THINK ABOUT IT, TALK ABOUT IT: EXPLORING THE INTERSECTION OF KNOWLEDGE AND DISCOURSE DURING TEXT-BASED DISCUSSIONS

By

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ABSTRACT

Knowledge development, application, and refinement are essential parts of students' reading. One way to observe how students use their knowledge as they read is through talk. Studies routinely indicate that though reading is a social endeavor, teachers spend most of the allotted instructional time talking or using discourse patterns that do not promote critical or analytical thought about text. Additionally, teachers appear to rely on content knowledge, previously taught knowledge, and their own experiences to facilitate lessons rather than the diverse knowledge their students have. In response to these findings, this study examined how a sixth grade English language arts co-teaching team implemented a dialogic protocol called Spider Web Discussions using conceptually-coherent texts or a selection of texts on a similar theme (TB-SWDs), designed to support students' knowledge expression and co-construction for productive classroom discourse.

The present study investigated the following research questions: (1) what are the affordances and challenges of using Spider Web Discussions in a sixth-grade language arts context?; (2) in what ways do sixth-grade students apply feedback from previous Spider Web Discussions to subsequent discussions?; and (3) how do students use knowledge, rigorous thinking, and discussion structures to engage in meaning-making with peers though Spider Web Discussions?

To answer these questions, I conducted a multiple-case study to analyze students' interactions and classroom discourse. Eight discussions were video-recorded and analyzed from five class periods over the course of four months. In total, 147 minutes of observational data were collected across the eight recordings. Videos were coded for the lessons using provisional codes of types of knowledge, and analyzed for knowledge development, rigor, and discourse

interactions between and among teachers/students. A researcher-developed tool called the Knowledge Assessment for Talk through Comprehension (the KAT-C) was deployed to assist with the analysis.

In the study, it was observed that TB-SWDs provided many affordances, including social, academic, and management concepts. Additionally, many challenges such as control and individualistic tendences were also observed. Within the TB-SWD, students frequently used multiple kinds of knowledge and social supports, engaging with a variety of different discussion structures. Additionally, students showed growth in how they used text evidence to support their knowledge co-construction and revision. This study brings to the forefront the need for student-led discourse opportunities where teacher intervention is limited to support agency and higher-order thinking. When students can engage independently in knowledge-centric discussions about text, they can utilize nuanced, higher-order thinking and develop a more comprehensive understanding of text. These discussions would not have the same richness if they were facilitated in traditional teacher-facilitated settings where a certain answer is expected.

This study contributes to the field's understanding of both student-centered classroom discourse (i.e., where the teacher has a minimal or observer role) and how students use knowledge in-the-moment to make meaning from text through talk.

This dissertation is dedicated to my parents, Ginger and Mark Povenmire (1958-2023).
Thank you for your unwavering love and support—love you, mean it.

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CHAPTER 1—INTRODUCTION

Picture a lively sixth-grade English language arts classroom, where students are excited to share about their reading in a whole-class discussion. Now imagine these students not just sharing their learning, but actively sculpting its meaning through connections they make and the knowledge they have. They challenge each other's ideas, construct and deconstruct arguments, share their own examples, and support their thinking with text. This is what learning *could* look like during language arts classes, as a space where discourse occurs. Discourse, defined as "big-D discourse" by Gee (1989), refers to the "ways of being in the world" through "words, acts, values, beliefs, attitudes, and social identities" that are obtained through "scaffolded and supported interaction with people who have already mastered the Discourse" (pp. 6-7). "Small-d "discourse, or "connected stretches of language" that occur as part of Discourse (Gee, 1989. p. 6). It is the social and interactional nature that establishes discourse overall. Classroom discourse as used in this study considers both the ways of being in the world and the language students use to interact with it.

However, while opportunities for students to discuss their reading with their peers are commonplace in schools, productive classroom discourse where students build upon, question, contradict, or add new insights to augment their own knowledge or that of the group (L. B. Resnick et al., 2015), is quite rare (see Nystrand et al., 2003). Talk that supports students' learning has been known by multiple names, including Accountable Talk (Michaels et al., 2008), Quality Talk (Murphy et al., 2017b), instructional conversations (Tharp & Gallimore, 1991), etc. I operationalize the term "productive classroom discourse" and its definition from L. B. Resnick et al. (2015) as it incorporates multifaceted depictions and details of what it means to participate in such discussions.

Scholars have often noted that interactions between the teacher and students focus on correctness and task completion rather than expressing or co-constructing knowledge (Nystrand et al., 2003; Reinsvold & Cochran, 2012). Limited time is also devoted to classroom interactions that support students' thinking (Elizabeth et al., 2012; Myhill, 2006; Nystrand et al., 2003). This phenomenon can be observed with the prevalence of teacher-centric talk in classrooms, such as through initiate-respond-evaluate (I-R-E; Mehan, 1979) interactions whose function is to transmit information only. Researchers (e.g., R. Alexander, 2020; Mehan, 1979; Nystrand et al., 2003) have discovered a prevalence of I-R-E interactions as the focus of classroom talk, wherein the teacher asks a closed-ended or test-like question and students provide a response which the teacher evaluates.

While I-R-E has been typified as evaluating surface-level talk rather than more complex knowledge co-construction through productive classroom discourse (Cazden, 1988; Elizabeth et al., 2012; Myhill, 2006), Boyd and Markarian (2011, 2015) present a counterargument in that the function of talk is what matters most. They found that taking a dialogic stance, where an I-R-E question can be used to facilitate productive classroom discourse through a teacher's active listening and probing for details, can support students' text comprehension (Boyd & Markarian, 2011, 2015).

As such, when teachers embody and enact a stance that supports productive classroom discourse, they can encourage students to express and co-construct knowledge for learning (Vygotsky, 1978). Additionally, the Common Core State Standards (National Governors Association, 2010) recommend use of complex text and speaking and listening for meaning-making, which becomes more sophisticated as students proceed through school.

Though learning to read in systematic ways has been widely researched (see Castles et al., 2018; Duke et al., 2021; and Juzwik et al., 2006), use and activation of knowledge—which is considered a vital pillar of reading comprehension (Cervetti & T. S. Wright, 2020; Neuman, 2019)—receives less attention in places where it is most applied: in classrooms themselves.

Though background knowledge has been established as one of the most important predictors of reading comprehension (e.g., Kintsch, 1998; Snow, 2002), Hattan et al. (2015) found that prior knowledge activation was rare both in practice and curricular recommendation. Relatedly, disciplinary knowledge facilitation is typically the focus of most classroom instruction, rather than building connections among and between concepts with students' knowledge (Myhill, 2006). When teachers undervalue or underutilize students' knowledge in classrooms and instead prioritize disciplinary knowledge and culturally-dominant ways of knowing, they remove entry points such as references and examples for students to engage with the curriculum and further reduce opportunities for historically marginalized students to make meaning from text (C. D. Lee, 2017; Muhammad, 2020; see Brown & Ryoo, 2008 and Orellana & Reynolds, 2008 for examples of cultural modeling that encourage student knowledge and language use). This raises the question, in what ways can students' knowledge be used through text-based discussion for meaning-making?

We must also consider how students have opportunities to share their knowledge. "Knowing" something is intangible; as such, for teachers to identify what students know, they must observe students through classroom activities that facilitate knowledge-based interactions. A more optimal measure to use is classroom discourse, which makes students' thinking visible. In the context of her work as a literacy trainer for a large public school system, Ketch (2005) stated, "...conversation becomes the way that we, as teachers, determine the strategies a student

understands and employs as he or she comprehends" (p. 8). For example, one cannot simply say they "know" the difference between two versions of *Cinderella* stories; they can, however, demonstrate their knowledge through describing the events of the story or comparing their essential elements. Teachers, then, can observe and document the ways in which the students' descriptions or comparisons are supported by text and have a clearer picture of the rationale behind the answer with prompting. Therefore, discussion has been shown to support students' reading comprehension as they engage with text (Ketch, 2005; Reznitskaya, 2012). Increasing the amount of student-generated classroom discourse should theoretically support their meaning-making as they use their knowledge to engage in text, as classroom discourse is "a medium for teaching and learning" and "one of the materials from which a child constructs meaning" (Edwards & Mercer, 1987, p. 20). In his study on whole-class discussions with multilingual learners, Van den Branden (2000) found that collective negotiation of knowledge with unknown vocabulary words, where students worked as a larger group with minimal teacher intervention, was supportive of reading comprehension. Here, students were able to speak with each other to determine the meaning of words and phrases after reading a novel text and the utterances were tracked to identify how students co-constructed knowledge. Similarly, Saunders and Goldenberg (1999) found that both multilingual learners and native English speakers who engaged in classroom discourse performed better on reading comprehension measures.

For students to make meaning from text, they must participate in classroom discussion that makes their thinking visible. This concept is especially important in the middle grades, where students are increasingly expected to participate in text-based discussions. Middle school students also read more informational texts which require them to deploy discipline-specific reading strategies. For example, by the eighth grade, 45% of students' reading should prioritize

literary texts (i.e., fiction) and 55% should prioritize informational texts (National Governors Association, 2010). These texts are more complex in word choice, abstract and/or multiple themes, argument structure, and use of language than those at the elementary school level (IRIS Center, n.d.; Wexler et al., 2020), which increases the cognitive load as students read. This study connects how sixth-grade students, which is considered "middle school" in the Midwestern state in which the study takes place, use their knowledge to make meaning from text through productive classroom discourse.

Overview of the Present Study

The overall purpose of my research is to explore the intersection of knowledge and text-based classroom discourse through Spider Web Discussions centered on text (TB-SWDs; Wiggins, 2017), a series of collaborative student-led group discussions centered around abstract text-based questions, with minimal teacher intervention. I aim to answer the following research questions:

1) What are the affordances and challenges of using Spider Web Discussions in a sixth-grade language arts context?
2) In what ways do sixth-grade students apply feedback from previous Spider Web Discussions to subsequent discussions?
3) How do students use knowledge, rigorous thinking, and discussion structures to engage in meaning-making with peers through Spider Web Discussions?

In this study, I examined data collected through TB-SWDs from five class sections of sixth-grade students over the course of eight discussions about two abstract topics. The discussions were evaluated using recorded observations to identify affordances and challenges of the discussion protocol (RQ 1) and to evaluate how students use feedback from previous discussions

to revise their knowledge for a subsequent discussion (RQ 2). I also created a protocol, the Knowledge Assessment through Talk for Comprehension (KAT-C; Appendix A), to evaluate which kinds of knowledge students use as they participate in productive classroom discourse. The KAT-C along with sociocultural discourse analysis (Mercer, 2004) and the NAEP cognitive targets (National Assessment Governing Board, 2024) were used to evaluate the forms of rigor and discourse they use as they participate (RQ 3).

