learning English); the researchers posited that heterogenous classrooms might not offer the optimal context for peer mediation. Lastly, they noted that their statistical power was rather low with only six teachers in each condition group. They believe their findings could be strengthened by scaling up the investigation.

Reciprocal Reading and Reading Comprehension. In addition to PALS, other interventions with peer collaboration and cooperative components examine the impact of peer mediation on reading comprehension. For example, Almaguer (2005) found that ELs' reading comprehension scores significantly improved when they received support through reading dyads. Dyad reading is choral reading by a "lead reader," who reads well, with an "assisted reader," who does not read well. Dyad reading with monolingual learners has been shown to help the striving reader improve reading fluency by having access to "good" models of reading and assistance with decoding, which results in greater reading comprehension (Eldredge, 1990). To test the impact of reciprocal reading structures, Almaguer conducted a quasi-experimental study

with 80 third grade ELs in six classrooms from two schools in *colonias,* towns on the Mexico-Texas border. Forty students of Mexican descent were non-randomly assigned to the control and treatment groups each. The experimental group received dyad reading instruction and the control group received business as usual instruction. Dyad instruction lasted for nine weeks with each session lasting 30 minutes each day. The researcher administered the CRAB pre-intervention to all students and then ranked students based on their performance. Those rankings informed which students were identified as lead readers—those who read the story out loud with the assistant and pointing to pictures and words as they read. Teachers in the experimental group received a half-day training on implementing dyad reading instruction, and the researchers conducted fidelity checks to ensure that dyad reading instruction was taking place. Teachers in the control condition were supposed to implement the district's balanced literacy program.

Post-test measures administered to all students in the experimental and control conditions indicated that students receiving dyad instruction experienced a ¾ of a standard deviation gain on the post-test reading fluency and words per minute subsections of the CRAB when compared to students in the control group. Both lead and assisted students experienced positive reading fluency gains. With regards to reading comprehension, results from the post-test reveal that ELs in the experimental group outperformed the ELs in the control group by half of a standard deviation—achieving statistical significance. Similar to the reading fluency measures, both lead and assisted readers benefited from dyad instruction when compared to students in control using pairwise comparisons. However, the modified cloze section of the CRAB did not yield statistically significant benefits for students in the treatment group when compared to control.

Although the study did not specifically examine and describe the interactions between the students during dyad reading instruction, Almaguer (2005) concluded that ELs benefited from

the socializing aspects of the reading instruction. Additionally, the researcher concluded that paired reading provided students with more opportunities to receive feedback from peers, as well as access to cognitively-demanding texts. However, data to support these assertions is absent.

Similar to Almaguer (2005), Klinger and Vaughn (1996) explored the impact of paired reading and mediation on literacy achievement among 26 multilingual learners with learning disabilities. Students were assigned to one of two treatment groups: one involved reciprocal teaching with cross-age tutoring, and the other reciprocal teaching in cooperative grouping. Reciprocal teaching (Palinscar & Brown, 1984) involves gradually releasing the teacher's responsibilities for leading a text-based discussion to paired students with the idea that the students will take turns being the teacher as they become more proficient in applying the teacher-modeled reading comprehension strategies. Prior reciprocal teaching research explored the effects of teacher-facilitated strategy instruction but did not examined how students apply strategies when the teacher is not present. As a result, Klinger and Vaughn included cross-age tutoring and cooperative learning groups to enhance strategic learning following the teacher-facilitated strategy instruction. The researchers posited that the social nature of the peer teaching provides an optimal environment for students to give and receive the mediation necessary to become more proficient at applying reading strategies independently. Additionally, the researchers theorized that a potential strength of this collaborative intervention was that multilingual learners could use their native language to explain difficult passages or confusing procedures to one another, something many monolingual classroom teachers cannot.

Accordingly, the researchers worked with 42 seventh and eighth grade students in a predominantly Latino middle school in the United States. Students participated in 15 sessions of reciprocal teaching for 40 minutes each day in groups of six or seven. The students predicted

what the assigned passage was about, generated what they already knew about the topic of the text, asked questions about words and phrases they did not understand, identified the main idea of a paragraph, summarized the main idea(s) and key details in the paragraphs, and asked and answered comprehension questions. After the researcher modeled the strategies, the students were tasked with taking more leadership in the discussions. Thus, students took turns leading discussions in the role of "teacher," with the amount of support provided by the researcher gradually decreasing as students became more proficient in leading discussions. After participating in the researcher-led reciprocal teaching sessions, either the students were placed in the reciprocal teaching/cross-age phase, where they taught sixth grade tutees how to implement the strategies, or they were placed in the reciprocal teaching/cooperative grouping intervention, where classmates continued the reciprocal teaching protocol they received while the researchers monitored groups and assisted.

To measure the impact of the two interventions, the researchers used a pre- and post-administration of the GMRT and the Passage Comprehension test developed by Palinscar and Brown (1984). Klinger and Vaughn also collected data on student performance via the Woodcock Johnson battery and the Language Assessment Scales, administered in English and Spanish to measure the language and literacy growth of the students. Although researchers found no significant statistical difference between the two groups with regards to performance on the GMRT comprehension sections post-intervention, students in both group made significant gains on the Passage Comprehension test. The overall reading comprehension of the subjects in this study showed statistically significant growth, $F(1, 22) = 77.14$, $p = .0001$. For both treatment conditions the increases in comprehension were greatest during the reciprocal teaching phase, when the researcher provided substantial support. Although improvement in reading

comprehension continued during the tutoring/cooperative learning phase, the rate of improvement was much less.

In interpreting the significance of their findings, the researchers asserted that students in both groups continued to show improvement in comprehension when provided minimal adult support, and that initial reading ability and oral language proficiency were related to gains in comprehension. Similar to other empirical studies previously reviewed, Klinger and Vaughn (1996) also found that some groups of students benefitted less than others from the reciprocal teaching intervention—particularly students with lower levels of oral language proficiency.

Several caveats must be considered when interpreting the validity of their conclusions. The first is the lack of a control group. Even though the students' reading progress was measured throughout the intervention, it is difficult to unequivocally concur that the reading progress of multilingual learners was solely attributed to the intervention. Absent a control group, we are not certain that student would not have made similar gains in reading without the intervention. Second, the researchers did not describe how cross-age tutoring and cooperative learning looked in practice. As such, it is difficult to conclusively state to what degree peers actually mediated literacy acquisition for one another. Hence, we cannot conclusively assert that the peer mediation resulted in improved comprehension as measured pre- and post-intervention. It is possible that reading performance increased due to other behaviors promoted by the intervention, such as enhanced engagement or motivation.

Collaborative Strategic Reading (CSR) and Reading Comprehension. Continuing their exploration of the impact of collaborative learning, Klinger et al. (1998) conducted a mixed-methods study examining the effects of peer mediation upon literacy acquisition with fourth graders in three heterogenous classrooms over an eleven-day treatment. Informed by studies on

reciprocal teaching (Palinscar & Brown, 1984) and the transactional approach (Brown et al., 1995), the researchers developed an intervention that exploited the benefits of peer mediation for students who can decode but still struggle with comprehending texts.

As reciprocal teaching and transactional approaches to reading instruction are typically teacher-directed with small groups of homogenous students, the researchers wanted to examine whether students will realize the benefits of reciprocal teaching in more heterogenous instructional contexts, which are more common as students progress through the elementary grades (Klinger et al., 1998). Accordingly, the CSR intervention included training pairs of students to preview a text together, click and clunk (i.e., monitor for understanding and use fix up strategies), restate the most important idea in each paragraph through an activity called getting the gist, and wrap up by summarizing the text and asking peers questions.

Five heterogenous fourth grade classrooms participated, with three classrooms randomly assigned to the treatment. The researchers modeled the CSR procedure for the students, gradually asking them to take on teacher roles for all the activities. The researchers also took notes on the implementation of CSR for each session and provided scaffolding to the student groups as they learned how to implement the CSR activities. In the control classrooms researchers presented the language arts curriculum using the district manual, which included asking teachers to preview vocabulary with students prior to reading, having students and teachers read the text, and then having teachers ask students questions.

This quasi-experimental study analyzed the impact of the peer mediation that CSR promoted via discourse analysis and literacy outcomes collected from the GMRT and a social studies test that measured student content knowledge. For the discourse analysis component of data analysis, the researchers used transcribed audiotapes of two CSR groups from each session.

These groups were chosen due to their facility with CSR and their representation of the classes' demography.

Findings suggest students in the treatment made greater gains in reading comprehension on the reading test when compared to the control classrooms. However, students in the control and experimental groups experienced equal gains in content knowledge on the end-of-unit social studies exam. When compared to monolingual students in both conditions, ELs and students with learning disabilities in the experimental group did not see significant differences in gains in reading comprehension scores when compared to ELs and students with learning disabilities in the control group.

The researchers also coded utterances to get a sense of the percentage of overall time students spent on each activity with peers and to ascertain the extent that they successfully implemented CSR strategies with their peers. Qualitative analysis on students' use of these strategies indicates that previewing was used frequently but not always effectively. For example, the researchers concluded that students superficially implemented previewing strategies with peers due to their lack of background knowledge. The same few students tended to contribute ideas, while few others probed, questioned, or made connections to those contributions.

As for the strategy of predicting during previewing, more proficient readers were able to implement this. The researchers theorized that prediction was a difficult skill for struggling readers to use on social studies texts since such books have less internal coherence than narrative texts. On the other hand, the strategy of click and clunk was used the most during CSR, and students seemed to qualitatively benefit from discussing unknown words or ideas. For example, students monitored when they encountered unknown words, and discourse analysis suggested that students who requested help with a word or idea successfully received assistance from peers.

Getting the gist was implemented with some frequency (25%) but with varying success. As one would predict, better readers tended to restate the main ideas more accurately than less proficient readers. However, according to the researchers, even if students with different reading profiles did not equally employ this technique, all students seemed to receive helpful feedback from peers after they restated the main idea. The wrap-up portion of CSR was implemented the least, with researchers theorizing that this was due to time constraints.

Researchers also coded the transcribed audio data to examine the types of discourse used during CSR. They found that most of the student utterances could be categorized as academic or content-related; procedural and off-task utterances were infrequent. Researchers also coded for higher levels of discourse during conversation. Defining high cognitive levels of discourse as instances when students offered multiple points of view and contributed more than two-word level utterances, the researchers found only six of these during the groups they monitored. However, the researchers found this unsurprising, as this type of discourse is not prevalent in most teacher-directed classroom interactions.

This mixed-method study illuminates some important aspects of peer mediation, including the provision of assistance with defining unknown words and concepts, and helping one another develop accurate summary statements of a text. Their findings also suggest that participation in these collaborative tasks benefited the students' literacy development. However, the number of learners in the treatment group was relatively small (N=41) and the qualitative analysis came from only 20 CSR sessions. Additionally, the fact that the researchers taught the lessons in both the CSR and control groups somewhat limits the applicability of their findings, since regular classroom teachers may not be able to implement the procedures with similar fidelity.

As for future directions, the findings from this study suggest that helping students understand the "why" behind a strategy might engender more use of it, thus providing peers with more opportunities to give and receive mediation. Although ELs and students with learning disabilities did not seem to benefit from CSR when compared to these same student populations in the control classrooms, the fact that ELs and students with disabilities had increased access to mediation is promising, and studies with longer interventions may yield improved effects for multilingual students.

It is also important to note that while this study did attempt to ascertain the quality of the talk among learners, the coding scheme of the researchers contained only three codes. It was a rather blunt instrument to measure a complex phenomenon like high-quality talk. Furthermore, this study did not address how the students in the intervention received the mediation, for the researchers only coded utterances produced by the learners. This study's design, while important toward helping the field better understand the impact of peer mediation on EL achievement, also limited its applicability.

Vocabulary Development and Mediation. In addition to exploring the impact of peer mediation on early reading skills and comprehension, another subset of studies investigated peer mediation's effects on vocabulary development. Two interventions that sought to determine the impact of peer mediation on vocabulary for multilingual learners, CSR and Book Club, are summarized and analyzed below.

CSR and Vocabulary. Klinger and Vaughn (2000) conducted another quasi-experimental study to test the efficacy of CSR with a focus on the provision of discursive supportsby peers towards vocabulary development. The researchers in this study worked with the teacher and her 37 students to implement a version of CSR operationalized with defined student roles related to

each of the reading strategy activities. For example, the leader guides the group in the implementation of CSR by prompting peers to apply each strategy at the proper time. The clunk expert uses clunk cards to remind the group of the steps to follow when trying to figure out a difficult word or concept. The announcer calls on different group members to read or share an idea from getting the gist and makes sure everyone participates. The encourager evaluates the group, gives feedback, and encourages all group members to participate and assist one another. The timekeeper helps ensure students get through all of the CSR activities in the time allotted.

This diverse classroom setting included two students with Individualized Educational Plans (IEPs) and was comprised of 31% ELs. Science texts served as the basis for the readings and discussion. After training the teacher in the CSR method, the researchers grouped the students, and the teacher modeled each activity with her students, allowing students to gradually take over all the roles. Each group included at least two high achieving or average-achieving students who were proficient in both Spanish and English and at least two ELs. CSR was implemented 3-4 times a week for 30-minute sessions each. The researchers encouraged first language support for the ELs, noting that student could translate English vocabulary to Spanish to help peers decode words.

To measure student vocabulary acquisition from the science readings, the researchers administered a 25-word vocabulary test two times during the intervention. Students were told to write a definition for each science word on the test. The researchers included some words that were targeted by the text publisher (e.g. bolded words), and some words were selected by researchers because students might have considered them to be “clunks” (e.g. an unknown academic word like “dominance”). Researchers also transcribed and coded CSR implementation via analysis of (a) the percentage of discourse devoted to CSR comprehension strategies, oral

reading, procedural discussion, or the nature of the discourse; (b) the amount and type of mediation provided to peers; and (c) the ways peers responded to classmates' requests to help clarify clunks.

The researchers grouped student helping behaviors into five categories: comprehension check, instruction, elaboration, prompts, and feedback. Because the students provided the most support to peers during click and clunk activities, the researchers developed a coding scheme to specifically understand the impact of those helping behaviors. When analyzing the clunks provided to peers, the researchers found that peers provided definition, translation, conceptual instruction, procedural instruction, elaboration, and other on-task utterances. Concerning the design of the assessment intended to measure science vocabulary and content knowledge, the researchers found statistical significance with regards to student growth pre- to post-assessment.

An analysis of the discourse from the CSR sessions reveals that peers spent most of their time implementing the comprehension strategies, with groups spending 50-70% of the time on the click and clunk activity. They found very few groups spent substantial time on procedural aspects of CSR, leading researchers to conclude that most of the student time in CSR was academic in nature. Although variation existed in the groups with regards to the helping behaviors they provided, students across all groups frequently asked their peers if they had any clunks (part of the click-and-clunk strategy), and students in every group generated numerous words they did not understand. Although the average performance of the students between pre and post vocabulary tests showed statistically significant growth, ELs demonstrated the least amount of growth. Accordingly, the researchers wondered if the requirement to provide a full sentence definition on the vocabulary test was too linguistically demanding for beginning ELs, or if the directions on the assessment were not comprehensible for beginners.

Researchers concluded that the teacher's ability to manage cooperative group learning was essential to the success of intervention and that the study further confirmed that peers can mediate learning for one another. Although they found no instances of peers denying assistance once it was requested, they did identify some instances when the support provided was rather cursory in nature (e.g., a quick translation). Limitations of the study included lack of a control group and the inability to establish for the reader that the vocabulary words on the test were words that students discussed in their groups. A gain on a vocabulary assessment may not be a result of the CSR activities if the students never used the words in their peer led activities. To compensate for this gap in the evidence, the researchers could have coded the instances in peer led discussions when words from the assessments were discussed during the previewing or click and clunk activities. Doing so would have provided a stronger link between the mediation and the outcome. Although the researchers did attempt to account for the quality of the peer talk by categorizing student behaviors they thought were more conducive to promoting on-task behavior and learning, these behaviors are quite broad (e.g., feedback) and thus do not richly illustrate the specific mediation that peers provided.

Book Club and Vocabulary. Using Book Club as a platform to promote peer interaction, Kong and Fitch (2003) examined the impact of peer mediation on vocabulary for fourth and fifth graders in a classroom where most children spoke a language other than English at home. The intervention consisted of teacher and student training to introduce the Book Club processes and procedures following the McMahon and Raphael (1997) program. Thus, students participated in Book Club activities via fishbowls and small group discussions, whole-class discussions, readings of the texts, and then individual writing tasks. The teacher also provided students with explicit instruction on literary elements and on writing. Students who exhibited difficulty in

reading, and who scored much lower than their grade level on the vocabulary section of the Slosson Oral Reading Test (SORT), listened to tapes of the stories for the Book Club.

According to the researchers, the teacher provided students with frequent opportunities to see and hear quality discussions on literature and required students to reflect on the quality of the discussions that were fishbowled and that took place in their own small groups. The researchers reported that the teacher provided opportunities for a gradual release of the responsibilities of the Book Club discussion to the students, and scaffolded instruction for the students who needed it, such as requiring some students to provide more extended responses or giving struggling students a graphic organizer to make sense of the text.

The teacher administered two tests pre and post during the study period: the SORT and the Meta-comprehension Strategy Index (Schmitt, 1990, as cited by Kong & Fitch, 2003). The researchers said that they administered the vocabulary assessment because vocabulary knowledge is an essential component to understanding grade-level texts. The Meta-comprehension Strategy Index was administered to gauge student awareness of their use of reading strategies. Findings suggest that the 20 students had statistically significant gains with regards to vocabulary development pre- and post-intervention, and that the mean differences between the students' responses pre and post indicated a greater awareness of strategy usage.

Several limitations impacted the ability to link Book Club to increased vocabulary scores and students' usage of reading strategies. The first is that the vocabulary measure and strategy self-report are not directly linked to the intervention. The vocabulary the students were tested on was not part of the texts they read, and the intervention did not include a robust vocabulary instructional component. Second, with regards to the intervention, no mention of a focus on reading strategies was mentioned, and thus it is not clear how Book Club might have engendered

any post-intervention gains. Additionally, the absence of a control group and the small student sample are also problematic for concluding that achievement gains resulted from peer mediation provided during Book Club.

Although the study has a solid description of the Book Club activities in action and some focus upon student discourse, the description of the study tended to focus on the teacher's mediation of learning rather than the students' provision of meditation for one another. When discussing the occurrence of instructional and verbal scaffolding to further student understanding of the text, the researchers only provided discourse data from the teacher to support their claims. Moreover, it was difficult to tell from the study to what degree students were able to own the role of facilitating the discussion, as the teacher was the facilitator in all of the provided discourse data. Thus, future studies with Book Club would benefit from highlighting the role of the students in engendering mediation.

Studies Investigating Discursive supportsfor Multilingual and ELs

Before summarizing and analyzing classroom-based literature that describes peer mediation offered to multilingual learners in general education, ESL, two-way immersion, one-way immersion, and transitional bilingual classrooms, it is important to note that a robust set of literature also exists on peer mediation offered in researcher-controlled environments. Such studies investigate mediation offered to peers in laboratory-type settings with task-based interventions like jigsaw puzzles and spot-the-difference tasks. However, this task-based research literature is not relevant to the focus of the study described here, as researchers have long doubted their applicability to classrooms (Foster, 1998). Accordingly, the review of the literature on what the field knows about discursive supportsfor language and literacy acquisition will be limited to studies conducted in K-12 classrooms.

Studies that focused primarily on dual language learners within bilingual or immersion classrooms tended to use ethnographic orientations. They reveal the use of many peer-discursive supports, most of which is related to linguistic mediation, such as crosslinguistic awareness, code-switching/translanguaging, and translation. These studies also demonstrated instances where students offered clarification to another, connected to ideas, requested and received assistance, and provided scaffolding.

The other type of studies that investigated peer mediation with multilingual learners and ELs tended to be situated in mainstream classrooms where these learners were taught alongside non-ELs or monolingual students. In such studies the ELs and multilingual students were not necessarily the target population of the study. It is important to note that these studies, including the mixed-method studies, were conducted on rather small populations, with the largest involving 50 students. The most prevalent discursive supports described in the literature were challenge or press, clarification, elaboration, connecting, invitation, and manage talk. Similar to the studies where the focus population was dual language learners, scaffolding with cues and request assistance were also common. Each of these supports will be described and analyzed below. Additionally, I will highlight aspects from their findings that inform the research design of my study.

Mediation Through Challenge or Press. A few mixed-method and qualitative studies found that, through the implementation of approaches like accountable talk or collaborative reasoning, peers could press or challenge one another, and these types of supports deepened the student's thinking on the concept. Researchers also found that this type of discursive support allowed for more protracted conversations among participants. For example, Zhang et al.'s (2013) collaborative reasoning study with fifth graders in a bilingual classroom found that once

the teacher stopped intervening in the discussion, peers took on more of her role. For example, once the teacher began to sit to the side of the discussion, the researchers found more instances of learners pressing peers as to why they changed their mind or challenging where they found their information. The Zhang et al. (2016) study among fifth grade learners in both bilingual and mainstream classrooms found that peers in both settings could challenge one another and that such mediation were more common in groups that were more proficient at holding discussion without teacher intervention. Additionally, the study of Wolf et al. (2006) with diverse learners grades 1 through 8 found that the accountable talk moves of pressing for accuracy and rigorous thinking had a significant relationship with how rigorous the content of the lesson was rated by the researchers. The researchers theorized that a more rigorous lesson would lead to more learning. Thus, Wolf et al. (2006) concluded that when students in their study provided mediation that pressed or challenged peers' thinking that it led to increased opportunities for deeper learning among students.

Mediation Through Clarification and Verification. Quite a few qualitative and mixed-method studies found that peers were able to clarify and verify student linguistic and conceptual understanding. For example, by employing the CSR intervention discussed above, Klinger and Vaughn (2000) explicitly taught both monolingual and multilingual fifth grade students how to ask for assistance with unknown words in the reading passage, as well as how to verify if everyone understood the passage. The researchers found that students' vocabulary scores pre and post improved as a result of the teaching and implementation of these behaviors. Similarly, Zhang et al. (2016) found that student provision of clarification and verification of student understanding was one of the most frequent types of discursive supports offered by fifth grade learners in both fifth grade mainstream and bilingual classrooms. The frequency of this support

was also strongly correlated with groups of students who were deemed to be more proficient at small group discussions compared to student groups who struggled to maintain a discussion with low teacher intervention. Thus, elementary students with different linguistic profiles offered clarification support to peers during text-based discussion as part of literacy-based interventions aimed at helping sustain academic discussions.

Mediation Through Codeswitching. In the transitional bilingual and two-way immersion research, another feature of peer meditation that emerged during collaborative interactive tasks was the opportunity for learners to engage in codeswitching in order to persist in conversations and extend the learning. Although it is beyond the scope of this paper to differentiate between codeswitching and translanguaging, I will use the term codeswitching in this literature review since this is how most of the researchers coded those interactions where students employed all of their linguistic resources to fully participate in the discussion. Thus, codeswitching is when multilinguals alternate between one or more languages within the context of a discourse event.

In the research reviewed for this study, researchers revealed many ways that codeswitching mediated language and literacy acquisition for students. One function of codeswitching was to help students persist in a discussion when their competency in the target language was lower than most of the other participants (Angelova et al., 2006; DeNicolo, 2010; Gort, 2008; Kibler et al., 2014; Lucero, 2015). For example, DeNicolo (2010) discussed how more balanced bilinguals deliberately codeswitched when they observed peers with less competency in the target language struggling with a task. Codeswitching allowed peers to continue in a discussion that, in more monolingual contexts, would have been closed to them

based on their limited language proficiency in the target language. As a result, codeswitching provided by peers furthered the conversation and prolonged the learning.

Additionally, some peer mediation studies uncovered instances where students used codeswitching to keep peers engaged and on-task. For example, Martin-Beltrán (2010) described occasions where students codeswitched to joke with each other, which worked to help students persist through difficult writing tasks. Additionally, Kibler et al. (2014) depicted cases when codeswitching between adolescent language learners was employed to help the struggling peer feel like a more competent member of the community. For example, in composing autobiographical sketches on their language learning experience, bilingual Spanish-English adolescents invited and maintained fluid language enactments to help newcomer students feel comfortable practicing their emerging language skills. This assistance was offered to the English-dominant students learning Spanish as well, indicating that expert-novice roles can be reversed, and that mediation can be reciprocal. Thus, codeswitching in these instances built solidarity, kept learner engagement high, and served as a tool for learners to make sense of new content despite linguistic challenges. Mediation in these instances also allowed learners to persevere in complicated tasks to extend their learning,

However, research suggests that codeswitching might only lead to mediation when the students view one another's linguistic resources equally. For instance, Lucero (2015) documented instances when codeswitching was implemented to assert linguistic dominance over other peers less proficient in a language, thus curtailing any possible language-based assistance. In addition, codeswitching as a form of peer support is only possible when a classroom contains some bilingual speakers of the same language. For example, kindergarteners in Fassler's (1998) study of an ESL classroom revealed no instances of codeswitching, as the classroom was

linguistically diverse and all students' proficiency in English was relatively low. Thus, while codeswitching is an important form of peer support, it is also not possible in many of the instructional environments in the U.S.

Mediation Through Connecting Ideas. As linking to ideas is one of the pillars of accountable talk and collaborative reasoning, a few mixed-method and qualitative studies from my literature review describe ways that peers provided this discursive support and how it improved academic outcomes for multilingual or EL students. For example, Wolf et al. (2006) measured the quantity of connections offered by teachers and students, including ELs, in grades 1-8 during a reading comprehension lesson. In this study they found that while students were taught to connect to ideas as part of the accountable talk intervention, its implementation by students was quite low when compared to how frequently teachers offered this mediation. The researchers found that this mediation, regardless of who offered it, strongly correlated with high academic rigor scores for the lessons. Budde et al. (2022) also quantified the number of connections that students made to text, video, or multimedia and found that these types of references, or connections, were one of the most frequent supports multilingual learners provided during dialogic reasoning activities.

The mixed-method study conducted by Zhang et al. (2016) also looked at fifth grade students' ability to connect or link to peer or teacher ideas. The researcher found no quantitative difference in the number of connections offered by bilingual learners versus students who were not. The researchers found that this particular support was more present in groups that were classified as more proficient at participating in talk that was more exploratory in nature, regardless of English learner status. They also found a moderate correlation between improved scores on a language assessment and high student implementation of connections. Thus, further

research into how this discursive support might support exploratory talk is necessary to move this line of research forward.

Gort (2008) found that first grade language learners in a Spanish-English classroom were competent at linking to peers' ideas during a joint story writing activity. In this qualitative study she found students were able to link to ideas presented in their peer's story that helped the author add details and make other revisions that improved the accuracy and the content of the story. Accordingly, the literature shows that multilingual learners and EL students of various ages and in a variety of classroom settings can provide mediation that helps peers to see connections among the ideas presented in both published instructional texts and peer-created texts.

Mediation Through Crosslinguistic Connections/Metalinguistic Awareness. An important form of peer linguistic mediation available to students learning in two languages arises when a student analyzes linguistic choices in both languages and uses that knowledge to help peers successfully complete a task. To illustrate, both Martin-Beltrán (2010) and Sato and Ballinger (2012) found that small group discussions among students in a dual immersion classroom provided the space for learners to employ metacognition when using the target and second languages. Martin-Beltrán (2010) documented instances when speakers of similar language proficiency levels helped one other compare the semantic and morphological properties of words in both languages to define and use new vocabulary.

Additionally, the book writing activity in the Kibler et al. (2014) study provided the non-dominant Spanish-speaking students the ability to notice and refine their academic Spanish (e.g., the use of accents) with the help of peers. Although only a limited number of studies addressed the peer mediation mechanism of crosslinguistic connections and metalinguistic awareness, carefully planned academic tasks based on peer collaboration might engender more opportunities

to raise students' metalinguistic awareness, considering few teacher-fronted activities (e.g., mini-lectures, providing directions) create a space where two languages come together as naturally.

Mediation Through Elaboration. Many studies with multilingual learners and ELs found that peers were particularly helpful at helping learners extend their language production, or thinking in general, related to an academic task. For example, a qualitative study on how teachers engender talk moves during an intervention designed to enhance reasoning and argumentation among multilingual learners found that student explanations of their reasoning were one of the most frequently coded student discourse moves (Budde et al., 2022).

Mixed method studies that sought to investigate the efficacy of cooperative or collaborative learning interventions provide evidence that students can become skilled at helping peers elaborate upon their initial thinking. For example, in Zhang et al. (2016), students in a collaborative reasoning intervention learned to extend the ideas posited by a peer during discussion. The researchers found that students who enacted this discursive support evidenced a moderate correlation in achievement on a listening test. The researchers also found that this mediation was enacted less on average by the students in the bilingual classroom than those in the mainstream class. Klinger and Vaughn (2000) theorized that the frequent use of elaboration among some learners might have led to improved vocabulary scores. For example, during the 'clunking" section of the CSR intervention, the learner adds to or rephrases another student's explanation. The researchers suggested that this behavior, which included elaboration, helped the students stay on task and successfully implement the comprehension strategy.

Moreover, some studies found that when students offered mediation that requested elaboration from peers, this discouraged the use of yes/no questions by bilingual leaners. For example, from a transcript taken from Zhang et al. (2013), once fifth grade students in a

sheltered bilingual classroom started to ask questions that required peers to elaborate on their answers, yes/no questions offered by the students dropped precipitously. Thus, when mediation prompted elaboration, not only did these bilingual students have more opportunities at language practice, but they also stopped asking questions that worked to limit discussion and language production.

Mediation Through Invitation. One interesting finding from DeNicolo's 2010 study was that dual language students with higher proficiency in both languages invited students with lower proficiency in the target language into the literature circle conversation. Not only would students invite peers, the researchers also found instances when students suggested that their peers participate in Spanish when they saw them struggle with English.

Zhang et al.'s 2013 mixed-method study with bilingual fifth grade learners also found some instances during collaborative reasoning discussions where students invited reluctant peers into the dialogue. They did this by specifically requesting certain students to speak or by opening up the invitation to the group. Such mediation work to more equally distribute participation among students can enhance the students' ability to use academic language and more fully engage with the academic content.

Mediation Through Manage Talk. The literature reveals that when students felt empowered to manage the dialogue, participation among learners expanded and ideas deepened. DeNicolo's qualitative study (2010) founds instances where peers in literature circles learned to guide the discussion so that the talk was respectful, thus providing learners with access to different viewpoints. Aradasheva et al. (2016) found in focused interviews with middle school ELs who had learned to use accountable talk moves that they had internalized behaviors aimed at helping then notice when peers were off task, and they felt they had the skills to help peers get

back on track during math discussions. Additionally, Zhang et al. (2016) found that discussions where learners took on the roles typically reserved for the teacher were more likely to promote a freer exchange of peer ideas. Accordingly, when peers provide mediation that fosters more productive speech, more learning is possible, as responsibility for learning is distributed across the group rather than located within the authority of the teacher.

Mediation Through Requests for Assistance. Dual language programs afford students the ability to ask questions of peers in the home language to receive just-in-time scaffolding necessary to complete academic tasks. Olmedo (2003) recounted several instances of kindergarten language learners soliciting and receiving assistance with questions that they had about what the teacher expected during school-based tasks. Additionally, DeNicolo (2010) identified many instances in her study of literature circles when peers sought and received clarification about the story they were discussing, or about the process related to participating in the literature circle. Moreover, Martin-Beltrán (2010) found elementary learners frequently elicited peer assistance and approval with regards to word choice during collaborative letter writing tasks. For example, an English-dominant student read her letter to a peer and used rising intonation to indicate that she was unsure of her word choice. Her peer, in response to this uncertainty, offered up a synonym that more accurately captured her semantic intent. In such instances, multilingual learners were able to provide just-in-time support, giving peers the input necessary to further their linguistic and literacy development. The provision of this discursive support allowed students both to develop further proficiency in their non-dominant language and to be positioned as an expert, depending on the language the students were writing in. Being positioned as an expert helps to foster the belief among peers that they can learn from one

another. Thus, the letter writing activity allowed the peers to distribute cognition among one another to leverage each peer's home language.

Receiving assistance in the form of clarification also supported students' comprehension and their facility with academic tasks. For example, Gort (2008) found that peers often reminded one another to use the word wall during writing workshop activities, and they asked peers to read their writing to help them employ effective plot devices. Therefore, multilingual learners offer and receive mediation to peers to help clarify expectations of academic tasks and validate academic performance. Additionally, Kibler et al. (2014) found that adolescent pairs mediated phonological awareness for one another in their two languages while co-creating a story. For example, one student in the study said this about his ability to write in Spanish at the conclusion of the project: "If I didn't know how to spell something, I would ask Isabella, 'How do you spell this?' or, you know I definitely, I learned a little bit more ...[because my] writing's not so great" (Kibler et al., 2014, p. 264). Similarly, Rubinstein-Avila's (2003) qualitative study also found that asking and answering questions was a form of mediation promoted by a Buddy Reading activity. In this Portuguese-English dual language program she uncovered instances where a reader indicated she needed help in decoding the words in the text, and the peer was able to provide in-the-moment support that allowed the learner to continue with the reading and gain meaning from it.

Mediation Through Scaffolding with Cues. Many studies identified multiple occasions when multilingual and ELs assisted with their peers' participation in discussions through verbal, instructional, or procedural scaffolds. For example, in a transitional bilingual setting, elementary ELs used prompts like, "Do you want to add anything to that response?" (Klinger & Vaughn, 2000, p. 81) to elicit more language during a text-based discussion. Other studies of dual

language learners recounted how students scaffolded participation in text-based discussions by providing words of encouragement and validations when peers struggled to produce comprehensible output (DeNicolo, 2010; Kibler et al., 2014; Rubinstein-Avila, 2003; Martin-Beltrán, 2014).

Studies also described specific verbal scaffolds students implemented to refine their interlocutors' responses. For example, some peers provided their classmates with synonyms to make utterance more "academic" (Martin-Beltrán, 2010), whereas others provided corrective feedback to highlight when a classmate's utterance was not accurate (Sato & Ballinger, 2012; Fassler, 1998). In a dual language setting, Angelova et al. (2006) recounted instances of multilingual learners providing incremental support to peers during writing tasks that resulted in students understanding the difference between two Spanish articles. Similarly, Martin-Beltrán (2010) found peers provided mediation through the repetition and contextualization of unfamiliar words and phrases in both English and Spanish during collaborative writing tasks. Additionally, during a writing workshop, Gort (2008) identified several instances when peers incorporated ideas offered by other learners into their writing. Such instances demonstrate that multilingual learners can provide peers with just-in-time support for academic tasks. Other times this helping behavior functioned more like corrective feedback. For example, Sato and Ballinger's (2012) study of one-way immersion learners found that when classmates used the incorrect term in the target language, the peer employed codeswitching to explain and use the correct term in the peer's stronger language. Thus, peers provided mediation for one another by providing the correct term and by using the first language to offer additional linguistic support and context.

Moreover, other studies suggest that multilingual learners who do not share the same home language are also able to provide scaffolding for one another in a variety of group and pair

activities (Fassler, 1998). For example, peers in an ESL classroom mimicked teacher-discursive supportsduring table time by asking peers to identify items (e.g., “What’s that?”), and by spontaneously engaging in reciprocal reading that the teacher modeled during literacy blocks. Clearly, multilingual learners are capable of providing academic support that is typically the purview of the teacher.

Immersion settings also reveal instances of scaffolding with cues. Sato and Ballinger’s (2012) study with third and fourth grade immersion students revealed that peers were able to provide corrective feedback to one another. Moreover, feedback reciprocity was present in both the English- and French-dominant pairs that they studied. However, the offering of peer mediation in this study did not consistently produce cognitive or linguistic benefits for all the learners. For instance, peers who provided more instances of mediation in the form of corrective feedback to peers also participated less in the assigned collaborative task. As a result, those learners did not receive the full benefits the collaborative task offered. Researchers speculated that the diminished engagement in the task was a result of the mediation-providing student’s perception that her peer was not a partner she could learn from (Sato & Ballinger, 2012).

Caveats regarding the provision of scaffolding with cues during peer mediation exist. For example, in a study of immigrant adolescents in a newcomer ESL classroom, King et al., (2017) found peers offered little mediation of language during peer interaction when the tasks were closed and cognitively undemanding. Similarly, in a different study conducted in the same instructional setting, Bigelow and King (2016) found that a reciprocal reading activity afforded few opportunities for peer mediation due to unequal second language proficiencies. Moreover, Lucero (2015) found that more balanced bilinguals in small group, text-based discussions often refused to scaffold learning for peers with weaker language skills. As such, while this type of

discursive support was certainly possible given the linguistic make-up of the group described in the study, the instructional climate and classroom culture hindered its implementation.

Mediation Through Translation. A frequently cited mechanism for peers to mediate language learning for one another is translation. Ethnographic studies with bilingual and dual language learners identified many instances in structured and unstructured dialogue where students provided their peers with a word or phrase that they could not produce for themselves in the target language. Researchers found this helping behavior manifested itself in diverse ways and contexts. For instance, Olmedo (2003) documented kindergarteners in dual language classrooms providing peers with translations to participate in classrooms routines through a discursive support she called the "bilingual echo." This echo translated for the students what the teacher was saying, but also provided an opportunity for students to modify or clarify what the teacher said to make the discourse more comprehensible. For example, Olmedo found that students sometimes paraphrased teacher instructions for peers to ensure that all students could equally participate in the academic tasks.

In a study of Spanish-English bilingual peers conducted in a two-way partial immersion program, Gort (2008) reported that English-dominant students provided peers with English glosses for Spanish terms during a writer's workshop. While assisting peers in revising narrative texts, more proficient Spanish speakers supplied vocabulary terms for less proficient Spanish speakers when they struggled to generate the necessary Spanish vocabulary. Additionally, through collaborative dialogues, peers stronger in the target language were able to help weaker students incorporate more accurate vocabulary into their written narratives (Gort, 1998).

Even though the literature documents many instances of mediation provided by the student with stronger language and literacy skills, Gort (2008) and Rubinstein-Avila (2003) also

identified instances of reciprocal peer mediation with young bilinguals. In such cases, the expert-novice roles alternated according to the task and proficiency of the children. For example, in a case study on two second grade Portuguese-English emergent bilinguals, Rubinstein-Avila (2003) found that it was not always the stronger multilingual learner who offered just-in-time translation. Rather, Rubinstein-Avila documented instances when the student with the weaker proficiency in the second language suggested translations to the more dominant student when she anticipated that the student's particular dialect of Portuguese might impede her comprehension of the text.

Similar to findings from dual and partial immersion programs with early elementary learners, Martin-Beltrán (2010) found fourth and fifth grade language learners in a two-way immersion program often provided each other with English or Spanish glosses and helped peers more deeply understand the translated terms through protracted discussions. DeNicolo (2010) also described instances when the implementation of literature circles to discuss narratives provided an optimal context for fourth grade peers in a dual language classroom to mediate text comprehension through translations to peers. Furthermore, DeNicolo noted that access to Spanish language translations during the literature circle helped the less proficient English speakers be viewed as more competent by the more dominant-English speaking peers. To explicate, once the linguistic resources of the Spanish-dominant students were recognized by the English-dominant students, the previously timid Spanish-dominant speakers began to contribute more to discussions in English. Similar to the findings regarding peer mediation with early elementary leaners, DeNicolo (2010) also noted instances where peers provided less proficient speakers of English with word-to-word translation in English to help them stay engaged in the discussion and answer comprehension questions. Thus, peer mediation through translation

allowed the first language to be viewed as a resource, while at the same time helping students to persist during complex tasks, such as evidence-based discussions on text and narrative writing.

Additionally, Klinger and Vaughan (2000) found that bilingual peers offered differentiated translation support based on the peers' perception of the other learners' language and literacy ability. For example, when a bilingual peer perceived that her classmates were already familiar with the concept in Spanish, she simply provided the Spanish translation for the English word. However, in other instances, she used Spanish to provide an elaborated definition when she thought the idea or concept was unfamiliar to her peer. Thus, collaborative interactive tasks provided an opportunity for peers to help their classmates quickly compensate for any linguistic challenges they encountered while engaging in the task. The quick and in-the-moment provision of meditation allowed peers to remain in the conversation and participate in the learning. Additionally, several researchers posited that translations benefited the more proficient speaker just as much as the student needing the mediation, since providing the second language gloss deepened the bilingual's metalinguistic ability (Angelova et al., 2006; Klinger & Vaughn, 2000).

Linking Student Outcomes and the Quality of Talk to Mediation

As noted in the studies reviewed in the previous sections, researchers found that multilingual learners and ELs can and do provide a variety of discursive supports during collaborative and cooperative activities. Additionally, some of the studies with descriptions of the discursive supports attempted to measure the quality of the discussion and/or the impact that mediation had upon student learning. Specifically, I will review three of those previously mentioned studies with a lens toward evaluating both their ability to link peer mediation to outcomes and how they measured quality of talk with multilingual learners and ELs.

Cooperative Strategic Reading. While Klinger et al. (1998) and Klinger and Vaugh (2000) do try to account for the quality of offered peer supports as part of their peer-mediated CSR activity, their quality classification system is rather blunt and their descriptions of peer mediations rather weak. For example, they provide five helping behaviors that they attempt to link to reading or vocabulary performance, with each behavior containing three or four types of mediation each. Thus, it is not clear from their data which mediation might actually be most helpful to the students' reading or vocabulary acquisition. For example, both low- and high-level responses are folded into the category of academic/content related (Klinger et al., 1998; Klinger & Vaughn, 2000). One could hypothesize that high-level responses foster more productive discussion and learning than low-level responses, but we do not know for sure.

Additionally, when the researchers attempted to capture the quality of the discussion, they did so by only categorizing a discussion as high level. A discussion is categorized as high level if it contained multiple points of view, the students interacted with one another, and the student contributions went beyond two words (Klinger et al., 1998; Klinger & Vaughn, 2000). Categorizing discussions as only high level and not having a more nuanced approach limits our understanding of peer mediation. After all, we can learn from discussions that are close to high quality but do not fully meet the criterion. For example, what is going on in a discussion where the students might have provided protracted contributions but primarily interacted with the teacher rather than peers? Was there mediation (or lack of mediation) limiting the students' ability to work to distribute cognition among one another? Or what is going on in discussions that had multiple points of view but not enough student exchanges to warrant high quality? A finer measurement tool to categorize discussions might have helped researchers interested in this phenomenon better understand how and in what ways peers mediated higher quality discussions.

Additionally, the researchers acknowledged that the teachers in the implementation had excellent classroom management and were skilled at CSR. Thus, it is important to continue studying how these types of interventions, designed to promote active discussions through peer mediation, work with teachers less proficient in such approaches and with less effective management styles. Through this line of research, we can learn more about potential pitfalls that can emerge during the training stage and what we can do to mitigate these challenges.