Definitions

I will begin with some definitions for frequently-used terms within this dissertation. *Knowledge* is a key component of the study and is defined as "all that a person knows or believes to be true" (P. A. Alexander et al., 1991, p. 317). Classifying how knowledge is used can be complex, as P. A. Alexander et al. (1991) found twenty-seven different recognized classifications of knowledge in their literature review. Therefore, a distillation of knowledge for the sake of specificity must occur.

Prior knowledge—the focus of this study—consists of multiple types of knowledge and strategies students bring to the text as they read, and establishes a baseline of information against which students can evaluate new knowledge (Bråten et al., 2020; Hailikari et al., 2008). It is colloquially referred to as "everything we know" (Hattan, 2024).

Kendeou and O'Brien (2016) identified three subsections within the wider umbrella of prior knowledge: domain knowledge, topic knowledge, and general world knowledge. Although some students may not have *topic knowledge*, or knowledge about a specific concept (Cervetti & T. S. Wright, 2020; Kendeou & O'Brien, 2016), they may have some *domain knowledge*, which refers to knowledge in a specific field of study (e.g., about space; Cervetti & T. S. Wright, 2020; Kendeou & O'Brien, 2016). An example of topic knowledge would be the Russian interest in the

U.S. space program during the Cold War, while an example of domain knowledge would be outer space.

General world knowledge refers to "a broader level of knowledge that captures information assumed to be known by the general population" (Kendeou & O'Brien, 2016, p. 152). Because all students have access to some degree of general world knowledge, reading provides an opportunity for them to create, modify, or add on to the knowledge they have.

Other forms of prior knowledge that presented in this study include but are not limited to[1] *sociocultural, textbase,* and *cultural/linguistic* knowledge. *Sociocultural knowledge* refers to knowledge people possess about how to navigate the world in relation to their experiences as a member of a certain group or culture (P. A. Alexander et al., 1991). *Textbase knowledge* refers to the interaction between the reader's knowledge and the text itself, whether oral or written (van Dijk & Kintsch, 1983) and topic knowledge refers to "the intersection of one's prior knowledge and the content of a specific passage or discourse" (P. A. Alexander et al., 1991, p. 333). The difference between textbase knowledge and topic knowledge is that textbase knowledge utilizes the macro- and microstructures within text. Microstructures include the fine-grained linguistic components of a text such as sentence types and pronoun usage, whereas macrostructures include more abstract or global conceptualizations of the text where microstructures are applied to construct a bigger picture (Al-Arraji & Al-Azzawi, 2016; van Dijk, 1972). *Cultural/linguistic knowledge* refers to students' everyday experiences, whether direct or indirect (Hattan & Lupo, 2020).

[1] Please see Table 1 which has all twenty-seven knowledge classifications from P. A. Alexander et al. (1991) and an additional four classifications from Hattan and Lupo (2020).

Students express knowledge through speaking about their experiences and processes before, during, and after reading (Hattan, 2024). *Knowledge co-creation* (or co-construction, as I term it for this study) refers to "inviting a whole group of students … to actively collaborate and negotiate with the teacher and each other, elements of the learning process" (Bovill, 2020, p. 1025). It occurs as students and teachers express their knowledge together and develops through productive classroom discourse (R. Alexander, 2020).

Knowledge revision involves the "revision of previously acquired but incorrect knowledge" (Kendeou et al., 2014, p. 375). As students participate in productive classroom discourse, they revise their knowledge to include new or expanded information on a topic. Students can then become cognizant of what they know and how it connects to the topic at large through use of *metacognition*. Commonly known as "thinking about thinking," metacognition refers to one's ability to monitor, evaluate, and plan out one's learning based on their interpretation and reading of text (Tobias & Everson, 2009). It can be engaged through *metacognitive knowledge* observed through productive classroom discourse, as observed when students share their thinking with their peers. *Metacognitive knowledge* refers to "knowledge about one's cognition and the regulation of that cognition" (P. A. Alexander et al., 1991, p. 332) and considers the person, the task, and the strategy (Flavell, 1979) as variables for metacognition. Person variables examine the self-assessment of one's strengths and weaknesses; task variables analyze the nature of what one is asked to do and the perceived cognitive processing required to complete it; and strategy variables consider what strategies a person has available to complete the task (Flavell, 1979).

In productive classroom discourse, metacognitive knowledge can manifest as thinking aloud or *verbal processing*, where participants "talk aloud about their thinking, problem solving,

and learning" (Bannert & Mengelkamp, 2008, p. 43). An example of this might be a student talking out their process for defining an unknown vocabulary word. The student (person) recognizes the word is new and they must learn what it means to understand the text (task), so they may engage with context clues or morphemic analysis (strategies) to ascertain its definition. As the student relays the information to their peers, others can observe their thinking about their own thinking and co-construct meaning; hence, metacognitive knowledge is made overt through productive classroom discourse.

In this study, *rigor* is observed as students participate in TB-SWDs. Per Matusevich et al. (2009), rigor refers to the creation and application of principles which support active engagement in learning that utilizes students' knowledge and holds them accountable for participation. Applying the National Assessment of Educational Progress' (NAEP; National Assessment Governing Board, 2024) cognitive targets for the 2026 assessment, establish a baseline of activity for what students are expected to do (e.g., Locate and Recall; Integrate and Interpret; Analyze and Evaluate; Use and Apply). Students then can take these targets up during discussion and participation to provide a lens through which rigor can be observed. Each target builds on the previous one to assist students in providing more cognitively complex answers.

In summary, the different types of knowledge and rigor are supportive of knowledge co-construction and revision, through productive classroom discourse. Together these concepts provide a foundation for students to make meaning from text.

Contribution of the Study

Because of the increased focus on students' knowledge as part of literacy overall in theory (Cervetti & T. S. Wright, 2020; Neuman, 2019; Snow, 2002) and use of diverse knowledge in reading as a part of equitable instruction (Knowledge Matters Campaign, n.d.),

there is a critical need for research that analyzes how students use their knowledge to think about, discuss, and revise the meanings they make from text. Additionally, this study offers a glimpse into the productive classroom discourse opportunities that can arise when students participate in extended discourse with minimal teacher intervention. Therefore, participation in student-led group discussions such as TB-SWDs can support their autonomy as students engage in rich discussions that support their higher-order thinking and knowledge co-construction. These knowledge use and classroom discourse opportunities must be included in the regular classroom rotation so as to support students' comprehension (Cervetti et al., 2016).

Despite their potential for engaging students in productive classroom discourse given their focus on open-ended and abstract questions and student-led discussions, TB-SWDs have a limited research base to support their use. As such, I first chose to examine the affordances and challenges of the method as used in five sixth-grade class periods in a Midwestern junior high school to establish a foundation for future studies. I also examined two key components of the TB-SWDs to determine how students continued to develop their skill-set: student-initiated goal-setting for discussions based on feedback given from the immediate discussion, and application of that feedback in subsequent discussions to support students' meaning-making. Finally, I analyzed the discussions for use of rigor, knowledge types, and discourse patterns to observe the process of students' meaning-making.

Through these objectives, my work contributes to the field in the following ways: a) provide information about a relatively novel protocol for collaborative text-based discussions, including its affordances and challenges; b) observe how students utilize their knowledge to make meaning from text; and c) delineate the specific levels of engagement students utilize in discussion using multiple texts, with limited teacher intervention.

Tables

Table 1

Types of Knowledge Commonly Referred to for Meaning-Making

Type of Knowledge	Definition	Example(s)
Conceptual knowledge (Alexander et al., 1991)	"Knowledge and ideas made up of content knowledge and discourse knowledge; comprised of what they are, how they function or operate, and the conditions under which they are used (Carey, 1985; Ryle, 1949)" (Alexander et al., 1991, p. 332)	"I agree because, like I know this is weird, but my mom always says that if everyone was the same, it'd be boring." (Alyssa, Unit 2 Discussion)
Conditional knowledge (Alexander et al., 1991; Hattan & Lupo, 2020)	"Knowledge of when and where knowledge (declarative or procedural) could, or should be, applied (Alexander & Judy, 1988; Paris et al., 1983)" (Alexander et al., 1991, p. 332) "Understanding of how and when to use other types of knowledge to make sense of a text" (Hattan & Lupo, 2020, p. S291)	"I reread the question to make sure I understood what it said." (Sami, Pilot Study) "I multiplied two times fifteen and then divided it by six to get five. How did you get your answer?" (Faisal, Pilot Study) "You are still thinking in terms which is awesome, but you're still thinking in terms of trying to add things into blend them." (Mrs. Lawrence, Pilot Study)

Table 1 (cont'd)

Construction (Alexander et al., 1991)	Where conceptual knowledge (e.g., the knowing of one's world and how to talk about it) and metacognitive knowledge intersect; supported by processing demands/prior knowledge (e.g., instantiation) and the textbase (e.g., one's knowledge and understanding written or oral communication) (Alexander et al., 1991)	Ms. Addams: "So what do you think might help you?" Jacob: "We look at the cards and go on Schoology." Ms. Addams: "Which do we want to start with?" Jacob: "Let's try number 6." (reads from card) Ms. Addams: "So did that happen in the book?" Jacob: "Yes, we heard it. We heard it, all right? And I remember." (all from Pilot Study)
Content knowledge (Alexander et al., 1991)	"Includes formal and informal knowledge of some aspect of one's physical, social, or mental world (e.g., Steffensen, Joag-Dev, & Anderson, 1979)" (Alexander et al., 1991, p. 332)	Ms. Lawrence: "Why did they take up painting?" Andrew: "It's an excuse, to make an excuse" (as to why the convicts in Alcatraz would take up painting to support their escape plan; both from Pilot Study)

Table 1 (cont'd)

Declarative knowledge (Alexander et al., 1991)	Factual information (Alexander et al., 1991)	Mr. Cooper: "It is a peninsula, meaning that is is surrounded by what? Three sides are, that are what?" Students: "Water." (both from Pilot Study)
Discipline knowledge (Alexander et al., 1991)	"Highly formal subset of domain knowledge; knowledge of an academic subject that is taught; a specialized field, or study, or particular branch of learning (e.g., Bazerman, 1985)" (Alexander et al., 1991, p. 332)	"So Russian, I mean, Soviet women were the first to pilot rescue missions in World War II. Lilya [female pilot] must have been so brave to be a double ace! [meaning she killed more than 10 enemies in air combat]" (Amelia, Pilot Study)
Discourse knowledge (Alexander et al., 1991)	"Knowledge about language and its use (e.g., McCutchen, 1986)" (Alexander et al., 1991, p. 332)	"So the rose growing through concrete is a metaphor for surviving through the toughest times?"
Domain knowledge (Alexander et al., 1991)	"More formal subset of content knowledge; a realm of knowledge that broadly encompasses a field of study or thought (e.g., Alexander & Judy, 1988; Glaser, 1984; Rabinowitz & Chi, 1987; Voss, Blais, Means, Greene, & Ahwesh, 1986)" (Alexander et al., 1991, p. 332)	"I love learning about Pokemon! I'm pretty much a Pokemon expert. Water Pokemon are my favorites" (Jacob, Pilot Study)

Table 1 (con'td)

Explicit knowledge (Alexander et al., 1991)	"Knowledge that is directly guiding on-going interaction with the world; analyzed knowledge; knowledge that is currently or usually the object of thought" (Alexander et al., 1991, p. 332)	"Why is it okay to talk about what's happening and people dying in the Ukraine, but not in Syria?" (Carter, Pilot Study)
Instantiation (Alexander et al., 1991)	Thinking about the world based on prior knowledge and the demands of processing it (R. Anderson, Pichert, Goestz, Schallert, Stevens, & Trollip, 1976) (Alexander et al., 1991)	"Why is it okay to talk about what's happening and people dying in the Ukraine, but not in Syria?" (Carter, Pilot Study)
Knowledge of plans and goals (Alexander et al., 1991)	"The goals individuals establish, or the general plans that they have internalized for themselves, that are influenced by affective understandings they have about themselves alone and in relation to others (Schallert, Alexander, & Goetz, 1988; Young & Schallert, 1988, 1989)" (Alexander et al., 1991, p. 332)	"I would have spoken up in the discussion, and I want to, but someone keeps talking too much" (unknown, from TB-SWD feedback graphic organizer)
Syntactic knowledge (Alexander et al., 1991)	"Knowledge of how words can be combined to convey meaning at the sentence level or below (e.g., cohesive ties, anaphora, McCutchen, 1986)" (Alexander et al., 1991, p. 332)	"So when I say, 'I like it and so do they,' I'm referring to how the audience in the play might respond" (Kevin, Pilot Study)

Table 1 (cont'd)

Metacognitive knowledge (Alexander et al., 1991)	"Knowledge of knowledge; knowledge about one's cognition and the regulation of that cognition (Garner, 1987; Flavell, 1987)" (Alexander et al., 1991, p. 332)	"So Mr. Daniels tutored Ally after, no that's not the first thing…" (Jacob, Pilot Study)
Metacognitive strategy knowledge (Alexander et al., 1991)	"Knowledge of strategies that allow one to monitor task completion or the attainment of one's goals (Garner, 1987; Wagoner, 1984)" (Alexander et al., 1991, p. 333)	"So if I use the butterfly method to multiply fractions, then I can figure out what 7/8 times 8/13 is." (Kenadie, Pilot Study)
Prior knowledge (Alexander et al., 1991)	"The sum of what an individual knows (e.g., Alvermann, Smith, & Readance, 1985; Lipson, 1983; Shuell, 1986)" (Alexander et al., 1991, p. 333)	
Procedural knowledge (Alexander et al., 1991)	"Knowledge one has of certain processes, or routines; can be described as 'knowing how' (J. Anderson, 1983; Ryle, 1949)" (Alexander et al., 1991, p. 333)	Jacob: "So I have to get into the Schoology somehow…" Ms. Addams: "So if I type in Schoology see that one that says Bowhull? We click on that one that directs us right where we need to be." (both from Pilot Study)
Rhetorical knowledge (Alexander et al., 1991)	"Sense of audience, style, or register (Flower & Hayes, 1984)" (Alexander et al., 1991, p. 333)	"Writing a letter to Ms. McHale asking for money for the new playground is different than asking your grandparents for money for ice cream." (Ms. Cohen, Pilot Study)

Table 1 (cont'd)

Schemata	"Knowledge represented in structures that are interconnected with, and embedded in, one another; sometimes related to the organization of conceptual knowledge or to all one knows about the physical, social, or mental world (R. Anderson, 1977; Rumelhart & Ortony, 1977)" (Alexander et al., 1991, p. 333)	"Learning to ride my bike was like when Harry Potter learned to fly on a broomstick for the first time." (Ms. Addams, Pilot Study)
Self (person) knowledge (Alexander et al., 1991)	"Knowledge of yourself as a thinker, learner (Flavell, 1985; Garner, 1987)" (Alexander et al., 1991, p. 333)	"Oh yeah, we were talkin' about…oh, yeah, I have a bad memory" (Fariq, Pilot Study)
Sociocultural knowledge (Alexander et al., 1991)	"Attitudes and beliefs about the world and how to interact with it that arise from being a member of a particular social group or culture (e.g., Heath, 1983; Rosenblatt, 1978)" (Alexander et al., 1991, p. 333)	"No. In Lebanon, it sucked. … You're allowed [to have your own opinions] but it sucks. Like they stole your money from the, they they don't they don't give you your money. … And the dollar is like 20,000 [of the Lebanese currency]" (Fariq, Pilot Study)

Table 1 (cont'd)

Strategic knowledge (Alexander et al., 1991; Hattan & Lupo, 2020)	"Knowledge of processes that are effortful, planful, and consciously invoked to facilitate the acquisition and utilization of knowledge (Alexander & Judy, 1988; Prawat, 1989)" (Alexander et al., 1991, p. 333) "Goal-directed processes that improve decoding and understanding of texts" (Hattan & Lupo, 2020, p. S291)	"Un- means what again? Not?" (Dylan, Unit 2 Discussion) "Your summary has the wolf as the main character and mine has the three pigs as the main character." (Sariah, Pilot Study)
Tacit knowledge (Alexander et al., 1991)	"Knowledge of which we are normally or not currently aware; unanalyzed knowledge (Prawat, 1989; Schallert, 1987; Schol, 1988)" (Alexander et al., 1991, p. 333)	Not knowing that in the United States, when an emergency response vehicle drives with its lights on coming in the opposite direction as you are driving, you pull over.
Task knowledge (Alexander et al., 1991)	"An understanding of the cognitive demands of a task (Doyle, 1983; Garner, 1987)" (Alexander et al., 1991, p. 333)	"So the question you're trying to answer is, 'is it better to fit in or stand out?' Make sure to support your answer with evidence from the text." (Ms. Cohen, Unit 2 Discussion)

Table 1 (cont'd)

Textbase (Alexander et al., 1991)	"Occurs at the interface of the individual's existing knowledge and the demands of understanding written or oral communications; involves the combination of macrostructures and microstructures (van Dijk & Kintsch, 1983)" (Alexander et al., 1991, p. 333)	"I agree with what Connor said because like I remember something [from the text] saying there's more car accidents and heart attacks [with Daylight Savings Time]." (William, Unit 1 Discussion)
Text-structure knowledge (Alexander et al., 1991)	"Conception of how units of language larger than sentences are combined or related (e.g., Mandler & Goodman, 1982; Meyer, Brandt, & Bluth, 1980; Ohlhausen & Roller, 1988; Taylor & Beach, 1984)" (Alexander et al., 1991, p. 333)	"Be sure to use the headings to guide you as you complete your worksheet today. That will tell you where to look for the information." (Ms. Addams, Pilot Study)
Topic knowledge (Alexander et al., 1991)	"The intersection of one's prior knowledge and the content of a specific passage or discourse (e.g., Freebody & Anderson, 1983; Hare & Borchardt, 1984)" (Alexander et al., 1991, p. 333)	"So this [scenario from Fish in a Tree] is a lot like when we read Al Capone [Al Capone Does My Shirts] because Piper and Shay were both mean. Piper tries to get Moose in trouble because he won't play with her and Shay ruins the flowers on purpose!" (Andrew, Pilot Study)
Word knowledge (Alexander et al., 1991)	"An individual's lexicon, the words one knows (e.g., R. Anderson & Freebody, 1981; McKeown, Beck, Omanson, & People, 1985)	"I would say that utopia is negative because it can't exist" (Griffin, Pilot Study)

Table 1 (cont'd)

Cultural and linguistic knowledge (Hattan & Lupo, 2020)	"Everyday experiences in which students engage peripherally or directly" (Hattan & Lupo, 2020, p. S291)	"My idea of a utopia would be in my home country on the beach. I used to live near the beach and it was perfect." (Anni, Pilot Study)
Principled knowledge (Hattan & Lupo, 2020)	"Knowledge of how ideas are connected to each other" (Hattan & Lupo, 2020, p. S291)	"In social studies we learned about types of government and I can't remember if a monarchy is good or bad" when making a dystopian country in English class (Carter, Pilot Study)

Table 1 (cont'd)

Knowledge of multimodal text (Hattan & Lupo, 2020)	"Texts that include two or more modes of representation" (Hattan & Lupo, 2020, p. S291)	"So the other day I was watching the Wild Kratts episode on bull sharks and I learned they could be found in fresh water. That's like the Great Lakes near us, right?" (Ariel, Pilot Study)
Knowledge of multiple text use (Hattan & Lupo, 2020)	"The ability to integrate information across documents and evaluate the trustworthiness of the sources" (Hattan & Lupo, 2020, p. S291)	"Shay [from *Fish in a Tree* (Hunt, 2017)] reminds me of Piper from *Al Capone* [*Al Capone Does My Shirts*; Choldenko, 2004]." (Jacob, Pilot Study)

CHAPTER 2—CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

This chapter focuses on the conceptual framing of the study and includes a literature review to highlight important background information for the research. First, I will share the conceptual framework that grounds the study. Then, I will provide context about the areas I will explore in the study: knowledge revision and use; productive classroom discourse in its many forms; the importance of sharing data and feedback resulting from the discussion with students; and the intersection of knowledge and dialogue to make meaning from text.

Conceptual Framework

This study is grounded in transactional theory (Rosenblatt, 1978, 1982), and sociocultural theory (Vygotsky, 1978) which explore the intersectionality between the text and the reader. I also position the work within connectivism (Downes, 2022; Siemens, 2004) as it prioritizes students' knowledge through productive classroom discourse to facilitate meaning-making between the text and the reader.

Transactional Theory

Rosenblatt's (1978) transactional theory refers to the interactions readers experience as they engage with the text. Readers approach text with a purpose, which can dictate the schema (or categories of information), experiences, and knowledge used as they comprehend. The transaction occurs between the reader's initial knowledge going into the text: the text either augments or confirms the knowledge through reading and making meaning to support schema development; then the revised schema becomes the operationalized knowledge base.

Rosenblatt (1982) also refers to the stance a reader takes as an essential part of the transaction. Three possible stances can be applied: efferent and aesthetic (Rosenblatt, 1982), and critical-analytic (Wade et al., 1994). An efferent stance is applied when the readers' purpose for

text interaction is to gain specific information, while an aesthetic stance is applied when the readers' purpose is to focus on feelings, themes, and abstract ideas from the text (Rosenblatt, 1982). A critical-analytic stance is applied when students analyze the text to question its point of view, assumptions, and beliefs (Wade et al., 1994). Each stance activates different sets of knowledge both in how students approach, and make meaning from text. Students in this study apply a combination of all three stances as they participate in productive classroom discourse, utilizing specific information to support their ideas (an efferent stance) while examining the text for larger, more abstract conceptualizations (an aesthetic stance) and assumptions the author makes (a critical-analytic stance). Use of all stances in concert requires students to selectively attend to different elements of the text as they transact with it (Rosenblatt, 1982).