Collaborative Reasoning. As noted earlier, though the CSR studies reviewed above did attempt to probe relations between quality, peer supports, and their impact upon outcomes, they did not quantify individual discursive support within the strategic behavior, and they used an either/or dichotomy to assess the quality of the discussions. To better understand how these supports impact literacy outcomes, it is important for future studies to incorporate and measure variables like the frequency of discursive supports and the quality of the talk. One study that did attempt to link features of exploratory talk to outcomes for multilingual and ELs was the Zhang et al. (2016) study. Using the Mercer (1996) framework for quality talk, the researchers categorized student discussions as either cumulative or exploratory in nature, with cumulative discussions exhibiting explanations and confirmations. Exploratory discussions were categorized by argumentation and high-level questioning by peers. While the researchers found that the students who talked more in the collaborative reasoning discussion had higher post-test outcomes on some of their language assessments, they found low to no correlation with participation in higher proficiency discussion groups as measured by the criteria outlined in Almasi et al. (2001).[1] While the researchers found students who participated in higher proficiency discussion

[1] See Chapter 1 for an explanation of the Almasi et al. (2001) criteria.

groups tended to also participate in more exploratory discussions, they did not find a strong correlation between the group's use of exploratory talk and the student's performance on language assessments.

In conclusion, the studies reviewed in the three previous sections identified eleven discursive supports that multilingual and ELs were able to implement in a variety of educational settings and under different research approaches. Some of the research programs used highly scripted formats to promote peer mediation, while others situated the mediation within more generic classroom activities, like writing letters together or discussing a book. Some also attempted to link quality of talk to mediation, yet none had a clear way to capture or measure how peers uptake these mediations. Next, I will outline the teacher-enacted behaviors in these studies that relate to helping multilingual and ELs support one another's learning.

Teacher Promotion of Peer Mediation

As the extant research suggests, teachers are integral for creating a classroom environment that promotes successful peer interaction and mediation. Accordingly, the reviewed studies reveal instances when teachers served as helpful facilitators in terms of their ability to create a task that required the students to speak and modeled behaviors that might engender more peer talk between students. Teachers were also integral in establishing a classroom climate that promoted productive and plentiful discussion. Four teacher mechanisms drawn from the studies provide multilingual student with tools to mediate language and literacy for peers: defining student roles, providing language scaffolds, creating group-worthy tasks, and offering explicit teaching and coaching during peer led discussions (Figure 2.1).

Figure 2.1

Ways Teachers Facilitate Peer Linguistic Mediation

Teacher Mechanism	**Studies**	**Examples**
Student roles	Almaguer, 2005; Calderon et al., 1998; Calhoon et al., 2007; DeNicolo, 2010; Greenwood et al., 2001; Lucero, 2015; Klinger & Vaughn, 1996; Klinger & Vaughn, 1998; Klinger & Vaughn, 2000; Madrid et al., 2003; Madrid et al., 2007; McMaster et al., 2008; Rubinstein-Avila, 2003; Prater & Bermudez, 1993; Saenz et al., 2005; Sato & Ballinger, 2012	Assigned a role like recorder or discussion leader Reciprocal teaching Tutor-tutee
Language scaffolds	Angelova et al., 2006; Budde et al., 2022; DeNicolo, 2010; Klinger & Vaughn, 1998; Klinger & Vaughn, 2000; Lucero, 2015; Martin-Beltrán, 2010; Sato & Ballinger, 2012	Trained students how to provide corrective feedback through role play and practice activities Provided students with scripts on how to encourage peers in the target language Taught students how to ask questions that elicit oral language use Taught students how to prompt a peer to make a prediction Provided synonyms to enhance understanding of language
Group-worthy tasks	Calderon et al., 1998; Early & Saidy, 2014; Gort, 2008; Lucero, 2015; Kibler et al., 2014; Klinger & Vaughn, 2000; Kong & Fitch, 2003; Martin-Beltrán, 2010; Sato & Ballinger, 2012; Zhang et al., 2013; Zhang et al., 2016	Collaborative writing Book Talk Video projects Information Gap Literature Circles
In-the-moment coaching/explicit instruction	Budde et al., 2022; Lucero, 2015; Jadallah et al., 2011; Zhang et al., 2013; Zhang et al., 2016	Coached during active discussion Referred students to anchor charts Intervened in discussions to notice and name peer behaviors

The nature of some studies placed a strong emphasis upon teacher facilitation of peer dialogue. For example, some interventions (Calhoon et al., 2007; Greenwood et al., 2001; Klinger & Vaughn, 1996; Klinger & Vaughn, 2000; Klinger et al,, 1998; McMaster et al., 2008; Saenz et al., 2005; Sato & Ballinger, 2012) required the teacher to assign roles to students and teach them how to perform the roles to engender a productive dialogue. Thus, these group roles seemed to encourage a highly structured form of peer interaction in the absence of the teacher's presence or guidance. In studies exploring the efficacy of reciprocal reading, tutor-tutee roles allowed students to use each other as linguistic resources in order to mediate a successful oral retelling (Almaguer, 2005; Rubinstein-Avila, 2003; Saenz et al., 2005). Additionally, the functions of the student roles included supplying their peers with terms in the target language when they needed (DeNicolo, 2010; Klinger & Vaughn 1996, 1998, 2000; Saenz et al., 2005) and providing feedback on the accuracy of oral output (Gort, 2008; Sato & Ballinger, 2012). As such, assigning student roles was one way teachers promoted enhanced peer mediation during collaborative tasks.

Providing scaffolds was another frequent teacher mechanism to promote more peer mediation. Some studies described very scripted and planned instances of teacher-provided scaffolds (Klinger & Vaughn, 2000; Saenz et al., 2005), whereas other researchers described instances where the use of scaffolds was more spontaneous. For example, Angelova et al. (2006) recorded instances where the teacher paraphrased a student's oral response once she realized it was limiting the student's ability to participate in discussion. Calderon et al. (1998) described how the teacher provided in-context definitions for unknown words and background knowledge in order to lay the groundwork for a productive, peer-mediated discussion. These planned and in-the-moment scaffolds served as models for students, and they laid the groundwork necessary for

students to take over an instructional role traditionally reserved for the teacher. Budde et al. (2022) described how teachers rephrased and clarified peer responses to enhance student participation in dialogic reasoning discussions. The researchers found that this type of scaffolding directly supported multilingual learners' use of reasoning discourse moves.

Another teacher mechanism that increased the likelihood of peer mediation was the development of group-worthy tasks (Lotan, 2003). Group-worthy tasks are complex activities that require genuine problem solving by self-managed students in small groups (Lotan, 2006). Several studies described learner tasks that necessitated peer talk to accomplish the goals of the lesson and hence created a space for peer mediation. For example, Kibler et al. (2014) described how students increased their metalinguistic awareness of both the first language (L1) and second language (L2) when working with peers on a video project. Additionally, many studies leveraged the authentic nature of classroom tasks such as Book Clubs to increase peer mediation (Kong & Fitch, 2003). Shared writing tasks also provided opportunities for students to expand their own and their peers' lexical and semantic knowledge (Martin-Beltrán, 2010; Rubinstein-Vila, 2003). Activities like information gaps, where students had to orally interact in order to recreate a story (Sato & Ballinger, 2012), also created authentic reasons for students to interact and thus provided peers with feedback on output.

Coaching and explicit instruction by an expert was a function of many research studies and a component of researcher intervention. For example, in studies investigating accountable talk there is a strong emphasis on explicit instruction of talk moves such as linking, asking for knowledge, and challenging thinking. However, while source books exist to provide teachers with information on how to instruct these behaviors (Michaels et al., 2010), no studies

empirically investigate how teachers learn to do this with multilingual learners and how the enactment of this professional learning impacts student proficiency with the behaviors.

Budde et al.'s (2022) study on dialogic reasoning found that the two elementary teachers that took part mostly provided procedural talk moves to students (e.g., reminding them of tasks). However, when teachers are able to provide explicit support on how to reason, such as asking for evidence or prompting students to connect to the texts, their students were able to appropriate it. For example, in one instance the teacher asked a clarifying question, which prompted a student to offer her position and reasoning to her peers. Thus, the teacher was integral to student participation and deeper engagement with the topic.

This type of instructional support via teachers or researchers was also present in the CSR and collaborative reasoning studies. For example, in those studies we are told teachers were introduced to behaviors of prompting, thinking out loud/modeling, asking for clarification, challenging, encouraging, fostering independence, and summing up. However, those studies do not substantially describe how teachers learn and teach these behaviors so that multilingual learners and ELs can enact them. Thus, research is necessary that looks more closely at the role of the teacher in the context of student enacted mediation.

Another aspect of explicit instruction and coaching was strategic interventions by teachers or researchers in collaborative discussions, either to reorient students to the task, or to validate and encourage their participation. Lucero (2015) identified instances where students needed to be reminded of their roles in order to keep the peer dialogue going, and several studies highlighted how words of encouragement or validation from the teacher enabled students to persevere in the dialogue, even when it was difficult (DeNicolo, 2010; Martin-Beltrán, 2010). Klinger and Vaughn (1996, 2000) also documented the need for robust and continual training for

teachers to support and implement peer-focused interventions. Their actions were essential to the development of opportunities for peers to learn to mediate language and literacy for one another. Some studies also found that instances of over-intervention were more common in settings with ELs. For example, Zhang et al. (2016) noted that the teachers in the sheltered bilingual classrooms had greater difficulty staying out of conversations compared to teachers in the mainstream classroom. This is not surprising given previous literature observing that teachers can sometimes have low expectations for ELs (Valdes, 2004).

Critique of Methodologies

As the preceding sections documented, multilingual learners can and do mediate learning for one another, and teachers are instrumental for the promotion of learning environments that encourage peer mediation. These sections also addressed methodological issues that limit the reliability and validity of these findings. Accordingly, I will now more specifically delineate the gaps in what we know about peer mediation and provide recommendations towards improving the utility of studies that address the efficacy of peer mediation for multilingual learners and ELs. Addressing the methodologies of existing studies is vital for strengthening the argument that students learning to read and write in multiple languages can learn from peers during cooperative and collaborative tasks (Johnson, et al., 2000; Slavin, 1996; Webb, 1982). Additionally, I will explore methodological issues that hinder the ability of classroom teachers to implement these promising practices. If research does not address real-world instructional contexts, it limits practitioners' ability to visualize these interventions in their classrooms with their students. Accordingly, methodologies such as case studies are well situated to provide necessary information on complex and dynamic environments like classrooms (Barone, 2011). Other reasons why past peer mediation studies struggled to explicitly link peer mediation to improved

literacy achievement include measuring both the quality and the quantity of mediation offered to and received by peers and using those variables to explain academic benefits resulting from peer mediation. The remaining section of this chapter will critique the methodologies of the studies in my literature review to better frame my study's methodology.

Linking Peer Support to Improved Reading Skills and Fluency. The extant literature on studies employing qualitative and mixed-method methodologies to investigate the helping behaviors offered by and to language learners often provides robust descriptions of peer discursive supports such as translation, code-switching, scaffolding, metacognitive awareness, and requests for clarification. However, few of the studies provide empirical evidence to support the claim that such helping behaviors lead to increased language or literacy outcomes for the language learners. DeNicolo (2010) offers rich descriptions of how learners in dual immersion settings encouraged peers to persist during literature discussions when limited vocabulary and syntactic knowledge of the target language posed significant challenges. Additionally, Martin-Beltrán (2010) documented many instances when peer mediation offered learners enhanced opportunities to raise the metalinguistic awareness of themselves and their peers. These qualitative studies also provide robust discourse data that reveal even very young bilingual learners can scaffold speech events to assist peers with completing collaborative tasks (Gort, 2008). As such, it is apparent that sufficient qualitative studies exist to conclude that peers can benefit when they mediate language and literacy for one another. Accordingly, to move the field of language and literacy education further, it is crucial that researchers prioritize the investigation of the causal links that exist between literacy tasks and peer mediation.

As noted in the previous section, some mixed method studies do attempt to describe the discursive supports and seek to link them to quality of talk and student outcomes. For example,

the mixed-method study of Zhang et al. (2016) attempted to correlate student pre- and post-performance on a language and reading assessment with students receiving support in groups deemed highly proficient in discussion. However, the correlations were moderate at best and not conclusive regarding the impact that the mediation had on performance. Klinger and Vaughn. (2000) also sought to categorize high-quality talk that emerged from peer-mediated discussions. However, as mentioned earlier, categorizing discussions as only high level and not having a more graduated approach limits our understanding of peer mediation as a mechanism that can improve academic outcomes.

Existing quantitative studies employing researcher-developed interventions posit that the multilingual learners and ELs' change in outcomes on measures of spelling, vocabulary, phonemic awareness, and reading comprehension are statistically significant, which demonstrates that cooperative or collaborative literacy practices help language learners. However, unlike the qualitative studies, very few of these quantitative studies also document the ways peers actually helped one another during the intervention. While the studies do provide descriptions of the peer led activities, they often do not describe the actual implementation of the tasks during the data collection period. For example, the PALS and K-PALS studies (Calhoon et al., 2007; McMaster et al., 2008; Saenz et al., 2005) describe the collaborative tasks the peers were taught to perform, but the researchers do not offer descriptions of what peers say or do during the tasks. While fidelity checklists may capture that a student coached his peer tutee during the story retell or asked a peer to try to sound out a word again, we do not know how the tutor enacted the coaching or whether the tutee attended to it. Without some discourse-level data, it is difficult to confidently claim that the task promoted the type of mediation that might have led to increased literacy gains.

Similarly, the studies on CWPT (Greenwood et al., 2001; Madrid et al., 2003, 2007) also described improved spelling outcomes for ELs, but they offer no insight into how the peer tutoring looked in implementation. For example, did peers actually offer corrective feedback or words of encouragement during the tutoring session? Did the tutee ever ask the tutor for clarification on the pronunciation of a word, and if so, what happened? Did the learner receive the requested support? Without documenting the request and receipt of assistance, it is difficult to claim that improved outcomes on the spelling tests resulted from peer mediation.

While some methodologies do fall short of engendering strong claims of validity, other studies employ research designs that provide stronger causal links between mediation and student outcomes. For example, the CSR study (Klinger et al., 1998) used a mixed-methods methodology to illuminate important aspects of peer mediation and to quantify student growth based on the type and quantity of discursive supports offered. Accordingly, the researchers coded the helping behaviors that peers used during the intervention and analyzed the data to ascertain the frequency of use for the various collaborative tasks and for the language functions employed (e.g., provide definitions, ask questions). The researchers also coded the student discourse data to ascertain to what degree their talk was a higher level of cognitive reading.

Their findings suggest that students in the intervention had statistically significant growth in reading comprehension when compared to the students in the control group, and that student discourse was more robust when defining unknown words than when previewing the texts with one another. The researchers were also able to posit that a substantial portion of time during the collaborative literacy tasks was focused on academic learning in contrast to procedural elements (e.g., whose turn is next). In summary, Klinger et al. (1998) provide a rather robust description of

what students did during the collaborative learning contexts, and thereby help other researchers envision how task participation could be linked to improved literacy gains for ELs.

Although the research design of this study enables us to link peer support to increased literacy gains with greater confidence, limitations exist that future studies could address. For example, the intervention was very brief (three weeks) and the qualitative analysis came from a relatively small sample of CSR sessions. Additionally, the researchers, instead of the teachers, taught the lessons to both the CSR and control groups. This could limit the applicability of their findings, as regular classroom teachers may not be able to implement the multi-pronged CSR procedures with similar fidelity. To build off the findings from this 1998 study on CSR, researchers might consider working with a larger student population, collecting student discourse data over a longer period of time, and collecting data from classrooms where instruction on peer mediated behaviors is conducted by classroom teachers. Moreover, the researchers did not include the relationship between the quantity of mediation and the quality of the mediation when investigating literacy outcomes.

Similar to the earlier CSR study, the design of Klinger and Vaughn's 2000 study also provides researchers with a helpful model to begin to link peer mediation to literacy gains via vocabulary. Collecting a larger amount of student-level discourse data than the 1998 Klinger et al. study, the researchers provide not only the amount of time that peers spent on each type of reading activity, but also the amount and type of helping behaviors the peers provided to one another and the ways that peers responded when help was requested. After coding over 4,000 student utterances collected during CSR implementation, the researchers found that most of the student discourse during CSR was related to the text or some procedural aspect of CSR. Additionally, while each group varied in the percentage of helping behavior they offered, all

groups spent a large part of their time helping peers during the click and clunk phase where they discussed unknown words. The researchers found students were more likely to provide quick Spanish translations for unknown words than elaborated explanations.

To further establish the link between peer support and vocabulary development, the researchers administered a vocabulary assessment that contained words from the text used for student discussion. Using this more proximal assessment of student learning, the researchers found all students demonstrated significant pre and post vocabulary growth. However, for the ELs, statistical significance in vocabulary growth was achieved only on one of the two tests.

Although the design of the study does better illuminate the type and frequency of helping behaviors offered to peers during CSR, and it attempts to more explicitly link the intervention to increased literacy achievement, the methodology somewhat limits the validity of their findings. For example, although the researchers attempted a more proximal measurement of mediation via the vocabulary test, the researchers were unable to establish that the vocabulary words on the test were the words that students discussed in their groups. A gain on a vocabulary assessment may not be a result of the CSR activities if the students never used the words in their peer-based activities. To ameliorate these assessment issues, the researchers could have coded those instances when words from the assessments were discussed during the previewing or click and clunk activities. Doing so would have provided a stronger link between the mediation and the outcome. Additionally, assessment of components of literacy like vocabulary and comprehension, is not the only way to measure the impact that discursive supports have on learners who participate in these activities designed to distribute cognition. Other "non-cognitive" aspects of reading are important to assess too, such as motivation and self-efficacy (Afflerbach, 2018). Nevertheless, given that previous studies have relied on more distal

measurements to establish a causal relationship between mediation and improved literacy outcomes, the attempt to create an assessment with a more proximal link is helpful as we consider the way researchers should approach the measurement of peer mediated learning.

Similar to the critique of PALS and K-PALS, Kong and Fitch's (2003) study on peer mediation during Book Club activities had numerous limitations for understanding how peer mediation might have impacted literacy acquisition for multilingual learners. Several limitations impact the ability of the researchers to conclusively link student participation in Book Club to increased vocabulary scores and students' use of reading strategies. The first limitation is that the vocabulary measure and the student self-report of strategy use are only distally linked to the intervention. The vocabulary the students were tested on was not part of the texts they read, and moreover, the intervention did not include a vocabulary instructional component. Second, the researchers did not describe how the teaching and implementation of reading strategies were addressed during the intervention. It is not clear how Book Club might have engendered any post-intervention gains with regards to the student self-report survey of strategy use. Future studies on student-led discussions of literature will want to capture student data that is more closely linked to the Book Club activities and the mediation it engenders to determine what aspects of Book Club might have led to increased student outcomes. For example, did asking peers clarification questions regarding their inferences provide opportunities for ELs to receive in-the-moment scaffolding that would result in more awareness of how to use inferencing as a strategy? And in turn, did the uptake of the mediation by peers lead to self-reports of increased use?

Although Kong and Fitch (2003) provided solid descriptions of the Book Club activities in action and some focus upon student discourse, the study's findings tended to focus on the

mediated interactions by the teacher rather than the peers. When discussing the occurrence of instructional and verbal scaffolding to further student understanding of the text, the researchers only provided discourse data from the teacher to support their claims. Moreover, it was difficult to discern from the study the degree to which students were able to fully take on the role of facilitating the discussion, since the teacher was the facilitator in all the provided discourse data. Thus, future studies with Book Club would benefit from highlighting the role of the students in mediation.

Linking the Provision of Discursive Supports to Student Uptake. An issue concerning most studies is the extent to which researchers captured whether the peer noticed and responded to the discursive support. For example, we know from some descriptive studies that students offered translations to peers and codeswitched to help less proficient students participate in the conversation. However, we do not know to what extent the peer noticed or benefited from the support. From mixed-method studies we know that peers could summarize informational texts for one another, but we do not know if there was uptake of this support. For instance, student discourse data from Klinger et al. (1998) indicates that during the *getting the gist* activity the students went around in the circle telling peers their *gist*. However, there is no data on whether students discussed the accuracy and quality of each other's summaries. Accordingly, it is difficult to ascertain how *getting the gist* during this peer led activity helped multilingual learners. Thus, future studies must more systematically account for and link the discursive supports provided to peers. For example, when a peer supplies a multilingual learner with a more academic synonym, studies must be able to show whether the student heard the support and whether the provision of the assistance impacted their English literacy development. Perhaps the learner acknowledges the mediation, or she links to it, or the synonym shows up in a writing

sample based on that text a week or two later. Accordingly, future research should consider developing methods for ascertaining whether discursive support is received and taken up by learners.

Furthermore, future studies must be able to state in a more conclusively way which learners benefit from mediation. For example, does the peer who provides the discursive support benefit more than the peer who is receiving the support? And do differences exist between student populations? For example, do multilingual learners benefit more from discursive support hat assists with procedural knowledge of a task? Or do they benefit more when a discursive support helps them participate in formal discussions of a text? Additionally, do multilingual learners and ELs benefit equally from supports that promotes deeper thinking about the text and topic? Research is needed that more closely documents how different learner profiles benefit (or not) from different types of discursive supports offered during peer mediated activities.

Group Composition. One issue related to generalizing the findings from studies that investigate the impact of peer mediation on literacy outcomes concerns the grouping of the students. Many of the studies included in the prior literature review (Angelova et al., 2006; Gort, 2008; Lucero, 2015; Martin-Beltrán, 2010; Olmedo, 2003) reveal an over-reliance on "balanced bilinguals" to promote peer mediation during interactive activities. Although "balanced bilingual" is a mythical designation in language learning (Baker, 2011), much of the qualitative evidence of peer support in the extant literature comes from learners who were described as possessing relatively equal proficiency in the target language of instruction and in their home language. Accordingly, many of the instances of helping behaviors, such as clarification and scaffolding with cues, only came from students who were able to provide L1 support to the struggling peer (Angelova et al., 2006; DeNicolo, 2010; Gort, 2008; Lucero, 2015; Klinger et al.,

1998; Olmedo, 2003; Sáenz et al., 2005). In fact, three of the helping behaviors identified in both qualitative and quantitative studies—translation, code-switching, and increased metalinguistic awareness—were only present in bilingual or dual language classroom (Angelova et al., 2006; Calderon et al., 1998; DeNicolo, 2010; Gort, 2008; Kibler et al., 2014; Klinger & Vaughn, 1996; Klinger et al., 1998; Klinger & Vaughn, 2000; Martin-Beltrán, 2010; Olmedo, 2003). Despite the pedagogical advantage that students with both strong L1 and L2 skills possess, the heterogenous nature of U.S. classrooms ensures that few classrooms contain enough balanced bilinguals to reliably rely on them to promote this type of peer mediation during interactive activities. Accordingly, future studies must explore peer mediation where balanced bilinguals are not the norm to ascertain whether students learning in a general education classroom benefit from peer mediation in ways similar to dual language or bilingual classrooms. Working with learners in these contexts will also allow researchers to determine whether the quality and type of peer mediation differs for monolingual and multilingual students.

Another issue related to student group composition concerns whether or not the students were purposefully paired, and if they were purposefully paired, what criteria guided the pairing. For example, some qualitative studies seemed to allow for the student pairings to occur more organically (Fassler, 1998; King et al., 2017; Olmedo, 2003). This limits the applicability of the data since only peers who wanted to collaborate were studied. Consequently, one might wonder whether peer mediation occurred less because of collaborative or cooperative learning structures and more due to the nature of student personalities and relationships. Additionally, such voluntary pairings are problematic for teachers who wish to implement more cooperative or collaborative literacy tasks because prior research on these tasks suggests that grouping students based on set criteria is more likely to lead to positive learning outcomes (Slavin et al., 1998).

Although more quantitative-oriented studies grouped students based on reading ability (Calhoon et al., 2007; Klinger & Vaughn, 1996; Klinger et al., 1998; Klinger & Vaughn, 2000; McMaster et al., 2008; Saenz et al., 2005), none considered the linguistic profiles of the students when grouping them. For example, McMaster et al. (2008) indicated they left the pairing of ELs up to the teachers, and they did not record whether a particular process or set of criteria were employed. Other studies, like the ones on CWPT, indicate that researchers randomly paired students for spelling tutoring (Greenwood et al., 2001; Madrid, 2003, 2007). This inattention to both language and literacy abilities may be problematic, for students with different linguistic profiles might have provided more or less mediation. For example, would one expect much peer mediation to occur between students with disparate linguistic abilities? To wit, research from Sato and Ballinger (2012) indicates that students with more advanced language proficiency in the target language interacted less with their peers who only possessed beginner language proficiency. Accordingly, a fruitful line of research would be to investigate peer mediation with near peers (Vaughn et al., 2009).

Moreover, only a few of the studies investigated mediation in heterogenous classrooms. For example, in the collaborative reasoning studies the researchers looked at mediation among students in a classroom for identified ELs (Zhang et al. 2013) or compared mediation and outcomes between bilingual classrooms and classrooms with no identified ELs (Zhang et al., 2016). Furthermore, none of the studies investigated how newcomers may benefit from these peer mediated activities. Therefore, given that 64% of teachers say they teach ELs (NCES, 2017b) and that most ELs spend most of their instructional day with teachers other than those specifically prepared to teach ELs (NCES, 2017b), it would be more beneficial for studies to look at peer mediation conducted in more heterogeneous settings in order to better capture the

complex dimensions of talk that emerge among students of different linguistic and literacy profiles.

Expert-novice Dichotomy. Another way future studies on peer mediation could broaden our understanding of this promising practice is to probe group composition in terms of expert-novice relationships. Although studies on peer interaction in instructed second language acquisition contexts suggest that mediation can be reciprocal between students who are considered experts and novices (Sato & Ballinger, 2016), very few of the reviewed studies investigated this dynamic in terms of the impact on literacy achievement. For example, Madrid et al. categorized students as low, average, and high ability, but did not explore whether students of average reading abilities offered mediation to students of high ability. Similarly, the PALS and K-PALS studies purposefully set the dyads so that the higher proficiency student was always providing the mediation to the student with lower literacy skills. As a result, we do not know if lower proficiency students could offer help to peers with differing or similar reading abilities. Additionally, the CSR studies did not address to what degree students with lower reading ability were able to offer mediation at the same levels as students with higher reading ability. Moreover, very few reviewed studies included ELs taught in an English-only instructional context— a context where they are often only viewed as a novice. As such, future empirical studies must account for the expert-novice dichotomy by investigating whether students of lower language and literacy abilities are always on the receiving end of the mediation. Such findings would be significant for establishing more equitable classrooms, as ELs are often viewed through a deficit lens.

Although the completion of some collaborative tasks depended on students having unequal language and literacy proficiencies (Calhoon et al., 2007; King et al., 2017; Klinger &

Vaughn, 2000; Prater & Bermudez, 1993; Saenz et al., 2005), a few studies in immersion and bilingual settings investigated what happened when students had the opportunity to play the roles of both expert and novice. These studies found that when bilingual students can play both roles, more possibilities arise for creating crosslinguistic connections and metalinguistic awareness (DeNicolo, 2010; Gort, 2008; Kibler et al., 2014, Olmedo, 2003; Rubinstein-Avila, 2003). Although not reviewed for this study—the setting was not K-12—Dobao (2012) explored the frequency and type of linguistic support that native speakers of Spanish offered to non-native speakers versus the helping behaviors that non-native speakers learning Spanish offered each other at a university in Spain. Her findings suggest that native speaker-learner dyads tended to provide more linguistic support and mediation than the learner-learner dyads, but that the speakers' orientation towards collaboration might be a better predictor of the frequency of mediation during collaborative dialogues. Would similar results be found for K-5 learners? Thus, it might be interesting for future studies to examine the amount and quality of peer linguistic mediation provided to students who can switch roles between expert and novice and compare them to students who do not have the opportunity to enact reciprocal roles.

Teacher and Researcher Support of Peer Mediation. Although a review of the literature reveals that opportunities do exist in classrooms of multilingual learners and ELs for peer mediation to occur, many studies do not report on the conditions created by the teacher to promote and encourage peer mediation. For example, many studies offer descriptions of discursive support that occurred more spontaneously (Angelova et al., 2006; Fassler, 1998; Gort, 2008; Lucero, 2015; Olmedo, 2003) and thus have limited benefit for teachers wishing to implement collaborative or cooperative literacy tasks. While these researchers shared illuminating vignettes of what happens when peers collaborate with one another, the findings of

such studies are not adequate for helping teachers engender such environments. Additionally, when peer mediation results from researcher-created curricular interventions, the highly scripted nature of intervention makes it difficult for classroom teachers to infer how to engender peer-based learning if they do not have access to the researcher-created curriculum. Thus, few conclusions can be drawn to inform the practice of teachers who wish to engender more peer mediation during their own instruction. Descriptions and analysis of such teaching practices will be helpful for generating useful knowledge for both researchers and practitioners who aim to fully leverage the potential benefits of peer interaction.

Professional Learning and Peer Mediated Tasks. A few of the studies involving language learners report on mediation that resulted from completion of a very discrete task, such as joint writing (Kibler et al., 2014; Martin-Beltrán, 2010; Prater & Bermudez, 1993), spot the difference or information gap type tasks (Sato & Ballinger, 2012; King et al., 2017), or the use of literature-based discussions such as reading dyads, literature circles, and Book Clubs (Almaguer 2005; Budde et al., 2022; DeNicolo, 2010; Kong & Fitch, 2003; Rubinstein-Avila, 2003; Zhang et al., 2013; Zhang et al., 2016). However, little information exists on how the teacher learned to implement the task, nor how her students learned to perform the tasks. For example, Rubinstein-Avila (2003) conducted a case study on the impact of Buddy Reading for two elementary school learners in an English-Portuguese dual immersion classroom. Although the researcher provided examples of discursive supports that the bilingual students provided one another during story retelling, we do not know the type of professional learning the teacher had towards establishing productive Buddy Reading sessions, helping students learn the Buddy Reading procedures, and monitoring student participation. For example, did the teacher perform fishbowls with the students to model effective Buddy Reading processes? Did the teacher initially provide a lot of

support for the Buddy Reading and gradually release support as pairs became more proficient? What was the teacher's initial understanding of dialogic teaching practices, and did this impact her ability to implement a Buddy Reading program? As the goal of educational research is to provide educators with solutions to classroom problems they experience (Ball & Forzani, 2007), it is essential that empirical studies on student behavior also address how the classroom teachers supported (or did not) the studied phenomena.

Researcher-created Curricular Interventions. Although the studies looking at researcher-created curricular interventions provide more information regarding both the professional learning the teachers obtained and the instruction that the students received in how to implement peer-based literacy tasks (Calhoon et al., 2007; Greenwood et al., 2001; Madrid et al., 2003, 2007; McMaster et al., 20018 Saenz et al., 2005), these quantitative studies also tend to be highly scripted, which might have limited the mediation offered and received by peers. For example, Calhoon et al. (2007) and Saenz et al. (2005) used the PALS framework as the basis to promote peer interaction and mediation with ELs in a bilingual program. Through a scripted curriculum and workshops with follow-up coaching, teachers in the PALS intervention learned to teach students how to utilize three reading activities with peers (peer oral retell, written summaries, and making predictions). Although peers could use the three reading activities with any type of text, the activities themselves limited engagement to summary and prediction. Higher-order cognitive functions, such as inferencing and analysis, that emerge from asking students to have a more critical stance towards literature (Murphy et al. 2009) and tend to lead to more elaborated talk (King, 1990; Murphy et al., 2009), do not seem to have been promoted in these researcher-developed interventions.

In order to fully leverage the potential of peer mediation during interactive tasks, future studies should investigate instructional practices that promote more open-ended and critical discussion, and that allow for students to take more ownership of roles typically reserved for the teacher during small group reading lessons. Such roles include question formation, prompting to clarify reasoning, and the provision of scaffolding to elicit extended and more accurate language use by students. Additionally, studies with a script to guide peer mediation provide little description on how that scripting was actually implemented and to what degree learners felt empowered to go beyond their established roles or the script to help a peer. Consequently, research that more carefully describes and documents the training received by learners, and the learner's enactment of the training, is needed.

A few studies did document the robust and ongoing role of the researcher in providing the training and support necessary to implement the peer-focused interventions (Klinger & Vaughn, 1996, 2000), and a few studies do address how teachers could implement such peer led tasks (Klinger and Vaughn, 2000; Zhang et al., 2016). Recommendations for teachers from these studies include facilitating activities to ensure students from the different groups get to know each other socially, explicitly teaching collaborative learning skills, minimizing the intervention of the teacher, and raising the status of bilinguals who can act as translators. While such guidance is very helpful, empirical research can do more for teachers. For example, in none of these studies do the researchers probe the teachers' relationship to and views on dialogic teaching. It can be helpful for future researchers to understand the barriers that might exist toward employing dialogic teaching methods and have some suggestions for how to surmount such challenges.

Accordingly, future studies in this line of research must extend our knowledge of how to create an instructional climate where peers of varying linguistic and literacy backgrounds understand that they play an integral role in their peers' language and literacy development. As such, future studies should not only describe the teacher and student learning of the collaborative or cooperative literacy tasks, but also measure the enactment of the learning.

Measuring the Impact of Peer Mediation

A review of the extant literature reveals many studies where no language or literacy outcome data were collected, as well as those with outcome data but without descriptions of discursive supports. Thus, many studies either do not attempt to establish the benefits of peer mediation for academic performance or do so in ways that only demonstrate a tangential relationship between mediation and outcome. For example, Zhang et al. (2016) did not clearly establish how participation in collaborative reasoning discussions led to improved listening scores. It would be helpful to know what it is about participating in collaborative reasoning discussions that engendered improved listening. For example, did the instruction provided to teachers and students highlight the importance of active listening?

Future studies investigating the impact of peer mediation on literacy and language outcomes must be able to explicitly link the type of discursive support the students provide/receive to a particular language and/or literacy outcome. Using inferential statistics, future studies could use distal measures of literacy achievement to investigate whether there is a relationship between the quantity and/or quality of the discursive support and particular outcomes. Future studies must collect frequency and quality data for peer mediation to begin to investigate such relationships.

Discussion of Peer Mediation Research Findings

Over 20 years of quantitative and qualitative research on the efficacy of peer mediation on language and literacy acquisition exists. Based on these studies, peer mediated learning has much potential for increasing levels of literacy achievement among multilingual learners and ELs, as well as for promoting classrooms with more equitable distribution of cognition among learners. Qualitative studies revealed that students mediate thinking and learning through discursive moves like code-switching, scaffolding, clarification, making connections, raising metalinguistic awareness, and pressing. The findings from these studies suggest that collaborative discussions are optimal activities to engender discursive supports necessary for peer mediation.

Findings from the quantitative studies also suggest that peer mediation during cooperative or collaborative learning can increase vocabulary development, early reading skills, and reading comprehension. The studies reviewed above describe many instances where peers helped to make their words comprehensible for students struggling in the target language and assisted in making their peer's output comprehensible. Studies in this review also documented numerous occasions when peers provided explicit instruction and modeling necessary to mediate peer facility with reading skills. Moreover, students enacted mediation without the constant presence of a teacher. These studies demonstrate that peer mediation can be fostered in a variety of literacy interventions.

However, what is less clear is the link between the quality of talk that the mediation engendered and student uptake of discursive moves. The first set of reviewed quantitative studies demonstrate that literacy interventions that encourage peers to support one another during discussions can lead to improved academic outcomes, but they do not sufficiently describe how

the support worked to improve outcomes for multilingual and ELs. For example, did the peer led activity improve literacy outcomes because peers provided discursive support that asked learners to elaborate or justify their thinking? Perhaps that type of discursive support was more beneficial than other supports in helping learners develop a shared set of knowledge from the text? Thus these studies also do not address the quality of the talk that the peer mediated learning promoted, nor do they address how they know that the learners in the studies noticed and received the peer support.

The second set of reviewed studies do provide robust descriptions of discursive supports, but they do not attempt to link the supports to improved student outcomes or discuss how the peers uptake the discursive moves during peer mediated learning. While a few studies focus on evaluating the quality of the talk that emerged during the discussions (Budde et al., 2022; Zhang et al., 2016), they are only with upper elementary learners. The one study that did attempt to evaluate the impact that high-quality supports during peer mediated learning had on outcomes did not find a correlation between any discursive moves and literacy outcome measures (Zhang et al., 2016). Accordingly, more studies are needed to better understand how discursive supports are received and how they foster high-quality talk among ELs.

It is also apparent that more research is needed to provide educators with the knowledge to facilitate peer mediation. Analysis of the findings from these studies suggests that teachers missed many opportunities for successfully leveraging the benefits of collaborative tasks. For example, ethnographic studies reveal that teachers could have been more purposeful in helping learners scaffold during peer interactions. Although students in the interactions sometimes indicated to their peer that they needed help, the researchers noted that at times students ignored their peer's request, or perhaps did not know how to help (Lucero, 2015; Sato & Ballinger,

2012). Case study research could be particularly beneficial toward providing practitioners with better information on how to implement dialogic teaching, for research employing this approach can both thoroughly describe the professional learning the teachers received as well as describe how the teachers enacted (or didn't) the professional learning.

New research should also address group composition (Angelova et al., 2006; Lucero, 2015; Sato & Ballinger, 2012), with a focus on near peers (Lucero, 2015; Sato & Ballinger, 2012). Related to this, attention should be paid to role reversal during the collaborative interactive task. Although the completion of some collaborative tasks depended on the students having unequal language and literacy proficiencies (Calhoon et al., 2007; King & Bigelow, 2017; Klinger & Vaughn, 2000; Prater & Bermudez, 1993; Saenz et al., 2005), the studies that provided opportunities for students to play the roles of both expert and novice seemed to engender more possibilities for creating crosslinguistic connections and metalinguistic awareness (DeNicolo, 2010; Gort, 2008; Kibler et al., 2014; Olmedo, 2003; Rubinstein-Avila, 2003).

The studies that intentionally trained teachers to take a less involved role during discussions also seemed to provide more opportunities for students to view one another as capable interlocuters who could provide assistance to peers (Klinger & Vaugh, 2000; Zhang et al., 2013; Zhang et al., 2016). Thus, it might be illuminating for future studies to examine the amount and quality of discursive supports provided during peer mediated learning to students with varying linguistic and language profiles, including students newly arrived to the U.S. These studies should also closely examine the quantity and quality of teacher support during these interactions to better understand the ways in which teachers limit the efficacy of peer mediation.

Additionally, studies included in this literature review did not address the uptake of discursive support during peer mediated learning. For example, we know from some descriptive

studies that peers offered translations to peers and codeswitched to help less proficient students participate in the conversation. However, we do not know to what extent the peer benefited from the discursive supports or even if the peer noticed. Future studies must more systematically account for the support provided to peers and link it to uptake. For example, studies must be able to show that when a peer supplies a multilingual learner with a more academic synonym, the provision of the assistance impacts literacy development. Furthermore, future studies must be able to more conclusively state who benefits from the discursive support. For example, does the peer who provides the support benefit more than the peer who is receiving the support? Do different student populations benefit more or less from certain types of discursive supports? For example, do ELs benefit more from support that assists with procedural knowledge of a task? Or do they benefit more when peers supply discursive supports that assist students in elaborating or challenging ideas?

The next section summarizes and expands upon the above methodological critiques to frame the need for a study that will close the gap between theory and research on peer mediation's impact on multilingual learners. Current studies either richly describe the discursive supports offered to multilingual learners and ELs, or empirically study the impact of peer mediation on literacy/ language acquisition. A few of these studies also attempt to measure the quality of talk within these peer-mediated interventions. Yet no study in the extant literature attempts to offer an in-depth examination of the ways that peers mediate language and literacy for ELs at the lower elementary level while also successfully accounting for how the discursive moves impacts the quality of talk and student outcomes. Since the research on classroom discourse suggests that not all discursive support equally promote active discussion that

distribute cognition among all learners, this missing step in the extant research on peer mediation will be further addressed in the next section.

Summary Recommendations for Future Research

As previously discussed, the extant literature suggests that peer mediation offered via collaborative and cooperative tasks for multilingual and ELs is a promising pedagogical practice and has some significant empirical support for its implementation. It is clear that enough qualitative studies exist to warrant further exploration of educational outcomes that result from peer mediation. However, the methodological design issues outlined above must be addressed in future studies. We can learn more about the implementation and impact of peer mediation if studies provide a clearer link between peer mediation and discursive moves, their uptake by students, and the quality of talk that emerges. Future studies must also accurately account for the education of both teachers and students on peer led tasks, and they must compare the impact of peer mediation for different populations of multilingual learners, such as newcomers. Hence, the next chapter outlines the case study methodology I employed to help fill the gap in the extant qualitative and quantitative studies on peer mediation.

CHAPTER 3: METHODOLOGY AND METHODS

This embedded multiple case study examined observational, discourse, demographic, and interview data from me (in the instructor role), students, and teachers in a third and a fourth grade elementary classroom during the 2020-2021 school year. The goal of my study was to learn more about how discursive supports among multilingual learners and ELs in elementary science and social studies classrooms is provided and received during peer mediated learning, and to learn more about how to facilitate discursive supports with the aim of promoting exploratory talk Accordingly, my data address the following research questions.

1. How does the distribution of discursive supports differ between students and me during peer mediated learning?
2. How do ELs and non-ELs provide discursive supports during peer mediated learning?
3. How does the quality of discursive supports differ among different groups of learners?
4. In what ways do students uptake discursive supports?
5. In what ways did the students and I limit or enhance the quality of peer mediated learning?

The study took place over 37 weeks in two elementary classrooms from two different schools in an urban and diverse school system in the Mid-Atlantic. It investigated the ways elementary-aged ELs and non-ELs provided and received discursive supports during peer mediated, text-based discussions and explored the quality of the supports in the context of each case and its different learners. After a 22-week pre-renorming and renorming stage, I coded and

scored the types of discursive support offered by me (the author) and by the students during small group discussions over a 12 week period. I measured the frequency of the different types of discursive supports that peers and I provided, and their uptake by the learners. I also examined the data in the context of whether the learner was identified as an English learner or not. In this chapter I will describe my study's methodology, site selection, participants, member check procedure, data sources and collection procedure, instructional procedures, and data analysis methods.

An Embedded Multiple Case Study

This study seeks to examine the frequency and quality of discursive supports among learners with different linguistic and literacy profiles to help the field understand how best to facilitate peer led discussions that seek to promote active and productive discourse through distributed cognition that will result in more knowledge building among participants. The purpose of the research should drive the methods (Newman et al., 2003), and an embedded multiple case study design allows me not only to better understand how peer mediation looks in different general education classrooms with a variety of student populations, but also to better explore how the mediation impacted learners in two different grade levels with two teachers of varying experience and instructional beliefs. Given the gap in research described above, the data from this study will better inform constituencies who can benefit from this knowledge, as they will know not only how peer mediation is implemented but also in what ways it is effective toward promoting higher quality discourse and for whom (Newman et al., 2003).