In this study, the transactions for meaning-making and knowledge revision can be observed through students' participation in the whole-class discussions for productive classroom discourse. In Rudsberg et al.'s 2017 study, meaning-making is observed as students engage in text-based discussion. In their study at a Swedish secondary school, the focal student operationalized other students' statements and knowledge to make meaning (Rudsberg et al., 2017). The role of the peers' knowledge cannot be understated as it helped the focal student revise, critique, and improve his argument. Eeds and Wells (1989) observed that students who participated in literature circles with their peers were able to augment their understanding of the text based on the present discussion, and made connections to the text which other students could take up in discussion based on their knowledge.

The study is grounded in transactional theory (Rosenblatt, 1982) as students participate in transactions between the text, their knowledge, and their peers through TB-SWDs. Students also take on different stances through these transactions depending on the information they wish to

apply (Rosenblatt, 1982). Those who wish to share opinions or share their feelings about a text in the TB-SWD would use an aesthetic stance, while students who use text evidence to support or challenge their ideas take on an efferent or a critical-analytic stance, respectively. All stances are necessary to have a comprehensive understanding of the text.

Sociocultural Theory

I also use sociocultural theory to guide my work. Sociocultural theory posits that reading and learning are social endeavors, and that learning is situated within cultural contexts that influence how knowledge is constructed, negotiated, and shared through language (Vygotsky, 1978). Considering that each student applies various funds of knowledge (Moll et al., 1992) and cultural/linguistic experiences as they read, robust and multifaceted TB-SWDs can be made possible as students share their experiences to make meaning from the text. Ballenger's (2004) practitioner account of reading *The Three Robbers* (Ungerer, 1961) is a prime example. As she read with her preschool students, their answers to her comprehension questions did not align with the text. However, when she considered the cultural context of the students and their home lives, she recognized that their answers were aligned with what they knew to be true. Relatedly, Steffensen et al. (1979) introduced the same paradigm of recognizing the relevance of context, knowledge, and social conventions in their cross-cultural study on reading comprehension. In it, readers from India and the United States were asked to read two letters, each describing a wedding: one representing readers' own cultural background and the second representing the cultural background of the other group. Participants were asked to recall details from the letters and record them in writing. For the group reading the letter that described its own cultural framework of a wedding, reading speed was higher and more elements of the passage were recalled accurately (Steffensen et al., 1979). These works illustrate the support one's

sociocultural norms and experience can have as readers make meaning from text. In my study, students use their norms and lived experiences to engage with the text, co-constructing meaning through classroom discourse.

Furberg and Silseth's (2022) research also upholds the importance of students' knowledge for productive classroom discourse. In the study, lower secondary students in Norway (the equivalent of sophomores or juniors in the U.S.) used their funds of knowledge to better understand science content. The students connected what they were learning to examples from their own experiences, such as questioning if Spider-Man's ability to shoot webs was a hereditary condition due to the bite he received from the radioactive spider (Furberg & Silseth, 2022). As part of the interaction, the teacher introduced counterexamples of eating a sandwich and an apple to illustrate that taking in genetic material does not make you become that item (Furberg & Silseth, 2022). Both the question and the explanation used readily available knowledge students could tap into to further explore the concept through discussion. When students connect with their knowledge and the content as observed through sociocultural theory, they can ask questions, make assumptions and inferences, and broaden their understanding of a topic as they make their thinking overt through discourse.

Taking a sociocultural perspective, most importantly, establishes a context in which meaning-making can occur. As reading is a culturally situated process informed by social interactions, Furberg and Silseth (2022) argue that those interactions allow participants to "constantly make sense of and interpret situations, actions, and concepts while making their own interpretation visible and observable to others" (p. 184). This idea lends itself well to the back-and-forth of knowledge co-construction that occurs in TB-SWDs. Similarly Snow (2002), in her report for the Office of Education Research and Improvement, notes that reading is a

sociocultural event. Their four-part model considers the reader, the text, the activity, and the context as vital for comprehension (Snow, 2002). Considering multiple aspects for students' meaning-making supports their reading as they transact with the text.

Because making meaning is a complex and dynamic process that can change from section to section of their reading, students must have a wide range of tools in their toolbox as they use knowledge to talk about text (C. D. Lee, 2020). Vygotsky (1978) referred to language as one of the specific tools that can be used to help students understand the world. Knowledge of all types, including strategic knowledge and cultural/linguistic knowledge, could be considered another such tool. Students must have a wide range of knowledge at their disposal to successfully make meaning from text (Cervetti & T. S. Wright, 2020). For example, having cultural knowledge of how people dress and participate in celebrations in Holland, Ohio and Holland in the Netherlands can make a vast difference in how a student would discuss footwear one uses in winter celebrations[2]. Having principled knowledge or knowledge that illustrates how ideas connect between topics or subjects (Hattan & Lupo, 2020), could allow students to compare and infer information from articles about winter footwear, holiday traditions, and weather patterns in multiple countries. Here, students might learn that weather in the Netherlands in winter is very similar to Midwest spring weather (Weatherspark, n.d.) but both are vastly different from Australian winters, where the temperature ranges from 67 to 79 degrees Fahrenheit (Weatherspark, n.d.). Students could infer that Australian children might go to the beach in flip flops to celebrate Christmas, Dutch children put out waterproof boots or wooden clogs for St.

[2] In the United States where Holland, Ohio is located, children put stockings out on December 24 to be filled with treats. In the Netherlands, children celebrate St. Nicholas Day on December 5 by putting their shoes outside or by the fireplace with a carrot or hay in them for St. Nicholas' horse (Wappingers Historical Society, n.d.). St. Nicholas fills the shoes of good children with treats and of naughty children with salt.

Nicholas, and children in the Midwestern United States wear snow boots to play outside but some put out stockings for Santa. Relatedly, asking students to explain how they selected their answers to share and made the connections would be supportive of strategic knowledge (Hattan & Lupo, 2020). Therefore, being able to draw from multiple types of knowledge in a context-dependent situation is beneficial to observe how students make meaning from text.

Students' participation in the TB-SWDs supports sociocultural theory's application. Vygotsky (1978) indicated that learning and reading are social constructs that are situated within a certain context. In the study, classroom discourse is observed between and among students who bring their funds of knowledge into the TB-SWD. The format of TB-SWDs promote socialization: students sit in a circle looking directly at each other (Wiggins, 2017) and take up, challenge, and question their peers as they participate in productive classroom discourse. As students apply their knowledge to the context of the TB-SWD, they use tools such as different kinds of knowledge—e.g., textbase, strategic, cultural/linguistic, etc.—and their words to transact with their peers (Vygotsky, 1978). These elements highlight the social nature of reading and learning.

Connectivism

Finally, this study draws on connectivism (Siemens, 2004) to bring the elements of knowledge and productive classroom discourse together. Siemens (2004) posited that connectivism is "driven by the understanding that decisions are made by rapidly altering foundations" and that knowledge must be "connected with the right people in the right context in order to be classified as learning" (paragraphs 48 and 57); in other words, knowledge is developed from interactions with others. This definition encompasses both knowledge expression and co-construction, although in an indirect fashion. Knowledge expression is

derived from the internal connections the student makes through transactional theory as they read; knowledge co-construction is developed as students participate in productive classroom discourse, constructing and traversing the networks in a group setting.

Per the theory of connectivism, knowledge is not static (Siemens, 2004). Rather, knowledge is "unpredictable, unstable, uncontrollable and in continuous growth, which means that it goes beyond the total control of a person and might be in their external networks … constantly changing" (Cabrero & Román, 2018, p. 30). Therefore, knowledge can be co-constructed, augmented, or revised as it is transacted through classroom discourse and interactions with the text. Knowledge is also created through connection in communities (Downes, 2019), which supports the benefit of including multiple sets of perspectives and opinions through discourse. In community, students can observe connections between and among ideas (Attar, 2018; Cabrero & Román, 2018). TB-SWDs as taken up in this study promote community and dynamic knowledge co-construction as students participate in productive classroom discourse about text.

Connectivism can include other elements such as context, students' experiences and beliefs, and their current emotional state, which can be reflected in how they experience the text (Johansson et al., 2018). As such, connectivism supports students' interactions with knowledge through discourse as it intertwines multiple elements of their in-school and out-of-school lives to help them make sense of the text.

Siemens (2004) listed eight principles of connectivism, of which I focus on the three most relevant to the study:

1) “learning and knowledge rest in a diversity of opinions”; 2) “[the] capacity to know more is more critical than what is currently known”; and 3) “[the] ability to see connections between fields, ideas, and concepts is a core skill” (p. 61).

In this study, students use productive classroom discourse as the vehicle to make and share connections about a text, bring to light their diverse opinions and experiences, and build knowledge together such that the collective meaning made is greater than the sum of its individual ideas.

Literature Review

Productive Classroom Discourse

Productive classroom discourse allows the teacher and students the ability to learn and negotiate meaning together (Bovill, 2020). In her study on using discourse to learn to make writing moves in argumentative responses, VanDerHeide (2018) found that as students participate in classroom discourse, they may internalize how they participate and independently transfer these notions into other aspects of their lives. Students may also accrue new or modify existing knowledge through discussions, which can support how they make meaning from a text (Neuman, 2019).

Its *dialogic* nature, where students co-construct knowledge by asking and answering open-ended questions and support their claims with evidence (Bakhtin, 1981), is generative. This is considered a departure from *monologic talk*, which is teacher-controlled and uses closed-ended questions to derive a standardized set of answers (Bakhtin, 1981). This style of classroom discourse is highly prominent and is manifested through initiate-respond-evaluate or I-R-E (Mehan, 1979). Monologic talk allows teachers to quickly check students’ answers or evaluate knowledge; and productive classroom discourse encourages students to dig deeply into a text to

support their answers with evidence. Therefore, both types of classroom discourse are essential to understand how students make meaning from a text.

Productive classroom discourse invites students to build on, contradict, question, and support answers to generate new or expanded lines of thinking (Nystrand et al., 2003; L. B. Resnick et al., 2015). When students engage in extended opportunities for expression and co-construction of knowledge, they can explore others' perspectives (LaRusso et al., 2016) and develop complex reasoning as they talk about text (T. S. Wright et al., 2019). As such, dialogue can be considered an expansion of literate practice (Janfada et al., 2022). Janfada et al. (2022) posit that dialogic teaching supports students' thinking and doing, in turn promoting deeper understanding of how they make meaning from text. Students' participation in TB-SWDs could support their schema development as they transact between the text and what they know to cultivate understanding.