Using an embedded multiple case design allowed me to investigate the outcomes of a peer led collaborative discussion initiative in two grade levels with very different literacy expectations. For example, whereas many third graders are still acquiring foundational literacy

skills, it is commonly expected that by fourth grade students are focused less on the acquisition of reading skills and more on reading to gain conceptual understand and to further language development (Snow, 2002). Accordingly, examining discourse data from learners at these two levels can enhance the usability of my findings. The embedded multiple case design also allows us to better explore my role as the instructional leader across the sites and determine what differences exist between the sites that could impact the efficacy of future interventions focused on peer led collaborative discussions among ELs and those who are not.

An embedded multiple case study design provides the opportunity to explore the impact of an intervention designed to promote mediation in peer discussions in a real world setting to fully account for the educational context of two general education classrooms with different aged learners, thus increasing the applicability of my findings. Working with learners from two teachers with very different instructional backgrounds and approaches enhances the typicality of the findings. Due to the developmental readiness of learners in each classroom, I used a different instructional routine for each classroom to facilitate and develop student understanding of how to mediate for one another during peer discussions. The fourth graders participated in a shared reading routine prior to the small group peer discussions, whereas the third graders participated in either teacher-led readings or round robin readings prior to the text discussion. Each teacher had different expectations of her students. Moreover, the teachers were held to different expectations by their school administrators, which placed different constraints on the coaching and explicit instruction I provided. Data collection and analysis from these two different instructional settings better captures the dynamics and dimensions of peer mediation within the learning environment.

An embedded multiple case study approach also allows me to explore how learners in grades that traditionally have very different literacy expectations provide and uptake discursive supports during peer mediated learning, and how the quantity and quality of the discursive supports might be impacted by the classroom, teacher, and other learners in each case. Having multiple cases provides an opportunity to measure the frequency and quality of supports for learners in different settings, which allows us to make comparisons and draw conclusions across educational settings.

Furthermore, a multiple case study design can be fruitful toward designing and implementing future causal studies, as it allows readers to better understand and closely see the various factors that might hinder or help mediation during peer led discussions. For example, the qualitative data collected in a multiple case study design can help us better explore the group dynamics and the student demographics from different sites that might impact the frequency and the quality of the discursive supports offered to and received by peers. Given previous research on the way teachers can limit or enhance mediation (Wolf et al., 2006; Zhang et al., 2016), qualitative data from two different environmental contexts offer a more robust understanding of how those in the teacher role can either help or limit peer mediation.

As is typical with a case study design, the qualitative data from my study is particularistic, descriptive, heuristic, and inductive (Barone, 2011), which allows for the perspectives of different participants to be properly contextualized, accounted for, and interpreted. Additionally, qualitative data allowed me to find and explore themes relevant to my research questions, as I seek to understand how students provide and receive discursive supports, as well as the quality of that support. Employing a qualitative methodology is essential to the pursuit of capturing and beginning to understand the impact that peer mediation can have on the

literacy achievement of elementary learners, and how teachers of different grade levels can implement dialogic teaching and learning.

By employing a case study design, my research closely explores how mediation is enacted and received in classrooms with different learners and instructional contexts to help us better understand how peer mediation can lead to higher quality talk and more learning for ELs. As noted in Chapter 1, the lack of oral language opportunities for all learners, but particularly for ELs, as a result of school interruptions from the COVID-19 pandemic makes the findings from this study timely as well as necessary.

Site Selection

This multiple case study was situated in two elementary schools in a large suburban school system in the Mid-Atlantic: Benjamin Elementary School (Benjamin ES) and University Elementary School (University ES).[2] I worked with two teachers: Ms. Greenberg, a fourth-grade teacher at University ES, and Ms. Nolan, a third-grade teacher at Benjamin ES. My selection of these two elementary classrooms emerged from my need to find schools with significant percentages of identified ELs and also had teachers in grades three through five who were amenable to participate in the study. The following sections will address site selection and characteristics, as well as participant characteristics and their recruitment.

District and Community Characteristics

The school system that was the setting for my study is outside a major U.S. city in a county that emerged after World War II as a bedroom community for White and middle-class families migrating from the aforementioned city as a result of falling property values. I

[2] The names of the schools have been changed.

approached the research and evaluation office for this school system a few months prior to the COVID-19 pandemic to receive permission to begin the participant recruitment process. I selected this school system based on three factors: its high percentages of ELs, my connections with the staff through prior work and educational experiences, and its established relationship with my university as part of an ESOL certification program.

When I began my study, Black students comprised the majority of learners in this school system and in the community at 59%, with the Hispanic/Latinx community making up the second largest demographic group at 46% (U.S. Census Bureau, 2019). Historically, this was a suburban community outside a major U.S. city that was primarily White. However, the demographics of this community changed in the 1970s when White families began to leave as more middle-class Black families moved in. Since 1980, this pattern of racial change with Black families replacing White families slowed but did not stop (Cook et al., 1999). Over the last 15 years a significant shift to educating children of recently immigrated Latino children occurred (U.S. Census Bureau, 2019). From 2010 to 2019 the percentage of Latino residents in this school district increased six percentage points, 41% to 47% (U.S. Census Bureau, 2019). The percentage of residents who reported speaking English less than "very well" went from 41% before 2000 to 56% in 2019 (U.S. Census Bureau, 2019). Now the district's community is 22% foreign born, with an overwhelming majority of those persons identifying as Latino (96.6%) and hailing from El Salvador or Mexico (U.S. Census Bureau, 2019).

Case Study School Characteristics

The two schools of my case study were both situated in the northern region of the district and were Title 1 schools, as most schools in the district were. Benjamin ES had far fewer students compared to University ES, 493 to 781 in school year (SY) 2020-2021. Whereas

Benjamin ES was undersubscribed by 92 seats, University ES was oversubscribed by 238 seats, with the students from the case study receiving instruction in temporary trailers. University ES's overall attendance rate was higher than Benjamin ES's attendance rate, 95% versus 91% in SY 2020-21.

Benjamin ES's vision for SY 2020-21 was to ensure "Every scholar at Benjamin Elementary School will be an agent of change." Its stated mission was "to provide opportunities to be agents of change through service, learning, and global awareness." University ES's vision for SY 2020-21 was to "focus on culture, data, and performance with a lens on literacy to prepare lifelong, college and career ready learners who thrive in a literacy rich, numerate environment in collaboration with all stakeholders." Its mission was to: "Analyze data for student growth; facilitate small reading groups on a daily basis; coordinate flexible math groups; engage parents; integrate literacy across the disciplines; and participate in professional development."[3] Whereas Benjamin ES focused on preparing students to impact the world, University ES focused on how to prepare lifelong learners with high achievement.

In order to meet the district's mandates, each school had one goal related to ELs. Benjamin ES's stated goal was for the number of ELs on-track to attain English language proficiency to increase by five percentage points as measured by the 2021 ACCESS assessment.[4] University ES's goal in SY 2021-2022 was to increase this ELs by two percentage points.

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[3] All information about mission, vision, attendance, and enrollment was found on the websites for each school and the district.

[4] ACCESS is an English language proficiency assessment developed by the WIDA Consortium that is administered to K-12 identified ELs in 36 states.

In SY 2020-21 the district also allowed virtual schooling for some students early in the Fall semester. On average across the classrooms, six students took advantage of this offering. The students in the virtual option were instructed alongside the children in the classroom by using Zoom.

Table 3.1 presents the demographic data of the district and each case study school alongside comparison datapoints to show state and nationwide trends.

Table 3.1

Percentages of Students Receiving English Learner, Free and Reduced Meals (FARMS), and IDEA Services or Assistance

Locality	School Year	% Population Identified as English Learner	% Population Qualifying for FARMS	% Population Served by *IDEA*
Nationwide	2019-2020	10%	52%	10%
Statewide	2019-2020	11%	42%	13%
District	2021-2022	21%	66%	10%
University ES	2021-2022	66%	91%	6%
Benjamin ES	2021-2022	38%	80%	7%

Note. From National Center for Education Statistics (2021) and school websites

For the district and each school, the percentage of ELs and general students who qualify for free or reduced meals was higher than the nationwide and state averages. However, the district and the schools enrolled fewer students served by Individuals with Disabilities Education Act (*IDEA).* Accordingly, the students in this case study are both, on average, poorer and from

more linguistically diverse backgrounds when compared to learners in their district, state, and across the U.S.

Looking at the racial/ethnic composition of the district and the two case study sites, the two schools have a greater Hispanic/Latinx population than the school system overall (Figures 1-3). This statistic aligns with the fact that the case study site schools also have a larger percentage of their students who are classified as ELs. We also see that Benjamin ES is slightly less diverse than University, with almost all of its learners either identifying as Black/African American or Hispanic/Latinx.

Figure 3.1

K-12 Racial and Ethnic Demography of the School District (2020-2021)

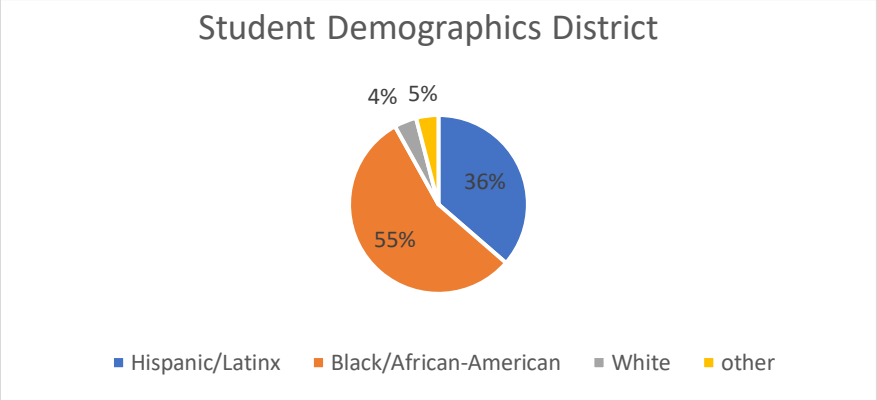


Figure 3.2

Racial and Ethnic Demography of Benjamin ES (2020-2021)

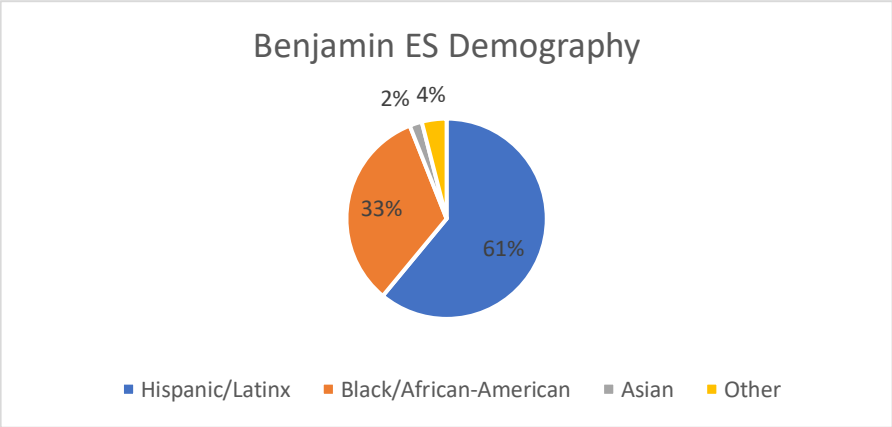
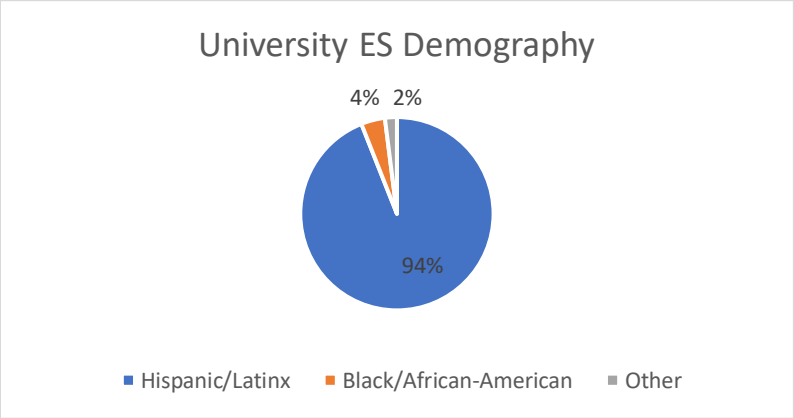


Figure 3.3

Racial and Ethnic Demography of University ES (2020-2021)



Academic Achievement at the Case Study Sites

The overall language arts achievement of elementary students from these two case study sites is lower than the state average as Table 3.2 outlines.

Table 3.2

Language Arts Achievement by Locality

Locality	Language Arts Grade 3 All Students	Language Arts Grade 4 All Students	Language Arts Grade 3 ELs	Language Arts Grade 4 ELs
State	41%	44%	14%	13%
University ES	20%	20%	14%	5%
Benjamin ES	21%	29%	12%	10%

Note. Data from state and district's webpage.

For example, statewide 41% of all grade-three students and 43% of all grade-four students were proficient in language arts in 2019 on the state assessment program, whereas Benjamin and University ES grade-three learners had much lower proficiency rates, 20 and 21 percentage points less than the state respectively. For grade four the assessment data reflect similar trends as in grade three, with both schools having proficiency levels on the state language arts exam well below the state average. When comparing EL student achievement in language arts to all students, the score discrepancies were not as large for University and Benjamin as the statewide averages. At University and Benjamin, the difference between ELs and all students ranges from 9% to 6%, whereas for the state the difference is 28% and 27% for grades three and four respectively. The performance of ELs in grade three at University matched the average state achievement level, and Benjamin ELs scored two percentage points lower than the state average. However, it is notable that grade-four University ES ELs had much lower proficiency rates compared to the state average, an ELs8 point difference. Additionally, in 2019, 64% of ELs at Benjamin ES were making progress, compared to only 53% of ELs at University ES.

The History of Instructional Frameworks that Promote Peer Discussions Within the District and at the Case Sites

As my intervention in each classroom was informed by frameworks for promoting peer discussion that encouraged robust content knowledge and academic language development, I will discuss the history of one large-scale peer discussion initiative in the district—accountable talk—taking special note of each participating teacher's prior pedagogical experience. As noted in Chapter 2, accountable talk is one of several frameworks that exist to help educators create and implement instruction that is more dialogical in nature. Accountable talk is categorized by seven dimensions in classroom talk: (a) participation, (b) teacher's linking ideas, (c) students' linking

ideas, (d) asking for knowledge, (e) providing knowledge, (f) asking for rigorous thinking, and (g) providing rigorous thinking. Accountable talk is a particular discourse format promoted in K-12 classrooms to ensure students have equal access to rigorous learning opportunities. Students familiar with the accountable talk format learn to produce talk that is accountable to the learning community, accountable to an accepted standard of reasoning, and accountable to knowledge (Michaels et al., 2010). For example, students learn to use conversational moves during the text-based discussion that help one another be mindful of the needs of the learning community (e.g., "Hey, I think Nick was trying to say something"). Students learn how to provide relevant and accurate support during text-based discussions (e.g., "I thought a tycoon was someone with a lot of money—is that not right?"), and practice providing support that promotes knowledge generation and reflection (e.g., "I am not sure that detail connects to our main idea on the mind map. Why do you think it does?"). To ensure that all students have equal opportunities to participate in the discussion, teachers demonstrate and coach students on how to take turns and use conversational moves that work to include peers in each discussion (e.g., "Claudia, what do you think?").

Given my previous role as a pre-service educator in this school system, I knew that the district had a history of incorporating accountable talk into their curriculum and professional learning plans for the district, and I thought that its dissemination throughout the district might have had an impact on participating teachers' pedagogy. To learn more about the history of accountable talk in the district, I conducted an environmental scan of the district's webpages and I interviewed the district's elementary ESOL coordinator and assistant superintendent of curriculum and instruction. This research revealed a program of professional learning that began

with top-down implementation, but never fully gained traction at the school level for bottom-up stabilization.

The environmental scan and interview data shows that the district began working with the Institute for Learning at the University of Pittsburg back in 2012. Below is a description of accountable talk from one of the trainings conducted for the district:

> Talking with others about ideas is fundamental to classroom learning. Classroom talk that promotes and sustains learning should be accountable to other learners, use accurate and appropriate knowledge, and adhere to rigor in thinking. Accountable talk responds to and further develops what others have said through relevant observations, ideas, opinions, or more information. Accountable talk draws on evidence appropriate to the content area (e.g., a proof in math, data from investigations in science, textual details in literature, primary sources in social studies) and follows the rules of reason. (From district website)[5]

To understand the degree to which accountable talk professional learning might still be present in the elementary schools, in February 2021 I interviewed the ESOL elementary coordinator who had been with district 19 years. Although she recognized the term accountable talk, she said she did not believe accountable talk was ever part of a larger district plan and mentioned it was not really supported by the ESOL department. Instead, the framework the ESOL department endorsed for facilitating oral language in their elementary schools was collaborative conversations—in fact, it is one of the key strategies the ESOL department uses. Interview data with the two participating teachers at the end of the study revealed that they were both familiar with collaborative conversations and had received some professional learning on

[5] To protect the anonymity of the district I have chosen to not include the webpage address.

this topic, but they did not volunteer any connections they saw between collaborative conversations and accountable talk.

The elementary ESOL coordinator suggested talking to the assistant superintendent of curriculum and instruction for the district regarding accountable talk, as she might have more information about its adoption and roll out by the district. I spoke with this administrator in March of 2021, and she indicated that Accountable Talk was part of a curriculum redesign project that the district undertook with the Institute for Learning at the University of Pittsburgh back in 2012. In addition to the curriculum redesign, the district also participated in professional development to implement the curriculum. She said accountable talk was integral to promoting more learner agency, which was a focus of the district that the time. Administrators and teachers attended workshops, and administrators performed walk-throughs to capture data on implementation. She indicated that accountable talk was one component of the curriculum and part of the professional learning the district provided to school administrators, specialists, and staff. She also noted that posters with accountable talk sentences or question prompts were distributed, and these artifacts might still be in schools today. The administrator confirmed that accountable talk was no longer a district initiative, so it would be difficult to know which schools still promoted it as a guiding principle of instruction. However, the administrator also stated that accountable talk is now infused into the district's literacy 2.0 plan, in place since 2019, as a part of building critical reasoning in their digital literacy focus. The administrator confirmed that the professional learning the district embarked upon around 2012 was top down, but it also had a bottom up aspect, since the actual uptake of the professional learning was largely impacted by each school's administrator at the time.

The two teachers I worked with had varying understanding of accountable talk, with Ms. Greenberg from University ES having the most familiarity. When I first began speaking to her about accountable talk, she was familiar with the term, and when I first visited her classroom in October 2021, there was indeed a poster on the wall with accountable talk frames for how to agree and disagree. Ms. Nolan did not register familiarity with accountable talk at any point in the study. However, as will be discussed further in the following sections, the initial awareness of the participating teachers did not seem to factor into the degree to which they helped implement a peer talk intervention organized around these principles.

Study Participants

This study had three groups of participants: participating teachers, their students, and me. First, I will describe the recruitment and the characteristics of the participating teachers. Next, I will describe the students, and lastly, I will share my positionality in this study as both the researcher and the instructional lead for the peer mediation intervention.

Teacher Recruitment and Characteristics

The recruitment process was very different for each case study teacher. I met and subsequently asked Ms. Greenberg from University ES to participate as a result of working with her when I taught an ESOL methods course on the foundations of literacy and biliteracy as part of an ESL teacher certification program the school district was offering through my university. I approached Ms. Greenberg because she taught fourth grade science and social studies, and her classwork and class participation indicated a desire to learn more about and use more peer talk strategies.

My recruitment of Ms. Nolan from Benjamin ES resulted from relationships I established with both her collaborating ESOL teacher, whom I also met while teaching the aforementioned

course, and the principal at her school. Initially, to generate participant interest within the district, I reached out to the ESOL supervisor for the elementary programs. She identified some schools with significant EL populations who might be amendable to participating. One principal from Benjamin ES responded positively to that initial query and I began talking to her during the COVID-19 pandemic. Initially we agreed that we would continue to explore a relationship even as the pandemic put a pause on in-person learning, and that we would solidify plans once there was more clarity about when the district would reopen for in-person learning. The summer before the district reopened for in-person learning, I met an ESOL teacher from Benjamin ES through my methods course. My relationship with the ESOL teacher led to a more in-depth discussion with the principal of Benjamin about possible general education teachers with whom to work. Since my focus was on informational texts, it was decided that that the best teachers at the school would be those who teach science and social studies. From there the principal and ESOL teacher thought Ms. Nolan would be the best fit due to the number of ELs she served and because she had been amenable to working with other pedagogical initiatives in the past. I met with Ms. Nolan and the ESOL teacher to describe the study, and Ms. Nolan agreed. Next, I will describe the background, instructional approach, and beliefs about ELs and instruction for each teacher.

Ms. Greenberg and Her Instructional Context. Ms. Greenberg is a White woman who spent her first 15 years as a teacher in a private religious school in California. When I worked with Ms. Greenberg it was the start of her third year at University ES. Her first two years as a grade-four teacher at University ES were interrupted by the COVID-19 pandemic, with her first year requiring a pivot to remote instruction in the third quarter of the school year and her second year completely online.

As noted earlier, Ms. Greenberg was about halfway through the district's ESOL certification program with my university when I met her. Interview data from June 2022 indicates that she enrolled in the district's ESOL certification program after feeling completely unprepared to teach at University ES that first year, particularly with regards to literacy instruction.

> I was teaching at a private school in Los Angeles, students were functioning within a one-to-one-and-a-half-year range of reading. Might have levels 3 up to 5 with an occasional outlier at sixth grade. But that basically was the population I was working with for many years. So, teaching reading to those students was very limited use of skills that did not transfer very well to a public school classroom. Biggest difference was my lower common denominator students, and I had to be able to start with them and also reach needs and meet needs of highflyers. What could I do in my class where everyone could access the curriculum? At that point I was so limited on skills that I enrolled in ESOL cohort and at that point I had gained differentiation skills. (Ms. Greenberg, personal communication, June 28, 2022)

When I began working with Ms. Greenberg in October of 2021, her students typically sat in pods of five to six students. Her classroom had posters of vocabulary words pertinent to the science or social studies topic they were studying, artifacts of student work from projects, and reminders of accountable talk stems on the walls.

Figure 3.4

Ms. Greenberg's Classroom Environment

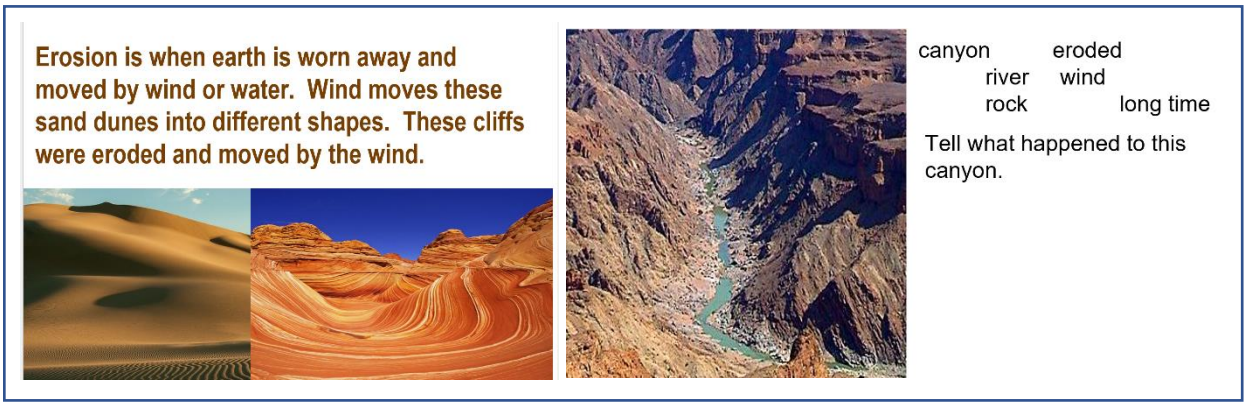


Note. Photos taken in Ms. Greenberg's classroom.

I observed three types of science literacy lessons. The first type was when she explicitly taught vocabulary, which involved having the ESOL teacher instruct for a portion of the lesson. The second type of lesson she would deliver was one primarily focused on conveying the conceptual information related to the curricular topic. This type of lesson included delivery of a Google slides presentation where she presented and unpacked conceptual information related to the curriculum topic. With regards to instruction tailored to the needs of ELs in the classroom, the slides sometimes highlighted or translated key content vocabulary (see figure 3.5 for an example) and usually contained lots of visuals. The presentation sometimes included videos of the concepts, and occasionally had a few questions the students answered using a Think-Pair-Share format with their table partner.

Figure 3.5

Instructional Artifact from Ms. Greenberg's Classroom



Note. Sample slides from a lesson on erosion delivered in November, 2021.

The third type of lesson was when students read to themselves from an online text (and later in the year from a physical book) or worked individually on some type of small project. For example, students were asked to choose a figure from the Civil Rights movement and use online sources to create a short report on the person. Ms. Greenberg's lesson styles did change overtime, and this will be discussed further in Chapter 4.

Oral interaction in Ms. Greenberg's Classroom. When I first started working with Ms. Greenberg, oral interaction in her classroom consisted of either teacher-student interaction via the Initiation-Response-Evaluation (IRE) technique or Think-Pair-Share. When I began working with the students, Think-Pair-Share was initially not as productive as it could be. Ms. Greenberg did not keep track of time during these exchanges, so they often went on for more than four minutes, with peer talk sometimes devolving into off topic behavior. She also sometimes struggled in crafting a prompt that could elicit protracted dialogue from the students (e.g., "What are non-renewable resources?"). As a result, Ms. Greenberg expressed some concern about the efficacy of peer led activities like small group discussions. For example, approximately a month

into the study, Ms. Greenberg said she thought the students were out of control after we had implemented small group discussions using three core questions ("What is this about?"; "What is new to me or someone in my family?"; and "What is most interesting to me or someone in my family?").[6] Thus, despite Ms. Greenberg's formal experiences with English learner pedagogy, the enactment of these principles was difficult.

Ms. Greenberg's Prior Literacy Experience. When asked about her prior experience with reading instruction, Ms. Greenberg mentioned that her private school had followed Lucy Calkins for reading and writing instruction. During her first year at University ES she was comfortable doing whole group lessons, individual lessons, and having pairs read with another, but that whenever she tried small group instruction, she said things did not work out well:

> I met with small groups, but it was hard for me to find content at various levels that would focus on the topic of science and social students that the text was differentiated for that purpose. So, I had a hard time because limited on materials. I just kept it whole group and independent. (Ms. Greenberg, personal communication, June 28, 2022)

This idea of finding reading materials tailored to the reading levels of all her students was a theme in working with Ms. Greenberg. One way that we attempted to surmount this challenge was to rely on online reading platforms like *Newsela* that provided informational texts at different Lexile levels and in Spanish. This did help to facilitate paired reading and later small group discussions on texts, for these adapted texts provided a scaffold that could promote more participation by newcomers and other students with lower literacy skills in English.

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[6] Adapted from O'Flahavan (2014).

Ms. Nolan and Her Instructional Context. Ms. Nolan is a Black teacher who began her teaching career as an early childhood educator and then worked at two Catholic elementary schools, with stints as a daycare worker in between. Like Ms. Greenberg, this was Ms. Nolan's third year in the district and at Benjamin ES when I began working with her. Similar to Ms. Greenberg, her first two years as a teacher at Benjamin ES were interrupted by the COVID-19 pandemic.

When asked about her prior experience with professional learning or coursework on the instruction of ELs, she mentioned that she participated in professional learning sessions on differentiation both at one of the private schools and at Benjamin ES. Those experiences taught her that teachers had to tailor their literacy instruction to the needs and interests of different learners. According to Ms. Nolan, a key to engaging struggling readers is to ensure they have access to texts that are of high interest. She also noted that students' reading abilities are central to social studies and science instruction.

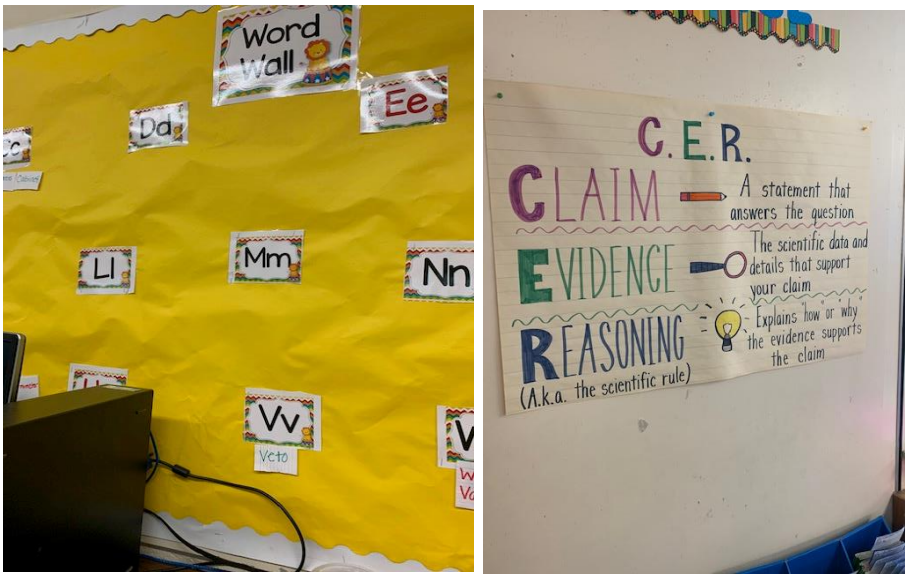
> Reading is everything, especially in social studies and science—making sure that news article and documents that students need to make connections to, that its interesting and on their level. So they can comprehend what they are reading on their own and apply to their learning at the time. (Ms. Nolan, personal communication, June 4, 2022)

When pressed on what ELs needed in particular with regards to instruction, she noted visual aids helped, as did asking questions that activated their prior learning. Indeed, one of my first observations with Ms. Nolan included her building background on the three branches of government by asking students what they thought of when they heard the words "national government."

Ms. Nolan's classroom set up was very traditionally, with students sitting in rows. Her walls were mostly bare, except for a social studies word wall that seemed not to change throughout the year (see Figure 3.6).

Figure 3.6

Pictures of Ms. Nolan's Classroom Environment

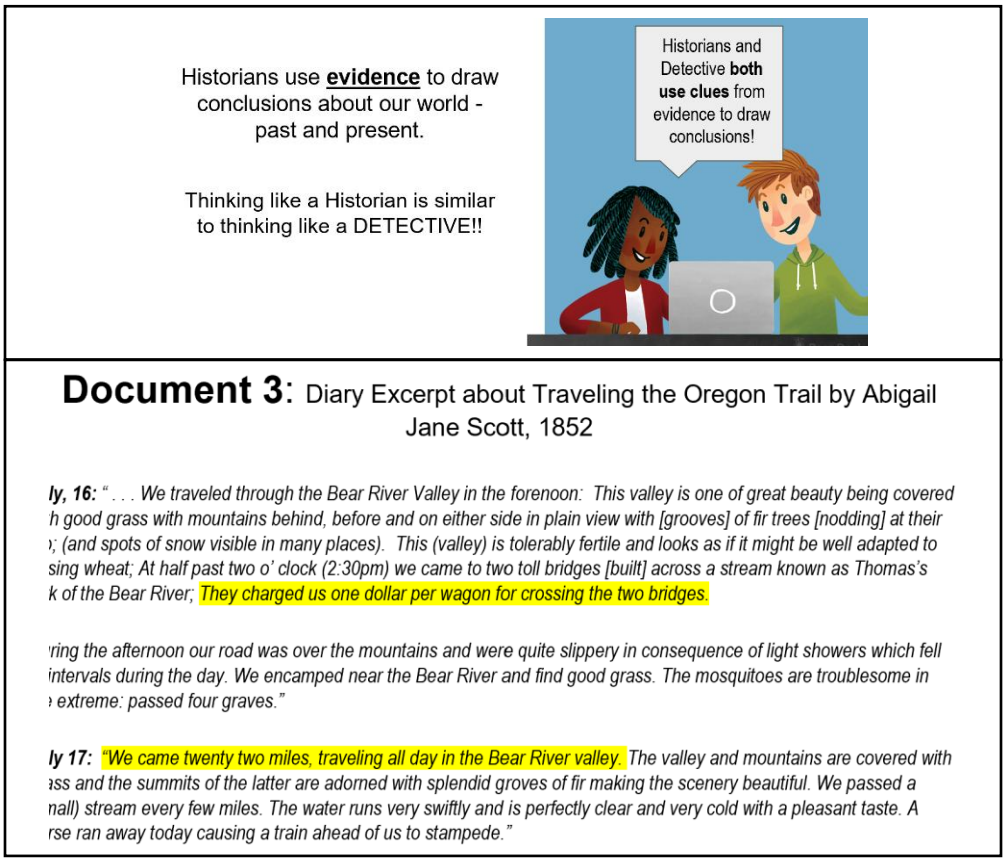


Ms. Nolan had two types of lessons that I observed. One type of lesson was to provide information to the students on a topic and allow them to either talk or write about it. Whereas Ms. Greenberg had students use their Chrome books less and less as the year went on, Ms. Nolan primarily delivered instruction via Pear Deck presentations that students watched on their laptops. The second type of lesson was more practice/application oriented, where the students were either working individually or with a group on a project. For example, students had a research project: choose a college to research and then create a presentation on it to deliver to the class using a tri-fold poster. With regards to the specific needs of ELs, I rarely saw Ms. Nolan

explicitly teach vocabulary or implement scaffolds that might assist with EL understanding, such as the strategic use of visuals or a first language. Ms. Nolan's instructional approach and sequencing remained unchanged over the course of the study.

Figure 3.7

Instructional Artifacts from Ms. Nolan's Classroom



Note. Sample of an instructional slide from a lesson Ms. Nolan delivered in December, 2021.

Oral interaction in Ms. Nolan's Classroom. Like Ms. Greenberg, Ms. Nolan's oral interaction activities consisted of teacher-student interaction using the IRE approach or Think-Pair-Shares. However, Ms. Nolan had relatively well run and effective peer exchanges when I first entered her classroom. She usually had an open-ended prompt and she used a timer to

ensure that each exchange did not last longer than three minutes. She would also ask pairs to share with the whole class what they discussed. She gave Class Dojo points to pairs who volunteered to share, thus increasing student interest in sharing. After the discussion Ms. Nolan would typically read the informational text that was on the slides to the students and stop occasionally to ask a question to gauge comprehension.

Ms. Nolan's Prior Literacy Instruction Experience. When asked to describe her teaching approach, Ms. Nolan said she tries to make it student led, and while it depends on the topic, she felt most of the discussions were led by the students. When pressed Ms. Nolan did not reference any specific approaches to reading instruction. Based on my observations, Ms. Nolan seemed to focus more on writing than supporting reading and this might be a result of the Discussion Based Questions (DBQs) that the students had to answer as part of a district assessment. Accordingly, many of the lessons I observed were how to help students understand what the DBQ prompt was asking and ways to write the information so that they could receive as many points as possible.

My strategy for identifying these two teachers with whom to work was very different, and it yielded teachers with different profiles and experiences, though it is interesting that both taught at religious private schools before this district. The teachers had similar experiences of starting to teach in the district at the beginning of the pandemic, and they had the same number of years of experience with the district, but other than that they were very different. As will be discussed in Chapter 4, these different backgrounds, prior pedagogical approaches, and beliefs yielded similar results when it comes to peer mediation offered and received.

Student Characteristics

I worked with 30 students in one of Ms. Greenberg's classrooms and 22 students in one of Ms. Nolan's classrooms. These two classrooms were selected by the teachers for very specific reasons. For Ms. Greenberg, this classroom had a high percentage of ELs and also had more ELs of higher language proficiency. She thought that this intervention would be more difficult for her to implement in her other classrooms classroom because they had more newcomers. For Ms. Nolan, she chose this particular class based on the recommendations of the ESOL teacher, as she felt that these students would be more amendable to the intervention and thus benefit more. Each classroom had 12 students identified as an EL, with almost all of Ms. Greenberg's classroom coming from a Spanish-speaking background. See Appendix A for a list of all student participants and their EL status and proficiency levels.

Two students in Ms. Greenberg's classroom (Anna and Essie) and two students in Ms. Nolan's class (Jason and Winifred) were newcomers (see Chapter 1 for a definition and discussion of this term). Jason had begun the school year with Ms. Nolan whereas Winifred joined in January. Simialry, Anna and Essie also joined Ms. Greenberg's class later in the school year in December. Ms. Nolan believed that Jason may have had some remote learning in the prior school year, but Ms. Greenberg indicated that both of her learners had not been in the U.S. school system until they moved into the district.[7] Additionally, based on information she received from the ESOL teacher and other students, she did not believe they had much schooling in Spanish. As will be discussed further in Chapter 4, Ms. Nolan did not adjust her instruction to involve the newcomers other than making sure they had a bilingual peer nearby to translate.

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[7] I do not have any data from my field notes on Winifred.

However, in Ms. Greenberg's class, she often discussed their needs and how to incorporate them into our instructional routine.

I did not have access to these students' literacy assessment results, but conversations with teachers and classroom observations allows me to provide some impressions on the students' language and literacy skills. In Ms. Greenberg's fourth grade classroom students ranged from sixth grade reading levels to being able to read no words in English. Ms. Greenberg often lamented the lack of specialized literacy instruction at her school for students who struggled, which was because the teacher who performed this support in previous years was now responsible for subbing for classrooms that had no teachers due to shortages or illness. In Ms. Nolan's third grade classroom the students' literacy ranged from fourth grade to not being able to read any words in English. Many of her students were still learning to decode text and as a result, most of the reading done in Ms. Nolan's classrooms was done by her or by a few students with high literacy levels. These differences in student literacy levels impacted the instructional routine, which will be addressed later in this chapter.

Researcher Role and Positionality

I am a White woman with 25 years of teaching and coaching experience, the last 18 years focused on pre- and in-service teacher preparation, particularly for teachers who work with ELs. As noted earlier, Ms. Greenberg knew me as her professor for the literacy course I taught the previous summer, and Ms. Nolan knew me as someone with whom the school's ESL and principal wanted her to work.

My work began with the intention of helping my participating teachers provide explicit instruction and coaching to their own students on how to promote peer mediation, but that role, for several reasons, ultimately fell to me. The pandemic impacted my ability to provide

professional learning to the teachers. Teachers began the school year having to conduct hybrid instruction, which was a struggle for both teachers. Additionally, both teachers struggled with in-person instruction for students who had not been in the classroom for a year and a half. Moreover, when I first entered their classrooms, the teachers were still providing hybrid instruction, which research indicates is quite difficult for most teachers (Goldhaber et al., 2022). As a result of these competing issues, my role shifted so that I was the instructor responsible for helping students learn and perform mediation during peer discussions. Accordingly, during the data collection phase, I was the instructor as well as the observer. To account for these two roles in the study, I not only collected data on the students and teachers, but also on myself. I made notes on and analyzed my own struggles and successes with peer led discussions as part of my field note data collection, which will be discussed in the data collection section of this chapter.

Thus, I position myself in the study as someone in both the instructional role and the researcher role. In an expert-novice dichotomy I am also the expert, but since the intent of the intervention and the study is to help peers see one another as experts, I am choosing to refer to myself as the person in the instructional role throughout this study.

Data Sources and Standards of Quality for Case Study Research

I used five data sources to interrogate and examine the development of peer mediation and the impact of its deployment by students with different linguistic and literacy profiles: (a) demographic data from participants; (b) field notes from classroom observations and debrief phone calls with participating teachers; (c) individual interviews with teachers and administrators; (d) audio and video data from observations of small group discussions; and (e) analytic memos. Observations served as the main data source with demographic data, teacher and administrator interviews, field notes, and analytic memos providing data triangulation and

contextualization of findings and interpretations. This five-prong approach also allowed me to capture both individual variations related to student and teacher backgrounds and instructional contexts, and patterns or commonalities that were visible across data collection sites, which helped to create a chain of evidence to support the findings from these two cases (Yin, 2018).

In addition to collecting multiple sources of evidence and maintaining a chain of evidence, I also employed member checks throughout data collection and analysis. For example, when I first started working with the teachers, I sent summary notes to the relevant teacher after each observation to confirm my understanding of what I was noticing about their students and their instruction. I also provided each teacher with my description of her and her classrooms to ensure that I had correctly represented her and her instruction.

As noted in the next section, I also employed long term observations so that I could fully understand and reliably represent the phenomenon of peer mediation as implemented during these collaborative activities. Working with teachers and their students for up to two hours, two days per week, over a 37-week period helped to ensure that I had sufficient evidence on how peers responded to the collaborative discussion intervention. It also ensured that I had enough discourse data from which I could identify and quantify the discursive supports, and begin to examine how the mediation supported exploratory talk among the learners.

Data Collection

Data collection commenced in October, 2021, and ended in June, 2022. Table 3.3 outlines the data collection process. Each component of each phase will be more fully described in the remaining sections of this chapter.

Data Collection Procedure and Processes During Pre-renorming Stage

During this stage of data collection, I met with each teacher via a Zoom call to learn more about her instruction, her goals for our work together, and to answer questions she had about the study. I took notes during each call and wrote an analytic memo to capture themes, ideas, and next steps for working with each teacher. For example, according to my analytic memos after my Zoom call with Ms. Nolan, the idea of teaching students to invite one another to speak really resonated with her, and when I mentioned we could work on students performing some behaviors that teachers normally do, like clarify or ask for elaboration, she also indicated interest. During that initial call I also set up dates for observations so I could meet their students and view them within their instructional context. After each observation I produced analytic memos to capture initial impressions and outline ideas or questions I wanted to explore in each classroom. For example, with Ms. Greenberg, my analytic memo notes that parts of her lesson could be turned over to students. Instead of asking a follow up question, could we turn this role over to the students to perform with their peers? I also noted that turn and talks were quite long. Did her students need five minutes for these prompts, or could we shorten the time? For Ms.

Table 3.3

Data Collection Process

Phase	Name	Duration	Activity/Data Collected
1	Pre-renorming stage	Weeks 1-4	Meet and greet teachers/field notes and interviews Observe classroom instruction before introduction of peer discussion/field notes and analytic memos Work with each teacher to co-develop a repeatable reading routine to introduce students to peer discussions/field notes and analytic memos

2	Renorming stage	Weeks 5-20	Deliver peer discussion lessons to students/field notes and analytic memos
			Observe classrooms/field notes and analytic memo
			Refine the reading routine with each teacher/field notes and analytic memos
			Provide coaching to teacher and students on peer discussion/field notes
			Collect data on each student/ELP scores from the beginning of the year
			Learn more about collaborative activities like peer discussion in the district/interview data from administrators
3	Discourse data collection	Weeks 25-37	Co-teach the literacy lessons with the teachers/field notes and analytic memos
			Observe small group discussions/student and instructor discourse data and analytic memos
			Transcribe small group discussion data/student and instructor discourse data
			Obtain impressions/teacher interview data and analytic memos

Nolan, I initially noticed the cemetery-style seating implemented in her classroom and wondered how I could get students to sit such that they could more easily look at one another. Thus, the ideas explored in my analytic memos from data collected during the renorming stage helped to inform the student grouping and prompts used during the observation stage.

After those Zoom calls and initial observations, I started to correspond with each teacher and continued to observe their lessons at least once a week to ascertain the best way to implement an intervention that would promote peer interactions that engender mediation. After each observation I would briefly chat with the teacher if that was feasible, or if not, I would follow up with an email providing a written summary of the lesson, notes on behaviors from students that aligned with the promotion of peer interaction, and ideas on how we could further

promote and elicit those behaviors. Even though I provided these written summaries to the teachers, I do not have evidence that the teachers changed their instructional practice. Thus, the notes were ultimately more for my benefit, to adjust the intervention and to inform the study.

Data Collection Procedure and Processes During the Renorming Stage

The renorming stage lasted for 15 weeks. I observed each classroom once or twice a week and provided coaching and direct instruction in collaborative peer discussions to the students and sometimes the teacher. I shared and modeled instructional techniques related to promoting more peer interaction during text-based discussions, such as introducing routines to help teachers build background knowledge and introducing vocabulary in interactive ways. I also offered different collaborative tasks they could try with students like paired reading, role-based discussions, and Kagan activities like Numbered Heads (Kagan, 1992). A more detailed account of my instructional support is outlined in the next section. For a sample of instructional materials shared with the teachers, see Appendix B.

The observation schedule was constrained by the fact that both teachers taught social studies or science only two or three days each week, and their instructional blocks were both in the morning, with Ms. Greenberg usually teaching Tuesday-Thursday and Ms. Nolan, Wednesday-Friday.

Table 3.4

Overview of Data from Renorming Stage

Teacher	Grade	Coaching Visits (Renorming Phase)	Student Participants	ELs
Ms. Nolan	Third	7	22	12

Ms. Greenberg	Fourth	8	30	12

During each visit I sketched out the seating plan and took running notes of what I saw, what the teacher said, and what the students did with accompanying time stamps. I also jotted down a question or idea regarding some of the observations to help me tailor the intervention and interpret the observational findings later in the study. In addition to using a running notes format for observations during the renorming stage, I also took verbatim notes of quick debriefs with the teacher after the lesson or of longer debrief calls (see Figure 3.9 for an example). I summarized those notes, added them to an Excel file, and highlighted words or phrases I thought would be of interest toward tailoring the study or interpreting data later. These notes also informed the creation of analytic memos. Below is a sample running note from a classroom observation at Benjamin ES in January 2022.

Figure 3.8

Running Notes from Renorming Stage

What I Saw	Questions/Ideas
11:10 a.m. Students asked to compare SE and NE region via a TPS.	That was tough b/c Ss didn't understand the question.
11:15 Compared SE and Midwest and NE in a TPS	I helped one pair look at each other to listen better and that helped their discussion
11:30 a.m. T did a reading about the West	I helped Jason and Kyle—some translanguaging by Kyle but Jason didn't want to talk

Note. A sample of field notes from the renorming stage from Ms. Nolan's class.

Figure 3.9 contains a sample of email debriefings I conducted with the teachers after each classroom visit. In these emails I summarized what happened during the lesson and offered a suggestion for them and myself to consider for my next visit.

Figure 3.9

Sample of Email Observational Debrief (Ms. Greenberg)

Thanks- I am sure the kids will love the stinky flower info! This is the mentor text then for them to practice as a class how to find info about plant characteristics and adaptation?
I think when the kids are ready to discuss their answers to the questions, after they read, some good Accountable Talk prompts might be to invite kids to talk, to connect to what kids said, and to question each other...
I can connect to that idea because...
I'd like to go back to what ___said...
I wonder...
I agree because, I disagree because
Why do you think that?
What do you think?

After typing up running notes from classroom observations and teacher debriefs, I added those to an Excel file that was divided into notes from observations, debrief calls/emails, and interviews. Each file in the workbook indicated the date of the data, the classroom or teacher from which the data came, a high-level summary of what the data contained, and a column where I could highlight themes I wanted to explore during data analysis or during the intervention itself.

Data Collection During the Observation Stage

During the observation stage of the data collection process, I continued to visit each classroom once or twice a week, where I recorded students in small groups or pairs discussing informational texts. This stage lasted 12 weeks. There were some weeks when I did not visit both classes due to teacher preference or other initiatives occurring at the school (e.g., preparing for state and district testing). The specific process will be further described in the section below. Table 3.5 provides an overview of the data collection process.

Table 3.5

Data Collection Overview

Teacher	Grade	Coaching Visits (Renorming Phase)	Observed Instructional Events	Student Participants	ELs
Ms. Nolan	3rd	7	4	22	12
Ms. Greenberg	4th	8	6	30	12

There were more instructional events observed for Ms. Greenberg then Ms. Nolan because the latter requested that the intervention end by the end of May. See Table 3.6 for a description of each instructional event, including the students who were observed. The bolded students are the ELs.

Table 3.6

Context for Each Instructional Event

Lesson Date	Teacher	Students*	Instructional context
2022-03-10	Nolan	**Kyle, Jose**, **Erick** Samuel, **Jose** Christina, Maryann, **Ariella,** Carlotta **Michael, Marco** Bailey, **Winifred, Ona**	Opportunity for students to discuss what they learned in a science experiment involving trains and magnets. They designed a train using magnets. They were asked to share designs with another student and talk about similarities and differences of their train designs.
2022-03-11	Nolan	**Lisa,** Samuel, Maryann Daniel**, Jesus, Jose,** Andy	Building background for a project. Small group discussion on what they already know about colleges and HBCUs.
2022-03-16	Greenberg	**Danielle, Abigail**, Vicki Gabriella, Elnora Wallace, Bryan, **Tiana, Jackson**	Opportunity for students to apply the knowledge they received from prior reading and lessons on energy. In small groups students were asked to discuss what was most interesting in the reading and what words they did not know.
2022-03-18	Nolan	Camellia, Bree **Ona,** Bailey, **Marisol** **Erick,** Carlotta	Students had written a story for homework. "If I were a leprechaun" was the story prompt. Kids were to share stories and pictures.
2022-03-23	Greenberg	Ariella, **Danielle**, Gabriella **Star**, Bryan, James, and **Andrea** Rayna, **Juan**, Belinda, and Austin **Lana, Gilbert**, Rosa, **Jackson**	Students asked to do a turn and talk to synthesize information from a lesson on energy transformation. Students had pictures of energy transformations and the prompt, "What is difference between energy transfer and transformation?"
2022-03-29	Greenberg	**Andrea**, Kevyn, Vicki, and Nestor James, Baron, Star **Juan Kimbra**, Belinda, Baron	Students were asked to apply the knowledge they received from prior reading and lessons on energy. Prompts were, "What does this device do?" and "What type of energy does it use?"

Lesson Date	Teacher	Students*	Instructional context
2022-04-28	Nolan	Erick, Bailey, Winifred, Andy Ariella, Jose Bree, Rosa, Kiana, and Andy	Students built background in anticipation of finishing a worksheet from the teacher, for which they looked at a list of daily household expenses and decided which ones they would pay for given a limited monthly budget.
2022-05-17	Greenberg	Gabriella, Alaina, Bryan, **Mindy** **Matteo, Star, Lana** James, Ariella, and **Andrea** and Kevyn and **Jackson**	Group work to synthesize the reading on the functions of external and internal structures of animals that they chose to research. Worksheet had questions like "What does the brown fat do for the bat?"
2022-05-22	Greenberg	Alaina, **Lana, Juan**, Rayna, **Kimbra,** James **Danielle**, Wallace, Kevyn, Olga	Opportunity for students to apply the knowledge they received from prior reading about a plant that has adaptations. After reading in small groups students were asked to discuss "What is the connection between Rafflesia and photosynthesis?"
2022-06-16	Greenberg	**Leo,** Nestor, Rayna and Elnora **Matteo,** Andrea, **Tiana,** Vicki, **Mindy** **Kimbra, Juan, Rosa**	Opportunity for students to consolidate learning on their animal of choice—wrap up. Students were to share three facts about their animal and then peers were asked to make a connection to each fact.

Note. Bold indicates English learner. Students are listed according to in-class groupings.

To generate case study descriptions and an analysis of peer mediation, I took handwritten notes during every classroom visit and held a teacher debrief call or sent a summary email during all stages of the study. I entered the data into an Excel workbook organized chronologically and by classroom, and I created analytic memos to capture the questions I had, as well as ideas for future sessions. Interviews with teachers and administrators were approximately 25 minutes long, were audiotaped, and were transcribed verbatim. In addition to transcribing the interviews, I also made analytic memos during the calls to capture high level themes and record questions.

My reflections were handwritten during or after observations at all stages of the data collection process, and were then added to the Excel workbook, organized chronologically and by classroom.

To collect discourse data, I either audio or video recorded the small group discussions once or twice per week for each classroom during the 12-week period. Typically, the video or audio recording began once the teacher released the students to discuss the prompt with their peers. I would then visit one to three student groups depending on the prompt and the time limitations placed on the discussion by the teacher. I set up the recording once I got to my first group and recorded who was in the group and where they were sitting in relationship to one another. If I left a group during an observational event, it was either because the students had exhausted the topic or the teacher had provided an additional prompt related to the task. For example, I stayed with the first students until they finished talking about the external functions of the animal they were researching, and I would move to the second group when they were asked to speak about the internal functions of the animals they were researching. At times, if the teacher let the student-led discussions go on for too long, I might join a third group and ask them to summarize for me what they learned to see if I could further the collaborative discussion. While I was moving among the groups the teacher would float and primarily help with student conceptual understanding or manage student behavior. The recordings ranged 1:33 min to 14:39 min with the average length of observations at 9:48 min.

I first began using video to capture student discussions, but its utility was greatly diminished by the district mask-mandate due to the pandemic since I could not read lips or use facial gestures to help decipher student discourse. As the video did not provide any useful

paralinguistic cues and was more of a distraction to the students than the audio recording, I pivoted to relying solely on audio three weeks into the observation stage.

I transcribed all recordings and then organized the data chronologically in an Excel file. To transcribe the data, I segmented all discourse from all speakers into t-units. If a student's response was not decipherable, I indicated this in the transcription with the convention "undecipherable." I used three ellipses when there was a brief pause in the response and the convention "pause" if it was longer. When appropriate, I also annotated the transcription to indicate to which speaker a particular response was directed. The files for each transcript were stored on a secure, password-protected, cloud-based storage platform.

Student Demographic Data. I worked with each teacher to collect data on students' English language proficiency level from existing district data. I assigned each participating student a number and later a pseudonym. Only those pseudonyms are used to identify the student during data collection and analysis. The data was stored on a secure, password-protected, cloud-based storage platform.

Gaining Access and Permissions

To gain permission to work in the schools, I first completed the Online Request for Research Activity found on the school district's Office of Shared Accountability webpage. When submitting the online application, I provided the Institute Review Board (IRB) decision letter and a letter of support from an administrator within the county who is familiar with the study. I submitted all teacher and parent consent forms, and a copy of my resume. See sample consent letters in Appendix C. I distributed consent form at the first observation for each school and worked with the teacher to collect the forms. The forms were translated into Spanish and both versions were distributed to all students.

Instructional Procedure

To help the students learn to mediate for one another in collaborative peer led discussions, I worked with each teacher to develop an instructional procedure that took into account her existing pedagogy and her learners' needs. In the following section I describe how I introduced and facilitated this instructional procedure during the stages of my study.

Instructional Procedure During Pre-renorming Stage

As mentioned earlier in this chapter, for Ms. Greenberg's class we decided paired reading would be the most productive way to facilitate peer discussion and introduce and practice discursive supportswith students. In Ms. Nolan's classroom, teacher reading or round robin reading by students seemed to be the easiest way for her and her students. For Ms. Greenberg's classroom I created an instructional routine that consisted of three parts: a teacher-led preview of the text using an anticipation guide, paired reading of the text, and a discussion of text-related questions, either the three core questions ("What is the text about?"; "What are the most important ideas in the text?"; "What is new to me and to others?") or text-specific questions crafted by the teacher or me. During the paired reading routine, the students would take turns reading a paragraph of the text. At the end they would take turns asking the questions of one another, and then discuss "wonder wonders" (i.e., words they thought were important but for which they did not know the definition). Then, if time allowed, the teacher and I would debrief the questions as a whole class. This approach resonated with Ms. Greenberg because it allowed for more control and increased accountability during the discussion section, thus addressing her concern and uncertainty regarding student learning during group discussions. After paired reading was an established practice among students, we later moved to small group, peer discussion.

In Ms. Nolan's classroom it was best to use the format she had already established: Think-Pair-Shares distributed throughout an instructional unit. Therefore, the routine in her classroom began with a teacher presentation of a reading via Pear Deck that the students followed with their laptops. In addition to the teacher reading, sometimes the students would raise their hands to read aloud a few sentences. The teacher would orally pose three questions throughout the reading that were either text dependent or background building in nature. In addition, the students were sometimes asked to write a paragraph on a topic. In these instances, we used the Think-Pair-Share format for them to share their writings with one and another and look for similarities and differences in their ideas.

Instructional Procedure During the Renorming Stage

The instructional routine implemented here was informed by previous studies that explored the impact of peer mediation on literacy outcomes, such as reading comprehension and vocabulary development (Palinscar & Brown, 1984; Klinger et al., 1996; Klinger & Vaughn, 1998, 2000). Although limited due to the professional learning constraints I discussed earlier, during this stage of the study I offered coaching to participating teachers using a two-tiered scaffolding approach (Wilkinson & Gaffney, 2016). This approach recognizes that to best assist literacy learning and instruction, support is provided to the learner by the teacher and support is also provided to the teacher by a more capable other such as a teacher educator or professional development specialist. In this framework teachers received explicit instruction on active discussion from me with their students present. Then students received coaching from me. As noted earlier, even though I demonstrated these practices with teachers and students, my data does not indicate whether the teachers enacted these instructional ideas when I was not present.

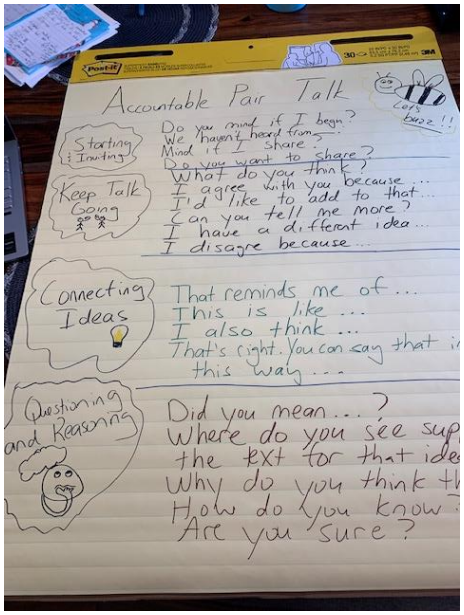
During this stage I continued to implement the repeatable routine as described in the previous section and continued to provide coaching to students and the teacher. Coaching involved the creation of anchor charts that had stems and questions to promote language common to accountable talk initiatives. Typically, I would introduce the anchor chart to the students and then I would model for the students how to implement the stems and questions with content they were working on. With Ms. Greenberg's students we would often model verbal support moves together by taking on the role of two students. After we modeled, we would ask students to tell us what they noticed. With both groups, after explicit instruction with modeling, I would have students get into their groups or pairs and try out the accountable-talk-informed language with their peers. The teachers and I would circulate and provide in-the-moment coaching. If there was time at the end of the lesson, I would ask the students to evaluate their performance with the peer discussion moves, or I would highlight students who did particularly well and showcase for the whole class behaviors that I thought were worthy of reinforcing. As I had less opportunities to co-plan with Ms. Nolan, the introduction and coaching of the behaviors were usually only done by me, with her support on occasion. See Figure 3.10 for a sample of instructional artifacts.

The main focus of each coaching and explicit instruction session was a verbal support move that the students might be ready for. Many of these were explicitly instructed and coached as mentioned above. However, some were more incidental in nature. For example, if I saw an opportunity to focus on *mark* in the moment, I might say, "Interesting idea Shanti—thumbs up if others thought that?" I initially focused on three discursive supports: how to mark (e.g., "That's an interesting idea," or "I agree/I disagree"); how to elaborate or extend ("How do you know that?"; "Why do you think that?"; "Tell me more"); and how to invite students in to the

conversation (“We haven’t heard from [student] yet”; “What do you think?”; “Do you agree?”). The main goal of renorming was to help students begin to see one another as competent helpers to avoid reinforcing the existing dynamic of only speaking to the teacher and not listening to one another.

Figure 3.10

Accountable Talk Coaching Anchor Chart



Note. Sample artifact used to encourage mediation in peer discussions.

Data Analysis

To analyze my data, I qualitatively coded field notes, debrief calls, interviews, analytic memos, and discourse data. I also examined the discourse data quantitively by identifying the frequencies of the codes I used to generate descriptive statistics. My approach for coding the data began with the literature, using it to inform my first pass so that I could begin to make some sense of it (Miles & Huberman, 1984). Then, once I was more familiar with the patterns

emerging from the data, I moved to a more open coding scheme (Creswell, 1998). This coding scheme and each type of data is detailed below. After I address my coding scheme, I will outline the qualitative analysis of field notes, calls, interviews, and analytic memos, and then I will address the analysis of the discourse data.

Coding Process and Schemes

To find themes or patterns in the field notes, debrief calls, teacher and administrator interviews, discourse data, and analytic memos, I used an iterative and open coding scheme (Denzin & Lincoln, 2008). Coding is a common qualitative research technique for language-based data: "A code in qualitative inquiry is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (Saldaña, 2009, p. 3). Thus, I generated codes to identify and synthesize the discursive moves that I and the students used to support student learning.

I first organized my data from field notes, debrief calls and emails, interviews, pre- and renorming stage observations, and analytic memos into an Excel notebook with a tab for each type of data. For fields notes, debrief calls/emails, and pre- and renorming stage observations, I listed the data chronologically with the following columns: date, teacher, setting, summary of event, and themes. Then I added a column, initial coding, where I entered codes meant to capture high-level thoughts I had about each entry. For example, for an entry collected October 14, 2021, I identified the following themes: *peer discussion implementation* and *teaching students to disagree*. Based on the summary of that entry and the identified themes, I initially coded the entry as *teacher beliefs*, *prior instruction*, *artifacts*, and *disagreement*. Later, as the story of my data became clearer, I revisited this entry and I re-coded the event as *teacher beliefs*, *press*, and *pre-norming stage* to better align with what I was learning from the discourse data.

For interview data with teachers and administrators, I transcribed the audio recordings and initially highlighted passages that I thought might be of interest during the data analysis process. Such passages mentioned ideas like *scaffolding* or *prior experience with literacy instruction*. Then after coding and analyzing the discourse data, I went back through the transcribed data and coded the highlighted passages so that I could use them later to provide more context for the discourse data. To do this I entered the highlighted passages into my Excel sheet with three columns: data, teacher/administrator, and transcription. Then I entered a final column, code, where I coded the transcription to capture high-level themes I was finding in my discourse data. These codes included my mediation codes (e.g., *press, mark, scaffold, manage talk*), codes related to implementing peer discussion (e.g., *artifacts, training*), and instructional beliefs (e.g., *guided reading, culturally responsive instruction, newcomers, ELs*).

I highlighted themes in my analytic memos and then entered them into the Excel sheet. These themes were initially related to previously identified themes, such as ideas related to peer discussion facilitation and student helping behaviors. I revisited my analytic memo themes after I had created my student discourse data coding scheme to see if some of my mediation coding scheme aligned to what I was noticing in the analytic memos. Some codes that emerged from the analytic memos included *scaffolding*, *clarification*, and *modeling*.

To code my discourse data from small group discussions, I first segmented all the transcribed discourse data into two levels: instructional events and t-units. Each instructional event began when the teacher provided the prompt for the students to discuss in small groups, and each event ended when the teacher called the students back from whole group discussion. Accordingly, each instructional event had multiple thought units (t-unit). A t-unit in the context of these students' small group discussions is a minimal terminable unit (Hunt, 1965, as cited by

Bardovi-Harlig, 1992), where each thought unit contains one independent clause and its dependent clause. To further explicate my method of identifying t-units, see Figure 3.11, a sample transcription from an event with four students from University ES and the corresponding identification of t-units.

As Figure 3.11 indicates, this portion of the initial transcription of this March instructional event has five lines. Once I identified the t-units in each line, this portion of the instructional event resulted in nine t-units.

I ultimately identified 1054 t-units from the transcribed discourse data. To begin the mediation coding process, I read through the transcribed data twice. I then coded the t-units for themes that seemed salient for answering the research questions and that were aligned to coding schemes from some of the studies outlined in my literature review. These include *accountable talk*, *collaborative discussion*, *uptake*, *newcomers*, *off task*, *proficiency level*, *grouping*, *threading*, *marking*, *clarification*, *elaboration*, *text difficulty*, *invite*, and *organizing group work.*

Then, from the initial thematic codes, I went through the data to identify t-units that were discursive supports. This process yielded 818 examples of discursive supports from the 10 instructional events. 236 of the 1054 t-units remaining uncoded. Examples of uncoded t-units include undecipherable utterances, off topic or disruptive talk (e.g., “He is bullying me”; “Do you watch *Squid Game*?”), interruptions (e.g., the ESL teacher looking for a student to pull out for language services), incomplete ideas, or those that were formulaic or paralinguistic in nature but could not further student linguistic or academic understanding (e.g., “Ok”; “Let me see”).

Through a generative and iterative process, 14 codes emerged to capture the 818 instances of mediation provided by me and the students. As first described in Chapter 1, for the purposes of this study, mediation is defined as a process where teachers or peers use semiotic

Figure 3.11

Sample Transformation of Transcription to T-unit

Original Transcription

Participant	Transcription
Andrea	You do something?...And then it turns into something else potential energy.
Nestor	Like potential energy, potential energy and then it turns into…then it turns into kinetic energy
Vicki	First look- The toaster sitting there and it has potential energy- then while cooking it has kinetic energy
Me	What does Andrea think? Did you hear that? Vicki do you want say that again
Andrea	Sorry

Transcription with Identified T-units

Line	Participant	T-unit
3292201	Andrea	You do something?
3292202	Andrea	And then it turns into something else potential energy
3292203	Vicki	Like potential energy, potential energy and then it turns into…then it turns into kinetic energy
3292204	Vicki	First look- the toaster sitting there and it has potential energy
3292205	Vicki	Then while cooking it has kinetic energy
3292206	Me	What does Andrea think?
3292207	Me	Did you hear that? (saying this in response to what Vicki said b/c I noticed Andrea stopped paying attention)
3292208	Me	Vicki, do you want to say that again?
3292209	Andrea	Sorry

Note. Students discussed the following prompt: “Energy transformation: What does this device or object do? What type of energy does it use?” Students in the groups were Andrea, Kevyn, Vicki, and Nestor.

tools aimed at supporting a student or peer's understanding of a text and its concepts in two ways. The first discursive support is by providing students with access to language essential for understanding a text and participating in text-based discussions (e.g., defining unknown words, clarifying a peer's question to enhance comprehensibility, inviting a peer into the dialogue). The second way is by highlighting and providing scaffolding toward the acquisition of literacy skills necessary to comprehend a text being discussed (e.g., remind a student to consult the graphic organizer, refer a peer to the text to find a supporting detail). I coded the t-unit as discursive support if it evidenced support for the students' conceptual understanding of the reading or if it could enhance their ability to fully participate in the discussion.

Building from my initial thematic codes, I went through the data again with the aim of consolidating, revising, and refining my initial codes. For example, a t-unit that was initially coded as *thread* later became *link* and *verify & clarify* as a clearer understanding of what the interlocuter was doing emerged. I also began checking my codes against the coding schemes from some of the studies cited in my literature review in order to build on existing work. For example, a t-unit coded as *challenge* was later coded as *press* to better fit with existing coding schemes. I also saw that coding needed to be more granular to adequately capture teacher and peer mediation. Accordingly, I saw that data I initially coded as *invitation* was actually *invite* or *express ideas*. However, in some cases granular codes did not work. For example, I tried dividing the code of *link* into three subcodes: *link-affective, link-intertextual, link-shared experience*. However, after trying to implement these codes, I learned that (a) I did not have enough data to warrant making such a fine distinction, and (b) most of the instances of link were intertextual. My initial coding scheme was informed by both the literature and by the limitation of my study's discourse data.

Once I had an initial coding scheme that better captured the discursive supports of me and the students, I went through 25% of data again to ensure its applicability. During this pass through, I dropped a few codes—*translation* was dropped because it did not apply to my data. I consolidated other codes. For example, a closer look revealed that *guide talk* and *manage talk* were capturing the same behavior, so I chose *manage talk* to align it with the literature.

Once I saw that the initial coding scheme worked, I drafted some initial definitions to begin to standardize my use of the codes. Next, I went back to the codes I developed as part of my literature review to see if all of them aligned with prior research. As all codes do exist in the literature on dialogic teaching, I refined some code labels and descriptions to align with the literature to expand established knowledge. For my complete codebook, see Appendix D.

The last pass through with the data ultimately yielded 14 codes. In Table 3.7 these codes are outlined, defined, and contextualized within the discourse data.

Table 3.7

Coded Discursive Supports with Definitions and Examples from Discourse Data

Code	Definition	Example From Discourse Data
Verify & Clarify	Linguistic moves that revoice, clarify, recast, restate, or paraphrase	In this vignette students are asked to discuss what they know about HBCUs. Me: But can you think of any universities that are historically black college or university? Lisa: I don't know Lisa: This is new Me: **Yes, this is new.** Me: Ok Maryann: Historic…black Maryann: Yeah….I just don't know Me: Maybe we can think about the words **Maryann: Yeah, maybe they are in black community** **Samuel: Yeah, they are in the community**
Express Idea	Providing contributions not yet discussed during the event	Students were asked to write a story from the perspective of a leprechaun as homework. Me: Did you already read your story? **Christina: If were a leprechaun I would go to the end of the rainbow and get all of the gold** Me: What do you think about that (question posed to Bree)? Bree: Umm Me: Is it similar to yours? Bree: I don't know. Me: Ok- well (looking at Bree's story) you would be rich and that is what Christina said – she said she wants. Me: That's similar right? Bree: yes

Code	Definition	Example From Discourse Data
Link	Building on contributions by providing related ideas and giving examples	Juan: Kinetic energy is something moving Juan: And like the cheetah is running Juan: And I think he got kinetic energy by running Austin: The cheetah is running Austin: And he's using kinetic energy Austin: And he's making heat energy Belinda: Kinetic energy is when something is moving Austin: For example, when I put the pencil on table and then it starts moving Me: Ok- Juan did you hear her?
Invite	Open ended questions to the general group or to a specific group member, designed to elicit more than a yes or no response	Vicki: First look, the toaster sitting there and it l energy Vicki: Then while cooking it has kinetic energy **Me: What does Andrea think?** **Me: Did you hear that?** (saying this in respons Vicki said because I noticed Andrea stopped pa attention) **Me: Vicki, do you want to say that again?** Andrea: Sorry Vicki: Um the toaster has potential energy and t into heat energy

Code	Definition	Example From Discourse Data
Mark	Pointing out to the group exactly what was valuable or important in a peer's contribution	Me: What are some things you want to know about colleges? Samuel: I want to know if black college allow white students but Martin Luther King solve this problem Samuel: So I want to know if black people can go to those colleges? **Me: That's an interesting question**. Me: What else? Lisa: I want to know what is if people are going to be separate and Lisa: Or they are going to have move away to get their own bedroom Lisa: I think? Me: Yeah? Me: So they will live in a dormitory? Samuel: I don't think so
Manage Talk	Linguistic moves that serve to keep discussion moving or to keep discussion relevant to the instructional event	Elnora: Ummm the most important interesting thing to me is that trying ummm it does like potential energy to, to **Me: Gabriella, can you help her out**? Gabriella: Um, um I said that potential energy um is the interesting because of ..cause um it starts in a position before it is energy and then.. Me: Uh huh Gabriella: And potential energy is when, when like when it is a soccer ball when you kick it that is potential energy Elnora: Because it is moving

Code	Definition	Example From Discourse Data
Press	Challenging or questioning the accuracy of an idea, or requesting elaboration in order to build knowledge	**James: Also on bottom of text it says that they use echolocation** Me: How do they find their prey with echolocation (reading from text where James read) Kevyn: They find the prey, the, so because of the sound of echo Kevyn: They have good ears so the sound of echo they can hear the animal Me: What do you think? Jackson: That's correct
Scaffold	In-the-moment support provided to the learner to accomplish a task she could not have accomplished on her own	Kevyn: How do you spell fruit? **Me**: **What do you think is the first sound?** Kevyn: F Me: Ok
Request assistance	Asking for content or language help in order to participate in the discussion	**Jose: How do you spell shelter?** Me: Shelter? Ariella: It's a house Me: yes Ariella: H O U S E
Wait	Intentional pauses provided by listeners to give an interlocutor more time to consider his or her response or finish his or her idea	Me: What questions do you have about that? Rosa: Umm, how did it get on fire? Me: Ok, what did you think, do you think about the fire? Me: How did we transform to heat energy? Lana: Maybe by the sun **Me: Ok (intonation up**) Lana: Light Lana: Then the light got with something else then got into Lana: And then it expanded to light and next thing it became a fire Me: What do you all think?

Code	Definition	Example From Discourse Data
Recap	Providing a summary to capture the learning of the group	Ariella: Energy transfer is like when toaster goes like… Ariella: Like how do you say it? Danielle: Electricity Ariella: Electricity **Danielle**: **Like energy become heat**
Model	Showing the learner how she carries out a particular activity	**Me: So you guys have to agree on what type of energy it is being turned into heat energy?** Andrea: I think electric energy is heat energy. **Me: Well, tell her why you think that**. Andrea: Because the… Andrea: What's that called? Me: She asked you what's that called. Vicki: Wire
Monitor	Linguistic moves to help learners track their understanding of the text and the discussion	Nestor: Talk to me Rayna: Its uh, its active day and night both Rayna: And especially designed eyes make them equally see in the day and night Rayna: Um **Me: Are you listening (talking to Leo)?** Rayna: And um **Me: How many facts has she shared?** Leo: Um she shared one right now Rayna: I've shared two

Code	Definition	Example From Discourse Data
Notice & Name	Identifying a productive literacy technique to increase comprehension among learners	Me: What was that? Kevyn: That's what me and Wallace wrote Me: Oh, ok Me: So, you can say I agree- right? Kevyn: I agree because it uses its vines to make the food Me: Oh ok **Me: So that is a good detail- it uses its vines**

After I assigned codes to the data, I reviewed the transcripts and the audio again to determine whether a discursive support provided by me or a student was taken up (i.e., uptake) by a student. A discursive support was coded as *uptake by a learner* if the student acknowledged it in some way (e.g., thanked the peer, repeated provided information or support, asked a follow-up question, provided a similar discursive support later in the discussion, or agreed/disagreed with the mediation). If the discursive support seemed to be received by multiple students, each student was counted as receiving the mediation. If it was not clear that the mediation was received by any student, no student was recognized as the recipient.

Analytic Approach

This section of Chapter 3 will outline my analytic approach toward answering each of my five research questions.

Analyzing the Distribution and Source of Discursive Support

To answer how the distribution of the discursive support differs between me and the students, I used both a macro and micro approach to answer research questions 1 and 2. (Hennessey et al., 2020). First, I produced a summary of all t-units from all instructional events.

Using a micro level approach, I quantified each discursive support offered by me and the students, which allowed me to produce descriptive statistics of the mediation overall, by participant, by EL status, by site, and by instructional event. Obtaining frequency counts for each code allowed me to see which supports were more prevalent than others among the students versus for me. Frequency counts also allowed me to investigate if changes emerged in the distribution of these discursive support over time or by the type of instructional event. This micro level approach was an efficient way to make some initial sense of the data during the first couple of analysis passes to find patterns worthy of further exploration.

This micro level analysis also allowed me to perform more macro level investigations of the data. For example, micro level analysis helped me find vignettes that contained discursive support that I could closely probe regarding the conditions in the instructional environment that promoted peer mediated learning. Macro level analysis helped me identify certain students worthy of further exploration, with a goal of discovering how the environment, the peers, and I might have impacted the discursive support they provided and received. Accordingly, this more macro level analysis allowed me to find patterns regarding qualitative differences in peer mediated learning, such as over time or based on EL status. It also allowed me to examine whether ELs can provide a wide range of discursive supports, or if certain conditions exist during the discussion that limit EL discursive support. Thus, during the macro level investigation, patterns emerged to help explain the ways in which discursive supports emerged for different types of learners, as well as how the person in the instructor role promoted their implementation. This macro approach also allowed me to identify vignettes that exemplified each of my findings. Looking at the data on these two levels allowed me to make more reliable comparisons across the sites and enhanced my conclusions.

In addition to this micro and macro analysis of the coded data, I also used coded data from lesson debriefs and interviews with teachers to contextualize the findings. This analysis will help to shine a light on how and in what ways a teacher's environment and beliefs might influence the promotion of discursive supports for different types of students during peer mediated learning.

Analyzing the Quality of the Peer Mediation

To ascertain the quality of the peer mediation, I used frameworks related to the promotion of dialogic talk, such as accountable talk and collaborative reasoning, and the coding schemes that emerged from those studies. Literature on accountable talk (Wolf et al., 2006; Michaels et al., 2008, 2010) and exploratory talk (Mercer, 1996) informed my definitions of high-quality discursive support, for the studies therein define student behaviors that are intended to promote more robust learning, engagement, and the distribution of cognition, such as the co-construction of knowledge; sharing and evaluating ideas; and reconciling disagreements, different views, and misunderstandings to develop more accurate knowledge. While Mercer (1996) proposed broad concepts for categorizing peer dialogue in educational settings (disputational, cumulative, and exploratory), accountable talk literature explicates behaviors associated with talk that is more exploratory in nature (e.g. *link*). Hennessey et al. (2016) expand the concept of high-quality support and talk through their coding scheme, Scheme for Educational Dialogue Analysis (SEDA). SEDA is grounded in socio-cultural theory and focuses on identifying talk moves more exploratory in nature. Compared to talk that is more cumulative or disputational in nature, the authors theorized that this talk leads to more enhanced learning, as peers in these types of dialogue show evidence of listening and considering one another's ideas (Mercer, 1996; Mercer & Howe, 2012).

To answer this research question, I first categorized the instructional events from my discourse data according to whether they were teacher-directed, disputational, cumulative, or exploratory. The section below will define each category and provide examples of each in the context of my discourse data.

Teacher-Directed Talk. Teacher-directed talk occurred when the dialogue in the instructional event was dominated by me. Vignette 3.1 showcases a portion of an instructional event where the event had very little evidence of a dialogue. In this discussion with four students (three non-ELs and one EL) from Ms. Nolan's class, the students had grouped themselves after the teacher provided the prompt of talking about what they learned about magnets and trains. I entered their conversation after they were supposed to have been talking for about four minutes.

I have eight turns out of twelve lines, with most of those turns serving to manage student talk. When students do contribute, it is only to me rather than their peers. Thus, it is likely that little to no distribution of cognition is occurring among the learners. An examination of discourse data from that category reveals that teacher-directed talk almost exclusively occurred when learners in the peer discussion did not have enough content knowledge to interact with the discussion prompt.

Vignette 3.1

Example of Teacher-Directed Talk

Line	Participant	Transcript	Support
1	Me	Are you doing same assignment	Manage talk
2	Girls	Yes	
3	Me	So, talk about difference.	Manage talk
4	Me	Talk about…	Manage talk
5	Christina	I have this little wall (pointing to design)	Express idea
6	Me	Yeah	Wait
7	Christina	This is wall and this repels	Links
8	Me	Oh repel?	Mark
9	Me	Did you guys know that?	Scaffold
10	Girls	Nod	
11	Me	So, this is for brakes? (pointing to design)	Verify & clarify
12	Students	Yes	
13	Me	So, these are all similar?	Verify & clarify

Note. Excerpted from the March 10, 2022, instructional event.

Disputational Talk. Disputational talk is categorized as talk where learners are not engaging with academic content, nor do they have opportunities to acquire academic language. Instructional events categorized by this type of talk feature students arguing or working in a highly individualized manner, even when the task calls for collaboration. For example, in vignette 3.2, we see two learners from Ms. Nolan's classroom in March, one EL (Jose) and one non-EL (Samuel) engage in disputational talk. I enter the dialogue about two minutes after the teacher had asked them to pair up.

Vignette 3.2

Disputational Talk

Line	Participant	Transcript	Support
1	Me	What are you doing?	Manage talk
2	Samuel	So we are doing same thing.	
3	Samuel	They are drawing the picture I put up	
4	Samuel	This was on wall (pointing to something on his design)	
5	Samuel	It was supposed to be a magnet but my group didn't tell me	
6	Jose	You forget!	
7	Samuel	I didn't forget	
8	Samuel	You didn't tell me!	
9	Me	It sounds like everyone forgot.	
10	Me	Is this the same or different? (pointing to their designs)	Manage talk
11	Samuel	It's different but you didn't tell me to add this.	

Note. Excerpted from March 10, 2022, instructional event.

As seen above in the vignette, the learners spend their time during this instructional event arguing about each other's actions (or inactions) rather than talking about what they learned about trains and magnets. This disputational talk continues despite attempted redirections by me in lines 9 and 10. As presented below, the students do not address the academic content of how magnets can move and stop trains, they do not use any language specific to the topic or the content area (science), and no discursive support is offered by students. Moreover, the discursive support offered by me are few (lines 1 and 10) and are only provided to manage the students off-task behavior. Accordingly, episodes categorized as disputational did not yield discursive support by me or peers, nor much evidence of student understanding of the topic or use of academic language.

Cumulative Talk. Cumulative talk is categorized by learners *expressing ideas* but with little to no evidence of cohesion or a *link* among the ideas offered. As shown in vignette 3.3 below, the three learners from Ms. Greenberg's classroom offer ideas about the types of energy transfer they think they see in the text. However, they do not offer discursive support that explicitly links to a peer's idea, nor do they mark or acknowledge the contribution of one another. I enter this dialogue after the students have been discussing the prompt for several minutes. The students are looking at the pictures about energy transformation, but no discussion is occurring when I enter the group.

In Vignette 3.3 we see students expressing some ideas about the content (lines 4, 6, 8, 12, 16, 19) but peers do not meaningfully consider a peer's contribution. For example, in line 4 Jackson posits an answer to the question, but rather than a peer offering a discursive support that might help him clarify his thinking, he does the clarifying himself (line 5). They are talking past one another rather than participating in knowledge building or distributing cognition among one another.

Additionally, in these instructional events that are more cumulative in nature, I do the heavy lifting to continue the discussion and the learning. In the 23 t-units of vignette 13 we see that I am responsible for providing over half of the mediation. We see that I offer mostly *manage talk* and *scaffold* mediation, perhaps signifying that the students are struggling with the content.

Vignette 3.3

Cumulative Talk

Line	Participant	Transcript	Support
1	Me	What do you think about that picture?	Manage talk
2	Me	What type of energy?	Scaffold
3	Gilbert	Ummm type of energy is heat energy? Hmmm	Request assistance
4	Jackson	Fire?	Express idea
5	Jackson	No that's kinetic	Verify & clarify
6	Rosa	Heat energy is getting everywhere	Express idea
7	Me	Heat energy is getting everywhere- ok	Scaffold
8	Rosa	Fire is heat energy	Express idea
9	Lana	A forest fire cause it	Express idea
10	Me	Ok, a forest fire caused it.	Verify & clarify
11	Me	What questions do you have about that?	Manage talk
12	Rosa	Umm, how did it get on fire?	Express idea
13	Me	Ok- what do you think about the fire?	Scaffold
14	Me	How did we transform to heat energy?	Scaffold
15	Lana	Maybe by the sun?	Express idea
16	Me	Ok (up intonation requesting more info)	
17	Lana	Light	
18	Lana	Then the light got with something else and then got into (inaudible)	
19	Lana	and then it expanded to light and the next thing it became a fire	Express idea
20	Me	What do you all think?	Manage talk
21	Me	Agree? Different ideas?	Scaffold
22	Rosa	I think it was like the sun and it got hot	Express idea
23	Me	Alright	

Note. Excerpted from March 23, 2022, instructional event.

Exploratory Talk. In comparison to cumulative and disputational talk, exploratory talk is characterized by talk where students are distributing cognition among themselves by providing

peers with opportunities to grapple with the academic content using the language associated with that content area. Accordingly, as exploratory talk is characterized by on task, on topic, and deeper engagement, research question #3 seeks to answer how and what type of discursive support that encourages exploratory talk emerges among learners in different instructional contexts and with varying literacy and language profiles.

Vignette 3.4 is an example from the data set of exploratory talk. In this event about the adaptations of the plant rafflesia in Ms. Greenberg's classroom, we see that even though some confusion exists in the beginning about how rafflesia makes food (line 1, 3, 4), learners do acknowledge peer contributions (lines 3, 7, 19, 23), and they build upon these contributions to come to the conclusion that the vines of rafflesia are important in making food for the plant and that this is a unique adaption for plant food production.

Vignette 3.4

Exploratory Talk

Line	Participant	Transcript	Support
1	Danielle	So the connection between rafflesia and photosynthesis is the chlorophyl	Link
2	Wallace	There's no connection because um it doesn't have chlorophyl	Press
3	Danielle	And chlorophyl helps it to make its own food	Link
4	Danielle	That's why it doesn't use photosynthesis	Recap
5	Olga	It uses its vines	Link
6	Me	What was that?	Verify & clarify
7	Kevyn	That's what me and Wallace wrote	Link
8	Me	Oh ok	

Line	Participant	Transcript	Support
9	Me	So you can say I agree- right?	Model
10	Kevyn	I agree because it uses its vines to make the food	Mark
11	Me	Oh ok	
12	Me	So that is a good detail- it uses its vines.	Notice & name
13	Me	What else? How can we add on?	Manage talk
14	Wallace	Its not….its vines it uses..	
15	Me	It uses vine -right?	Verify & clarify
16	Olga	Rafflesia- um ...rafflesia doesn't have nutrients. It takes the nutrients from…	Express idea
17	Me	Ah huh- from what?	
18	Olga	From vines	Express idea
19	Danielle	And water	Link
20	Me	And water	
21	Danielle	And it only lives for seven days.	Express idea
22	Me	That's short- huh?	
23	Olga	That's one week	Link

Note. Excerpted from May 22, 2022, instructional event.