Boyd and Markarian (2015) found the function of the talk as an important factor in productive classroom discourse. There were three specific markers of what they termed "dialogic stance," as observed in their study of a teacher's interactions with his students (Boyd & Markarian, 2011). They found that a teacher's "*response-ability*" (p. 279) or how the teacher listens and subsequently responds to a student; the *language of possibility* the teacher uses to engage students in the discussion; and the classroom norms which created a *dialogic local space* led to productive classroom discourse. When these features are skillfully applied by teachers while using I-R-E-style questions within dialogic talk, there are more possibilities for productive classroom discourse (Boyd & Markarian, 2011). For example, in his third grade classroom, teacher Michael's response to Teresa's unwillingness to share her reading journal aloud with the class led to a rich discussion stimulated by an I-R-E question. By providing a short summary and

commentary on her journal entry, he facilitated a discussion stemming from the question "so there's an orphanage involved?" (Boyd & Markarian, 2011, p. 10). In his excerpts, he is observed using language of possibility statements such as "maybe" or "usually" to keep the discussion open to other perspectives. He also upholds classroom and discussion norms through such behaviors as taking up students' contributions, refocusing their discussion on occasion, and provoking thought with follow-up questions. These actions are taken due to his active listening to the students' answers in the discussion, creating a dialogic local space for "response-ability." As such, taking up a dialogic stance with I-R-E-style questions during dialogic talk such as that outlined by Boyd and Markarian (2011, 2015) is supportive of productive classroom discourse.

The findings of Boyd and Markarian (2011, 2015) regarding the role of dialogic talk in fostering productive classroom discourse are supported by the K-12 Common Core State Standards for speaking and listening. Within each grade level, students are expected to engage with diverse topics; build arguments; support their claims with evidence; and follow appropriate norms for the task and the audience (National Governors Association, 2010). Therefore, engaging productively in discussion is scaffolded to support students' learning throughout their school career.

As such, there are many benefits to students' participation in productive or dialogic classroom discourse. Teachers' facilitation of productive classroom discourse supports students' persuasive writing outcomes (Al-Adeimi & O'Connor, 2021) and text comprehension (Murphy et al., 2009). In Al-Adeimi and O'Connor's (2021) study, classrooms with high dialogic talk—that is, teacher talk that provided opportunities for students to participate through open-ended questions and teacher-initiated follow-ups such as press for reasoning—were supportive of students' persuasive writing development, whereas classrooms with low dialogic talk were not

(e.g., I-R-E). Murphy et. al.'s (2009) meta-analysis analyzed articles which examined how group discussions could be used as a mechanism to support critical thinking. They found that many of the studies and dialogic approaches such as Instructional Conversations (Tharp & Gallimore, 1991) and Questioning the Author (Beck & McKeown, 2006) were highly effective at promoting students' comprehension and critical thinking about text; and that the approaches increased student talk while decreasing teacher talk (Murphy et al., 2009). However, Murphy et al. (2009) also found that few approaches increased student talk, comprehension, and critical thinking all together.

Moreover, students not only benefit from participation in productive classroom discourse, but they also learn how to develop argumentative reasoning through such engagement. In their study, Kuhn and Crowell (2011) asked students to write answers to prompts for contestable topics, then engaged in virtual small-group and in-person whole-group debates to defend their argument. This process was shown to develop students' argumentative reasoning as they had multiple opportunities to make, support, and defend their claims.

While productive classroom discourse supports learning outcomes, this kind of discourse is rare (Elizabeth et al., 2012; Howe & Abedin, 2013; Nystrand et al., 2003; Reisman, 2015). In their landmark study, Nystrand and colleagues (2003) observed 872 interactions in 200 eighth- and ninth-grade English language arts and social studies courses and found that teachers typically default to monologic discourse or I-R-E without a dialogic stance. While student questions generated higher levels of discourse that engaged critical thinking, those questions were few and far between (Nystrand et al., 2003). Elizabeth et al.'s (2012) study reflects similar findings in that there was a consistent pattern of I-R-E interactions in the classrooms they observed, which "diminishes the opportunity for self-appointed student participation necessary

for conversational depth among learners" (p. 1238). In her study of high school history courses, Reisman (2015) also found that disciplinary discussion which and discussions that supported deep learning for historical understanding were exceedingly rare. However, these results go beyond just social studies/history and language arts courses in the United States as noted in the Nystrand et al. (2003), Elizabeth et al. (2012), and Reisman (2015) studies. Howe and Abedin (2013) found that, in their systematic review of 225 studies over four decades, 70% of the classrooms across content areas[3] and countries[4] upheld traditional classroom practices reflective of teacher-centric monologic talk. The findings of these studies along with Myhill's (2006) study of teachers' discourse episodes structured to support students' learning, indicate that the teacher's voice is the most common in the classroom and can diminish students' opportunities to participate.

Appropriate scaffolds also support productive classroom discourse. Explicit instruction about dialogic interaction is one such scaffold; it establishes expectations for the discussion and models the desired strategies for students' participation. Programs such as Quality Talk (Murphy et al., 2018) feature explicit instruction on elements of questioning and argumentation and how to participate in discussion with others. Students are then provided with opportunities to participate in text-based discussions using the Quality Talk protocols. As they engaged in these scaffolded discussions, students became more critical and analytical in their thinking as their teachers gradually released responsibility of the discussion to them (Murphy et al., 2018).

[3] Computers, cooking, native language literacy, foreign language literacy, math, science, philosophy for children, social sciences, and "unclear" (Howe & Abedin, 2013)
[4] Australia, Brazil, Canada, Chile, China/Hong Kong, Finland, France, Germany, Greece, India, Iran, Israel, Italy, Japan, Kenya, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Russia, Singapore, South Africa, South Korea, Spain, Sweden, Tanzania, the United Kingdom, and the United States (Howe & Abedin, 2013)

Use of guiding questions (Rydland & Grøver, 2019; Zucker et al., 2020), or questions used to assist students in identifying facts or defending an answer, are another way to scaffold students' participation. Rydland and Grøver's (2019) study found that use of guiding questions cultivated argumentative elements in the discussion supported students' reading comprehension; that is, the use of guiding questions aided students in high-level engagement with the text. Zucker et al. (2020) specifically refer to upward and downward scaffolds which allow the teacher to increase or decrease the cognitive difficulty of the interaction based on the student's answer. Upward scaffolds are guiding questions that lend themselves to more abstract thinking and reasoning, whereas downward scaffolds are questions that narrow in on concrete details to be recalled from a text (Zucker et al., 2020).

However, the teacher's transition to a "guide on the side" rather than a "sage on the stage" (King, 1993) is also necessary to allow students time and space to discursively grapple with the topic at hand. Pierce and Gilles (2021) made explicit that students need to actively practice productive classroom discourse. Clarke and Holwadel (2007) stated that teachers do not always have the time necessary to devote to text-based discussions, but students need opportunities to co-construct knowledge through productive classroom discourse. Because the questions that cultivate productive classroom discourse are open-ended and typically more complex than those used in I-R-E interactions, teachers must prepare to "spend more time listening to their students and less time talking to them" (Pierce & Gilles, 2021, p. 387)

Therefore, productive classroom discourse is a multifaceted concept. Dialogic in nature and highly rare (Elizabeth et al., 2012; Howe & Abedin, 2013; Nystrand et al., 2003; Reisman, 2015), the most productive classroom discourse creates space for students to negotiate meaning with the text, their knowledge, and each other (Bovill, 2020; Reznitskaya, 2012). It also requires

skillful navigation of current pressures: time to facilitate the discussion (Clarke & Holwadel, 2007); and providing in-the-moment scaffolds and explicit instruction that facilitate deeper and more nuanced thinking (Murphy et al., 2018; Pierce & Gilles, 2021; Rydland & Grøver, 2019; Zucker et al., 2020).

Methods of Productive Classroom Discourse

Many researchers have developed protocols or pedagogies to increase the amount of productive classroom discourse. These include but are not limited to instructional conversations (Tharp & Gallimore, 1991), Paideia Seminars (Adler, 1982), Questioning the Author (QTA; Beck et al., 1997), Accountable Talk (Michaels et al., 2008), the Fishbowl Method (Priles, 1993), Collaborative Strategic Reading (CSR; Klingner et al., 1998), Quality Talk (Murphy et al., 2018), Word Generation (Snow et al., 2009), and the Socratic Method. In this dissertation, protocols and pedagogies will be introduced from least structured to most structured, apart from the Socratic Method, which informs the discourse protocol used in the study, known as Spider Web Discussions utilizing text (Wiggins, 2017).

Instructional Conversations. Tharp and Gallimore (1991)'s instructional conversations assist students' task and text comprehension in their zone of proximal development, or the distance between what a student can do independently and what a student can do with help (ZPD; Vygotsky, 1978). To do this, Tharp and Gallimore considered students' out-of-school learning through talk to support students' in-school learning. They posited that instruction could be best done through "assisted performance" (Tharp & Gallimore, 1991, p. 2) and scaffolding with talk through the student's ZPD, stating "[t]o truly teach, one must converse; to truly converse is to teach" (Tharp & Gallimore, 1991, p. 4). To truly converse, teachers must assume that the student has valuable knowledge to contribute, and it can be derived from listening

carefully to what the student says to infer the meaning of the communication. Then by adjusting their responses, teachers can help students better participate in the discussion. Tharp and Gallimore's pedagogy aimed to help teachers encourage students to use higher-order thinking through talk.

Paideia Seminars. Paideia Seminars are a "method of teaching intended to engage students in discussion of ideas … and values" (Adler, 1982, p. 29). They prioritize student-centered discussion where participants freely exchange ideas and co-construct knowledge together (Billings & Fitzgerald, 2002), supporting students' analysis and synthesis of text (Awada & Ghaith, 2018). Ultimately, the goal of a Paideia Seminar is to support students' higher-order comprehension of text through classroom discourse centered on an open-ended question (Awada & Ghaith, 2018; Roberts & Billings, 1999). To that end, teachers support students in the discussion through prompting questions, acting as a neutral observer, and mapping students' interactions to observe how they participate (Roberts & Billings, 1999).

Questioning the Author. Beck et al. (1997) developed Questioning the Author (QTA) to help students build understanding of text by asking and answering questions, or Queries, in the moment which stem from the notion that authors are fallible (e.g., that ideas are written down by people but may not be complete; Beck & McKeown, 2001). Students then use the discourse generated by the Queries to "collaboratively construct ideas from what they are reading" (Beck et al., 1997, p. 7) rather than rely only on prior knowledge. Queries are questions from teachers to engage students in discussion about the perspectives and authorial decisions made during the writing of the text and include three types: determining what the author is communicating, identifying the message, and ascertaining the meaning of the text (Beck et al., 1997). Teachers

could use these questions to draw attention to the most important ideas in the text, going beyond topical investigation of the content to more nuanced comprehension.

The goal of Queries is to "prompt students to consider meaning and develop ideas rather than retrieve information and state ideas" as they [Queries] "place the responsibility for thinking and building meaning on students" (Beck et al., 1997, p. 7). Further, use of Queries can encourage students to dive into the text, clarify ideas, and interact with each other to discuss their thinking.

In their implementation of QTA, Beck and McKeown (2001) observed that teachers' Queries shifted from I-R-E and direct recall to considering, making, and extending meaning. As a result of questions probing for depth as asked by the teachers, students responded in kind. They prioritized higher-order thinking abilities such as synthesis and idea integration, building on each other's ideas and engaging in dialogic discussion (Beck & McKeown, 2001).