Knowledge building by students as a result of certain types of discursive support is exemplified in this vignette. Instead of ignoring a peer's inaccurate contribution, the students work to resolve the discrepancy in accuracy by *press* (line 2), *link* (lines 5, 7, 19, 23) and *mark* (10). Thus, in contrast to vignette 3.2 and 3.3, students seem to have a deeper understanding of the text's main ideas by the end of the dialogic interaction. We should also note that the student who had the misconception at the beginning of the vignette (Danielle) is also the only EL in the group. Instead of allowing Danielle to hold onto an erroneous idea, her peers' actions helped her

understand the vines were making food (line 19) rather than photosynthesis. We also see few discursive supports offered by me, and almost none related to directing talk. In addition, there is less *expression of ideas* as a percentage of the whole in comparison to cumulative events. Thus, in contrast to the cumulative vignette, the students were distributing more of the responsibility for the cognition among peers in vignette 3.4.

After categorizing the instructional events based on the quality of the talk, I grouped the events according to their category and then went back through the events to explore differences that might exist among the learners participating in the events and which classroom the event occurred in. I also used field notes to capture whether the educational environment, such as the prompt or the topic, might have worked to promote each type of categorization. From there I was also able to identify vignettes that showcased how discursive support promoted the different types of quality of talk categories. I also used field notes from debriefs and observations, as well as interview data, to offer context and explanations for the discourse data.

Analyzing Student Uptake of Discursive Support

My next step in analyzing the data was to explore differences that exist among the students with regards to the reception of discursive support. Specifically, I probed differences related to student uptake. I first coded t-units as uptake if the student performed a behavior that indicated the student noticed or acknowledged the discursive support offered by either me or a peer. As earlier described, these behaviors included asking for and receiving clarification related to the ideas shared by others, responding affirmatively to an invitation to speak, adding a related idea to one posed by a peer or me, and agreeing/disagreeing with an idea presented.

After I coded the t-units, I counted and summarized the coded discursive support that students received from me and their peers from all the discourse data, according to classroom

placement of students, and for each instructional event. From there I was able to calculate averages of uptake based on who provided the discursive support (e.g., from someone in the instructional role or from a peer), the classroom where the discursive support was offered, and the instructional event. I also summarized discursive support uptake by student and by EL status to investigate whether different patterns of uptake emerged. I was then able to ascertain which events had relatively high levels of student uptake of discursive support (greater than 50%) and which had low levels (less than 30%). This analysis allowed me to look more closely at instructional events that differed in terms of student uptake and to analyze more closely what factors could influence how learners uptake discursive supports. I also looked at events coded as teacher-directed, disputational, cumulative, and exploratory to see what patterns of student uptake emerged based on the overall quality of the discussion.

Analyzing Factors That Influence the Quality of Mediation

I used a macro analytic approach to examine how I and the students limited or enhanced the quality of the discursive supports. Then I was able to identify missed opportunities with regards to discursive supports during peer mediated learning. For example, I was able to see where too much or not enough support was provided by me or the student. I was also able to see how different types of discursive moves worked to enhance effectiveness and how students or myself promoted peer mediated learning. I also used my field notes and interview data to contextualize the vignettes and offered possible explanations for the findings.

Conclusion

This embedded case study allowed me to collect and analyze varied types of data from two elementary classrooms with a high percentage of ELs and with teachers of different educational perspectives and preparation, so as to investigate how multilingual elementary

students provide and receive discursive support during peer mediated learning. While discourse data from classroom observations comprise most of my data, I also used field notes from classroom observations and debrief calls, as well as instructional artifacts and interviews with a variety of staff to triangulate my discourse data findings. I employed an open coding scheme to iteratively analyze observational data related to the provision and uptake of discursive support. I examined how discursive support worked to promote talk that was of a higher quality for ELs in particular.

CHAPTER 4: FINDINGS

This chapter presents and analyzes my comparative case study data collected at the conclusion of the renorming phase of my study. I answer each of my five research questions by presenting descriptive statistics followed by discourse analysis of t-units from events to explain patterns presented in the data exhibits. Each of the five questions will be answered by synthesizing data from the classrooms separately and in combination, and also from the participant level when possible. As will be discussed further, although 14 types of discursive support emerged from the data, not all forms had a robust presence during these small group discussions. Additionally, not every type of discursive support was offered equally or even at all among the study's participants. Moreover, the frequency and uptake of discursive support by students also seemed to correspond to differing levels of the quality of the talk among the instructional events. These findings will be examined and discussed in the following sections.

My findings suggest that I (as the person in the instructional role) and the students used different types and frequencies of discursive support, and that across the two case study sites, mediation frequency and quality were not constrained by student EL status, nor by grouping schemes, but were affected by each teacher's instructional context at times and whether the student was a newcomer EL. The data also suggest some differences in student uptake when the discursive support was provided by me versus their peers. Importantly, my analysis will also show that some discursive support seems to be necessary for engendering higher quality talk that could lead to enhanced student learning, including the learning of students who are sometimes engaging with the academic content in a second language. The data also reveals that certain

behaviors by the persons in the instructor role and by students can serve to limit or enhance the quality of student talk overall. Moreover, the instructional context and practice of the teacher in each case study worked to promote or limit these behaviors at times.

The following sections discuss each of my five research questions and their accompanying findings. To answer each question, I will present the data from the combined cases, and then I will examine the data at the classroom level and student level as applicable.

Research Question #1: How Does the Distribution of Discursive Support Differ Between Students and Me?

This question measures the quantity of discursive support provided by me versus the students to ascertain patterns of provision and to explore factors that may have resulted in different patterns to emerge among participants. Examining the distribution of discursive support provided by me and the students is essential toward understanding how those in both the instructor and peer roles supported students and distributed cognition during peer discussions on informational texts. Answering this question also provides some insight into how frequently I released the responsibility of sustaining the discussion to the students. An analysis of discursive support distributions reveals differences in types of support offered by the study's participants.

I first examine the frequency of each discursive support from the combined case study data and then look at the frequency among the students and me at the site level. I use vignettes from selected instructional events within the discourse data to highlight and explain these frequency patterns for each level of analysis.

Distribution of Discursive Support Overall

A summary of each code's frequency for those in the instructor and student roles is presented in Table 4.1. While other research questions will explore differences in quality that

emerged between the student and the instructor, a more quantitative view of these data reveals that discursive supports were more or less frequent according to who provided the support, and that some types of discursive supports were only provided by the instructor or a student.

Table 4.1

Summary of All T-units

Support code	Instructor provided	Student provided	Total
Verify & clarify	127 (50.6%)	124 (49.4%)	251 (30.6%)
Express idea	0 (0%)	125 (100%)	125 (15.3%)
Link	0 (0%)	97 (100%)	97 (11.9%)
Invite	54 (78.3%)	15 (21.7%)	69 (8.4%)
Mark	32 (50.8%)	31 (49.2%)	63 (7.7%)
Manage talk	36 (76.6%)	11 (23.4%)	47 (5.7%)
Press	20 (45.5%)	24 (54.5%)	44 (5.4%)
Scaffold	39 (100%)	0 (0%)	39 (4.8%)
Request assistance	0 (0%)	32 (100%)	32 (3.9%)
Wait	16 (89.9%)	2 (11.1%)	18 (2.2%)
Recap	7 (58.3%)	5 (42.7%)	12 (1.5%)
Model	12 (100%)	0 (0%)	12 (1.5%)
Monitor comprehension	5 (83.3%)	1 (16.7%)	6 (1%)
Notice & name	2 (67.7%)	1 (33.3%)	3 (<1%)
Total	350	468	818 (100%)

As shown in Table 4.1, five types of discursive supports account for over 70% of all the the coded data: *verify & clarify, express idea, link, invite,* and *mark*. The most frequently coded t-unit across all 818 t-units was *verify & clarify* (N=251), which accounted for 30.6% of all t-units transcribed from all observations. As noted in Chapter 3, *verify & clarify* served to ensure that participants were fully comprehending the intended messages from peers and me during

small group discussions, and thereby enhanced student understanding of the text's ideas or concepts.

Vignette 4.1 presents an example of this discursive support type. In this vignette, I enter into a conversation with four students from Ms. Greenberg's classroom who were asked to discuss the difference between energy transfer and transformation. Prior to the exchange below, Austin had shared that a cheetah running was an example of kinetic energy. Belinda connects to Austin's comment by reporting that kinetic energy comes from movement, like when an egg falls off the table (lines 1 and 2).

Vignette 4.1

Verify & Clarify

Line	Participant	Transcript	Support
1	Belinda	Um kinetic energy is like with something is moving.	
2	Belinda	For example, when the egg falls off table it is moving	Link
3	Austin	Kinetic energy is….	
4	Me	**She was talking about when there is an egg, and it falls off the table**	**Verify & clarify**
5	Me	**That's kinetic energy, right?**	**Verify & clarify**
6	Austin	Yeah.	
7	Me	Ok.	

Note. Excerpted from March 16, 2022, instructional event.

I noticed that students did not acknowledge the *link* that Belinda provided, so I recast Belinda's contribution in order to *clarify* for the group what she had said, in case it was not

comprehensible to the students the first time she said it (line 4). I sought to distribute cognition among students by seeking *verification* from students that my interpretation was correct (line 5). Austin then indicates uptake of my meditation by answering in the affirmative regarding my request for verification (line 6). Thus, *verify & clarify* can work to provide engagement and establish shared understanding of concepts and language related to a concept. This discursive support can also result in one interlocutor shouldering more of the conversational burden than is ideal in an academic discussion. For example, in seeking verification from the group about the type of energy being used, it was the person in the instructor role (me) using academic vocabulary rather than those in the student role who actually needed practice in using this vocabulary (line 5).

Vignette 4.2 provides an example of *verify & clarify* offered by the students. In this vignette, featuring a discussion among three students (one EL and two non-ELs) about the difference between energy transfer and transformation, we see students doing the work of *verifying* peer contributions through recasting, posing questions to *clarify* peer thinking, and providing *clarifying* examples. Unlike Vignette 4.1 where I clarify the definition of academic terms for the students, in Vignette 4.2, Danielle and Gabriella actively work to establish a shared understanding of these concepts and terms.

As I enter the discussion, Danielle *links* to the text they just read by recounting an example she read, but she is not able to ascertain whether the example is one of transfer or transformation (lines 1 and 2). Gabriella understands her contribution to be incomplete and *clarifies* that kicking a ball is energy transfer (line 3). Then Danielle seeks *clarification* by wondering if they are discussing energy transformation rather than energy transfer (line 4). Next,

Gabriella *clarifies* their understanding by providing an example of energy transfer using the same example that Danielle introduced earlier, but with more details (line 5). Hence the

Vignette 4.2

Verify & Clarify

Line	Participant	Transcript	Support
1	Danielle	One thing I remember like you are kicking ball (inaudible)	Link
2	Danielle	And its energy.	
3	Gabriella	**That is energy transfer.**	**Verify & clarify**
4	Danielle	**But is that energy transformation?**	**Verify & clarify**
5	Gabriella	**Energy transfer is when I take the ball and the energy goes to the ball…something like that.**	**Verify & clarify**

Note. Excerpted from March 16, 2022, instructional event.

discursive support offered by each student works to establish a shared set of facts from which the students can work to further enhance their understanding of these two science concepts. It also provides opportunities for both students to use academic language central to understanding these concepts.

After *verify & clarify*, the second and third most common t-units were *express idea* and *link*, accounting for 15.3% and 11.9% of all t-units respectively. In Vignette 4.3 four non-ELs from Ms. Greenberg's classroom are discussing a handout that contains pictures of devices that use energy when I enter the discussion. Prior to this exchange the students had discussed pictures of a toaster oven and fruit and how those devices used energy. In this vignette, Andrea draws her peers' attention to the picture of fireworks. Here we see Andrea, Vicki, and Nestor employ *express idea* and *link* to begin and sustain an academic conversation.

Vignette 4.3

Express Idea and Link

Line	Participant	Transcript	Support
1	Andrea	**The fireworks make sound when it goes into air**	**Express idea**
2	Vicki	But I still don't understand one	Request assistance
3	Vicki	So, sound energy?	Verify & clarify
4	Andrea	**Yeah, and then it turns into motion energy**	**Express idea**
5	Vicki	**Maybe heat because it can …**	**Express idea**
6	Nestor	**Maybe heat energy first and then sound energy because the fire**	**Link**
7	Me	Maybe	

Note. Excerpted from March 29, 2022, instructional event.

Andrea *expresses an idea* about what she sees in the picture, which begins the discussion of the type of energy that fireworks use (line 1). After Vicki recasts what Andrea said, Andrea *expresses an idea* that adds some nuance to her earlier statement about fireworks using sound energy (line 4). This discursive support prompts Vicki to *express the idea* that fireworks use heat energy (line 5). Both of these ideas about the forms of energy that fireworks use are noticed by Nestor, and he *links* by offering the type of energy used first to produce fireworks (line 6). Thus, student use of *express idea* and *link* in this vignette provided peers with opportunities to begin an academic discussion and to probe the accuracy of their initial understandings about energy.

The fourth most common t-unit was *invite* (8.4%). *Invite* serves an important function in ensuring dialogue continues among peers. It also distributes the linguistic and cognitive

contributions more equally among students, as shown in Vignette 4.4. In this vignette in Ms. Nolan's class, four students (two ELs and two non-ELs) are completing a post-reading activity where they must analyze a list of items and decide which ones are needs and which ones are wants.

Vignette 4.4

Invite

Line	Participant	Transcript	Support
1	Bailey	Because you need clothes and you need water and food to survive and you need (inaudible)	Express idea
2	Me	Ok so you all agree	Mark
3	Bailey	Yes	
4	Me	**What about you two?**	**Invite**
5	Erick	We are waiting for him	
6	Me	Oh yeah? Well tell him to come over	Manage talk
7	Erick	I want an apple	Express idea
8	Andy	We need trees	Express idea
9	Me	**Ok what do you think?**	**Invite**
10	Erick	Yeah because without trees we won't have oxygen	Link
11	Me	Hmm	Wait
12	Bailey	**What about food?**	**Invite**

Note. Excerpted from April 28, 2022, instructional event.

As I enter the discussion, Bailey is defending one of her choices as a need to her peers. After a protracted pause from the students, I ask for confirmation of their agreement with Bailey's contribution (line 2). When Bailey speaks for the group, I *invite* Andy and Erick to participate (line 4) in an attempt for more discussion. Erick receives my request and adds that he

thinks that an apple is a want (line 7). Then Andy *links* to his response, but this leads to no uptake from students (line 8). As a result, I *invite* further ideas and the conversation continues, with Bailey posing a specific question that *invites* her peers to add ideas (lines 9 and 11). As showcased in this vignette, *invite* by me attempted to equally distribute the responsibility for talk among students to encourage multiple voices and affirm student thinking. My use of *invite* as the instructor also served as model for Bailey to enact the support with her peers (line 12), releasing some of the responsibility of mediation to the students.

The fifth most common t-unit was *mark* (7.7%). The discursive support of *mark* helps students recognize and elevate peer contributions. In Vignette 4.5, four students (three ELs and one non-EL) were sitting at their table and were asked to complete a capture sheet on energy transformation. They had previously been discussing what type of energy transfer is happening when you light a firework. Some ideas posited by the students included heat energy and sound energy.

Vignette 4.5

Mark

Line	Participant	Transcription	Support
1	Kimbra	I'm going to write (student narrates as writing) *When the fuse gets lit enough it is going to make fireworks and then then the fireworks go in a straight line and then the fireworks go boom*	Express idea
2	Belinda	**I agree**	**Mark**
	Kimbra	And then the light	
3	Belinda	**I agree with you**	**Mark**
4	Belinda	Like um..(inaudible) (**begins to write on her sheet and so do others)**	**Mark**

Note. Excerpted from March 29, 2022, instructional event.

Prior to this exchange, two other students (Juan and Bryan) had been arguing about one of them being a bully. However, Kimbra and Belinda ignored their off topic contributions, and Kimbra tells the students how she thinks they should complete the capture sheet (line 1). Belinda signals her agreement with Kimbra's contribution and further *marks* that contribution by indicating that she is going to replicate what Kimbra said she was writing (lines 2, 3, and 4). The students who were arguing and off task also begin to write what Belinda records. In this vignette, *mark* elevated a peer's contribution and serves to get students back on task without the intervention of the teacher. Hence, students use of *mark* signifies an understanding of their role in their own learning and the learning of their peers. This discursive support will be further discussed during the presentation of research questions, related to its role in the promotion of higher quality talk among learners.

In addition to robustly defining the discursive supports that comprise the majority of the discourse data,[8] it is also important to note some significant differences in frequency between those in the instructor role and the student role. To contextualize the frequency of discursive supports among the study participants, Table 4.2 outlines the distribution for each participant group's total share of discursive support for only the supports that comprise over 70% of the discourse data.

[8] See Chapter 3 for definitions and examples of all the coded mediations from the data set.

Table 4.2

Most Frequent Discursive Support by Percentage in Descending Order for Those in Instructor and Student Role

Instructor Role	Student Role
Verify & Clarify (36.3%)	Express Idea (26.7%)
Invite (15.4%)	Verify & Clarify (26.5%)
Scaffold (11.1%)	Link (20.7%)
Manage Talk (10.3%)	Request Assistance (9.6%)
Mark (9.1%)	Mark (6.6%)

Table 4.2 shows that *verify & clarify* and *mar*k both appear among the most frequent coded discursive supports for me and the students, but differences emerge for the remaining supports. For example, only students accounted for instances of *express idea*, *link*, and *request assistance*, while only I provided the discursive support of *scaffold*. Overall, I tended to provide more discursive support that contributed to the management of talk and learning, employing supports like *scaffold* and *manage talk*. However, most of the student-provided discursive support are related to behaviors that are associated with knowledge building, as we see with *express idea*, *link*, and *request assistance*.

These findings are to be expected for several reasons. During the renorming phase of the study, I introduced various ways that students could *express* and *link* to ideas during peer discussion. (See Chapter 3 for a discussion on the renorming stage of the study.) Accordingly, as the students had many weeks of explicit instruction and coaching on how to *express ideas* and *link*, it was never necessary for me to provide such discursive support to the students during the data collection phase. Moreover, as I employed a satellite approach to working with the students during peer led discussions (Almasi et al., 2001), I did not engage with the students to connect to

their ideas or offer my own thoughts, but rather to monitor and encourage thinking and participation. As noted in Chapter 2, some coded mediations, like *scaffold*, require deeper pedagogical knowledge and skills not typically available to younger students and thus are understandably absent from the student discourse data.

Vignette 4.6 showcases how discursive support emerged in the context of classroom discussions, and it helps to explain why certain supports were only provided by one type of participant group. In this vignette collected at the beginning of the data collection period in Ms. Nolan's classroom, the students are asked to discuss what they know about historically black colleges and universities (HBCUs) as a pre-reading activity. The teacher first introduced the topic using Pear Deck slides and then orally provided the prompt to the students. Students were then allowed to select with whom they wanted to work. The students in this vignette were sitting at desks close together when I entered the discussion.

As the vignette shows, the students initially struggle to connect background knowledge with the prompt, and thus they are primarily employing discursive supports like *request assistance* (lines 1 and 15) and *express ideas* (lines 4, 5, 11). Conversely, I provide discursive support that primarily works to help students either clarify their thinking on a topic or stay on task. For example, Lisa *requests assistance* (line 1) and Samuel attempts to support by expressing some initial ideas (lines 4 and 5). I notice the uncertainty and provide *scaffold* to specifically direct student thinking towards a more accurate answer (line 7). Lisa attempts to uptake the *scaffold*, but it was not comprehensible to the group (line 9). I then *model* to show the students how to indicate when a peer's response was not understood (line 10). Although modeling as a discursive support was only provided by me, it was an important support because it raised student awareness that peer contributions should be noticed and acknowledged.

Vignette 4.6

Example of Differences in Frequent Mediation Among Participants

Line	Participant	Transcription	Support
1	Lisa	What is H…(pause)	Requests assistance
2	Me	What is HBCU?	Verify & clarify
3	Lisa	What is a HBCU?	
4	Samuel	Umm, Black history?	Express idea
5	Samuel	College, culture (pause) historic…	Express idea
6	Me	Historically black?	Verify & clarify
7	Me	Do you know of any? (to all students)	Invite
8	Me	Names of any in our area? (question to all students)	Scaffold
9	Lisa	(inaudible)	
10	Me	Can we ask her to say that again? (aimed at other students)	Model
11	Lisa	(inaudible) Martin Luther King	Express idea
12	Maryann	I know about Martin Luther King!	Link
13	Me	So he's an important person?	Mark
14	Me	But can you think of any universities that are historically black college or university?	Scaffold
15	Lisa	I don't know.	Requests assistance
16	Lisa	This is new	
17	Me	Yes this is new.	
18	Me	Okay……	Wait
19	Maryann	Yeah	
20	Maryann	Historic… black	
21	Maryann	(pause) – yeah I just don't know	

Note. Excerpted from March 11, 2022, instructional event.

Modeling this behavior with Lisa is important because it was common during the renorming stage for students to let incomprehensible speech of EL peers like Lisa pass. In this vignette, rather than allow students to ignore Lisa's contribution, I modeled for the students that I did not understand Lisa but that I wanted to hear what she had to say. This discursive support resulted in the only *link* provided in this exchange (line 12). To ensure students noticed Maryann's contribution of *link,* I *marked* her response (line 13). Thus, this vignette showcases students attempting to provide helpful discursive support to peers, and also shows my attempts to distribute the cognitive load of the discussion among the students with the intent of enhancing and increasing mediation that peers might provide to one another during future discussions.

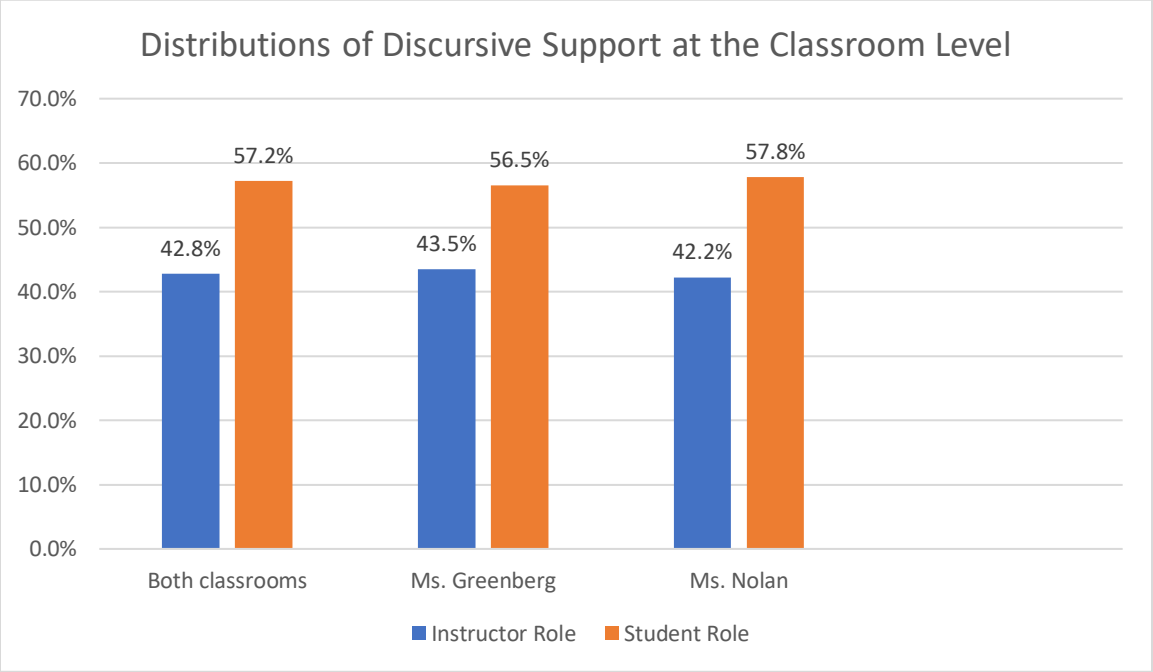
Distribution of Discursive Support Within and Between Classrooms

After examining some frequency patterns of discursive support among all the case study data from both the students and me, we can also evaluate the frequency of discursive supports specific to each classroom. As Figure 4.1 shows, significant differences do not exist.

The data show that in total, while students in the two cases provided slightly more discursive supports than me, the distribution of the discursive support I provided and the students provided were roughly the same across both.

Figure 4.1

Distribution of Discursive Support by Participant Type and Classroom



Note. This bar graph shows the distribution of discursive support provided at the classroom level for those in the instructor and student roles, combined and separated by classroom.

To see if discursive support distribution patterns exist with regards to time, we can analyze the distribution of support from each instructional event from each classroom. Table 4.3 shows the chronological distribution of discursive support by the students and me for each instructional event in each teacher's classroom.

Table 4.3

Distribution of Discursive Support by Participants from Each Classroom Chronologically

Instructional Event Date	Classroom	Instructor Share	Student Share
2022-03-10	Nolan	51.1%	48.9%
2022-03-11	Nolan	40.8%	59.2%
2022-03-16	Greenberg	23.4%	76.6%
2022-03-18	Nolan	55.0%	45.0%
2022-03-23	Greenberg	41.2%	58.8%
2022-03-29	Greenberg	50.0%	50.0%
2022-04-28	Nolan	40.0%	60.0%
2022-05-17	Greenberg	48.6%	51.4%
2022-05-22	Greenberg	40.8%	59.0%
2022-06-16	Greenberg	29.0%	71.0%

No clear pattern emerges when we look at the data from a chronological perspective at each site, but the data do indicate that while some instructional events had discursive support primarily provided by the students (e.g., March 16 and June 16), no instances exist where I provided a significantly greater share of discursive supports. At most, my support accounted for around half of all discursive moves provided during those events.

A further analysis of the data from each event reveals that discursive support patterns can be categorized in two ways: students provide the majority of discursive support, or the students and I share in the distribution approximately equally. See Table 4.4 for a categorization of instructional events from both classrooms and for a presentation of the most frequent types of supports in each event.

Table 4.4

Distribution of Frequent Discursive Supports by Instructor and Student by Instructional Event

Equal Distribution of Support Among Instructor and Students			Students Provide Significantly More Support		
Event/ Classroom	Top Instructor Support	Top Student Support	Event/ Classroom	Top Instructor Support	Top Student Support
2022-03-10/ Nolan	Verify & clarify (14.2%) Manage talk (12.0%) Invite (9.8%) Press; Mark; Model (5.4%)	Verify & clarify (15.1%) Express idea (15.2%) Link (6.5%) Invite; Press (2.2%)	2022-03-16/ Greenberg	Verify & clarify (10.4%) Manage talk (3.9%) Press (2.6%) Scaffold (2.6%) Invite; Wait (1.3%)	Verify & clarify (22.0%) Express idea (15.6%) Link (11.7%) Invite (7.8%) Request assistance (6.5%)
2022-03-11/ Nolan	Verify & clarify (15.8%) Scaffold (9.2%) Manage talk (5.0%) Invite (4.2%) Wait (2.5%)	Verify & clarify (21.7%) Express idea (18.3%) Link (10.8%) Press (1.7%) Invite (<1%)	2022-04-28/Nolan	Verify & clarify (11.4%) Invite (8.6%) Mark (5.7%) Wait (5.7%) Scaffold; Manage talk; Press (2.9%)	Express idea (20.0%) Request assistance (14.3%) Link (8.6%) Verify & clarify (8.6%) Mark; Invite (2.8%)
2022-03-18/ Nolan	Verify & clarify (22.5%) Invite; Manage talk (10.0%) Mark (5.0%) Scaffold; Model; Recap (2.5%)	Express idea (12.5%) Manage talk; Verify & clarify (7.5%) Invite; Mark; Link (5.0%)	2022-05-17/ Greenberg	Verify & clarify (17.1%) Wait (8.6%) Press (8.6%) Invite (5.7) Mark; Scaffold (2.9%)	Link (14.3%) Press; Verify & clarify (5.7%) Mark; Request assistance; Monitor comp.; Wait (2.9%)

Equal Distribution of Support Among Instructor and Students			Students Provide Significantly More Support		
2022-03-23/ Greenberg	Verify & clarify (13.0%) Invite (8.2%) Mark (7.1%) Model (3.5%) Scaffold; Wait (2.4%)	Link (20.0%) Express idea (18.8%) Verify & clarify (14.1%) Mark (3.5%) Recap (2.4%)	2022-06-16/ Greenberg	Verify & clarify (10.2%) Manage talk (5.8%) Invite (4.3%) Monitor comp. (2.9%) Scaffold; Recap; Model; Press (1.5%)	Link (21.7%) Express idea (14.5%) Mark (11.6%) Press; Verify & clarify (7.2%) Invite (4.3%)
2022-03-29/ Greenberg	Verify & clarify (20.3%) Scaffold (8.8%) Invite (7.4%) Mark (4.6%) Manage talk (2.6%)	Verify & clarify (15.3%) Express idea (14.8%) Request assistance; Link (6.5%) Mark (4.6%)			
2022-05-22/ Greenberg	Verify & clarify (18.4%) Mark (8.2%) Invite (6.1%) Wait time (4.1%) Notice & name; Press (2.0%)	Link (28.6%) Verify & clarify (12.2%) Press (8.2%) Express idea (4.1%) Recap (2.0%)			

Note. Some columns have more than five supports due to some having the same counts.

Table 4.4 reveals that the distribution between me and the students is equal for six of the instructional events, while students provided the majority of the discursive supports in four. A few differences exist regarding the frequency of supports in the instructional events based on the two categories of comparative distribution (relatively equal or student heavy). *Request assistance* is a bit more prevalent in instructional events where students provide a greater share of the

discursive support than me. This finding might suggest that students are more apt to look to one another for help when the instructor has a more diminished role in the discussion. Although *monitor comprehension* and *notice & name* were infrequently provided in the overall discourse data, it is worth noting that these discursive supports only emerged in the events where students provided more of the supports than I did. Additionally, *scaffold* by the instructor is less prevalent in events where students provided a greater share of the discursive support. This finding could suggest that scaffolding might work to limit peer mediation; this will be explored further in the final research question.

In addition to noting differences in the types of discursive support offered during instructional events based on the two categories of comparative distribution, we also see a chronological pattern emerge from the data. For example, some support by the instructor decreases over time in instructional events that are categorized by students claiming a greater share of the discursive support. For example, at the beginning of the data collection (March 16), *scaffold c*omprises almost 3% of all the discursive supports provided by the instructor, but by the final visit (June 16), it comprises only about 1% of instructor-role supports. The decrease in *scaffol*d by the instructor might indicate that students are becoming more proficient at sustaining dialogue, and thus they are taking on more of the responsibility for distributing cognition among learners. The instances in which I *invited* also decreased by over four percentage points between March 23 and June 16 in Ms. Greenberg's classroom. Thus, for instructional events where students provided more discursive support, we see the gradual decrease in the instructor performing discursive support related to managing the learning of students, allowing for more opportunities for students to do this for peers. It is possible that with more time we might see even less participation by the instructor.

Data from Ms. Nolan's classroom reveal that only one instructional event is categorized as students providing more discursive support than me. When we compare instructional events across the two categories of distribution, we see that some instructor-provided discursive support decreases over time. For example, *model* comprises over 5% of my discursive supports at the beginning of data collection (March 10), and it doesn't even emerge towards the end of data collection (April 28). *Invite* from the instructor also decreases over time but only by one percentage point. The most dramatic shift in my provision of discursive support in Ms. Nolan's class occurred with *manage talk*. On March 10, *manage talk* comprised 12% of my support at that time, but by the end of data collection in Ms. Nolan's classroom (April 28), it only comprised 2% of my discursive support. Students also become more comfortable with *request assistance* toward the end of the data collection. This discursive support was not among the top five discursive supports in March, but by April it comprised 14.3% of all coded supports. Thus, similar to Ms. Greenberg's classroom, it does seem that these students were beginning to take some ownership in sustaining peer talk. With more time to support peer mediation, one can imagine even less intervention and participation by the person in the instructor role.

In summary, while the relatively short data collection period limits drawing robust conclusions about changes in the distribution of discursive support over time, the data do suggest that a trend was emerging where some of the responsibility for mediation was being turned over to the students. Similarly, the data suggests that some discursive supports were becoming more common during events where the students contributed more support compared to the person in the instructor role.

Further examination of the discourse data from these two types of instructional events allows us to analyze how the task, the students, and other aspects of the environmental context

might impact the provision of different types of discursive support. The following two sections will more closely analyze instructional events, first where the distribution of discursive support was roughly half for the two participant groups (hereafter known as "balanced events"), then when the student discursive support accounted for most of the suppport (hereafter known as "unbalanced events"). The following four instructional events are March 10, 2022 with Ms. Nolan's class, March 29, 2022 with Ms. Greenberg's, April 28, 2022 with Ms. Nolan's, and June 16, 2022 with Ms. Greenberg's.

Balanced Events. The first event that we will analyze where the ratio of discursive support between the students and me was roughly equal is Ms. Nolan's class on March 10, 2022. During this event students were asked to share what they learned about magnets. I provided 51.1% of the discursive support and the students provided 48.9%. The top discursive supports provided by participants are listed below in Table 4.5.

Table 4.5

Balanced Events: Ms. Nolan's Class, March 10, 2022

Total Support (in percent)	Instructor Support (in percent)	Student Support (in percent)
Verify & clarify (29.3%)	Verify & clarify (14.1%)	Verify & clarify (15.2%)
Express idea (15.2%)	Manage talk (13.0%)	Express idea (15.2%)
Manage talk (13.0%)	Invite (9.8%)	Link (6.5%)
Invite (12.0%)	Press (5.4%)	Invite (2.2%)
Press (7.6%)	Mark (5.4%)	Press (2.2%)
	Model (5.4%)	

We see that much of the discursive support provided by me during this event were designed to provide explicit instruction to the students on how to meaningfully participate in the

conversation, with 28% of it falling into the categories of *manage talk*, *invite*, or *model*. When we look at the percentage of student discursive support in Table 4.5, we see that over 30% of the support served to either *express ideas*, or to repeat or provide a detail or question that sought to *verify & clarify* what someone said. A smaller percentage of the coded discursive supports provided by me or the students show evidence of critical engagement with content and that is more exploratory in nature (e.g., *press*, comprising 5.4% of my support and 2.2% of student support). A further discussion of the quality of discursive support will be explored in Research Question #3.

Table 4.6 presents another instructional event where the distribution of discursive support between me and students is more balanced. When we look at the data from Ms. Greenberg's classroom on March 29, 2022 below, when students were asked to discuss the different types of energy use, we see both similarities and differences compared to the instructional event from Ms. Nolan's classroom.

Table 4.6

Balanced Event: Ms. Greenberg's Classroom, March 29, 2022

Total Support (in percent)	Instructor Support (in percent)	Student Support (in percent)
Verify & clarify (35.6%)	Verify & clarify (20.3%)	Express idea (14.8%)
Express idea (14.8%)	Scaffold (8.8%)	Verify & clarify (15.3%)
Mark (9.2%)	Invite (7.4%)	Request assistance (6.5%)
Scaffold (8.8%)	Mark (4.6%)	Link (6.5%)
Invite (7.4%)	Manage talk (2.8%)	Mark (4.6%)

Like Ms. Nolan's instructional event, the discursive support I provided in Ms. Greenberg's class mainly served to provide explicit instructions to the students on how to more

meaningfully participate in peer discussion. For example, s*caffold* and *invite* are the second and third most common discursive supports I provided in Ms. Greenberg's classroom. Similar to the instructional event in Ms. Nolan's classroom, almost 15% of the discursive support provided by students here served to *express ideas*, or to repeat or provide a detail or question that sought to *verify & clarify* what someone said. While *link* and *mark* appear among the most frequent types of discursive supports for students in both classrooms, Ms. Greenberg's students *requested assistance* more than Ms. Nolan's. Thus, while there is some difference in the ordering of supports from both me and the students between the events in these two classrooms, the differences are not significant.

To further interrogate the results from these two instructional events, we can look at the instructional environment and the demography of the students. For example, both instructional events have roughly the same percentage of ELs who participated (1 in 3 versus 2 in 4 for Ms. Nolan and Ms. Greenberg respectively). When examining the instructional events and their placement in the curricula, the March 10 event from Ms. Nolan's classroom is one of the last lessons on this topic, while for the March 29 event from Ms. Greenberg's classroom, it is one of the first. Accordingly, the students from Ms. Nolan's class should have had more knowledge of their topic during the instructional event compared to the students from Ms. Greenberg's classroom. Therefore, it seems that student knowledge did not influence the distribution of discursive support between the instructor and student for these events.

In conclusion, for instructional events with more balanced distributions of discursive support among the types of study participants, we find that discursive support by me tended to direct student talk and discursive support from the students largely added ideas or questioned ideas presented by peers. No patterns emerged to suggest that EL status or student familiarity

with the topic would explain why these events had a more equal distribution between instructor and student.

Unbalanced Events. The first sequence where the ratio of discursive support between me and the students was more unbalanced is from Ms. Nolan's class on April 28. In Table 4.7 we see that the students provided a significant majority of the discursive support compared to the instructor, 60% versus 40% respectively.

Table 4.7

Unbalanced Event: Ms. Nolan's Class, April 28, 2022

Total Support (in percent)	Instructor Support (in percent)	Student Support (in percent)
Verify & clarify (20.0%)	Verify & clarify (11.4%)	Express idea (20.0%)
Express idea (20.0%)	Invite (8.6%)	Request assistance (14.3%)
Request assistance (14.3%)	Mark (5.7%)	Link (8.6%)
Invite (11.4%)	Wait (5.7%)	Verify & clarify (8.6%)
Mark (8.6%)	Scaffold (2.9%)	Manage talk (2.9%)
Link (8.6%)	Manage talk (2.9%)	Mark (2.9%)
	Press (2.9%)	Invite (2.8%)

As with the balanced events, *verify & clarify* is one of the most common forms of discursive support for the instructor role. But perhaps notably, we also see more *wait* and *mark* from the instructor role when compared to the two instructional events examined earlier. W*ait* might engender more peer mediation because it can provide the necessary space for students to consider and engage with an idea in their own way and on their own time frame. Such a behavior is particularly beneficial for ELs, as providing wait time can help to manage the extra cognitive load of processing a second language (Echevarria et al., 2017). Vignette 4.7 illustrates this finding from Ms. Nolan's classroom. In this vignette students are discussing items they need

versus items they want. The teacher had just reminded students of the difference in a previous lesson. After giving the students a list of items with the prompt, “What are some things you need? What are some things you want?” she told students to find a buddy and then pair up with another buddy pair. Vignette 4.7 features two ELs and two non-ELs.

Vignette 4.7

Wait

Line	Speaker	Transcript	Support
1	Andy	We need trees	Express idea
2	Me	Ok what do you think?	Invite
3	Erick	Yeah, because without trees we won’t have oxygen	Link
4	**Me**	**Hmm**	**Wait**
5	Bailey	What about food?	Link
6	Winifred	Yeah (writes that word down)	Mark

Note. Excerpted from April 28, 2022, instructional event.

Andy *expresses his idea* about things they need to survive from the list provided by the teacher (line 1). After there is no uptake from his peers, I *invite* ideas from the group. Then Erick contributes (line 2). Rather than jumping into dialogue I *wait* to indicate I am considering Erick’s contribution in order to buy some time for the students (line 4). Then Bailey links to Erick and Andy’s ideas by suggesting food as a need (line 5). Rather than jumping in to direct the conversation, the provision of *wait* in line 4 might have helped Bailey finish her thought so that she could offer that *link* and help Winifred (an English learner) finish her list. The *wait* helped to distribute cognition among peers.

When comparing unbalanced events to more balanced events, another difference was found in the frequency of discursive supports, specifically in the provision of *link* and *manage talk*. As Vignette 4.8 showcases, here the students *manage talk* rather than me. In this vignette the students were asked to complete a handout that listed needs alongside their costs. Students were told they had to fit all their needs within a set budget, thus requiring students to negotiate and debate ideas. Prior to the discussion below the teacher told students to pair up with a buddy and then find another pair to "square" the pair.

Vignette 4.8

Manage Talk

Line	Speaker	Transcript	Support
1	Andy	**We still need to work together**	**Manage talk**
2	Andy	So we pay for rent and mortgage and we need to do this for 800 dollars	Express idea
3	Kiana	Rent is a lot of money	Link
4	Bree	So um yeah we need (inaudible- cross talk by teacher)	Link
5	Teacher	If you need your calculator go get it	

Note. Excerpted from April 28, 2022, instructional event.

Andy reminds his peers of the behaviors necessary for finishing the task (line 1) and then provides his own ideas (line 2), which then Kiana and Bree *link to* (lines 4 and 5). Thus, Andy's decision to take responsibility for managing the discussion leads to productive contributions by his peers. When students take on the responsibility for the learning of their peers, one could argue that this might lead to more learning by students, since the typical classroom size precludes most teachers from always being available to provide this type of support. While there is not

enough data to interrogate whether the provision *of manage talk* works differently when provided by someone in an instructor role, it might be worthy of future exploration.

In looking at the summary of the discourse data in Table 4.8 from the June 16 instructional event in Ms. Greenberg's classroom, there is some *manage talk* and *invite* by me, but also significantly more *link, mark,* and *press* by the students when compared to the event in Table 4.6, where discursive support was more balanced.

Table 4.8

Unbalanced Event: Ms. Greenberg, June 16, 2022

Total Support (in percent)	Instructor Support (in percent)	Student Support (in percent)
Link (21.7%)	Verify & clarify (10.2%)	Link (21.7%)
Verify & clarify (17.4%)	Manage talk (5.8%)	Express idea (14.5%)
Express idea (14.5%)	Invite (4.3%)	Mark (11.6%)
Mark (11.6%)	Monitor comp. (2.9%)	Verify & clarify; Press (7.2%)
Manage talk; Invite; Press (8.7%)	Scaffold; Recap; Model; Press (1.5%)	Invite (4.3%)

This pattern might indicate that more peer mediation is possible when students are more actively engaged in the conversation, as evidenced by the substantial increases in discursive supports that encourage the distribution of learning among peers, such as *link* (15 percentage points), *mark* (6 percentage point) and *press* (5 percentage points). With students providing more of these discursive supports, one could argue that peer discussion is helping to shift the responsibility for facilitating learning from instructor to peers.

Similar to what was observed for the events from March 10 and March 29, no differences exist connected to EL status. Learners also did not exhibit significantly different turn-taking

patterns than the ones observed in the observations with more equal discursive support distribution. Student familiarity with the topic was quite high in both unbalanced events as these events in Ms. Nolan's and Ms. Greenberg's classrooms came later in the curriculum sequence for their respective topics.