Accountable Talk. Michaels et al. (2008) introduced Accountable Talk practices, including support of ideas with evidence. Typically characterized through "talk moves" in which a teacher uses an utterance to get participants to respond in a specific manner or contribute information (O'Connor & Michaels, 2019), Accountable Talk helps teachers and students establish norms for productive classroom discourse. Michaels et al. (2008) prioritized accountability through their talk protocol in three ways: accountability to the learning community so students can agree, challenge, elaborate, or extend discussion; accountability to standards of reasoning to draw logical conclusions and connections through modifying or elaborating on one's thoughts; and accountability to knowledge in which students provide, challenge, and co-construct knowledge.

Multilingual students also benefit from using Accountable Talk protocols to support their learning. Ardasheva et al. (2016) found that multilingual students who engaged with Accountable Talk reported that the quality of classroom interactions was better; that they had more and expanded learning opportunities; and that they could be more equal participants in group discussions having been explicitly taught how to participate. Specifically, Accountable Talk's introduction of classroom norms and routines along with provision of ample opportunities for teacher modeling, student practice, and feedback bred success for students (Ardasheva et al., 2016).

Fishbowl Method. The Fishbowl Method is a technique designed to "increase student engagement, critical thinking, and interpersonal communication skills during group discussions" (Meyer et al., 2021/2022, p. 30). First introduced in 1993 by Maria A. Priles, the technique was used to promote students' discursive interactions with contestable questions. It can be conducted in small groups or with the larger group depending on the teacher's preference and classroom dynamics.

While some different configurations of the method exist, the most common version involves students sitting in two concentric circles. All students face inward and are visible to each other (Cummings, 2015). Students in the inner circle actively participate in the discussion and students in the outer circle listen, take notes, and prepare to enter the inner circle (McKeachie, 2002). Because students in the outer circle can switch into the inner circle, all students can both share their thoughts and prepare for the discussion (Meyer et al., 2021/2022).

While notably student-focused, the teacher does play an active role in facilitating the fishbowl (Priles, 1993). Teachers can act as "participants, consultants, supporters, devil's advocates, interpolators, facilitators, guides, overseers, and instructors" (Priles, 1993, p. 50).

Zhang (2013) emulated the Fishbowl Method in a college course using a roundtable method with similar results, noting that the discussion was indeed teacher-led but allowed students opportunities to demonstrate and apply their learning.

Collaborative Strategic Reading. Klingner and Vaughn (1999) created the Collaborative Strategic Reading (CSR) protocol to encourage collaborative discussion about content-area text within small mixed-ability groups (e.g., striving readers, readers on Individualized Education Plans, and readers at or above grade level). As they used the protocol, students were assigned to a group and a specific comprehension strategy to deploy in the discussion as they supported each other through the reading. The four strategies are 1) previewing, where students share what they know about the topic and make predictions about the text before reading; 2) click and clunk, to identify words and concepts that may be unfamiliar or difficult during reading, and use fix-up strategies to remedy when comprehension breaks down; 3) get the gist, or finding the most important idea of a small section of reading; and 4) wrap-up, when a student summarizes the reading and generates comprehension questions (Klingner & Vaughn, 1999).

CSR has also been found to support reading comprehension (Sulistyani et al., 2022; Vaughn et al., 2011); per Klingner et al. (1998), the strategy has been highly successful with students with learning disabilities and multilingual learners due to the scaffolding and use of roles and small-group structure for discourse. Teachers found CSR to support all students' reading development, including multilingual learners; students with disabilities; and striving readers due to the explicit instruction in reading strategies and multiple opportunities to participate in class discussion (Annamma et al., 2011). Specifically, Boardman et al. (2018) found that CSR lessons had higher amounts of productive classroom discourse as opposed to

control lessons. The authors' observations included more talk turns and more discourse in general between teacher and students; higher amounts of student-to-student talk which built upon and challenged existing paradigms; and less teacher talk in the CSR lessons (Boardman et al., 2018). These discussions centered students' knowledge and supported students' comprehension as they used reading strategies to engage with text.

Quality Talk. Murphy et al. (2018) created the Quality Talk protocol to "increase students' high-level comprehension by encouraging students to think and talk about, around, and with the text" (p. 1120). Quality Talk implementation has four components: the ideal instructional frame, discourse elements, teacher discourse moves, and pedagogical principles (Murphy et al., 2017b; Murphy et al., 2018; Wilkinson et al., 2010). As part of the ideal instructional frame, students receive explicit instruction in discourse moves and how to respond to a peer critically and analytically. Then students are placed in small groups after reading and completing a pre-discussion task in which they prepare for the discussions. During the discussion, all students in the group have shared control and the teacher acts as a facilitator to scaffold the discourse as necessary. They can respond individually through elaborated explanations, or co-construct knowledge with peers through exploratory and cumulative talk (Murphy et al., 2017b). Students use elaborated explanations when they provide prolific detail for their answer in a single turn (Soter et al., 2006).

Conversely, students can engage in exploratory talk or cumulative talk in groups. Mercer (2002) describes exploratory talk as occasions where students build knowledge together via classroom discourse in a critical and constructive way; that is, through challenges, rebuttals, and production of evidence to make progress toward agreement. Cumulative talk, on the other hand, occurs when students co-construct knowledge together but do not challenge each other (Mercer,

2002). These elements, as well as others, assist students in thinking critically and analytically about a text (Murphy et al., 2018).

Word Generation. Available for elementary (fourth and fifth grades) and middle school students (sixth through eighth grades), Word Generation features a series of weekly high-interest topics where students receive both explicit instruction in vocabulary and opportunities for academic discussion across the content areas (Strategic Education Research Partnership, n.d.). Resulting from the Reading for Understanding project, students who participate in Word Generation engage in analytic reading, writing, reasoning, discussion, argumentation, and vocabulary learning to answer a contestable question (Strategic Education Research Partnership, n.d.). Topics include "mummies: who owns the dead?," "after-school jobs: harmful or helpful for middle and high school students?," and "do the benefits of renting a pet outweigh the potential harm it can cause animals?" (Strategic Education Research Partnership, 2020). During the week-long units, students engage with thematic math, science, language arts, and social studies lessons correlated to the topic as they develop a position, concluding in a debate where they select and defend their position based on accumulated evidence (Strategic Education Research Partnership, n.d.).

Snow et al. (2009) conducted a quasi-experimental study to analyze the effect of Word Generation curriculum on students' vocabulary development in ten secondary schools in Boston (six treatment, four control). Students who participated in the treatment condition schools—that is, who had the Word Generation curriculum administered—learned more of the targeted vocabulary words than control schools (Snow et al., 2009). Multilingual learners especially benefited from the instruction, per the results.

Lawrence et al. (2015) examined how students in Word Generation's participating schools would have higher quality discussions and have improved vocabulary knowledge; specifically that higher quality discussions would have an impact on how students learned the meaning of the words. They found that classes in schools who used Word Generation had higher amounts of discussions especially in math classes than those in control schools, and that schools using Word Generation had greater-than-average achievement in learning the prescribed words as facilitated through discussion (Lawrence et al., 2015). A later study conducted by Lawrence et al. (2017) tested the impact of Word Generation on students' vocabulary and comprehension. Students in the treatment schools made small but still significant gains in their vocabulary, most notably within the content areas through writing and math (Lawrence et al., 2017).

Al-Adeimi's (2018) dissertation examined teacher-facilitated and student talk during whole-class discussions to investigate how the discussion supported students' writing. She found that high participation in classroom discourse resulted in higher essay scores (Al-Adeimi, 2018). The contestable questions that comprise the Word Generation units provided students with opportunities to support their claim with evidence; and that students' exposure to different perspectives was facilitated through use of the contestable questions, which may have supported their persuasive writing (Al-Adeimi, 2018).

Overall, Word Generation is highly supportive of students' learning through classroom discourse. Benefits are reported from both language arts and content courses regarding students' improvement in writing (Al-Adeimi, 2018; Lawrence et al., 2017) and vocabulary learning (Lawrence et al., 2015, 2017; Snow et al., 2009)

Socratic Method. The Socratic Method is used to promote discussion in classroom settings through small- and/or whole-group discussions. The approach is traced to Socrates (469-

399 BCE) who encouraged his followers to carefully question and examine information to create informed opinions. Socratic Seminars are typically used with philosophical ideas or an open-ended topic on which students can establish a claim and defend it with evidence. Therefore, Socratic Seminars enable middle- and high-school students to "talk about, reason through, and socially construct the meaning of data through collaborative dialogue" (Griswold et al., 2017, p. 492). Reich (2003) indicates that in a Socratic Seminar discussion, teachers are participants and learners as much as students are. Rather than acting as the authority, teachers design a participatory experience and share power with students to come to a dialogic understanding.

Spider Web Discussions. This dissertation will analyze the application of a dialogic strategy based on Socratic Seminars called Spider Web Discussions (Wiggins, 2017), or TB-SWDs when coupled with a text set. TB-SWDs were chosen because they center the students' perspectives and knowledge about the text with minimal interventions from the teacher; they are intended to be student-led (Wiggins, 2017). Data are collected by the teacher during the discussion, who traces the flow of the discussion and takes observational notes on the proceedings. Such data can include but is not limited to the number of speakers, connections made to the focal text or additional texts, and important ideas brought up within the TB-SWD session. This information is shared with students at the end so they can create a group goal to improve their discussion for the next iteration. The feedback component allows students to reflect on their discussion and establish indicators for future performance, which is important for scholars and educators to understand given that self-reflection is a key part of learning. When students use data to analyze their individual and collective participation in the discussion, they can metacognitively and strategically evaluate their next steps to monitor their learning and develop agency (Hallstead & Nash, 2020).

TB-SWDs encourage a collaborative classroom culture where students use discussion and inquiry to solve problems, then self-assess their discussion to determine opportunities for growth (Wiggins, 2017). Spider Web is an acronym for all the components of a good discussion per Wiggins: **s**ynergetic; **p**racticed like a process; **i**ndependent with enough teacher direction to begin but limited afterward; **d**eveloped with evidence from the text; **e**xploratory in nature; and utilizing a clear **r**ubric for students to evaluate the discussion (Wiggins, 2017). "Web" is part of the name because one person traces the flow of discourse to provide information for a debrief afterward. In a TB-SWD, teachers introduce an abstract but contestable question, observe the conversation by using a discussion map to track the speakers' participation (see Figure 1), and provide opportunities for students to assess themselves with a group grade.

TB-SWDs can be used in classroom units of study, as wide or as open-ended as "dystopia" or "Roman civilization" or as narrow as one book. As such, TB-SWDs can be used with narrative and expository texts, and a variety of subjects, genres, and ideas across grades. They are held after several days of instruction on the topic(s) and augment the traditional method of teacher-centric classroom interaction by placing the onus of the discussion on the students. As such, TB-SWDs make students' thinking and understanding of a given topic visible, as they co-construct knowledge to negotiate meaning from a complex concept.