The comparison of these two types of instructional events (balanced and unbalanced) indicates that when students provide substantially more support than me, they create enhanced opportunities for peers to sustain peer talk and mutually build knowledge. For example, for Ms. Greenberg's instructional event where distribution was more equal, the most frequent peer-provided discursive support was *verify & clarify*. However, when we examine an instructional event from her classroom in June, where the students provided more discursive support than me, *link* is the most frequent discursive support among students. Instead of students trying to clarify what a peer said, they were building upon peer ideas to establish a common set of knowledge about the topic. Thus, it seems that when support by the instructor is limited, more discursive support that promotes knowledge building among peers is possible.

The Role of Coaching and Explicit Instruction

After examining the frequency of discursive support among peers and the instructor, it is important to investigate how discursive support were introduced and taught to students. Although some discursive supports (e.g., *notice and name*, *monitor comprehension)* were so infrequent among all participant groups that analysis and discussion of them will not yield any useful insights, most discursive support that emerged in the discourse data was either modeled by me during the peer discussions as needed, or explicitly taught during the renorming phase. Specifically, five of the most frequent discursive supports from the discourse data were both explicitly instructed and coached by me: *link, verify & clarify*, *express ideas*, *mark*, and *invite*. I

introduced these discursive support in the context of teaching students how to "buzz" after reading informational text (see Appendix E for an example). I created anchor charts that contained stems and prompts that students could use during peer discussions in order to foster more robust dialogue and deeper learning. For example, to teach students how to *invite*, the anchor charts included prompts or stems like "How about you go first" and "What does [student] think?" To teach students how to *express ideas,* the anchor charts included prompts or stems like "Do you mind if I begin?" or "I think…."

After introducing the discursive support I wanted the students to perform, I modeled how it might look among peers discussing their texts. I did this sometimes with the teacher and sometimes with students. After watching the modeling, I asked the students to try out the behavior as they discussed the text, and the teacher and I would circulate among the students to support their discussion. To conclude the lesson, I would do a class debrief, where I might commend a pair or group of students who tried out the discursive support. Or, if students did not use the mediation, I would note this for the class and ask the students for ideas on how we could do this behavior better next time.

Transcribed interview data with both teachers reveals an enthusiasm for and recognition of the importance of teaching students how to *invite* peers into conversations and how to *link* to what a peer said. For example, after my first observation of Ms. Nolan's classroom, she concurred with my assessment that students in her class did not see one another as viable interlocuters. Instead, they jockeyed for the teacher's attention during discussions of texts and disengaged when a fellow peer was talking. Thus, she saw the benefit of modeling for the students how to *invite* the students into discussion and how to *link* to ideas as ways to help them see each other as people from whom they could learn.

The teachers also saw an acute need for *verify & clarify.* Interview data with both teachers at the beginning of the pre-norming stage indicate that they both thought their students needed support in soliciting elaboration and explanation from peers. To teach this discursive support, I created anchor charts that contained stems and prompts such "Why do you say that?"; "Tell me more"; and "I don't understand." Therefore, coaching and explicit instruction that I provided to students in both classrooms during the renorming stage on particular mediation types seemed to promote their use during the discourse collection stage.

Although the teachers did not initially express enthusiasm for helping the students *mark*, I did provide both explicit instruction and coaching on this behavior. I created anchor charts and provided an instructional sequence as noted above. Field notes from the renorming stage also reveal instances when I provided in-the-moment coaching to the students during peer discussions to help them recognize and elevate a peer's contribution to the group's understanding of the text. Thus, while explicit instruction is important, the data does suggest that students can also acquire these peer supports through coaching as well.

Summary of Research Question #1

In conclusion, the distribution of discursive supports differed between the students and me, but it did not differ according to EL status. The frequency of some discursive supports did seem to change over time, but overall, the frequency of mediation seemed to depend more on the instructional event. For example, instructional events with a higher percentage of student support had more evidence of discursive moves like *press, link,* and *mark. S*tudents in these events also employed more discursive support typically reserved for someone in the instructor role, like *manage talk.* The emergence of discursive support was often due to explicit instruction provided

to students in the renorming stage, but also through in-the-moment coaching that I provided during the discourse data collection phase.

Classrooms with very different students and different teachers exhibited similar discursive support patterns, and this suggests that the intervention I provided during the renorming phase of the study was crucial to the promotion of peer mediation during the discourse data collection phase. I also found evidence of students using discursive support that aligns with characteristics of exploratory talk and that could lead to more instances of knowledge-building among learners.

Research Question #2: How Do ELs and Non-ELs Provide Discursive Support During Peer Mediated Learning?

As noted in Chapter 2, ELs are often viewed as needing assistance with classroom tasks rather than as a competent assistant. Accordingly, it is important to investigate any differences that emerge between ELs and non-ELs in the discourse data. While the extant literature presented in Chapter 2 suggests that ELs can participate in peer mediation, such studies do not closely examine the discursive supports between ELs and non-ELs in the context of linguistically heterogenous instructional environments. Additionally, the response of newcomers to interventions that focus on the development of student talk in these heterogenous learning environments is not found in the literature. To answer this research question, I explored the frequency of discursive support among English and non-ELs to identify patterns. I also analyzed discourse data from specific instructional events to ascertain possible explanations regarding similarities and differences among the discursive supports of ELs and non-ELs.

The data reveal that both ELs and non-ELs were able to provide discursive support to peers. In fact, ELs in both classrooms who ranged from level 1 to level 5 in English language

proficiency (ELP) on the WIDA ACCESS assessment were able to provide discursive support to support peer language and literacy understanding. However, some notable differences regarding discursive support and frequency emerged with regards to case study site and individual learners.

English Learner and Non-English Learner Diiscursive Support Overall

As Figures 4.2 and 4.3 reveal, no significant differences exist between ELs and non-ELs on providing discursive support when we look at the combined data from both case sites.

Figure 4.2

Support Provided by English Learners from Benjamin and University Classrooms

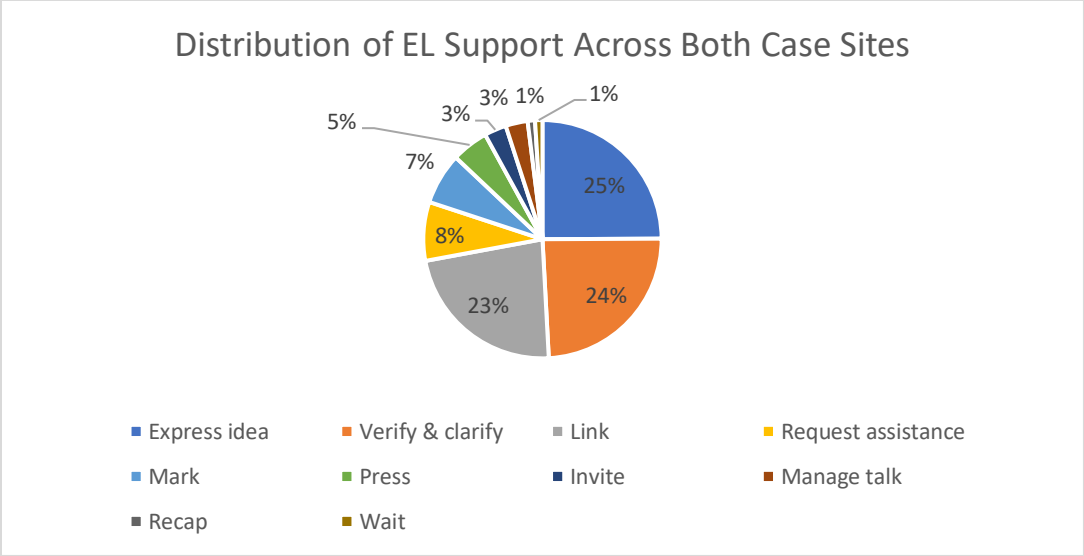
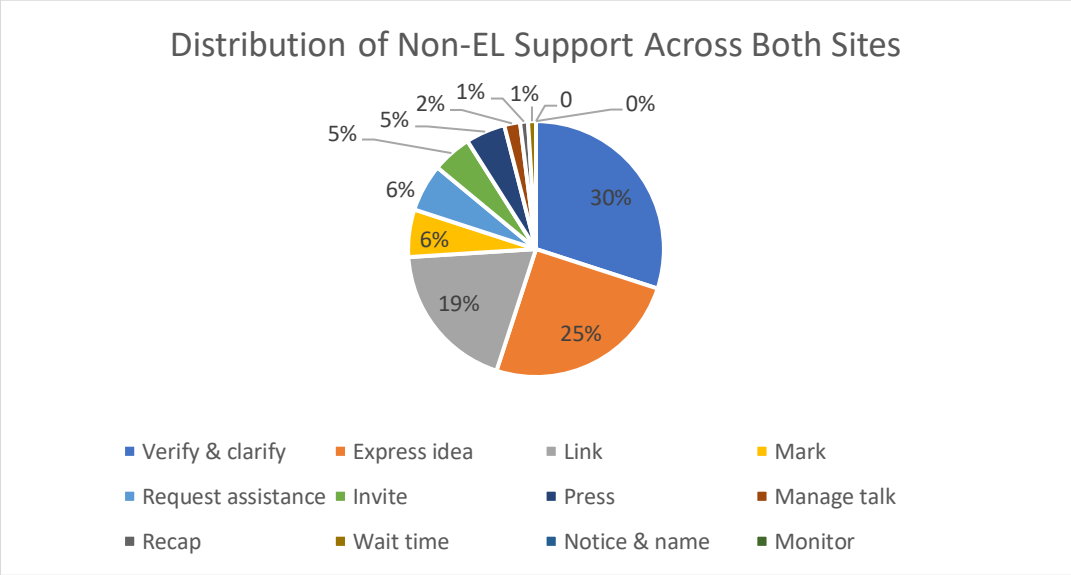


Figure 4.3

Support Provided by Non-English Learners from Benjamin and University Classrooms



Note. *Notice & name* and *monitor comprehension* represent less than 1% of all mediation.

ELs and non-ELs provide roughly the same types of discursive support (with the exception of *notice & name* and *monitor comprehension)* and provide them at roughly the same rate. For example, the most frequent discursive supports across both groups are *express idea*, *verify & clarify*, *link*, *request assistance*, and *mark*. This finding suggests that with explicit instruction and coaching, all students are capable of supporting the learning of peers. Vignette 4.9 below is from an instructional event in Ms. Greenberg's classroom where ELs and non-ELs provided these types of mediation. The students read an informational text about the plant rafflesia, which has a unique adaptation as a result of its environment. When I joined this discussion, the students had been asked to share with their peers at their table the connection

between rafflesia and photosynthesis. The group at this table had three ELs and three non-ELs, with two of the ELs, Juan and Kimbra, having low to intermediate proficiency.

Vignette 4.9

Example of English Learner and Non-English Learner Support

Line	Participant	EL Status	Transcript	Support
1	Me		What do you think?	Invite
2	Kimbra	Yes	Rafflesias does not have (inaudible)	Express idea
3	Me		Say that one more time	Verify & clarify
4	Kimbra	Yes	Rafflesia does not have an important part that most plants have	Verify & clarify
5	Me		Ok- so it doesn't have…?	Verify & clarify
6	Rayna	No	It doesn't have photosynthesis and chlorophyll	Link
7	Me		Chlorophyll ok	Verify
8	Juan	Yes	Because when we were reading the thing said, the paragraph said, it that they don't use photosynthesis and chlorophyl so they don't have any nutrition	Press
9	Me		So how does it get food?	Scaffold
10	Rayna	No	It has to eat	Express idea
11	Kimbra	Yes	On the vine called tetra stigma	Link
12	Rayna	No	Oh yeah and I also learned that it is rare to find these flowers because those vines don't grow anywhere, they, they grow in rainforest	Mark

Note. Excerpted from a May 22, 2022, instructional event.

In Vignette 4.9, ELs provide discursive supports, such as *press* and *link*, to promote knowledge building and more opportunities for academic language use. For example, Juan provides academic *press* by reminding his peers of what the text said after Rayna and Kimbra struggled to identify the plant's adaptation (lines 6-8). However, because his *press* includes some contradictory information about Rafflesia's adaption (i.e., "they don't have any nutrition") I provide a *scaffold* by asking a question intended to help students clarify their thinking (line 9). Rayna confirms that the plant does indeed need a nutrition source (line 10), which offers an opportunity for another English learner to *link* (line 11). Her *link* provides greater and more accurate details about the plant's adaptation for her peers (line 11). This *link* by the English learner is *marked* by a non-EL (Rayna), indicating that Kimbra's mediation did support her peer's understanding. Hence, we see ELs in this vignette providing robust support and largely without instructor intervention.

Since no quantitative or qualitative differences was found between ELs and non-ELs when we examined the combined data from both sites, the next section will more closely analyze the data for each classroom.

English Learner and Non-English Learner Discursive Support from Each Classroom

Given the similarities in the frequency of discursive supports among ELs and non-ELs from the combined data, closely examining discourse data from both case sites could provide useful context toward interpreting the findings, as well as probe whether any nuanced differences exist.

Vignette 4.10 showcases a typical interaction among ELs and non-ELs from the data set. In this vignette from Ms. Greenberg's classroom, the learners in the small group discussion include one non-EL and two ELs with intermediate proficiency. Ms. Greenberg's students were

grouped at a table using a purposeful grouping strategy to ensure a mixture of ELs and non-ELs, and to ensure that lower proficiency ELs had access to students who had proficiency in both Spanish and English. This vignette is from an instructional sequence where students read a passage about potential energy and were asked to discuss the questions on their handout, such as examples of energy and what was most important from the reading and what was most interesting. When I enter the group, Abigail had just shared examples of kinetic energy and the students are moving onto the next question.

Vignette 4.10

Example of Discursive Support from ELs and Non-ELs

Line	Participant	EL Status	Transcript	Support
1	Danielle	Yes	Find an example of…	Manage talk
2	Vicki	No	Energy	
3	Abigail	Yes	So what is ….(inaudible)	Verifies & clarifies
4	Me		Can you find the answer to that?	Manage talk
5	Danielle	Yes	Wait.	
6	Danielle	Yes	Let's look back at the story again	Press
7	Abigail	No	That was on the page…. yeah over here. Potential energy come from (inaudible) and it changes to nuclear energy	Verifies & clarifies
8	Danielle	Yes	Who thinks that is an example- fruit and gasoline?	Requests assistance
9	Vicki	No	Fruit and gasoline are examples	Verifies & clarifies
10	Abigail	Yes	Makes sense.	Mark
11	Danielle	Yes	Yeah- I think so	Mark

Note. Excerpted from March 16, 2022, instructional event.

It is interesting to note that the EL, Danielle, takes it upon herself to *manage talk* in the discussion, signifying that language proficiency is not a detriment for ELs who want to secure a leadership role in the discussion (line 1). We also see both types of learners ask and answer questions regarding types of energy (lines 1-10). As noted earlier, it is an EL who works to organize student learning by reminding them of their prompt (i.e., *manage talk*). It is also worth noting that it is an EL who *presses* her peers to refer back to the text to find an accurate answer (line 6). Abigail, a non-EL provides evidence of uptake of this discursive support by agreeing that they should go back to the text, thus marking her peer's contribution (line 7). This vignette demonstrates that ELs at this case site were certainly capable of supporting peer understanding of the text.

From Ms. Nolan's classroom we see a similar pattern, where both ELs and non-ELs provide similar discursive support that contribute to peer thinking and learning. In Vignette 4.11, three students (two ELs and one non-EL) discuss discrimination in the context of HBCUs. The students in this instructional event were allowed to select their own partners and thus the heterogeneity that exists, unlike in Ms. Greenberg's classroom, is not due to teacher intervention.

Vignette 4.11

Example of English Learner and Non-English Learner Discursive Support: Ms. Nolan

Line	Participant	EL Status	Transcription	Support
1	Daniel	Yes	Wait, what are we doing?	Manage talk
2	Me		Do you know what you supposed to be talking about?	
3	Daniel	Yes	Um we forgot	Scaffold
4	Me		Ok- so let's look at what is on screen.	Scaffold

Line	Participant	EL Status	Transcription	Support
5	Me		(pointing to whiteboard) It is against the law to tell someone that they can't go to school because of the way they look	Express idea
6	Jose	Yes	Yeah because of skin they	
7	Daniel	Yes	(interrupts) If your skin color is Black	Wait
8	Me		uh huh	Express idea
9	Daniel	Yes	If you skin color is Black and they don't allow people in	Link
10	Andy	No	That was like a long time ago	
11	Andy	No	Martin Luther King, he said….	Link
12	Daniel	Yes	This year now, now every skin color can be in our school	Wait
13	Me		Yeah….	Manage talk
14	Me		Do you think we should have historically Black colleges	Request assistance
15	Jose	Yes	What?	Verify & clarify
16	Me		So, look is it, is it ok to still have HBCUs?	
17	Daniel	Yes	No, it's not ok to have….cause how are people…can….	Express idea
18	Daniel	Yes	People are going (indecipherable) and they can't do nothing	Link
19	Andy	No	Like in the past the, the Blacks got it the worst	Verify & clarify
20	Andy	No	Like segregation	Express idea
21	Daniel	No	So now Black and White have same rules	Verify & clarify
22	Daniel	Yes	Both of them	

Note. Excerpted from the March 11, 2022, instructional event.

In Vignette 4.11 both ELs and non-ELs *express ideas*, *link*, and seek or provide *clarification* with no discernable difference, with the exception that the non-EL (Andy) does use more sophisticated vocabulary (line 20). As with Ms. Greenberg's classroom, the student's English proficiency level does not seem to have a robust impact on the type of discursive support provided: the two ELs in the discussion had low to intermediate proficiency in English, yet offered mediations similar to the non-EL. This is an interesting finding; as noted in Chapter 2, the current literature on peer mediation does not often address the performance of lower proficiency ELs.

When comparing the patterns between the case study sites, we find a few differences, even though both ELs and non-ELs at both sites provided discursive support that supported peer discussions. While most of the fourteen codes appeared in student discourse data from both ELs and non-ELs, *monitor comprehension* and *notice and name* only appeared in the student discourse data from Ms. Nolan's class. Additionally, ELs in Ms. Nolan's classroom provided all of the other ten discursive supports except for *recap.* For Ms. Greenberg's classroom, no ELs offered *wait* and neither ELs nor non-ELs offered *monitor comprehension* or *notice and name*. It should be noted that *wait* and *monitor comprehension* were among the bottom five discursive supports across the data set for all study participants, and thus it is not surprising that they were not employed by all students.

English Learner and Non-English Learner Discursive Support at the Student Level

In addition to comparing the data for ELs and non-ELs at the classroom level, we can also look more closely at the students who are in the highest and lowest quartile for offering mediation. In Ms. Nolan's classroom, the discursive support offered by a single student ranged from 11% to 0% of the total mediation during an instructional event. When analyzing the

mediation offered by students with the highest amount of discursive support on average (Andy, Daniel, Lisa, Samuel, and Jose) we have three ELs and two non-ELs, and the student with the highest average mediations is an EL at level 2 (Jose). When examining patterns for students with the lowest percentages of discursive support provided (Carlotta, Winifred, Kiana, Jason, Mimi), we see all but one student classified as an EL (Kiana), and two of the ELs were classified as newcomers (Jason, Winifred).

In Ms. Greenberg's classroom, discursive support provided by students was not very different than Ms. Nolan's classroom: discursive support from a single student in one instructional event ranged from 8% to 0%. In analyzing discursive supports offered by the highest providers of mediations (Nestor, Juan, Andrea, Kimbra) we see a similar pattern to Ms. Nolan's class: two students are classified as ELs, and one of those has level 2 proficiency (Juan). As with Ms. Nolan's classroom, most of the students with the lowest percentage of discursive supports provided in Ms. Greenberg's classroom were ELs: Gilbert, Jackson, Elijah, Anna, and Essie. One of those ELs was classified as level 2 (Elijah) and two were classified as newcomers (Anna and Essie). While the data suggests that ELs in both classrooms could be robust providers of discursive supports, it does appear more ELs than non-ELs appear in the quartile of students providing the least support.

When comparing the students with the highest and lowest percentages of discursive supports across the classrooms at Benjamin and University ES, we do not see any robust differences with the exception of newcomers. Although no federal or state-level definition of an English learner newcomer exists,[9] for the purposes of this study, newcomers are defined as ELs

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[9] U.S. Department of Education (2016). *Newcomer Toolkit*. Office of English Language Acquisition.

who entered the U.S. school system during the data collection period and have an ELP level lower than 2. Using this definition, four newcomers exist across the two sites: Jeremy and Winifred from Ms. Nolan's classroom and Anna and Essie from Ms. Greenberg's classroom.

Newcomer Discursive Supports. As noted in the literature from Chapter 2, it is not uncommon for teachers to struggle to involve newcomers in meaningful ways during peer-based discussions, and this was certainly the case at both study sites. At both no discursive support was offered by any of the newcomers, and the few supports offered to the newcomers primarily came from me. For example, there are instances in the data set where I ask for a student to translate a term or question for a newcomer but there is no evidence of uptake by the newcomer.

The primary instances of discursive support provided to explicitly help newcomers only appear in the field notes collected during the renorming stage. Prior to data collection during the renorming stage, field notes reveal instances during two separate classroom visits where I modeled for students how to invite a newcomer, Jason, into the conversation and how to use the L1 to support him (e.g., asking him a question in Spanish). This effort was not enough to affect change in peer behavior once I started collecting data, for the data set from Benjamin ES reveals no instances of Jason participating in discussions in meaningful ways. Most mediation types offered by me to encourage equitable distribution of talk during the data collection stage were general and posed to the group at large.

For example, in Vignette 4.12 below, Bailey (non-EL), Winifred (newcomer), and Ona (English learner) are told to discuss what they learned about magnets and trains. The students voluntarily paired up with one another after the teacher told them to do a Think-Pair-Share about magnets and trains. When I enter the conversation, the students were largely silent.

Vignette 4.12

Discursive Support with Newcomer Learners

Line	Participant	EL Status	Transcript	Support
1	Me		What do you think?	Manage talk
2	Bailey	No	More magnets	Express idea
3	Me		More magnets.	Verify & clarify
4	Me		How many would you put?	Manage talk
5	Bailey	No	Till it fills up	Express idea
6	Me		Ok – so many, many?	Verify & clarify
7	Ona	Yes	indecipherable	

Note. From March 10, 2022, instructional event.

In this vignette I am attempting to distribute the talk among the three students (lines 1, 3, 4), but student uptake is only evident for the non-EL (line 7). Ona attempts an answer, and at no point in the discussion does Winifred enter the discussion. Although not enough data exists to robustly support this finding, it is possible that students need more explicit instruction on how to notice when peers are not contributing, as well as more assistance on how to monitor their own contributions in order to ensure other peers, such as newcomers, have a chance to talk. This finding will be further explored in the next chapter.

A related finding is that the different approaches the study's teachers had toward newcomer participation did not seem to impact the provision of discursive support for and by newcomers. As mentioned earlier, I spent considerable time with Ms. Greenberg in planning interactions where the newcomers would be supported to participate since this was a frequent concern of the teacher that emerged from my field notes. However, even though much time was spent planning to have the newcomers participate in peer discussion more equally, I did not

collect any evidence from the discourse data that newcomers did participate in the peer discussions. This finding will be further explored in Chapter 5. Additionally, a more robust discussion of the quality of the discursive support will be discussed as part of the findings of the next research question in this chapter.

Teacher's Beliefs about Teaching ELs. To further interrogate these findings about the mediations from ELs and non-ELs in both Ms. Nolan's and Ms. Greenberg's classrooms, I will next present data taken from field notes on classroom observations and discussions/debriefs with the teachers during the renorming stage. Field note data reveal nine mentions of ELs and how to incorporate ELs into the literacy routine during visits with Ms. Greenberg, whereas only two observations or debriefs with Ms. Nolan reveal similar concerns. During both impromptu and scheduled phone debriefs with Ms. Greenberg after lesson delivery, Ms. Greenberg often mentioned her concern with how the newcomers participated in the discussion. For example, in December we talked a lot about how to adapt the literacy routine so that her two newcomers could participate—how to ensure that the text was in Spanish and English, and which bilingual students to group with Anna and Essie. The presence of newcomers was a source of concern for Ms. Greenberg. She mentioned that her first year at University ES, prior to the pandemic, the school had a newcomer program, where the students received more intensive language supports before they were integrated into the general education classroom. She lamented that this program no longer existed. She also mentioned that the reading specialist who would typically work with newcomer students could not that year because that teacher had to cover classrooms due to a shortage of substitutes in the district. According to my field note data, other topics we discussed relating to ELs included *scaffolding*, *differentiation,* and how open-ended questions can foster more oral language opportunities for ELs.

In contrast to debriefs with Ms. Greenberg, Ms. Nolan only brought up the teaching of ELs twice. Once she mentioned that she was going to pair Jason (a newcomer) with another EL who was particularly amendable to translating for Jason. The second time we were planning for a lesson and she mentioned that her collaborating ESOL teacher would work with the ELs to help them understand the content she was presenting. Thus, Ms. Greenberg seemed to plan more for the needs of her newcomers when compared to Ms. Nolan. Perhaps this finding is not surprising given that Ms. Greenberg was actively taking classes toward ESOL certification at this time.

Interview data reveal that both teachers cited the district's six core strategies for teaching ELs when asked what guided their instruction.[10] Both teachers mentioned the importance of tailoring instruction, although Ms. Nolan's ideas about differentiation were directed toward learners in general, whereas Ms. Greenberg spoke about ELs specifically. Ms. Nolan mention that one of her courses during undergrad on African American studies helped her learn how to take account of different student needs when developing lessons that students could relate to. Ms. Greenberg specifically called out the needs of ELs by saying,

> And uh I uh modify the curriculum to meet the needs of various levels of proficiency—that would include anchor charts with translations with vocabulary words and um or uh might include uh collaborative discussions where the students are sitting um with um various levels of proficiency. (Ms. Greenberg, personal communication, June 28, 2022)

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[10] The six core strategies are Visual Supports, Sentence Starter/Frames, Learning by Doing, Direct Vocabulary Instruction, Modified Graphic Organizers, and Collaborative Conversations.

What might be surprising, however, is that although learners at the two sites had teachers with different teaching beliefs regarding ELs, few differences emerged regarding the ways that ELs and non-ELs offered discursive support to peers. The same can be said about the different literacy routines of the teachers (one used paired reading and the used round robin): there were no significant differences between the classrooms when comparing the discursive supports provided by ELs and non-ELs.

Summary of Research Question #2

The data suggest that ELs and non-ELs provided similar discursive supports in both classrooms with minor differences in distribution. ELs were sometimes the greatest provider of discursive support, but the students who provided the fewest supports also tended to be ELs. Data also suggest that the participating teachers' prior experiences and beliefs about teaching ELs, while different, did not have an appreciable impact on the ability of ELs to provide mediation to peers. Newcomers were notably absent from the discourse data, despite one teacher's focus on enhancing their inclusion during small group discussions.

Research Question #3: How Does the Quality of Discursive Supports Differ Among Groups?

To probe the quality of discursive support that the students and I provided, I use Mercer's (1996) framework of quality talk introduced in Chapter 2. As a reminder, peer discussions of informational texts can be categorized as highly teacher- or instructor-directed, disputational, cumulative, or exploratory. Prior research suggests exploratory talk is most conducive to promoting dialogue that will lead to student engagement and learning. I will present findings regarding the quality of discursive supports for different groups of students from my data, with a focus on identifying types of discursive support that seem to lead to talk categorized as more

exploratory in nature. This research question is important to answer because the literature suggests that higher quality talk is more likely to lead to robust learning. However, the extant research on this topic does not address the needs of multilingual learners and ELs. Specifically, while the literature does suggest that employing coding schemes to capture elements of high-quality student talk is important toward ascertaining whether the talk can enhance academic outcomes, the literature does not specifically address how ELs might employ these talk moves. The literature also does not address how the language proficiency of the learner might impact the provision of mediation that is more exploratory in nature. Thus, in order to ascertain how teachers can create instructional contexts where high levels of exploratory talk occur, it is important to understand what types of student mediation promote this type of high-quality talk and how teachers can engender these discursive supports. To answer this question, we will first look at the data across sites and then among different types of learners.

Table 4.9 presents the percentage of instructional events categorized as exploratory, cumulative, and disputational in nature. Table 4.9 also presents the percentage of mediational events that could not be categorized using a quality framework due to the high levels of instructor talk. These events are categorized as teacher directed for the purposes of this study. For further definitions and examples of all the categories represented below, see Chapter 3.

As Table 4.9 indicates, most of the events can be classified as cumulative, with those in Ms. Greenberg's classroom having a somewhat larger share than Ms. Nolan's. One significant difference concerns the events that could be categorized as teacher directed. While 40% of the mediational events were teacher directed in Ms. Nolan's classroom, only a few events from Ms. Greenberg's classroom could be categorized in this way. Potential reasons for this finding will be shared later in this chapter.

Table 4.9

Quality Categorization of Instructional Events Across Both Classrooms

Quality Category	Percentage of Events (in Total)	Percentage of Events (Ms. Nolan's Classroom)	Percentage of Events (Ms. Greenberg's Classroom)
Exploratory	20%	13%	27%
Cumulative	50%	40%	60%
Disputational	7%	7%	7%
Teacher-directed	23%	40%	6%
Total	100%	100%	100%

Considered together, one cannot categorize the mediation represented by these events as high quality, since only 20% of the events exhibited exploratory talk—the type of talk that the literature says is optimal to help learners acquire deeper understanding of academic content. However, a closer examination of the data in this category reveals interesting trends that will be explored further.

Discursive Supports That Promotes Exploratory Talk

To investigate how certain discursive supports can encourage exploratory talk, we will first examine mediation across the data set. From my data I identified five peer discursive supports that seem to be necessary for exploratory talk to occur for both ELs and non-ELs. These supports were most prevalent in events with low intervention by me, that were on topic, and that had evidence of students engaging with ideas that peers shared. Additionally, these discursive supports align with the literature on exploratory talk (see Chapter 2). See Table 4.10 for the mediations from all events and from only events categorized as exploratory.

Table 4.10

Percentage of Supports That Promote Exploratory Talk; From all Events and Only Those Categorized as Exploratory Talk

Support Promoting Exploratory Talk	Support from All Events (Student Percentage)	Support from Only Exploratory Events (Student Percentage)
Verify & clarify	30.6%	30.1%
Link	11.9%	13.8%
Mark	7.7%	8.9%
Invite	8.4%	7.9%
Press	5.4%	6.0%
Total	64.2%	66.7%

These five discursive supports account for slightly more of the data in events categorized as exploratory when compared to all events. As noted during the discussion of Research Question #1, the most common discursive support in the data overall was *verify & clarify*, and it is also the most common discursive support in events categorized as exploratory. Like *verify & clarify*, the discursive support s of *link, mark,* and *press* comprise a greater share of the mediation data for exploratory events when compared to all events. However, *invite* comprises a smaller percentage of the discursive supports among instructional events that are more exploratory in nature.

To probe whether different patterns emerged according to EL status, we can also look at their distribution in relationship to students who are ELs versus non-ELs in Table 4.11.

Table 4.11

Distribution of Supports by English Learner Status: From Only Events Categorized as Exploratory Talk

Exploratory Supports	English Learner	Non-English Learner
Verify & clarify	26.0%	33.5%
Link	24.8%	6.4%
Mark	7.0%	8.0%
Press	5.8%	5.2%
Invite	2.9%	10.8%
Total	66.5%	63.9%

Compared to non-ELs, ELs enact a slightly greater percentage of discursive support that promote exploratory talk. *Verify & clarify* was the most common discursive support provided by both ELs and non-ELs in exploratory events. *Link* is the second most common discursive support in exploratory events, and it was also offered more frequently by ELs than non-ELs. The provision of *mark* and *press* are roughly similar for both groups of learners, but *invite* is almost eight percentage points more likely for non-ELs than ELs.

This initial analysis reveals that EL status and classroom assignment do not seem to impact the employment of discursive supports that encourages exploratory talk. Therefore, next we will look more closely at each mediation type chronologically and in the context of discourse data. I will provide a more detailed analysis of each type of support to explore how they work to foster exploratory talk. In Vignette 4.15 I will explore discourse data that exemplifies how *verify & clarify*, *link,* and *invite* encourage more exploratory talk. Lastly, in Vignette 4.16, we will look

more closely at the discursive supports of *press* and *mark* to better understand how they promote exploratory talk.

Vignette 4.13 allows us to more closely analyze the discourse data to ascertain those contexts that might encourage the use of exploratory-promoting supports among the learners. This vignette is from an instructional event in Ms. Nolan's class where students were asked to discuss what they know or remember about HBCUs. This vignette with four students, including one EL, exemplifies how discursive supports such as *verify & clarify, link,* and *invite* worked to foster a more exploratory situation. After receiving a brief reminder from the teacher about past lessons on universities, the teacher provided students with a prompt and told them to get into groups. Students selected with whom they wanted to work. When I entered the discussion in Vignette 4.13, the students were trying to ascertain what the teacher's prompt was asking of them.

Vignette 4.13

Example of Instructional Event Categorized as Exploratory Talk; Verify & Clarify, Link, Invite

Line	Speaker	Transcript	Support
1	Me	(pointing to whiteboard) It is against the law to tell someone that they can't go to school because of the way they look	
2	Jose	Yeah because of skin they	Express idea
3	**Daniel**	**If your skin color is Black.**	**Verify & clarify**
4	Student	(indecipherable)	
5	Me	uh huh	
6	**Daniel**	**If you skin color is Black and they don't allow people in**	**Link**
7	**Andy**	**That was like a long time ago**	**Link**
8	**Andy**	**Martin Luther King- he said….**	**Link**

Line	Speaker	Transcript	Support
9	Daniel	This year now, now every skin color can be in our school	Express idea
10	Me	Yeah	
11	Me	Do you think we should have historically black colleges?	
12	Jose	What?	Requests assistance
13	Me	So, look is it, is it ok to still have HBCUs?	Manage talk
14	Jose	No, it's not ok to have. Cause how are people can….	
15	Jose	People are going to be discriminated and they can't do nothing	Express idea
16	**Andy**	**Like in the past the, the blacks got it the worst**	**Link**
17	**Andy**	**Like segregation**	**Verify & clarify**
18	**Me**	**like segregation uh huh**	**Verify & clarify**
19	Andy	Now like Black people can do anything that the Whites can	Express idea
20	**Daniel**	**So now Black and White have same rules**	**Link**
21	Daniel	Both of them	
22	Daniel	Whatever skin color they all have same rule for here	Verify & clarify
23	Me	Should we see what Jesus or…	Model
24	Andy	Jose	
25	Me	Jose.	
26	Me	Should we see what they say?	Scaffold
27	**Me**	**What do they think?**	**Invite**
28	**Daniel**	**What do you think…. what do you think is going to happen in 15 years or what? (question posed to Jose)**	**Invite**
29	Jose	I think it is going to come back because they never let Joe Biden (indecipherable)	Express idea
30	Daniel	Hmmm	Wait
31	Me	What is Joe Biden about?	Manage talk
32	**Andy**	**He is 47th president.**	**Verify & clarify**
33	Andy	That is why we wear masks	Express idea
34	**Andy**	**He tried to stop the corona.**	**Link**
35	Daniel	No, that was Trump	Press

Note. Excerpted from March 11, 2022, instructional event.

As we see in Vignette 4.13, these three discursive supports serve to ensure learners have a shared understanding of the topic and thus provide the basis for other discursive support that signify more robust comprehension, like *mark* and *press*. For example, Daniel *verifies* Jose's thinking about skin color and discrimination and *clarifies* his contribution by specifying the exact skin color that is discriminated against (line 2 and 3). Without verifying or seeking clarity regarding what a peer said, other discursive supports that build shared knowledge among learners, like *link*, may not be possible—students can only offer accurate connections to ideas if they truly comprehend what others have said.

Link can promote exploratory talk because *linking* to ideas expressed by peers shows they are listening and co-constructing shared knowledge on the topic. For example, Daniel and Andy are building a set of shared ideas about discrimination, positioning it as a reason why HBCUs might have been needed in the past. To link to Daniel's contribution about skin color and discrimination, Andy activates students' prior learning about the civil rights movement by mentioning Martin Luther King, a person who was against discrimination (lines 6-8). The mediation types offered by Daniel and Andy provided helpful information for Jose to respond to my question when I thought that Jose was not following the conversation (lines 11-13). Although Jose seems to still be confused about the role of HBCUs with regards to discrimination (lines 14 and 15), it is worth considering whether Andy and Daniel's discursive support might have helped an EL engage with a topic he might have avoided in the past. We can also consider that by providing this discursive support, which encouraged the use of academic language, that the EL received an opportunity to practice using academic language he might not have otherwise had the chance to use (e.g., "discriminated" in line 16) had he not been in a group where students were explicitly taught how to support one another.

We also see that *invite*, although not as frequent as some of the other discursive supports, serves an important function in promoting exploratory talk. In this vignette I initially *invite*, but then it is performed by Daniel to draw Jose, the EL, into the discussion (lines 27 and 28). Although *invite* could be seen as a way that peers were distributing cognition among one another, it is important to note that Daniel's invitation of Jose actually changed the topic and halted learning on discrimination and the role of HBCUs. Thus, it is important to note that not all mediation has the intended effect. This will be discussed further below.

This vignette also showcases how the instructor role can enhance exploratory talk. In Vignette 4.13 I do intervene to provide support, but the intervention neither derails student contributions nor overwhelms the content of the discussion. Most of the discursive support I provide is followed by exchanges dominated by the learners (e.g., lines 18-26). Additionally, mediation types like *scaffold* from someone in an instructor role can raise learners' awareness about the contributions their peers can make. Had I not suggested to the more dominant speakers, Andy and Daniel, that Jose and Jesus might have something to say, Daniel may not have invited Jose back into conversation (line 28). Thus, the role of the instructor is necessary in the early stages of such an intervention for fostering an environment that promotes more exploratory talk.

To further understand the emergence and presentation of discursive supports that promote exploratory talk, the following section will explore two more: *mark* and *press*. As noted in Chapter 2, it can be argued that when students *mark* what peers say, they are indicating that they notice and understand their peer's contributions. This discursive support can lead to more knowledge-building among the group, for they are elevating the peer's contribution for others who may not have noticed. When students provide *press* during a discussion, they are fully engaging with the idea by challenging their peer, whether with a question, alternative idea, or a

suggestion for how the group could seek accuracy. *Press* indicates a deeper conceptual understanding among peers, as well as a greater distribution of cognition among learners. For these reason, *press* is important to examine.

We can see how I initially introduce *mark* in Vignette 4.14, and how my use of it impacts a student's ability to employ the mediation herself. In this vignette the students are building on their initial discussion about HBCUs by exploring their role and importance in U.S. society. Taken from the same instructional event showcased in Vignette 4.13, this vignette begins after the three students have shared what they know about HBCUs.

After I direct them to discuss the questions they have (line 1), I *mark* Samuel's contribution (line 4). Then, we see evidence of students taking up that discursive support at the end of the vignette, when Lisa *marks* Maryann's question (line 16) by offering her inference about the information Maryann is seeking (line 15). Thus, *mark* in this discussion is modeled by me and later employed by the students, signifying that the students are beginning to take on more responsibility for distributing cognition among the participants. In events that are more disputational or teacher-directed, discursive support by the instructor more frequently serves to ensure students understand the concepts of the text or how to manage the basics of an academic discussion. In this vignette, however, discursive support by the instructor is employed to help students begin to distribute cognition among one another, through discursive supports like *mark* and *invite.* Thus, in events more exploratory in nature, it seems that instructor participation and coaching play a significant role.

Vignette 4.14

Example of Instructional Event Categorized as Exploratory Talk: Mark

Line	Participant	Transcript	Support
1	Me	What are some things you want to know about colleges? (question for group)	Manage talk
2	Samuel	I want to know if Black college allow White students but Martin Luther King solve this problem	Express idea
3	Samuel	So I want to know if Black people can go to those colleges?	
4	Me	**That's an interesting question**.	**Mark**
5	Me	What else?	Manage talk
6	Lisa	I want to know that is if people are going to be separate and	Express idea
7	Lisa	Or they are going to have move away to get their own bedroom…	
8	Lisa	I think?	
9	Me	Yeah.	
10	Me	So if they will live in a dormitory?	Verify & clarify
11	Samuel	I don't think so	Express idea
12	Lisa	It's going to be like an apartment and they parents are going to be here	Link
13	Me	What about you? (directed at Maryann)	Invite
14	Me	Do you have a question? (directed at Maryann)	Invite
15	Maryann	If like Black or White people can be together?	Express idea
16	Lisa	**Yeah, if they know each other?**	**Mark**

Note. Excerpted from March 11, 2022, instructional event.

To examine *press* we can consider Vignette 4.15 from Ms. Greenberg's classroom, where students are trying to ascertain how the plant rafflesia adapted over time to make food. In this

vignette the six students are sitting at their assigned tables and are just beginning their discussion based on the teacher's prompt, "What is the connection between rafflesia and photosynthesis?"

Vignette 4.15

Example of Instructional Event Categorized as Exploratory Talk: Press

Line	Participant	T-Unit	Support
1	Alaina	(pointing to pic in reading) That's the seed, that's the petal of flower	**Press**
2	Lana	But if it dies that means when it grows in nine months it will be a flower	Link
3	Alaina	How long would it take for this plant to fully gown?	Verify & clarify
4	Me	That's a good question.	Mark
5	Me	Nine months- is that what it says (pointing to reading)?	Verify & clarify
6	Alaina	Yeah it sayed– it says here – it is…	**Press**
7	Me	Yes	Verify & clarify
8	Me	That's good you used text to find answer	Notice and name
9	Juan	Um do we have to do this?	Verify & clarify
10	Juan	Cause we weren't here?	Verify & clarify
11	Me	(Looked at his chart)- That's good.	Verify & clarify
12	Me	Are you ready to talk about this question?	Invite
13	Me	Did you talk about connection to rafflesia and photosynthesis?	Manage talk
14	Juan	I think it does because everything we use has photosynthesis	Express idea
15	Me	What do you think?	Invite
16	Kimbra	Rafflesias does not have (inaudible)	Express idea
17	Me	Say that one more time	Verify & clarify
18	Kimbra	Rafflesia does not have an important part that most plants have	Verify & clarify
19	Me	Ok- so it doesn't have…?	Verify & clarify

Line	Participant	T-Unit	Support
20	Rayna	It doesn't have photosynthesis and chlorophyll	Verify & clarify
21	Me	Chlorophyll ok	Mark
22	Juan	Because when we were reading the thing said, the paragraph said, it that they don't use photosynthesis and chlorophyl so they don't have any nutrition	**Press**
23	Me	So how does it get food?	Verify & clarify
24	Rayna	It has to eat	Link
25	Kimbra	On the vine called tetra stigma	Link
26	Rayna	Oh yeah and I also learned that it is rare to find these flowers because those vines don't grow anywhere, they, they grow in rainforest	Link
27	Kimbra	They get nutrients from the vine	Link
28	Me	Ok, alright	
29	James	Its related to…	
30	Rayna	So um you have to- the vine (student reading text)	Link

Note. Excerpted from May 22, 2022, instructional event.

Alaina directs her peers twice to the text to help them consolidate and refine their thinking on the connection between photosynthesis and rafflesia's adaptations (lines 1 and 6). I then provide the discursive support of *notice & name* to help the students recognize Alaina's contributions, since referring to the text is an important reading skill (line 8). Additionally, Alaina's peers acknowledge her mediation by going to the text themselves to find information or to support their ideas. For example, later in the vignette an EL, Juan, *presses* his peers to pursue accuracy by referring to the text (line 22). Then, when Rayna *links* to James's attempt at a contribution, she does so by consulting the text, another example of acknowledging Alaina's earlier support (lines 29 and 30). When *press* is offered, we see that other discursive supports,

such as *link*, become frequent, allowing talk among the students to be sustained with little intervention or contribution by me. In fact, while I offer some direction with *manage talk* and *mark,* I offer very little substance related to the conceptual knowledge being built.

In conclusion, when we examine the discursive support in each classroom, students are taking on more of the responsibility for distributing cognition among their peers, yet I still provide significant support by performing discursive support that either instruct students on how to *invite* one another into the conversation or draw students attention to peer's contributions. What distinguishes these events from others is the quantity and quality of my support. While my intervention as the instructor is important at times to get the learners over conversation barriers, those interventions are short in duration and targeted. As we will see in Vignettes 4.16-19, if I intervene to provide support, like to *verify or clarify* something a student said, that type of mediation is usually followed by at least three turns by the students. Thus, instead of disrupting learning by providing too much support, these vignettes exemplify how less but targeted support by the teacher can encourage more exploratory talk during peer mediated learning.

As noted earlier, EL status does not seem to preclude students from participating in peer mediated learning that leads to more exploratory talk. However, no patterns from the data emerged relating types of learners and exploratory talk in Ms. Greenberg's classroom. In her classroom, the students with the highest shares of discursive support (Danielle, Andrea, Nestor, and Vicki) also had the highest percentages of exploratory talk. One student who had the highest shares of discursive support in Ms. Greenberg's classroom (Juan) participated in talk that was mostly cumulative in nature. In Ms. Nolan's classroom, due to the relatively low instances of exploratory talk, it is not possible to probe patterns.

The Influence of Each Teacher's Pedagogy

Field note data provide another lens through which to view the data above regarding the quality of discursive support among learners. When comparing the teachers' pedagogical contexts, two characteristics differed significantly that could affect the quality of talk that emerged among students: the teacher's experience with peer discussion frameworks like accountable talk, and beliefs about promoting oral language.

The two teachers had different instructional beliefs and practices regarding student talk. Therefore, they began from different places in promoting an environment that fosters high-quality talk. For example, when I first started working with Ms. Nolan, Think-Pair-Share was already routine within her instruction. Students were quite comfortable and proficient in turning to a partner to share an idea. In contrast, whereas Ms. Greenberg's classroom contained accountable talk posters and students sat facing one another, student talk about an academic topic rarely occurred unless it was to answer a question from the teacher. Additionally, when I began working with Ms. Nolan, her students were already socialized to support one another's literacy and language development. For example, in November when an EL who volunteered to read a passage out loud struggled, her peers clapped without prompting when she finished. In contrast, in Ms. Greenberg's classroom, students began the year exhibiting quite a few behavioral problems. Ms. Greenberg often resorted to shutting off lights to calm the students or abandoned more collaborative activities when students evidenced off-task behavior. At the beginning of the study, it seemed as though Ms. Nolan's third graders might be more ready to learn and participate in collaborative discussions that could lead to more exploratory talk.

However, Ms. Nolan did not actively engage with the peer discussion intervention. While she was open to my work with these students and even said she wished I could have worked with

her other classes, her day-to-day engagement was minimal. Ms. Nolan was not able to co-plan lessons with me, and she usually did not respond to my lesson reflections. For example, I emailed summary notes with instructional considerations for us to pursue, but these were not responded to. However, this lack of engagement could be evidence that Ms. Nolan did not see an obvious need for my help. As her students did have a general understanding of how to talk to one another, she might not have recognized how a deeper participation in my research could confer additional benefits to her students.

In contrast, Ms. Greenberg was an enthusiastic participant who fully engaged with the aims of my research and indicated she wanted to better promote oral interaction among peers. During the recruitment process, Ms. Greenberg specifically said her reason for participating in this research was to learn from me how to work better with her ELs. With Ms. Nolan, the impetus for her participation was less clear, and perhaps it was mainly driven by her administrator's request. Consequently, buy-in from Ms. Nolan was relatively low. In contrast, due to Ms. Greenberg's high level of buy-in from the beginning of the study, she actively sought opportunities to co-plan with me and reflect on the efficacy of each session.

Even though Ms. Greenberg's students were initially not as ready for peer led and collaborative discussions as Ms. Nolan's students were, Ms. Greenberg was more familiar with peer discussion frameworks like accountable talk. She mentioned accountable talk without prompting during our planning phone calls, as well as during our debrief interviews. During the latter, she stated that the intervention helped both her and her students with accountable talk processes and language. Ms. Nolan, on the other hand, never explicitly mentioned the implementation of any approaches designed to promote student talk other than Think-Pair-Share. During the debrief interview, Ms. Nolan did not refer to accountable talk or peer led

collaborative discussions. She said that the focus with the students on how to be an active listener—a finding will be discussed during Research Question #5—was what was new to her from our work together.

Thus, while these two teachers started at different places with regards to promoting quality talk, student in both classrooms were capable of participating in more exploratory talk, although these types of events were more common in Ms. Greenberg's classroom overall.

Summary of Research Question #3

In conclusion, discursive supports such as *press*, *mark*, and *invite* do seem to be necessary for more exploratory talk to emerge. Student use of these supports does not seem to significantly differ according to the classroom or among types of learners, though the data do suggest that my use of these mediations influenced student usage. While the teacher's instructional approaches and beliefs did differ during the intervention, not enough data exist to clearly state its impact on the students' enactment of discursive support.

Research Question #4: In What Ways Do Students Uptake Discursive Supports?

In addition to describing and evaluating the ways that students provided discursive support to one another, I also looked at student uptake of supports. Discursive support was coded as having uptake when students performed a behavior that indicated the student noticed or acknowledged the support offered by either me or a peer. These behaviors include answering a question posed by a study participant, responding affirmatively to an invitation to speak, adding a related idea to one that was posed, or agreeing/disagreeing with an idea presented. Table 4.12 identifies and defines these behaviors from the discourse data.

Table 4.12

Uptake Behaviors from Discourse Data

Uptake behavior	Definition
Answer question	Student answered a question posed by me or their peers
Accept request to speak	Student accepted an invite by peer or me to add or link to an idea
Imitation	Student performed a meditation that a peer or I performed during the same episode
Agree/disagree	Student indicated some level of agreement or disagreement

Analyzing student uptake of discursive support is important to further probe whether and how instructional contexts, student characteristics, and/or mediation providers have an impact on the likelihood of a student receiving discursive support. While students providing discursive support to peers can be helpful for literacy and language acquisition, if peers are not displaying evidence that they are receiving the support, then the effort is null. Furthermore, as mentioned in Chapter 2, reception and uptake of discursive support n is a lesser-known phenomenon in the literature on peer mediation and its efficacy, particularly for ELs. I will first analyze all uptake of discursive supports by students, and then I will probe how the context and the learner profile might have impacted the reception of discursive support.

Uptake of Discursive Supports Across Both Classrooms

When looking at the discourse data across both classrooms, students showed evidence of uptake for discursive support offered by peers at 33.8% and at 40.0% for the discursive support provided by me. Hence, students seemed to uptake more discursive support provided by me than by their peers. Such a finding is not surprising given the short duration of the intervention and that students in both classrooms struggled at the beginning of the intervention to view peers as

worthy interlocutors. For example, field note data—observation notes and debrief calls/emails—reveal several instances when the teachers and I discuss how the students only wanted to talk to us and not their peers. However, with more time in the classrooms, I suspect the student uptake rates would eventually become more even between those provisions by me and by the students.

When we look at student uptake of discursive support in each classroom, we see that 29.0% of peer discursive supports had uptake by learners in Ms. Nolan's classroom, and 48.8% of discursive supports provided by me had uptake. In Ms. Greenberg's classroom the percentage of peer discursive supports that had uptake was 43.5%, and the percentage of instructor discursive supports was 48.1%. Thus, in Ms. Nolan's classroom, there was less uptake of peer-provided support than Ms. Greenberg's class. To further interrogate this finding a deeper analysis of the discourse data is necessary.

When we look at the data longitudinally in Table 4.14 a few patterns exist regarding the uptake of discursive support offered by me versus what was offered by peers. In Ms. Nolan's classroom no pattern is discernable regarding the uptake of discursive support provided by me or the students. But in Ms. Greenberg's classroom, there seems to be less student uptake of discursive support provided by me over time. For example, 82% of the discursive supports offered by me had student uptake during the first instructional event, with this rate decreasing to 30% and 40% during later instructional events. Student uptake of peer discursive support also varied over time. For example, 51% of peer discursive supports had uptake by students in both the first and final observation in Ms. Greenberg's classroom. However, the percentage of peer discursive supports that had student uptake was as low as 28%, and in another case 37%, throughout the rest of the instructional events.

Table 4.13

Percentage of Discursive Support Provided and Uptake by Students

Dates	Teacher	Percentage of instructor support uptake	Percentage of peer support uptake
3/10/2022	Nolan	58%	23%
3/11/2022	Nolan	32%	30%
3/16/2022	Greenberg	82%	51%
3/18/2022	Nolan	45%	39%
3/23/2022	Greenberg	44%	42%
3/29/2022	Greenberg	49%	28%
4/28/2022	Nolan	60%	24%
5/17/2022	Greenberg	38%	37%
5/22/2022	Greenberg	35%	52%
6/16/2022	Greenberg	40%	51%

Given the relatively short duration of data collection, it is difficult to conclusively state whether discursive support uptake changed over time, so a closer examination of discourse data is warranted.

Events with Low Student Uptake of Discursive Support

An analysis of instructional events with low student uptake of discursive support reveals several teacher and student behaviors that could have resulted in these low uptake patterns, including my over-intervention when students were struggling and not providing enough *wait* or *model*.

Below is a vignette from March that showcases low student uptake of discursive support. This vignette from Ms. Nolan's classroom is from a final lesson in a unit on the concepts of push and pull in relation to magnets and the movements of trains. In prior lessons, Ms. Nolan asked students to work in groups to produce a train that showed how the placement of magnets could make it stop and go. Then, in this lesson, Ms. Nolan provided a demonstration of an actual train that moved through the use of magnets, after which she asked students to consider the similarities and differences between this train and the student designed ones. Students were also asked to consider what they would do to make their design better. In this teacher-directed

Vignette 4.16

Example of Low Uptake of Discursive Support by Students

Line	Participant	Transcript	Support
1	Me	Are you all chatting about design how to make it better?	Manage talk
2	Me	What do you think?	Invite
3	Me	(looking at Bree's paper) You have ideas-do you want to see what she's got? (nodding toward Ariella)	Scaffold
4	Bree	I said to maybe add magnets here…	Express idea
5	Me	(To Ariella) What do you think?	Invite
6	Ariella	I would like to add that I think if they would (pause) maybe a bigger magnet then it would be like..	Express idea
7	Me:	(To Christina) What do you think?	Invite
8	Christina	I think they should add a magnet that would repel.	Express idea
9	Me	I like how you use the word repel.	Notice & name
10	Me	We have stronger, bigger- anything else?	Invite

11	Christina	There's like (inaudible) separating the magnet from (inaudible)	Express idea
12	Me	(students shake head yes) sounds like everyone agrees?	

Note. From March 10, 2022, instructional event.

vignette with one EL (Ariella) and two non-ELs (Christina and Bree), we see mediation largely from me (67% of the t-units), with no *link* and very few *expression of ideas* by students.

I enter the group and notice off-task behavior (line 1). Then, after some failed attempts at discursive support by me to promote student ownership of dialogue and the creation of knowledge, I take more control of the distribution of cognition rather than releasing responsibility to the students. For example, when I attempt to release the responsibility for discussion back to the students by providing some modeling to Bree on how to invite Ariella into the conversation (line 3), the exact opposite happens: Bree declines to invite Ariella and instead provides her own thought (line 4). Additionally, after I notice Bree's decline of my mediation, I then solicit Ariella's ideas directly instead of *inviting* Bree to try to engage her peer again (line 5). Instead of implementing *wait* or model for the students how to *invite* peers into the discussion, I take back control of the discussion to ask Christina specifically what she thinks (line 7). This limits opportunities for the students to perform the discursive support, thereby limiting opportunities for peer uptake. Christina *expresses an idea* that I elevate in the group due to her use of academic vocabulary, but that discursive support has no uptake by peers as students remain silent (lines 8 and 9). Over-intervention by those in instructor roles might undermine students' uptake of discursive support, as the over-intervention reinforces the notion that peers are less capable. Accordingly, if peers are viewed as less capable than those in instructor roles,

then students may believe they have little to gain by noticing and receiving peer discursive support.

Data from Ms. Greenberg's classroom reveals another instance with heavy intervention from me and very low student uptake of discursive support In Vignette 4.17, the four students in this group are discussing the difference between energy transfer and energy transformation. Like

Vignette 4.17

Example of Low Uptake of Discursive Support by Students

Line	Participant	Transcript	Support
1	Me	You all are talking? (just joined group)	Manage talk
2	Star	I was telling him umm sound energy	Express idea
3	Bryan	Uh huh	
4	Me	Oh, sound energy.	Verify & clarify
5	Me	Ok	
6	Star	So potential energy and then become (inaudible)	Express idea
7	Bryan	She was talking about potential energy	Verify & clarify
8	Star	(inaudible)	
9	Me	Oh that's interesting- potential energy	Mark
10	Star	And maybe that – and energy made when they, you, put the cymbals together- that caused the sound energy	Express idea
11	Me	I like how Bryan is watching with his eyes.	Notice & name
12	Me	That is good eye contact	Notice & name
13	Me	What else can we add?	Manage talk
14	Bryan	Kinetic energy	Express idea
15	Me	uh huh	Wait
16	Bryan	Kinetic energy is making sound energy	Express idea
17	Me	So, I am hearing kinetic energy is making sound energy	Verify & clarify
18	Star	He – a lot happens (inaudible) and when he moved it was kinetic and when they hit each other it was the sound	Verify & clarify

19	Me	Ok it was the sound.	Verify & clarify
20	Me	Do you guys agree?	Manage talk
21	Bryan	Yes	
22	James	Yes	Verify & clarify
23	Me	Ok so when you hear a good idea you can say I agree	Model
24	Me	right?	Verify & clarify

Note. Excerpted from March 23, 2022, instructional event.

Vignette 4.16, this vignette showcases over-intervention by the participant in the instructor role, effectually working to position students as less capable interlocuters.

Similar to Vignette 4.16, I dominate almost 60% of the turn taking and foreclose on the promotion of peer talk through excessive supports. For example, even though I do provide some instances of helpful modeling, those do not lead to more peer talk or discursive support by the students. For example, I offer *notice & name* several times, but I do not provide opportunities for students to try out the behavior. When I *notice* an active listening behavior that the teacher and I had taught (line 11), I could have let the peers explain why that behavior was good rather than doing that work for them (line 12). I also could have allowed students to *clarify* what Star said instead of offering the mediation (lines 4 and 5). For example, after no student uptake emerged (line 5), I could have said, "Let's pause a moment and see what we think about what Star just said." Had I waited and been explicit with what I wanted students to do, there might have been a realization among the peers that I was not there to manage the conversation, and this might have led to more peer mediation and more opportunities for peer uptake.

Another example from Vignette 4.17 that exemplifies where *wait* and/or strategic modeling might have been helpful is when I *mark* Star's contribution (line 9). This discursive support potentially elevated this EL's contribution to her peers and could have worked to show Star to be a contributing member of the group. While the *mark* encourages Star to continue her

thought, her peers provide no evidence of uptake of her contribution. Indeed, I continue to carry the cognitive load of the discussion (lines 13, 17, and 19). This shouldering of the responsibility of cognition culminates with my exasperated "right?" in response to the students' lack of uptake (lines 22 and 23).

Events with High Student Uptake of Discursive Support

As noted earlier, there appears to be a relationship between discursive support uptake by students and the categorization of the event as teacher-directed. The two events just discussed revealed several dynamics within the groups that prevented student discursive support. Now we will examine vignettes where the dynamics among the group members promoted more student uptake of peer discursive support.

Vignette 4.18 is from Ms. Greenberg's classroom where four students (three non-ELs and one EL) are asked to consider different items on their graphic organizer and discuss what they do and the type of energy transfer that occurs. Just a few minutes earlier in this discussion the students had been grappling with electricity and energy transfer as related to a toaster oven. In the exchange below they begin looking at fireworks and discussing energy type and transfer.

This vignette exemplifies high student uptake of discursive support, and it differs from the previous two vignettes in two ways: I offer less mediation and it contains discursive supports that promote exploratory talk. As for the former, I offer 36% of the discursive support versus 60% in earlier vignettes. Additionally, in juxtaposition to Vignettes 4.16-17, my support declines rapidly at the beginning of Vignette 4.18. In the first half of the vignette, I have a turn every two to three t-unit exchanges where I offer a few discursive support, whereas in the second half of the vignette, I have no turns at all. To see how this non-intervention opens further opportunities for students to distribute cognition among each other and build knowledge, we can examine the

second half. Andrea shows evidence of uptake of my support but struggles with accuracy (lines 19-23). Noticing her struggle, Vicki does not let the opportunity to help Andrea pass but instead *presses* Andrea to think more deeply (line 24). Then Andrea exhibits uptake of Vicki's support, which helps her clarify her thought (line 25). Then in lines 26 through 32 the students provide

Vignette 4.18

Example of High Uptake of Discursive Supports by Student

Line	Participant	T-unit	Support
1	Vicki	But also the waffles but not fireworks.	Manage talk
2	Vicki	Not the fireworks.	
3	Vicki	But I still don't understand one	Request assistance
4	Andrea	The fireworks make sound when it goes into air	Verify & clarify
5	Me	So it is sound energy	Verify & clarify
6	Andrea	Yeah and then it turns into motion energy	Link
7	Me	It could – it can turn into multiple…	Verify & clarify
8	Vicki	Maybe heat because it can …	Link
9	Me	Yeah, any of those	Verify & clarify
10	Nestor	Maybe heat energy first and then sound energy because the fire	Link
11	Me	Maybe	
12	Nestor	Because the fire for…	Verify & clarify
13	Nestor	I don't know	Request assistance
14	Andrea	Like when it moves	Link
15	Me	So, when it explodes that is a movement?	Verify & clarify
16	Nestor	Like movement	Verify & clarify
17	Me	First you have to think how it turns into sound or hearing	Scaffold
18	Nestor	Cause they launch it	Express idea
19	Me	They throw in the air and it explodes...you have to have fire or heat?	Verify & clarify
20	Nestor	Heat	Verifies & clarifies

Line	Participant	T-unit	Support
21	Andrea	You have to have sound energy and goes to motion (pause).	Express idea
22	Andrea	I don't know	Request assistance
23	Andrea	Never mind	
24	Vicki	What?	
25	Andrea	Ok sound energy	Express idea
26	Nestor	Motion is right here (pointing to page)	Press
27	Nestor	I don't know what goes here (pointing to page).	Request assistance
28	Nestor	The only thing that is left…	Express idea
29	Vicki	Sound and light energy	Link
30	Andrea	So maybe it has sound energy and then it makes light?	Link
31	Nestor	Oh yeah. Maybe it makes makes sound	Link
32	Vicki	Yeah, it does make sound	Mark
33	Nestor	Imagine my nose comes off and it makes (student uses sound effect)	
34	Vicki	So I write electricity to heat and sound energy to light- right?	Verify & clarify
35	Kevyn	Yeah	Verify & clarify
36	Nestor	I would use sound.	Mark
37	Nestor	How do you spell plug?	Request assistance
38	Vicki	P-l-u-g	Verifies & clarifies

Note. Excerpted from March 29, 2022, instructional event.

press, link, and *verify & clarify*, which helps Vicki seek final confirmation on what to write, not from me but from her peers (line 34). And instead of allowing Vicki and Kevyn to focus on electricity within the energy transformation discussion, Nestor is empowered to correct these students' misunderstandings (line 36). Thus, we see student uptake of mediation helps to distribute the responsibility of cognition. Next, we will explore whether any differences exist at the student level regarding discursive support uptake and exploratory talk.

Student Uptake of Discursive Support and Exploratory Talk

After examining instances of low and high student uptake of discursive support, it is also helpful to examine individual students to see if patterns emerge. Accordingly, some of the students who offered the highest percentages of discursive supports also had the highest uptake of teacher and student discursive support; and conversely, the students with the lowest percentage of discursive support offered also had the lowest uptake of discursive support, whether provided by me or their peers. Additionally, in Ms. Greenberg' class, students with the highest percentage of discursive support uptake also participated in more events categorized as exploratory in nature. Specifically, Kevyn and Nestor demonstrated the most uptake of discursive support and also participated in more events categorized as exploratory when compared to other students in Ms. Greenberg's classroom. This possible connection between discursive support uptake and talk that engenders more robust learning is worth probing in future studies.

A similar pattern emerges in Ms. Nolan's class: the students participating in the events categorized as exploratory have the highest percentages of discursive support uptake. Although an EL in Ms. Nolan's classroom (Jose) evidenced the most uptake of discursive support, this student participated in events categorized as cumulative. However, the students providing the second and third highest percentages of discursive supports (Andy and Daniel respectively) also had higher participation in exploratory talk events when compared to other students. And while none of the students with high uptake in Ms. Greenberg's classroom was an EL in Ms. Nolan's classroom, one of the students was an ELs with an ELP level of 3 (Daniel). Accordingly, it seems that a connection between exploratory talk and student uptake of discursive support exists, and that EL status does not preclude a student being able to uptake discursive support.

Summary of Research Question #4

In summary, the data show that high levels of instructor discursive support limited student uptake of mediation by minimizing student participation in the discussion and by positioning the students as less capable interlocutors. However, when instructor intervention was low, there was more student uptake of discursive support. It seemed to foster greater responsibility among the students for the distribution of cognition among their peers. Thus, the person in the instructor role is essential for helping the students see one another as beneficial interlocutors. The data also reveal missed opportunities for strategic employment of certain discursive supports, like *wait* and *model*, to promote more student involvement and thus increase opportunities for students to uptake support. Examinations of vignettes that are both exploratory in nature and evidence high amounts of peer uptake reveal that a relationship may exist between discursive support uptake and the promotion of exploratory talk. In those vignettes we see that uptake of peer discursive support leads to more engagement and knowledge building, and also results in less discursive support by the instructor. I will continue to explore uptake and conditions that encourage it in Chapter 5.

Research Question #5: In What Ways Did the Students and I Limit or Enhance Peer Mediated Learning?

As the findings for Research Question #4 suggest, my role and that of the peers can impact the efficacy of mediation. Additionally, as noted in Chapter 2, while certain instructional approaches and pedagogical techniques can engender productive mediation by teachers and students, these approaches and techniques can also be constrained by unexamined or unintentional behaviors enacted by the instructor or students. This phenomenon was certainly present in my study's discourse data. To understand the impact that I and the students' actions

had on the efficacy of mediation overall, this research question will first examine findings related to ways that I or the students limited peer mediation. Then I will examine the way that I or the students may have enhanced or encouraged mediation and thus distributed cognition more among students during instructional events. This is an important research question to answer, as a close examination of instructor and student actions can offer a more nuanced understanding of how to enhance discursive support aimed at increasing exploratory talk.

Behaviors That Limited Peer Mediation

An examination of the discourse data across both sites reveals some actions that seemed to limit or constrain the provision and uptake of discursive support among students. One action that seemed to limit student talk was the misuse of *manage talk*. In some instances, *manage talk* helped students recognize when they should invite a peer into a discussion or directed them back to the discussion prompt. However, in other cases, *manage talk* stopped productive talk in general. Below is an instance where the misuse of *manage talk* by both a student and me seemed to work to limit the efficacy of the discussion. Vignette 4.19 comes from an instructional event on June 16 where students were asked to share what they learned about an animal based on a text of their choice. These types of information gap activities can often work to encourage discussion, as participants have information that others lack, and it is through discussion that the knowledge base becomes whole.[11] However, even well-intentioned pedagogical choices can have unintended outcomes when coaching or explicit instruction is lacking, as this vignette exemplifies. In this vignette, I enter the conversation after Nestor has shared facts about this animal. The four students are sitting in a teacher-assigned group.

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[11] This is called the jigsaw approach (Aronson, 1977).

Vignette 4.19

Manage talk

Line	Participant	Transcript	Support
1	Nestor	**Ok, your turn.**	**Invite**
2	Nestor	**Say something**. (directed to Rayna)	**Invite**
3	Nestor	**Say three facts about your animal**	**Manage talk**
4	Nestor	**Talk to me**	
5	Rayna	Its uh its active day and night both.	Express idea
6	Rayna	And especially designed eyes make them equally see in the day and night.	Express idea
7	Rayna	Um	
8	Me	Are you listening (talking to Leo)	Manage talk
9	Rayna	And um	
10	Me	**How many facts has she shared?**	**Manage talk**
11	Leo	Um she shared one right now	
12	Rayna	I've shared two	
13	Me	Two.	
14	Me	**Ok, one more**	**Manage talk**
15	Rayna	Um they, they're, uh they, they are widely awake with their neck bent	Express idea
16	Me	Connections?	Manage talk
17	Elnora	I can make a connection because	Express idea
18	Nestor	**That's right. You have to talk.**	**Manage talk**
19	Elnora	Umm…	
20	Me	**What's similar or different?**	**Manage talk**
21	Me	**Or question you have for her about her animal?**	**Manage talk**
22	Nestor	**Talk**	**Manage talk**
23	Elnora	Umm my animal was um like yours.	
24	Elnora	My animal is unlike yours because mine hunts in the day and then it takes care of its eggs in its nest at night.	Express idea
25	Rayna	Yeah, they collect more sticks for the female to to make nests for their babies	Link
26	Nestor	They put that on a TikTok video	

Note. Excerpted from June 16, 2022, instructional event.

In Vignette 4.19 we see how several attempts of *manage talk* by a student and me produced the opposite of the desired outcome. Nestor's *invite* (line 1) could have spurred a productive exchange by encouraging a reluctant student to participate. However, instead of employing some wait time or recasting his invitation politely to elicit conversation, Nestor issues a demand (line 3). Nestor attempts to direct the talk of his peer and continues to be confrontational (line 19) and impolite (line 21). While the prompts to talk do appear to lead to some peer uptake later in the exchange (lines 24 and 25), this behavior engenders few discursive supports from other peers. In fact, I perpetuate Nestor's unhelpful pattern when, in an attempt to manage the focus of another student, I direct them to consider the number of facts that Rayna shared rather than the content that she shared (lines 10 and 14). Accordingly, I center the discussion on compliance to the task (e.g., share your facts) rather than an engagement with what other peers learned.

What is also notably absent from this exchange is my intervention to manage the talk of Nestor more productively. All participants in the discussion, including myself, let Nestor monopolize the direction of the discussion, which resulted in lower quality talk. A more productive discursive support from me could have helped Nestor be a more agreeable interlocutor. Such productive behavior might have been *notice and name* (e.g., "Students, when Nestor tells you to talk, does that make you feel comfortable?"), or *model* (e.g., "Rayna might need a minute to look at her notes. Maybe what we could say is, 'Hey, James, do you want to share instead?'").

Another behavior that hindered the quality of the talk was not releasing responsibility to the students when they were ready for it. An example of this phenomenon from the data is my use of *verify & clarify* in Vignette 4.20 below. This vignette reveals instances where I, in an attempt to ensure that the students had access to accurate information, actually hindered comprehension.

Vignette 4.20 comes from an instructional event in Ms. Greenberg's classroom addressing devices or items that use energy and how that energy is transformed. Two of the six students participating in this discussion are showcased below: Baron and James. When I enter the discussion, the students were debating how we use energy from food. Prior to line 1, Baron had not been participating in the discussion, so I asked him why he thought the energy from food was potential energy.

Vignette 4.20

Verify & Clarify as a Limiting Behavior

Line	Participant	Transcript	Support
1	Baron	Umm, because it's not moving when you are not grabbing it or pushing it	Express idea
2	Me	**Ok so it is not moving it.**	**Verify & clarify**
3	Me	**If you are not eating it it's not potential-it's not energy being used until you actually eat the fruit and the fruit goes in your body and you digest it and the you can move and other things.**	**Verify & clarify**
4	Me	Is that what you were thinking?	
5	Me	What do you think about that?	Manage talk
6	Me	**Is it possible-it is potential energy is correct?**	**Verify & clarify**
7	James	Ummm..it could be possible because chemical energy and potential energy are kind of same thing	Express idea

8	James	however potential energy is stored but chemical energy is also stored	
9	Me	**uh huh (intonation indicates question)**	**Verify & clarify**

Note. Excerpted from March 23, 2022, instructional event.

In this vignette I provide all the discursive supports of *verify & clarify*, often one after another, not waiting for students to gather their thoughts and attempt an answer. I could have waited to see if a peer had anything to link to Baron's comment, thereby releasing the responsibility to the students of ensuring everyone was working from the same set of facts about energy (lines 2-4). Instead, I monopolized the entire discussion with attempts to elicit more student talk. Out of nine t-units in this vignette, I control six, greatly limiting student opportunities to be seen as productive members of the group and credible sources of information. As a result of these behaviors, there were few instances of peer mediation and no uptake. Should this type of unproductive behavior continue throughout the event, one can see how students may never explicitly realize that they could be sources of information for their peers. Additionally, my overuse of *verify & clarify* also robs the students of opportunities to use academic language related to the concept. I use most of the academic language in the vignette, employing the terms "potential energy" and "digest." The only other student to use academic language in this vignette is James. Thus, in addition to limiting opportunities for peers to be seen as reliable interlocuters, overuse of *verify & clarify* can also limit academic language production by students—arguably one of the main goals of asking students to participate in small group discussions on informational texts.

Behaviors That Enhanced Peer Mediation

Although I sometimes provided discursive support that hindered student uptake of mediation or limited discussion in general, often I intervened in student discussions to provide just-in-time coaching and scaffolding to the students.

One instance of productive moves is presented in Vignette 4.21. This vignette comes from an instructional event where students from Ms. Nolan's class were asked to consider what items on the teacher-provided list were needs versus wants, and which ones they would use their allocated budget to fund. The students in this vignette are two ELs. When I enter the discussion, they had already been discussing the items on the list for a few minutes.

Vignette 4.21

Productive Behaviors

Line	Participant	Transcript	Support
1	Ariella	You could but I forgot how to do it	Request assistance
2	Jose	**We need too food, and water**	**Express idea**
3	Me	Ok, water	Verify & clarify
4	Ariella	**And shelter**	**Link**
5	Me	Uh huh	Wait
6	Ariella	**And the air and trees**	**Link**
7	Me	**And what?**	**Verify & clarify**
8	Ariella	Air and trees	Verify & clarify
9	Me	**Yeah that's what Erick said too – you need air and trees**	**Mark**
10	Jose	How do you spell parents? (directed at me)	Requests assistance
11	Me	What's the first letter?	Scaffold
12	Jose	P?	
13	Me	Yes and then A R ENTS	Scaffold
14	Jose	Thank you.	
15	Jose	I put tree and food	Express idea
16	Me	Ok	
17	Me	What else?	Invite
18	Jose	I don't know	
19	Jose	**How do you spell shelter?**	**Requests assistance**
20	Me	Shelter?	
21	Ariella	**It's a house**	**Verify & clarify**
22	Me	Yes	Verify & clarify
23	Ariella	**H O U S E**	**Verify & clarify**

Note. Excerpted from April 28, 2022, instructional event.

In this vignette, I ask Ariella to repeat what she said to ensure that Jose heard her input (line 7). I did this as part of a concerted effort to elevate peer contributions in order fight against the students' learned behavior that only the teacher or I were worthy interlocutors. After asking Ariella to repeat herself, I *mark* that Erick had said the same thing during an earlier exchange, setting the expectation that peers need to actively listen to one another (line 9).

Then Jose directs his *request for assistance* at me (line 10). And although I help him, later, when Jose has another request *for assistance* related to spelling, it is Ariella who provides the assistance by *verifying* that shelter means house and then spells the word for him (lines 21 and 23). Thus, through the assistance I provided to Jose after his first request for spelling help, Ariella was able to notice that a peer asked for help and then knew how to provide that help. My mediation in this instance set the expectation that peers should see each other as helpful sources of information and collaborators in knowledge building.

As for peer behaviors that promoted mediation, it is more difficult to ascertain clear or robust patterns from the data. However, field notes and teacher interview data suggest that teacher/instructor promotion of active listening was crucial to the emergence of discursive supports that comprise exploratory talk like *link* and *verify & clarify* among the students. One could argue that without an awareness of the need to listen to peers, peer mediated learning cannot occur.

Active listening emerged as a focus in both classrooms as part of the renorming stage. For example, the need to coach students on active listening first materialized for Ms. Greenberg's classroom after an observation conducted in December. During that visit, I noticed that students were good at sharing ideas but then proceeded to engage in non-productive behaviors after their contribution. For example, after a student shared an idea, rather than

listening to their peer's response, they typically engaged in off task behavior, made off topic remarks, or turned their attention back to the text to read ahead and answer the next question. As part of our usual visit debrief, I mentioned to Ms. Greenberg that her students were struggling with enacting behaviors consistent with active listening, and that some explicit instruction and coaching by me would help. Ms. Greenberg concurred, so I developed an anchor chart that outlined these behaviors (see Appendix D) and then modeled the behaviors during my next visit in December.

During the explicit instruction stage of the lesson, Ms. Greenberg was my "student" and we modeled behaviors consistent with active listening and opposing it. After the demonstration students discussed what they saw and learned in a whole group setting. Then the students practiced active listening while engaging with a reading and answering four core questions. We then followed up with a whole class debrief where students evaluated how well they did. The active listening anchor chart remained in the classroom through June. When I provided coaching during the data collection stage of the study, I referred students back to it if they seemed to forget how to implement the behaviors.

Students in Ms. Nolan's classroom had a similar lack of active listening. After a December visit, I shared with Ms. Nolan that I noticed students did not engage with peers after they shared their ideas, but rather clamored for my or her attention during discussions. Similar to Ms. Greenberg's class, I also thought explicit instruction on active listening would be important. For Ms. Nolan's class, I presented the active listening anchor chart and introduced the behaviors to the students by reading off the information on the chart and soliciting feedback about their understanding of these behaviors. Then, during their next Think-Pair-Share, I provided in-the-moment coaching of active listening to elevate instances when I saw students perform it well. I

wrapped up that section of the lesson by highlighting for the class the pairs that did particularly well with active listening.

At the conclusion of the study when discussing the impact of the research, both Ms. Greenberg and Ms. Nolan mentioned active listening without being prompted. Ms. Greenberg indicated its primacy for her instruction and teaching when she said this about her participation in the study:

> I hung up the posters that you made and there was one that I kept closest to my desk so I could point to it often. It was what they were expected to do with themselves with accountable talk—like with their ears, mouth. I really pushed that so they would know what to do to be a good listener. That was a daily basis. (Mrs. Greenberg, personal communication, June 28, 2022)

Active listening was an idea that really resonated with Ms. Greenberg; it was not just "one more thing" she was asked to do but something she wanted to do because she saw the tangential benefits upon student participation in class.

For Ms. Nolan, active listening also made an impact on her teaching practice. When asked about what she learned from participation in the study, she intimated that active listening was important, particularly in helping her students thread a conversion. During our last interview Ms. Nolan recounted,

> I agree and I disagree – students continuing to do that so that was great to see. A lot of students too were listening more—but also addressed what their partner said. They picked that up. (Ms. Nolan, personal communication, June 4, 2022).

It seems that the focus on not just speaking but listening was an essential behavior that had a positive impact on both teachers and their students. To examine active listening in the

classroom, consider Vignette 4.22. To contextualize this event, Vignette 4.22 comprises discourse data from March with three students from Ms. Greenberg's classroom, two ELs and one non-EL, as they work together to discuss what is most interesting and most important from a

Vignette 4.22

Active Listening Example

Line	Participant	Transcript	Support
1	Abigail	Something that is moving	Express idea
2	Danielle	**Yeah. because kinetic energy is...It moves from one other**	**Link**
3	Vicki	**What is the source of what type of energy?**	**Verify & clarify**
4	Danielle	**Umm light energy**	**Link**
5	Vicki	**I don't know…**	**Request assistance**
6	Vicki	we have to answer…	Manage talk
7	Danielle	It is, it is	
8	Vicki	**What, What is light energy? (reading from capture sheet)**	**Invite**
9	Danielle	**Me no comprende.**	**Requests assistance**
10	Danielle	**What is potential energy?**	
11	Danielle	its stored	Express idea
12	Vicki	**What is kinetic energy? (reading from capture sheet)**	**Invite**
13	Abigail	Its moving because…kinetic energy is something that is moving	Express idea
14	Danielle	And potential energy is…	Express idea
15	Vicki	**Yeah, but I am a little confused because it moves from one other to**	**Requests assistance**
16	Danielle	What is example of electrical energy? (reading from capture sheet)	Invite
17	Abigail	**Computer?**	**Link**
18	Danielle	Yeah, computer	Verifies & clarifies

Note. Excerpted from March 16, 2023 instructional event

reading on potential energy. This vignette showcases instances of successful active listening, as well as when students needed more help with active listening. I enter the discussion just as students are beginning to grapple with the teacher's prompt.

In this vignette we see active listening exemplified by *link, verify & clarify*, and *request assistance*. For example, Danielle shows she is listening to Abigail's contributions when she *links* to it (line 2). Vicki exhibits active listening by *verifying & clarifying* what she heard from Danielle and Abigail (line 3). Vicki's *request of assistance* also shows she is actively listening to peer ideas, even though she is having trouble understanding them (line 5). She enacts active listening again when she announces her confusion about information provided by Abigail (line 15).

Although Vicki shows she is actively listening, her peers do not seem to be reciprocating; Vicki's request for help is ignored by Danielle (line 16). I could have provided some explicit instruction or coaching to help Danielle and Abigail understand how active listening might have helped them notice Vicki's request. For example, I could have pointed to the active listening anchor chart and asked the girls if they were looking at Vicki when she was speaking. I also could have reminded them of the sentence stems they can use to indicate that they have heard what their peers said.

Another instance when a student needed more support with active listening occurs when Danielle answers the question she posed rather than wait for a peer to contribute (line 11). Then, after Danielle answers her own question, Vicki moves onto a new topic rather than *linking* to Danielle's statement (line 12). Thus, the inability to actively listen resulted in missed opportunities for students to build knowledge about potential energy.

Vignette 4.23 showcases an instructional event with more successful instances of active listening. I sit down next to the six students in this teacher-assigned group after the teacher has asked the students to share what they learned about rafflesia adaptations after their reading, particularly what adaptations the plant developed to make food. When I first joined, I asked the students if they had considered photosynthesis during their discussion.

Vignette 4.23

Discursive Supports That Promote Active Listening

Line	Participant	Transcript	Support
1	Kimbra	Rafflesia does not have an important part that most plants have	Verify & clarify
2	Me	Ok- so it doesn't have…?	
3	Rayna	It doesn't have photosynthesis and chlorophyll	Verify & clarify
4	Me	Chlorophyll ok	Mark
5	Juan	Because when we were reading the thing said, the paragraph said, it that they don't use photosynthesis and chlorophyl so they don't have any nutrition	Press
6	Me	So how does it get food?	Verify & clarify
7	Rayna	it has to eat	
8	Kimbra	On the vine called tetra stigma	Express idea
9	Rayna	Oh yeah and I also learned that it is rare to find these flowers because those vines don't grow anywhere, they, they grow in rainforest	Link
10	Kimbra	They get nutrients from the vine	Link
11	Me	Ok, alright	Link
12	James	Its related to…	
13	Rayna	So um you have to- the vine (student reading text	

Note. Excerpted from March 29, 2022, instructional event.

In this vignette students are clearly listening to one another, and as a result they offer one another meaningful information that their peers may not yet have. For example, after Rayna submits that rafflesia uses neither photosynthesis nor chlorophyll to make food, Juan supports her idea with information he remembers reading (lines 4 and 5). Then Kimbra and Rayna continue to *link* to those initial ideas by providing additional information about rafflesia that others may not have (lines 8 and 9). Rather than adding ideas that do not build a shared sense of knowledge about plant adaptations, the students are listening for details that peers share from the reading. For example, Kimbra hears the mention of vines by Rayna and uses that opportunity to reinforce for Rayna and the other students that vines are how this plant gets food (line 10). Thus, through students are clearly listening to one another in order to build knowledge together, this is done without any explicit instruction or coaching by me. Whereas I sometimes add mediation to affirm student understanding, the idea that the plant has adapted over time to get food from their vines comes directly from the students listening and speaking with one another to consolidate the information they had just read in the text.

Summary of Research Question #5

The instructor role during these small group discussions was crucial for ensuring the students learned to recognize when a peer needed support and how to provide that support. However, the instructor could also limit the ability of students to mediate for one another. The data show that I limited efficacy of peer mediated learning through over-intervention and by too frequently using *manage talk*. However, the data also show that explicit instruction provided during the renorming stage and coaching that I performed during data collection were often helpful. The data show that teaching the students about active listening enhanced peer mediated learning, and that it helped set the stage for peers to begin to see one another as worthy

interlocuters, a belief that few students had when I began the study. Accordingly, strategic instruction in active listening and being judicious when intervening in student discussions can lead to more successful attempts at building knowledge among students.

Mediation Among Linguistically Diverse Learners Participating in Peer Discussions

I answered each of my five research questions by presenting descriptive statistics followed by discourse analysis of t-units from instructional events to explain patterns presented in the data exhibits. I counted the types of discursive supports across cases and participants and calculated their frequency overall and over time. I ascertained whether the provided discursive support had any evidence of student uptake and I generated frequency statistics on uptake. Next, I found patterns among certain discursive supports that seemed to lead to higher quality talk among peers, and presented descriptive statistics and discourse data on those patterns. I also identified instances where instructor or student efforts either hindered or promoted student uptake of discursive support and student conceptual or linguistic understanding. To properly contextualize the evidence, all research question findings were accompanied by vignettes that situated the descriptive statistics within the larger discourse data. My study is a necessary next step towards moving this particular line of research forward and for offering concrete instructional recommendations for practitioners wishing to incorporate these peer discussions into their pedagogy.