What sets TB-SWDs apart from other methods such as those mentioned above is its focus on actionable data. As the teacher traces and codes the discussion (see Figure 1 for a sample discussion map), they collect data on the group's strengths and opportunities for growth. At the end of the discussion, the students debrief about the discussion process using an open-ended teacher-initiated prompt such as "How did it go? What went well? What can be improved?" The teacher then shows the discussion map and contributes to their feedback about the discussion,

marking changes from previous discussions and other reflective notes. Then the group self-evaluates their performance on a five-point rubric correlated to letter grades (see Appendix C for the rubric) based on the feedback given and sets one to two goals to improve subsequent discussions. Goals can include "everyone talks," "use more text to challenge the question," or "support answers with evidence." Students also have an opportunity to individually reflect on their post-discussion graphic organizer (Appendix F).

In collaboration with the teachers in the study, I added to the TB-SWD design by providing graphic organizers for students. Before the discussion, students took inventory of what they know by using evidence from text and knowledge from their schemas on pre-discussion graphic organizers (see Appendix E), then use the graphic organizers during the discussion to express and co-construct knowledge. At the end of the discussion, students complete a self-reflection graphic organizer (Appendix D) and include information from the TB-SWD about how their knowledge may have changed as a result. Then, students will take responsibility for their participation and preparation as they use the provided rubric to "grade" their efforts, then create a plan to improve the quality of the discussion for next time. These graphic organizers serve as an additional formative assessment to evaluate students' application of knowledge to the text. Especially helpful for students who may feel insecure participating, the graphic organizers allow them to demonstrate their learning even if they do not engage in the discussion.

Classroom examples of TB-SWDs exist in the research; for example, Giamellaro et al.'s (2019) instructional article on how to utilize TB-SWDs in science class or Coppens' (2020) experience facilitating a TB-SWD about the Flint, Michigan water crisis. I aim to add an empirical component to the understanding of TB-SWDs through this study design. Other papers such as the study from Eldstål-Ahrens et al. (2022) posit how students engage in tasks within

mediated group discussions using elements like those found in TB-SWDs, but do not promote a collaborative culture or self-reflection based on data. TB-SWDs capitalize on the social nature of knowledge co-construction and how to use data to improve discussion and learning.

Similarities Between Paideia Seminars, Fishbowl Method, Socratic Seminars, and TB-SWDs. Four classroom discourse protocols share multiple similar characteristics: Paideia Seminars, the Fishbowl Method, Socratic Seminars, Quality Talk, and TB-SWDs. Setup for the discussions is very similar: students participate in whole group discussions seated in a circle or square so they can see each other, and open-ended questions are asked for maximum discursive impact. Also, Paideia Seminars, the Fishbowl Method, Socratic Seminars, and TB-SWD all prioritize students' skill development and knowledge co-construction through classroom discourse. Students must come prepared for the discussions (Meyer et al., 2021/2022; Wiggins, 2017; Zhang, 2013) and be ready to engage. In Fishbowl Method discussions, the outer circle takes notes to revise their thinking and maintain engagement (Meyer et al., 2021/2022). In Paideia Seminars, Socratic Seminars, and TB-SWDs, students come with notes in hand to support their participation (Billings & Fitzgerald, 2002; Reich, 2003; Wiggins, 2017).

The teacher also plays a role to some degree in all four methods of discussion. The Fishbowl Method and Socratic Seminars tend to have a larger focus on what the teacher can do during the discussion, serving as an active participant (Priles, 1993; Reich, 2003), whereas in the Paideia Seminars, the teacher has a more removed but still active role as a coach. As part of the Paideia Seminars, the coach acts as a facilitator only by asking pre-planned open-ended questions and collecting data through observation (Billings & Fitzgerald, 2002). In theory, Paideia seminars and TB-SWDs appear to be highly similar. Both encourage students' participation by positioning the teacher as a data collector and coach; however, TB-SWDs extend

the discussion by providing feedback from the discussion to students and supporting students' self-reflection and goal-setting after the feedback is shared with them (Wiggins, 2017).

Summary. Various pedagogical approaches for productive classroom discourse exist; what matters is finding the one that suits the purpose for the discussion. Discussion protocols that require more structure and are disciplinary focused provide explicit detail on what to do and time to practice it (Klingner & Vaughn, 1999; Murphy et al., 2009). Other protocols are more organic and spontaneous (Tharp & Gallimore, 1991). Still others offer a balance between teacher facilitation and student participation in a semi-structured format (Klingner & Vaughn, 1999; Priles, 1993; Wiggins, 2017). While each discussion style is suited for different outcomes, what should be prioritized is students' participation and the objective at hand.

Support for Sharing Data and Feedback with Students

Data sharing and feedback sessions are a defining feature of TB-SWDs and set them apart from other discussion protocols. The data collected from TB-SWDs can be considered part of a formative assessment. Cowie and Bell (1999) define formative assessment as "the process used by teachers and students to recognize and respond to student learning in order to enhance that learning, during the learning" (p. 32). Additionally, the United Kingdom's Assessment Reform Group indicates that assessment to improve learning must have the following characteristics:

> 1) providing effective feedback to students; 2) actively involving students in their own learning; 3) adjusting teaching to take into account the assessment results; 4) recognizing the profound influence assessment has on students' motivation and self-esteem …; (and) 5) needing students to be able to assess themselves and understand how to improve. (Wiliam, 2018, p. 41)

These elements of assessment provide crucial information for students. When teachers provide effective and usable feedback after an activity, students can self-assess their performance and become invested in their own learning (Tucker & Novak, 2022). This sharing of data can be highly motivating for students to continually improve, especially because it "returns voice and ownership to the students" (Bingham et al., 2010, p. 59). Additionally, students can develop deeper content understanding and become critical and reflective thinkers as they engage with self-assessment of their own data (Munns & Woodward, 2006).

Discussing or sharing data and feedback with students, either through a self-evaluation or a teacher-facilitated endeavor, has been shown to support their academic performance. For example, Yadin (2014) conducted an experiment with undergraduate students in a software engineering course wherein their scores on assignments were tracked; some students had access to a spreadsheet tool comparing their relative performance on the assignment to the class' overall performance and others did not. Over the course of the semester, students who had access to the spreadsheet tool performed better on assignments and attained higher grades than those without access to the tool. Additionally, students' use of higher-order thinking skills and metacognition increase when they can collaboratively regulate and reflect on their learning (De Backer et al., 2017; John-Steiner & Mahn, 1996).

Data can also be shared and used to help students set attainable goals. There are two different kinds of goals: mastery and performance (Ames & Archer, 1967). Mastery goals prioritize students' mastery and competence at a task, and performance goals focus on how one's performance compares to others (Ames & Archer, 1967). An example of a mastery goal is learning the alphabetic principle. It can be mastered because it can be completed with finality—once all twenty-six letters and forty-four sounds are mastered, there are no more sounds and

letters to learn in the English alphabet. Performance goals are to continually improve one's abilities or concepts of which one can only accrue more, such as learning vocabulary words. Raluy and Mislang (2022)'s study on student goal-setting with explicit instruction and peer support indicated that making public one's data and goals (in this case, through logbooks or Google doc records) encouraged reflection and accountability with freshman undergraduate classes, constituting a performance goal.

Overall, sharing students' data with them supports their growth (Yadin, 2014) and holds them accountable for their learning (Raluy & Mislang, 2022). Specifically, reflection on the data provides an outlet for students to evaluate their thinking (De Backer et al., 2017; John-Steiner & Mahn, 1996) and improve for next time (Pierce & Gilles, 2021).

Knowledge for Meaning Making

Types of Knowledge and Knowledge Use. There are several important types of knowledge that were considered for this study including prior, background, strategic, metacognitive, principled, conceptual, disciplinary, sociocultural, textbase, cultural/linguistic, and principled knowledge. *Prior knowledge* is all that we know (Hattan, 2024) and takes into consideration prior experiences as a baseline for meaning-making (Bråten et al., 2020; see Table 1) whereas *background knowledge* refers to "concepts, experiences, information, and text structures that are relevant to a text under study" (Brody, 2001, p. 241). Background knowledge use has been shown to support students' text comprehension and growth in thinking—this idea has been well-researched (e.g., Gaultney, 1995; Recht & Leslie, 1988; Tarchi, 2010) . As students use background knowledge to engage in reading, they infer information to better understand what they read (Adams et al., 1995) and their domain knowledge can increase (Snow,

2002). Students' recall of information is also stronger when they have background and content knowledge to apply to the text (Gaultney, 1995).

Building background knowledge is vital for students of all backgrounds and economic statuses. Ness (2019) stated that, "Teachers cannot assume that we must build background knowledge only for children from lower economic backgrounds" (p. 37). She reinforced the importance of establishing a foundation of knowledge with several examples. Among them, Ness (2019) shared about students in rural areas who may have difficulty connecting to the urban scenes depicted in *Last Stop on Market Street* (de la Peña, 2015) or students who live in the desert who may not have experience with snow as their teacher reads them *The Snowy Day* (Keats, 1962). Because of the wide-ranging experiences and cultures in which students are immersed, creating a foundation through their *sociocultural knowledge*, or their "attitudes and beliefs about the world and how to interact with it that arise from being part of a particular social group or culture" (P. A. Alexander et al., 1991, p. 333) or *cultural/linguistic knowledge* (e.g., knowledge of students' everyday experiences; Hattan & Lupo, 2020) can support their meaning-making. Doing so requires utilization of students' funds of knowledge, which refer to the assets and experiences students come into the classroom with that can support their learning (Moll et al., 1992). Souto-Manning (2010) found that literacy play and practices in a Head Start classroom increased when teachers incorporated students' out-of-school knowledge into the school day, such as church call-and-response styles during interactive read-alouds or the creation of menus in the housekeeping center. Similarly, Mui and Anderson (2008) found that family funds of knowledge and activities not directly related to traditional Western literacy practices such as book reading also supported students' literacy practices. The Johar family in the Mui and Anderson (2008) study engaged in other literate practices such as singing, skit-writing, and

cooking with recipes—activities that support students' knowledge use as they encounter text. Acknowledging students' sociocultural contexts allows teachers to better understand how students develop literate behaviors through their interactions with the text (Snow, 2002).