My study's findings indicate ELs and non-ELs at both study sites are capable of providing discursive supports. Across cases, mediation frequency and quality was not constrained by EL status nor by grouping schemes, but it was somewhat constrained by the classroom environment and whether the student was a newcomer. My data analysis revealed that certain mediation type seems to be necessary for engendering higher quality talk, but that ELs were equally capable of higher quality talk, defined as more exploratory in nature. The data also reveal a connection between the number of peer-provided discursive supports and student uptake. Moreover, dialogue that was more exploratory in nature provided more fertile ground for student uptake of discursive support. Finally, certain actions limited or engendered the quantity and quality of student talk. Over-intervention by an instructor or teacher during peer discussions is one potential threat to helping students become knowledge builders with more independence. However, the promotion of active listening seemed to be an antidote to over-intervention by the instructor, as this reinforced for students that listening was equally as important as talking. These findings will be discussed further in the next chapter in light of recommendations for future research.

CHAPTER 5: LIMITATIONS AND IMPLICATIONS

This embedded multiple case study with a third and fourth grade classroom found that the promotion of discursive support during peer mediated learning can be a useful instructional lever to foster more exploratory talk among multilingual and ELs. I worked with two teachers and 52 students over 37 weeks to implement an intervention designed to help multilingual peers provide and receive discursive support during small-group discussions of informational texts. I collected data across three stages of the study in the form of field notes from classroom observations and planning calls with teachers; interviews with school and district leaders; classroom artifacts; and discourse data from student discussions. I transcribed, coded, and analyzed the qualitative data. My data reveal that ELs, with the exception of newcomers, were just as capable at providing mediation as non-ELs. The data also show that a relationship exists between discursive supports explicitly taught and/or coached, and the discursive supports provided and taken up by peers. The data show that certain discursive supports may promote more exploratory talk among elementary learners from a variety of linguistic and language profiles. However, evidence of newcomers engaging with peers during student led discussions so as to benefit from exploratory talk was scant. Despite some efforts during the renorming stage of the study to modify and scaffold the dialogic activity, newcomers remained mostly silent during the data collection period.

Data from my study suggest that investigating student uptake of discursive supports could be an important step toward ascertaining the link between mediation and increased outcomes for multilingual students. My study finds that explicit instruction and in-the-moment coaching to

students was essential for learners to employ discursive supports that could lead to exploratory talk. For example, highlighting peer discursive supports like *link, press,* and *mark* might provide more substantial instructional returns when the goal is promoting talk that is more exploratory. Although the instructor plays an essential role in the promotion of peer discursive support, my data also suggests that the instructor can limit peer support. The instructor can limit the efficacy of student-led discussion groups by over-managing the talk and by not providing ample wait time. I hypothesize that when I was unable to release responsibility to the students to maintain the discussion, I sent the message that peers were not reputable sources of information. I also conveyed the message that they were not capable of distributing cognition among each other. However, other instructor behaviors, such as focusing on how to promote active listening among learners, can create a more fertile instructional environment for uptake of discursive support and peer mediation (Michaels et al., 2010).

Despite these findings, some questions and limitations exist with regards to interventions designed to promote more dialogical and peer led discussions among elementary multilingual learners and ELs. Accordingly, the following sections will outline my study's limitations and the implications for future research and professional learning for teachers.

Limitations

Several limitations impact the generalizability of my study's findings. One obvious limitation is the low number of participating students and teachers. I initially tried to recruit more teachers and classrooms, but the re-starting of in-person learning in Fall 2021 was a substantial barrier to enticing teachers to participate. Having more teachers in different schools, different grade levels, or even different districts would have provided me with more confidence that what I saw in my two classrooms would have also occurred in other classrooms.

Another limitation of my data is the number of observations. With more observations I could have had more confidence in some of my conclusions from the data analysis. However, as mentioned earlier, a lot of teacher support was required during the renorming stage of my study, which reduced the time I had to conduct observations. The amount of observational data I could collect was also constrained by the school calendar. With more observations collected over a longer period of time, I believe I would have seen learners provide and uptake more discursive support. More time would have been even more important for the ELs in my study, as those students were doing double the work and needed more time to process both the academic content and the language in which it was delivered (Short & Fitzsimmons, 2007). As noted in Chapter 4, with more observational time and coaching support, the distribution of discursive support might have shifted such that the supporting behaviors were dominated by the learners rather than me. More time with the students might have also provided me with an opportunity to focus on discursive supports that seemed to promote exploratory talk, as those types seemed to produce enhanced student engagement and higher cognitive distribution among learners (Vrikki et al., 2019).

Another limitation of my study is that I only recorded student discussion groups where I was the observer/participant. By not recording the participating teachers' work with groups for which I was not present, I do not have data on discursive supports that emerged during those peer discussions. I also do not know what transpired in general during those peer discussions for which I was not present. For example, the participating teachers might have provided discursive support that I did not. Maybe the participating teachers were more successful than I was in drawing out the newcomer students. Perhaps I would have found that the teachers' behaviors

limited peer mediation. By recording the teachers' work with their learners, I would have had a more nuanced understanding of how different peers offered and took up discursive support.

Additionally, while my data suggest that student uptake of discursive support increased with exploratory talk, the evidence to support this finding is rather thin and thus a limitation. In retrospect, instead of just analyzing the frequency of student uptake of discursive support I could have interviewed the students to obtain their perspectives on the support. It is possible that what I inferred to be a learner uptake was not. For example, while it was rather easy to ascertain how one learner's connection to a passage might have impacted another student's ability to generate a connection, some uptake behaviors involved much more inference and speculation. A research design that asks students to provide their thinking on their participation in discussions with peers might help us be more confident when determining whether peers have noticed and are beginning to internalize these discursive supports (Ardavesha et al., 2016). As will be explored in a later section, more research is needed to understand how students understand and uptake discursive supports offered by peers in text-based discussions.

In addition to time constraints limiting the amount and type of data I could collect, limited time with each classroom also impacted the amount of support I could provide to students and teachers. Due to the overlap in when the classes met, I could only provide instructional and coaching support one to two times a week for each classroom. And since my participating teachers did not support or develop the discursive support that I was working on with the learners when I wasn't there, the participating students had a fairly low level of instruction and support. With higher concentrations of instruction, I believe the students would have been even more proficient in participating in these peer led discussions.

My original plan was to offer robust professional learning to the participating teachers via mini-workshops and job-embedded coaching so that they could provide explicit instruction and coaching to their learners. However, my access to the classrooms did not begin until October, and once I was in the classrooms and saw the participating teachers' baseline instruction, I realized the most expeditious path toward helping learners participate in collaborative/cooperative discussions was to teach the students myself. As a result, the benefits conferred to my study's teachers were limited. So, although the teachers did indicate in interview data that participation in my study was helpful to them, an intervention that spans multiple years would have been more advantageous for the teachers.

Implications for Future Research

Although robust literature exists on the efficacy of peer mediation and literacy acquisition for multilingual learners, as well as literature that describes multilingual learners' participation in peer mediation, further research is necessary to answer important questions that my study still poses. Additionally, given the impacts of the COVID-19 pandemic on students like multilingual learners (Goldhaber et al., 2022), instructional practices informed by decades of research are more important than ever to help mitigate this documented learning loss.

Further research is needed to examine and investigate the provision and uptake of peer discursive supports that are more likely to lead to exploratory talk for ELs. Whereas my study found a relationship between supports like *press*, *mark*, and *link* and more exploratory talk among English and non-ELs, I did not collect enough data to conclusively establish a robust link. A longer data collection period with more classrooms was needed. Additionally, a study design that focuses solely on how to promote these discursive supports among ELs could be beneficial to move the field forward. While some studies explore the impact of mediation associated with

frameworks like accountable talk and collaborative reasoning, they do not look at how ELs both provide and uptake the discursive supports or how those behaviors increase their language or literacy knowledge in general education classrooms. While my study probed how ELs learned to be effective mediators with English proficient students, it did not measure the impact that participation in these peer mediated activities had on learner achievement. Future research that investigates peer mediation and achievement must do so in heterogenous instructional environments, as this is the instructional environment in which ELs spend most of their day (NCES, 2017b).

Whereas there might be certain discursive supports that are better implemented by someone in an instructor role, future research could further explore the utility of discursive support from both instructor and peer roles. While literature on cross-age peer pairings and mediation suggests that children can sometimes serve in the expert role (Martin-Beltrán et al., 2017), less research exists on near peers' approximation of discursive support typically provided by teachers. For example, a discursive support like *notice & name* is a powerful one that teachers typically implement, and thus it could be an important discursive support to teach students. Additional research could help teachers recognize when their learners are ready to perform such support and provide instructional guidance on how best to explicitly teach and coach students to use the discursive support. As discussed in Chapter 4, over-intervention by the teacher is a common instructional pitfall to promoting exploratory talk, so more research on how to identify when their learners are developmentally ready to assume responsibility for roles in the discussion more traditionally reserved for the teacher could help the efficacy of dialogic instruction.

As the extant literature suggests that a teacher modeling discursive support triggers that behavior in peer dialogue (Vrikki, et al., 2019); additional research could help us identify

whether an exposure threshold exists for these supports. Such research could provide teachers with realistic expectations regarding the efficacy of such interventions. Perhaps some discursive supports require very little instruction from the teacher whereas others require more exposure and support. This type of research could also help us understand whether there is a developmental aspect to the provision of discursive support by learners. This knowledge might help teachers sequence their lessons. Perhaps teaching students how to *invite* peers into a discussion is necessary to engender other discursive support like *link*. More research could help teachers of different grade levels understand what discursive supports are most important for their learners to acquire.

While my study certainly provides qualitative evidence that ELs and non-ELs alike are capable of participating equally in peer led discussions, it does not speak to the impact that these peer learning opportunities had on the students' language or literacy development. To establish a robust link between mediation and literacy outcomes, it is necessary for future studies to first measure whether the students provide evidence of discursive support uptake. As noted at the beginning of this chapter, my study attempts to identify and measure student uptake of discursive support, but not enough data exists to offer robust conclusions or implications for instruction. Thus, future research that investigates peer mediation and its impact on language and literacy development among multilingual learners and ELs must establish a procedure for capturing and measuring whether discursive support is noticed by the learners.

Research that explicitly probes the relationship between active listening and uptake of peer discursive support could offer insights into the instructional environment necessary for any peer learning to occur. Without implementing procedures to promote active listening, learners cannot appropriate the support offered to them, thus negating any benefits conferred from small

group and peer led discussions. As Michaels et al. (2008) noted, accountability to the learner community (which includes listening to others) is one of the hardest aspects of accountable talk for teachers to implement in the classroom, particularly for classrooms where students come from diverse discourse communities. Similarly, my data analysis suggests that listening was a behavior that needed to be taught and reinforced continuously during small and whole group discussions in order for students to begin to view peers as worthy interlocuters. Future studies could qualitatively and quantitively explore how students learn to actively listen to one another, both in the presence and absence of someone in the teacher/expert role. While I was always present in the student discourse data, it is possible that learners may employ active listening differently according to group composition and dynamics.

In conclusion, the extant literature suggests that peer mediation can foster higher learner achievement, but we are still working toward a robust understanding of how and in what ways peer mediation engenders enhanced outcomes. One way to close this knowledge gap is to measure student uptake of discursive support when investigating dialogic instruction, and to do so in heterogenous classrooms to fully account for the varying discourse communities that exist in U.S. K-12 classrooms. Research that explores ways to promote more active listening in heterogenous classrooms, with multilingual learners or ELs and non-ELs, and that measures the outcomes of promoting these supports, could help us establish a more solid connection between peer mediation and achievement.

Implications for Teacher Preparation and Professional Learning

Although teachers in my study were aware of the benefits of peer interaction for ELs, they did not robustly enact this practice and needed support in how to promote peer-to-peer interaction to develop content and linguistic knowledge. Data from the pre-norming stage

revealed that the promotion of activities to foster peer interaction was quite limited among my teachers. For example, while Ms. Nolan was proficient at implementing Think-Pair-Share, that was the extent of her peer-focused activities. Conversely, Ms. Greenberg initially struggled to conduct activity that wasn't teacher directed, despite participating in an ESOL endorsement program that provided teachers with multiple ways to foster peer interaction. Hence, the divide between what the teachers knew to be good teaching and what they enacted was quite wide. Accordingly, future research must consider the amount of time needed to help teachers understand and enact these dialogic practices. As the literature suggests, these types of dialogic practices are rather time-intensive and could be a significant barrier for district/school adoption as well as scalability (Vrikki et al., 2019).

While this study was not designed to evaluate the effectiveness and outcomes of a professional learning initiative, there is evidence from field notes and interviews that the teachers did benefit instructionally from watching me work with their students and from discussions on how to promote dialogic teaching. Despite my inability to provide as much coaching to the teachers as I wanted to, one aspect of the study design that was beneficial to the teachers was seeing their students do something that they had not previously imagined. It is one thing for a teacher to see an instructional practice implemented with a random group of students, it is an entirely different experience to see a fellow teacher implement that practice with the students she teaches day in and day out (Desimone, 2009). For example, when I first started working with Ms. Greenberg, she frequently commented that her students could not participate in peer led groups. Notes from debrief calls reveal instances when she commented that her students were out of control and off task. However, as I spent more time working with her students, this belief began to change and her initial resistance to small group instruction faded. For instance, in Ms.

Greenberg's classroom we initially began with paired reading activities to practice peer mediation since she thought this offered her more control over what the students would be doing. However, toward the end of the observation stage I was able to convince her to let her students work in groups of four or five to discuss texts. I attribute this positive instructional change to my time and modeling in her classroom. It is difficult to maintain that your students cannot do something when you witness the counterpoint to that belief on a weekly basis. Other teachers who wish to implement aspects of dialogic teaching may also need such job-embedded and two-tiered scaffolding support (Wilkinson & Gaffney, 2016).

Ms. Nolan's thinking about peer interaction also seemed to deepen over time. As mentioned earlier, Ms. Nolan had a consistent Think-Pair-Share routine in her class when I began working with her students. However, based on interview data, I suspect that she implemented this practice because she was told to do so, but perhaps she had not fully examined the "why" behind the practice. For example, when I spoke with her at the end of the intervention regarding aspects of her participation that she found interesting, she mentioned new thinking on Think-Pair-Shares.

> Turn and talk it was a chance to kids to get their questions with their partner instead of raising their hands and now I see healthy discussion and perspectives. So, I see they need to let someone else answer their question. (Ms. Nolan, personal correspondence, June 4, 2022)

Thus, professional learning should not only provide teachers with information on how the dialogic approach should be implemented, but also provide opportunities to see why the instruction is beneficial (Wilkinson & Gaffney, 2016). By watching me work with her learners over a sustained period of time, Ms. Nolan was able to witness how the approach changed the

performance of her students, and this helped her reflect on why the practice resulted in a positive change for her students.

In reflecting on my role as a teacher in this study, I encountered many instances when my teacher behaviors were not conducive to fostering exploratory talk among the students. Future research could help prevent such typical pitfalls. As other researchers have found, teacher use of procedural talk with multilingual learners is quite high during peer discussions (Budde et al., 2022; Klinger & Vaughn, 2000). Procedural talk, while it has its role in instruction, can limit student efficacy and inadvertently position peers as less than capable. For example, there is no reason learners as young as kindergarten cannot notice when a peer has not yet spoken and invite him or her into the conversation. Enhanced professional learning can help teachers notice when they over-intervene and help them develop a plan to counter such instincts. For instance, video can be a powerful tool to promote teacher self-reflection and enhance professional learning (Gibbons & Farley, 2019).

In summary, future research in the area of peer-mediated learning with multilingual learners should work with teachers in general education classrooms over a series of years to ensure that the teachers fully understand and can implement dialogic instruction that can foster peer mediation. Research should have processes for capturing and measuring discursive support received by peers. Evidence of peer uptake is a necessary link to understanding how mediation can impact language and literacy outcomes as measured by proximal assessments (e.g., writing prompts) and distal assessments (e.g., standardized tests).

Future research should continue to focus on generating robust recommendations for teachers who wish to incorporate dialogic teaching into their pedagogy. Thus, research among learners in heterogenous and linguistically diverse classrooms, and with lower as well as upper

elementary learners, can help practitioners have a more nuanced understanding of how to implement practices that foster exploratory talk. Additional research designed to produce real-world instructional ideas will also help future practitioners of dialogic instruction avoid common pitfalls or barriers to helping multilingual learners participate in these equity-focused tasks.

Conclusion

This study investigates the types of discursive support that multilingual learners and EL peers can provide and receive from one another during small group discussions on informational texts in science and social studies lessons. This is an important study, for it investigates the promotion of an instructional practice that is even more relevant after these students' access to academic language was greatly reduced due to the pivot to online learning during the COVID-19 pandemic. Not only did this intervention help two teachers begin to reimagine what a classroom organized by dialogic principles could look like, the intervention also added to our existing knowledge base on how ELs learn to mediate in a heterogenous classroom. The findings from this study also suggest that not all peer mediated learning is equal. Given the limited time that teachers have in an instructional period, this study provides some initial guidance on what types of discursive support should be prioritized via explicit instruction and coaching. Future research that more closely links discursive support and exploratory talk could help us better understand the connection between peer supported learning and enhanced academic achievement. Given the marginalization of multilingual learners and the opportunity gaps exacerbated by the pandemic, such studies are essential toward helping ELs and other students receive equitable instruction.

Appendix A: Student Participants

Benjamin ES			University ES		
Name	EL Status	Proficiency Level	Name	EL Status	Proficiency Level
Lisa	Yes	3	Lana	No	
Samuel	No		Kevyn	No	
Maryann	No		Vicki	No	
Kyle	Yes	2	Nestor	No	
Jose	Yes	2	James	No	
Erick	Yes	2	Baron	No	
Camellia	No		Star	Yes	3
Ariella	Yes	3	Juan	Yes	2
Carlotta	No		Kimbra	No	
Bailey	No		Belinda	No	
Ona	Yes	2	Wallace	No	
Winifred	Yes	1	Jackson	Yes	3
Bree	No		Leo	Yes	2
Michael	Yes	1	Abigail	Yes	4
Marco	Yes	2	Danielle	Yes	4
Andy	No		Rayna	No	
Kailey	No		Tiana	Yes	4
Marisol	Yes	4	Elnora	No	
Daniel	Yes	3	Gabriella	No	
Jesus	Yes	1	Ariella	No	
Jason	Yes	1	Austin	No	
Mimi	Yes	2	Andrea	Yes	4
			Gilbert	Yes	4
			Rosa	No	
			Alaina	No	
			Mindy	Yes	3
			Matteo	Yes	2
			Olga	No	
			Elijah	Yes	2
			Anna	Yes	1
			Essie	Yes	1

Appendix B: Sample Instructional Materials Shared with Teachers

Anticipation Guide

Directions: Read each statement and decide if it is T(true) or F(false).

1. Weddell sea pups live in a cold environment T F
2. Weddell sea pups can crawl on the ice with little assistance T F
3. Mothers of sea pups help them learn to hunt T F
4. Weddell sea pups have few predators T F
5. Please list any facts you know about Weddell sea pups here:

_____

Core Questions Capture Sheet

After I Read
What is this text about?
What is most important from this text?
What is interesting to me and other others?
What words did I not understand and what do I think they mean? 1.Word Definition 2. Word Definition 3. Word Definition 4. Word Definition
Did the writer present the information in the most interesting way for the topic? If yes, how so? If no? How could the writer improve the presentation?

Word Sort

Directions: Cut out words. Then sort them according to whether they are essential or not essential for understanding the text. Discuss with peers until everyone agrees.

Essential	**Non-Essential**	slippery	brightly	squid
predators	blubber	mammals	protects	ice shelf
remain	attached			

Appendix C: Consent Letters

Sample Parent Form

Institutional Review Board
1204 Marie Mount Hall ● 7814 Regents Drive ● College Park, MD 20742 ● 301-405-4212 ● irb@umd.edu

CONSENT TO PARTICIPATE

Project Title	Exploring the Impact of Peer Mediation on the Literacy Development of Monolingual and Multilingual Learners
Purpose of the Study	This research is being conducted by **Jennifer Himmel** at the University of Maryland, College Park under the supervision of Dr. John O'Flahavan. We are inviting your child to participate in this research project because he or she is a student at the School. The purpose of the project is to explore the impact that peer mediation during text-based discussions has upon student literacy outcomes.
Procedures	The researcher will work with the teacher to form student groups of no more than five students within each peer discussion group. The researcher will provide coaching to the teachers on implementation of a two-day accountable talk curriculum that develops content area literacy and is aligned to the district's English language arts and science/social studies curriculum and standards. The researcher will also work with the teachers to coach students in using accountable talk techniques during peer discussion on expository texts. Teachers will then deliver a two-day curricular unit for 10 weeks with researcher support, and will allow the researcher to observe the peer discussions weekly. Peer discussion groups will be video-taped up to four times during the study. The researcher may conduct a debrief interview (approximately 5 minutes) with the students after a peer discussion session to learn more about how the peer discussion impacted their understanding of the text or the language in the text. To protect confidentiality, I will assign an identification number to all participants and store data in a locked cabinet and on a secure, password-protected cloud-based storage platform. All data will be destroyed after seven years at the conclusion of the study.
Potential Risks and Discomforts	A potential risk of a breach of confidentiality exits. Your child may skip any question she or he does not want to answer.

Potential Benefits	There are no direct benefits to participants. However, possible benefits include enhanced opportunities to develop reading skills and strategies necessary to comprehend informational texts. Other possible benefits include enhanced academic vocabulary and speaking and listening skills. I hope that, in the future, other people might benefit from this study through improved understanding of peers can mediate literacy acquisition for each other.
Confidentiality	I will protect the anonymity of my subjects by assigning each participating student and teacher an identification number. Only those numbers will be used to identify the student and teacher during data collection, analysis, and reporting. Any potential loss of confidentiality will be minimized by storing data in a locked cabinet and on a password protected computer. If I write a report or article about this research project, your child's identity will be protected to the maximum extent possible. Your child's information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.
Right to Withdraw and Questions	Your child's participation in this research is completely voluntary. Your child may choose not to take part at all. If your child decides to participate in this research, your child may stop participating at any time. If your child decides not to participate in this study or if your child stops participating at any time, your child will not be penalized or lose any benefits to which your child otherwise qualifies. Your decision to allow your child to participate will have no positive or negative effect on your child's grades, standing, or relationship with the School. If your child decides to stop taking part in the study, if you or your child have questions, concerns, or complaints, or if you or your child need to report an injury related to the research, please contact the investigator: **Jennifer Himmel** **Benjamin Building** University of Maryland College Park, MD 20742 **jhimmel@umd.edu** **703-472-3412** **John O'Flahavan** **Benjamin Building** **University of Maryland** **College Park, MD 20742**

<table>
<tr><td></td><td colspan="2">johno@umd.edu
301-526-4274</td></tr>
<tr><td>Participant Rights</td><td colspan="2">If you have questions about your rights as a parent of a research participant or wish to report a research-related injury, please contact:

University of Maryland College Park
Institutional Review Board Office
1204 Marie Mount Hall
College Park, Maryland, 20742
E-mail: irb@umd.edu
Telephone: 301-405-0678

For more information regarding participant rights, please visit:
https://research.umd.edu/irb-research-participants

This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.</td></tr>
<tr><td>Statement of Consent</td><td colspan="2">Your signature indicates that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to allow your child to participate in this research study. You will receive a copy of this signed consent form.

If you agree to participate, please sign your name below.</td></tr>
<tr><td rowspan="4">Signature and Date</td><td>NAME OF MINOR PARTICIPANT
[Please Print]</td><td></td></tr>
<tr><td>NAME OF PARENT
[Please Print]</td><td></td></tr>
<tr><td>SIGNATURE OF PARENT</td><td></td></tr>
<tr><td>DATE</td><td></td></tr>
<tr><td>Please check box to give permission to video record your student</td><td>☐ Yes
☐ No</td><td></td></tr>
</table>

Sample Teacher Form

Institutional Review Board
1204 Marie Mount Hall ● 7814 Regents Drive ● College Park, MD 20742 ● 301-405-4212 ● irb@umd.edu

CONSENT TO PARTICIPATE

Project Title	Exploring the Impact of Peer Mediation on the Literacy Development of Monolingual and Multilingual Learners
Purpose of the Study	This research is being conducted by **Jennifer Himmel** at the University of Maryland, College Park under the supervision of Dr. John O'Flahavan. We are inviting you to participate in this research project because you are in an elementary school with multilingual learners. The purpose of this research project is to explore the impact that peer mediation during text-based discussions has upon student literacy outcomes.
Procedures	The researcher will work with the teacher to form student groups of no more than five students within each peer discussion group. The researcher will provide coaching to the teachers on implementation of a two-day accountable talk curriculum that develops content area literacy and is aligned to the district's English language arts and science/social studies curriculum and standards. The researcher will also work with the teachers to coach students in using accountable talk techniques during peer discussion on expository texts. Teachers will then deliver a two-day curricular unit for 10 weeks with researcher support, and will allow the researcher to observe the peer discussions weekly. Peer discussion groups will be video-taped up to four times during the study. The researcher may conduct a debrief interview (approximately 5 minutes) with the students after a peer discussion session to learn more about how the peer discussion impacted their understanding of the text or the language in the text. To protect confidentiality, I will assign an identification number to all participants and store data in a locked cabinet and on a secure, password-protected cloud-based storage platform. All data will be destroyed after seven years at the conclusion of the study.
Potential Risks and Discomforts	A potential risk of breach of confidentiality exists. However, you can skip any question you do not want to answer.
Potential Benefits	There are no direct benefits to participants. However, possible benefits include learning how to better implement text-based discussions with students of different literacy profiles. Another benefit is the reception of curricular units aligned to high-interest texts with engaging student materials. I hope that, in the future, other educators and researchers might

	benefit from this study through improved understanding of how peers can mediate literacy acquisition for each other.
Confidentiality	I will protect the anonymity of my subjects by assigning each participating student and teacher an identification number. Only those numbers will be used to identify the student and teacher during data collection, analysis, and reporting. Any potential loss of confidentiality will be minimized by storing data in a locked cabinet and on a password protected computer. If we write a report or article about this research project, your identity will be protected to the maximum extent possible. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.
Right to Withdraw and Questions	Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify. Your decision to participate or not participate will have no positive or negative effect on your employability, standing, or relationship with the School. If you decide to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator: **Jennifer Himmel** **Benjamin Building** University of Maryland College Park, MD 20742 **jhimmel@umd.edu** **703-472-3412** **John O'Flahavan** **Benjamin Building** **University of Maryland** **College Park, MD 20742** johno@umd.edu **301-526-4274**

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https://research.umd.edu/irb-research-participants

This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.</td></tr>
<tr><td>Statement of Consent</td><td colspan="2">Your signature indicates that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to participate in this research study. You will receive a copy of this signed consent form.

If you agree to participate, please sign your name below.</td></tr>
<tr><td rowspan="3">Signature and Date</td><td>NAME OF PARTICIPANT
[Please Print]</td><td></td></tr>
<tr><td>SIGNATURE OF PARTICIPANT</td><td></td></tr>
<tr><td>DATE</td><td></td></tr>
</table>

Appendix D: Codebook

Support: Verify & Clarify

Definition	Example From Discourse Data
Linguistic moves that revoice, clarify, recast, restate, or paraphrase	As a continuation lesson on occupations and educational requirements for those occupations, the teacher reminded the students about their previous lesson on colleges and specifically historically Black universities and colleges (HBCUs). In the vignette below three students (one EL and two non-ELs) are asked to discuss what they know about HBCUs. Lisa begins the discussion by saying, "What is a HBCU?" The students struggle with the content and in the fourth exchange I verify that the content is new for students, thus signaling it is ok that they are struggling. As I try to redirect the students in line 8 to think about the words in the passage in order to ascertain where some of their background knowledge gaps may be, Maryann goes back to the original question posed by Lisa and begins to clarify a response she first provided in line 5. Samuel affirms and revoices (clarifies) her contribution, thus signaling to both Maryann and Lisa that this is the correct answer. In this instance Samuel's move to verify Maryann's response begins to establish an agreed upon set of facts from which they can continue to build knowledge regarding the topic. Me: But can you think of any universities that are historically Black college or university? Lisa: I don't know Lisa: This is new Me: Yes, this is new. Me: Ok Maryann: **Historic…Black** Maryann: Yeah….I just don't know Me: Maybe we can think about the words Maryann: Yeah, maybe they are in Black community Samuel: **Yeah, they are in the community**

Support: Express idea

Definition	Example From Discourse Data
Providing contributions not yet discussed during the mediational episode	In the vignette below students were asked to write a story from the perspective of a leprechaun as homework. When the students came back to class the next day, they were told to read their stories and share their illustrations of the story to a peer. In this vignette two non-ELs are working together. As I enter their discussion the students do not seem to be talking, so I remind them of the task in the first exchange in the vignette below. Christina contributes a sentence from her story in the second exchange (expresses idea). After Bree fails to acknowledge Christina's contribution in the fourth exchange, I provide several attempts to specifically invite Bree into the discussion which do not yield further talk by Christina or Bree. Thus, no further connections or knowledge building emerged from this peer Support, despite the additional scaffolding I offer in the fifth, seventh, and eighth lines. Me: Did you already read your story? Christina: **If were a leprechaun I would go to the end of the rainbow and get all of the gold** Me: What do you think about that (question posed to Bree)? Bree: Umm Me: Is it similar to yours? Bree: I don't know. Me: Ok- well (looking at Bree's story) you would be rich and that is what Christina said – she said she wants. Me: That's similar right? Bree: Yes

Support: Link

Definition	Example From Discourse Data
Building on contributions by providing related ideas and giving examples	Students had read about different types of energy transformation and then were provided a graphic organizer that included each type of energy transformation with a related visual. When I entered the conversation of three non-ELs and one EL, the EL was sharing his idea about kinetic energy (lines 1-3). Austin *links* to Juan's contribution in line 6 by providing an additional piece of information about kinetic energy. Then, after Belinda repeats what Juan said in the first exchange, in line 8 Austin *links* and extends Belinda's contribution by providing an example. In this vignette we see *linking* serve to provide momentum for the discussion, which helps to deepen student understanding and provide enhanced opportunities for peers to engage with the ideas. Juan: Kinetic energy is something moving Juan: And like the cheetah is running Juan: And I think he got kinetic energy by running Austin: The cheetah is running Austin: And he's using kinetic energy Austin: **And he's making heat energy** Belinda: Kinetic energy is when something is moving Austin: **For example, when I put the pencil on table and then it starts moving** Me: Ok- Juan did you hear her?

Support: Invite

Definition	Example From Discourse Data
Open ended questions to the general group or to a specific group member designed to elicit more than a yes or no response	In this vignette the students had completed a reading about devices and the types of energy they use. When I enter the discussion the four students (two Els and two non-Els) are trying to decide what type of energy a toaster oven uses. Rather than identifying what type of energy the oven uses, Vicki begins to discuss energy transfer within the toaster oven. I notice that Andrea is not paying attention, so in an attempt to distribute cognition among students so that they can generate more accurate responses, I explicitly invite Andrea to share in the third and fourth exchanges. After inviting Vicki to repeat what she said, in exchange six Andrea acknowledges that she should have been paying attention and that her failure to do so has made more work for her peers. Vicki: First look, the toaster sitting there and it has potential energy Vicki: Then while cooking it has kinetic energy Me: What does Andrea think? Me: Did you hear that? (saying this in response to what Vicki said b/c I noticed Andrea stopped paying attention) Me: Vicki, do you want to say that again? Andrea: Sorry Vicki: Um the toaster has potential energy and think it turns into heat energy

Support: Mark

Definition	Example From Discourse Data
Pointing out to the group exactly what was valuable or important in a peer's contribution	In this vignette from the same event described in the verify & clarify example, the students continue to discuss HBCU's. In the fourth exchange I mark Samuel's contribution to elevate his contribution and encourage his peers to answer it. After students do not appropriate this Support, I ask another question and the students continue to add ideas. Me: What are some things you want to know about colleges? Samuel: I want to know if black college allow white students but Martin Luther King solve this problem Samuel: So I want to know if black people can go to those colleges? Me: **That's an interesting question.** Me: What else? Lisa: I want to know what is if people are going to be separate and Lisa: Or they are going to have move away to get their own bedroom Lisa: I think? Me: Yeah? Me: So they will live in a dormitory? Samuel: I don't think so

Support: Manage Talk

Definition	Example From Discourse Data
Linguistic moves that serve to keep discussion moving or to keep discussion relevant to the instructional event	In this vignette two non-EL students are discussing what new facts they learned from the reading as well as what was most interesting. When I see Elnora struggling during this first exchange, I ask her peer Gabriella to provide assistance. My intent is not only to help Elnora but also to model for students that they can be a source of help during discussions, as opposed to always relying on the teacher. We see that Gabriella does appropriate my Support and that Elnora does indicate she heard Gabriella's contribution with her *verify & clarify* Support in the sixth exchange. Elnora: Ummm the most important interesting thing to me is that trying ummm it does like potential energy to, to Me: **Gabriella, can you help her out**? Gabriella: Um, um I said that potential energy um is the interesting because of ..cause um it starts in a position before it is energy and then.. Me: Uh huh Gabriella: And potential energy is when, when like when it is a soccer ball when you kick it that is potential energy Elnora: Because it is moving

Support: Press

Definition	Example From Discourse Data
Challenging or questioning the accuracy of an idea, or requesting elaboration toward knowledge building	In this example five students are sharing the external and internal functions of bats that they gleaned from the reading. As I enter the discussion, we see that James is using information from the text that they read to support his answer. Drawing his peers' attention to where they can find the information leads Kevyn to add additional details to help the group understand what echolocation is. James: **Also on bottom of text it says that they use echolocation** Me: How do they find their prey with echolocation (reading from text where James read) Kevyn: They find the prey, the, so because of the sound of echo Kevyn: They have good ears so the sound of echo they can hear the animal Me: What do you think? Jackson: That's correct

Support: Scaffold

Definition	Example From Discourse Data
In-the-moment support provided to a learner to accomplish a task she could not have accomplished on her own	In this example the students in the group are asked to complete the capture sheet regarding how different devices use energy. The students had been talking about how humans use food for energy, and in the first exchange we see Kevyn direct his spelling question to me. Rather than spelling the entire word for the student, I ask him to use his phonics knowledge to attempt the spelling. The student correctly provides the first letter in the word and continues without further requests for help. In this example the scaffolding shows the learner that he has the tools he needs to finish the task. Kevyn: How do you spell fruit? Me: **What do you think is the first sound?** Kevyn: F Me: Ok

Support: Request assistance

Definition	Example From Discourse Data
Asking for content or language help in order to participate in the discussion	Students often asked me for help. In this example, Jose asks for help spelling a word that he wants to record on his needs versus wants worksheet. In the second exchange I repeat what he is asking for help with as a way to amplify for the students that Jose needs help. Ariella takes up this Support by providing Jose with a more familiar word for shelter. Later she provides assistance on how to spell the more familiar word. Jose: **How do you spell shelter?** Me: Shelter? Ariella: It's a house Me: yes Ariella: H O U S E

Support: Wait

Definition	Example From Discourse Data
Intentional pauses provided by listeners to give an interlocutor more time to consider his or her response or finish his or her idea	Prior to the example below, Lana had just told the group of four (two ELs and two non-ELs) that she thought the picture on their capture sheet about energy transfer and energy transformation was of a forest fire. I ask some questions in exchange 1 and 3 to clarify the students' thinking. Then in exchange 6 I provide an opportunity for the students to consider what Lana said by saying "ok" with an up intonation. This provision of wait time allowed Lana to continue explaining her thinking, but this Support could also work to give the rest of the students time to consider and weigh in on the accuracy of Lana's answer. Me: What questions do you have about that? Rosa: Umm, how did it get on fire? Me: Ok, what did you think, do you think about the fire? Me: How did we transform to heat energy? Lana: Maybe by the sun Me**: Ok (intonation up**) Lana: Light Lana: Then the light got with something else then got into Lana: And then it expanded to light and next thing it became a fire Me: What do you all think?

Support: Recap

Definition	Example From Discourse Data
Providing a summary to capture the learning of the group	In the example below Ariella and Danielle are discussing energy transfer. Ariella is trying to explain energy transfer in exchanges 1,2, and 3, and Danielle sums up their thinking in the final exchange when she says that electricity is providing the source of the energy transfer in the toaster over. This recap helps the pair track their learning as their discussion on energy transfer continues and knowledge is built. Ariella: Energy transfer is like when toaster goes like… Ariella: Like how do you say it? Danielle Electricity Ariella Electricity Danielle: **Like energy become heat**

Support: Model

Definition	**Example From Discourse Data**
Showing the learner how she carries out a particular activity.	When I enter this vignette, the students are discussing potential energy and the toaster oven on their capture sheet. The students are trying to figure out what type of energy is causing the toaster oven to heat. After I prompt the students to try to come to consensus, Andrea provides her opinion but without any justification from the text or prior experience. Accordingly, in the exchange below I explicitly provide Andrea with the language she should use to explain her thinking. Andrea attempts to explain but needs help from the group (exchanges 4,5, and 6). Me: So you guys have to agree on what type of energy it is being turned into heat energy? Andrea: I think electric energy is heat energy. Me: **Well, tell her why you think that**. Andrea: Because the… Andrea: What's that called? Me: She asked you what's that called. Vicki: Wire

Support: Monitor comprehension

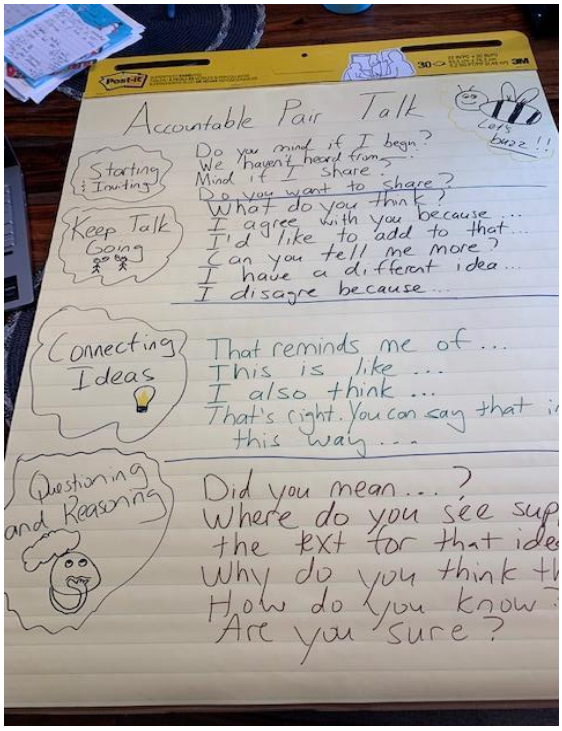
Definition	Example From Discourse Data
Linguistic moves to help learners become active listeners	The students were asked to share what they learned from their research on their animal adaptations. While two other students are interacting with the prompts, I notice that Leo was not paying attention, and in exchange 5 I ask Leo if he is listening. This serves to redirect him to the discussion. However, his answer in exchange 9 reveals he is not listening, and Rayna corrects him. These types of Support help to hold students accountable and help to engender more productive discussions toward enhancing language and literacy knowledge related to topic. Nestor: Talk to me Rayna: Its uh, its active day and night both Rayna: And especially designed eyes make them equally see in the day and night Rayna: Um Me: Are you listening (talking to Leo)? Rayna: And um Me: How many facts has she shared? Leo: Um she shared one right now Rayna: I've shared two

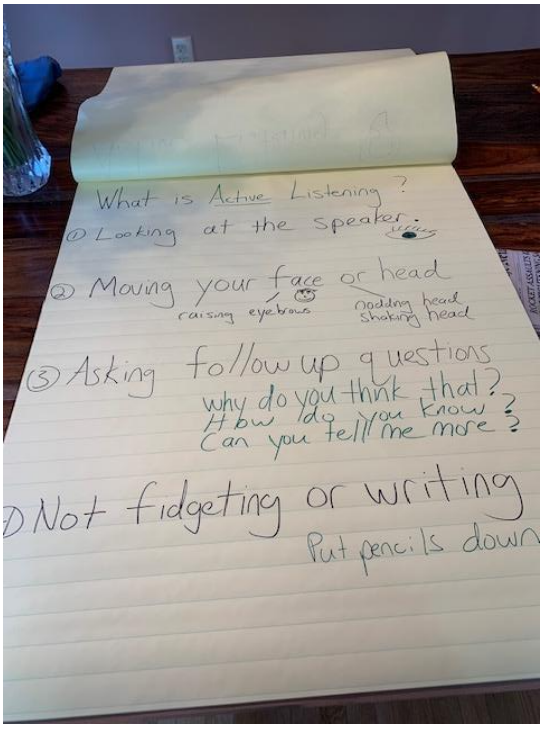
Support: Notice and name

Definition	Example From Discourse Data
Identifying a productive literacy technique to increase comprehension among learners	While this was not a frequent Support from the data set, it could serve to highlight a particularly useful literacy skill being employed by students. In the excerpt below, I call out for the rest of the students in Kevyn's group to notice that when he said "uses it vines to make the food," he was providing a supporting detail—something that his peers could also try out during this discussion on the connection between the plant Rafflesia and photosynthesis. Hence notice and name has the potential to enhance student understanding of the concept and also to highlight for students that their helps are useful and reliable sources of information. Me: What was that? Kevyn: That's what me and Wallace wrote Me: Oh, ok Me: So, you can say I agree- right? Kevyn: I agree because it uses its vines to make the food Me: Oh ok **Me: So that is a good detail- it uses its vines**

Appendix E: Anchor Charts

Accountable Talk and Buzzing & Active Listening Charts





Appendix F: Discursive Support from the Observational Data

Discursive Support (over time)

Dates	Verify & Clarify	Express	Link	Invite	Mark	Manage	Press	Scaffold	Request	Wait	Recap	Model	Monitor	Notice & Name	Total
2022-03-10	27	14	6	11	6	12	7	1	1	1	1	5			92
2022-03-11	45	22	13	6	3	6	4	11	5	4			1		120
2022-03-16	25	12	9	7	3	7	6	2	5	1					77
2022-03-18	12	5	2	6	4	7		1	1		1	1			40
2022-03-23	23	16	17	7	9	1	1	2		2	3	3	1		85
2022-03-29	77	32	13	16	20	7	9	19	14	3	3	2	1		216
2022-04-28	7	7	3	4	3	1	1	1	5	2				1	35
2022-05-17	8	5	5	3	2		5	1	1	4			1		35
2022-05-22	15	2	14	3	5		5			1	2			2	49
2022-06-16	12	10	15	6	8	6	6	1			2	1	2		69
Grand Total	251	125	97	69	63	47	44	39	32	18	12	12	6	3	818

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