Providing opportunities for students to express their knowledge is crucial to their development as readers. In their critique of the Common Core State Standards (National Governors Association, 2010), Cervetti and Hiebert (2015) argue that the standards should be used to support students as they apply knowledge to text for comprehension. They stated knowledge's impact on comprehension, fluency, and vocabulary was crucial as "[k]nowledge seems to facilitate understanding not only because it provides a base of information to support comprehension but also because it influences how readers interact with the text" (p. 549). Cervetti and Hiebert (2015) allude to both domain knowledge (or knowledge of a broad field of study; P. A. Alexander et al., 1991) and prior knowledge in other parts of the study as beneficial to students' meaning-making. The kinds of instruction students receive can also support their knowledge: instruction in knowledge use and acquisition can support their comprehension in the present text and in texts overall (Snow, 2002). This knowledge about one's thinking processes is better known as metacognitive knowledge (Flavell, 1979). Students can also deploy *strategic knowledge*, or "knowledge of processes that are effortful, planful, and consciously invoked to facilitate the acquisition and utilization of knowledge (Alexander & Judy, 1988; Prawat, 1989)" (P. A. Alexander et al., 1991, p. 333), such as knowing how to compare two characters or events in a text. Metacognitive knowledge and strategic knowledge are two separate constructs that can be interrelated in that metacognitive knowledge can lead to the development of strategic knowledge (i.e., metacognitive strategy knowledge or knowing how and when to deploy strategies to support task completion; P. A. Alexander et al., 1991).

Conceptual knowledge includes content knowledge and how it is deployed and discussed; it is at a very broad level. Within conceptual knowledge lies *domain knowledge,* which refers to a field of study, and can be further narrowed to *disciplinary knowledge,* which is about a particularly specialized field. An example of this drilling-down might be history as the content in the conceptual knowledge base, government as the domain knowledge base, then Japan's role in World War II as disciplinary knowledge. Students can use *textbase knowledge* within conceptual, domain, and disciplinary knowledge to explore the transactions between their existing knowledge and understanding what is written or spoken (P. A. Alexander et al., 1991).

Hattan and Lupo (2020) refer to six diverse knowledge types to be amplified in classrooms that were not typically included in teachers' conceptualizations of knowledge. Some of these have been defined previously in this dissertation (e.g., cultural/linguistic and strategic knowledge): *cultural and linguistic knowledge*; *principled knowledge* consisting of how ideas connect between subjects or topics; *strategic knowledge*; *knowledge of multiple-text use across documents* to synthesize multiple kinds of texts; *knowledge of multimodal texts* which includes multiple modes of data representation; and *conditional knowledge* consisting of when, how, and why to use certain kinds of knowledge. (Hattan & Lupo, 2020).

Recognizing the role that students' experiences have as they transact with text is supportive of their meaning-making. Therefore, identifying multiple types of knowledge (Hattan & Lupo, 2020), how students bring their out-of-school knowledge into the classroom (Moll et al., 1992; Mui & Anderson, 2008), and why knowledge supports students' navigation of text (Cervetti & Hiebert, 2015) is crucial.

Knowledge Activation. Defined by Hattan et al. (2024), prior knowledge activation refers to how people use their "background knowledge and experiences in order to comprehend

or learn from text" (p. 28) and typically requires scaffolding from the teacher as they both build new and activate prior knowledge (Hattan, 2024). Knowledge activation is crucial for readers as it supports stronger reading comprehension, metacognitive processes, and inference abilities (Tarchi, 2015). In their study comparing groups of students' knowledge acquisition and activation, Kaefer (2020) found that students whose background knowledge only needed to be activated showed stronger attention to the text and more advanced comprehension.

One such way of engaging students' knowledge is through prior knowledge activation. In their study, Hattan and P. A. Alexander (2020) utilized discourse analysis and found that teachers rarely activated students' prior knowledge; and if prior knowledge was activated, it was done in ways that provided a specific framework for responses. They also found that many opportunities teachers took up to activate prior knowledge were based on previously taught lessons, specific texts, or knowledge students had of the world or through their personal experiences (Hattan & P. A. Alexander, 2020).

Another study from Cervetti et al. (2016) involved knowledge activation and utilization through conceptually coherent text sets, or sets of text revolving around the same topic or theme, such as those found within the current study. In the Cervetti et al. (2016) study, it was found that students who engaged with conceptually coherent text sets gained more content knowledge and had better recall of the text than those who had access to text sets with unrelated topics.

J. S. Kim et al.'s (2021) use of thematic units, concept mapping, and conceptually coherent text sets in content-area lessons served to support students' domain and vocabulary knowledge development, as evaluated through argumentative writing and research groups. The Arctic animal survival units used in the study were designed to "expose children to a domain-specific schema that is networked structure of words, concepts, and ideas" (J. S. Kim et al., 2021,

p. 1939) and organize them in conceptually-connected ways. Further, use of conceptually connected texts (Cervetti et al., 2016) and concept maps, or graphical representations constructed to show relationships between ideas (Nesbit & Adesope, 2006), assisted students' development of vocabulary knowledge through repeated exposure and reorganization of knowledge to facilitate comprehension. The knowledge activation and organization measures strongly supported students' understanding of the concept as evidence through argumentative writing (J. S. Kim et al., 2021).

Knowledge activation is crucial to students' navigation of and meaning-making in texts, supporting their reading comprehension and critical thinking (Tarchi, 2015). Prior knowledge activation (Hattan & P. A. Alexander, 2020; Kaefer, 2020) stimulates students' schema before reading, while providing conceptually coherent text sets as Cervetti et al. (2016) did curates a throughline students can use to formulate knowledge networks.

Knowledge Revision. Students will participate in TB-SWDs with the intention of knowledge revision, or "the revision of previously acquired but incorrect knowledge" (Kendeou et al., 2014, p. 375). Knowledge revision through active use of metacognition enables students to modify existing knowledge. In this study, knowledge revision may be observed through active participation in the discussion.

The cognitive processes utilized in knowledge revision as identified by the Knowledge Revision Components framework (Kendeou et al., 2019) include encoding and passive activation as assumptions; and coactivation, integration, and competing activation as necessary conditions. Encoding refers to the permanence of knowledge and potential for re-activation for making meaning once it has been written into long-term memory, and passive activation occurs when information stored in long-term memory becomes active through passive memory processes

(Kendeou et al., 2019). Coactivation is "the only way that new information can come in contact with previously encoded incorrect information" (Kendeou et al., 2019, p. 34). The integration principle indicates that "knowledge revision can only occur when newly encoded information is integrated with this previously encoded misconceived knowledge" (Kendeou et al., 2019, p. 34). Lastly, the competing activation principle indicates that as more newly encoded information is present, it will become the default knowledge activated rather than the misconceived information (Kendeou et al., 2019). All five processes work together to help students come to a more thorough understanding of a text as they use and revise knowledge.

Intersection of Knowledge and Dialogue for Productive Classroom Discourse

As literacy is a social activity (Vygotsky, 1978), students co-construct knowledge through productive classroom discourse. That is, when students draw on types of knowledge they hold and build on ideas from peers through productive classroom discourse, they are better positioned to engage in and benefit from TB-SWDs. Existing literature indicates the ratio of teacher talk to student talk in classrooms should be roughly 1:1 for productive learning (Hattie, 2012; Warren-Price, 2004); yet, Nystrand et al. (2003) found that teachers speak between 90.33 and 95.19% of the time, which provides fewer opportunities for students to engage in knowledge expression and co-construction. Additionally, Hattan and P. A. Alexander (2020) found teacher activation of students' prior knowledge took the shape of I-R-E, which led to fewer instances of student-generated knowledge expression and co-construction. The study also showed that high-quality knowledge activation (i.e., reaching a productive dialogic level with high student participation) occurred the least often in the classrooms observed (Hattan & P. A. Alexander, 2020). Therefore, while knowledge activation, expression, and co-construction through

productive classroom discourse are recognized as vital elements of students' learning, its actual application in schools is limited.

One way knowledge and productive classroom discourse can be observed is through relational reasoning with texts. Relational reasoning refers to specific trends and patterns in students' thinking (P. A. Alexander et al., 2016). There are four forms of relational reasoning which are defined as "patterns of similarity (analogical reasoning), discrepancy (anomalous reasoning), opposition (antithetical reasoning), and exclusivity (antimonious reasoning)" (P. A. Alexander, 2016, p. 3). Murphy et al. (2017a) conducted a study using their Quality Talk protocol to evaluate high school chemistry and physics students' discussions in tandem with the Next Generation Science Standards. They identified that analogy was the most common form of relational reasoning as observed through classroom discourse. For example, in a science experiment regarding a chemical reaction when clear nail polish was dropped in water, students compared what they observed to a marriage and how the molecules did not separate because they were "in love" (Murphy et al., 2017a, p. 110). Students also engaged in higher amounts of antimonious reasoning, typically to explain or categorize an answer, while anomalous and antithetical reasoning were observed the least in the study (Murphy et al., 2017a).

Metacognitive strategy use is another way for students to elaborate on their knowledge through classroom discourse. Specifically, use of reading strategies and deployment of knowledge can be considered metacognitive as they help students navigate text more effectively. Hattan and Lupo's (2020) conceptualization of strategic knowledge brings attention to how students decode and comprehend text. Having awareness of what one does not know or when comprehension falls apart (Thomas & Barksdale-Ladd, 2000), or when concepts connect to other types of knowledge provides students with opportunities to figure out how to overcome their

issue; therefore, they monitor, plan, and evaluate their reading as appropriate (Tobias & Everson, 2009).

Overall, student knowledge and its activation intersect during productive classroom discourse. Use of strategic knowledge (Hattan & Lupo, 2020) and application of metacognitive reading strategies (Tobias & Everson, 2009) where students make overt their thinking through talk can support students' meaning-making.

Summary

This study aims to draw attention to the knowledge students use in and revise through discussion by examining their classroom discourse, and how TB-SWDs can support students' dialogic interactions and participation during group discussions. Despite years of research illustrating the importance of student-centered learning (e.g., Felder & Brent, 1996; Tucker & Novak, 2022), teachers continue to dominate classroom discourse (Elizabeth et al., 2012; Nystrand et al., 2003). Discussions in which the teacher acts a "guide on the side" rather than "sage on the stage" (King, 1993), such as through Spider Web Discussions with a text set (TB-SWD; Wiggins, 2017), can allow students to become invested in their learning and develop the "metacognitive muscles" (Tucker & Novak, 2022, p. 4) they need to become critical thinkers, speakers, readers, and writers. That is, student-led text discussions can support their thinking about their thinking and meaning-making processes regarding text.

My goal for this work is threefold: 1) identify challenges and affordances of TB-SWDs with an emphasis on sharing data; 2) explore how students use and revise their knowledge and 3) analyze what forms of knowledge and discourse interactions students use for productive classroom discourse. In doing so, I examine students' interactions at the intersection of text,

classroom discourse, and knowledge to see how participation in TB-SWDs reinforced through feedback and data can support students' ability to make meaning.

Tables

Table 2

Demographics of Pine Grove Sixth-Grade ELA Classes

Class Period	# Observations	# of Students	# of Speakers (Nov/Feb)	# Female / # Male	Demographics	Home Languages Spoken and %	Students Receiving Intervention Support
2	2	24	9/12	16 / 8	1 SWANA[5], 23 white	English (95.8%), Arabic (4.2%)	2
3 (co-taught)	2	22	11/20	8 / 14	2 Black, 3 SWANA, 17 white	English (86.4%), Arabic (13.6%)	4
4 (co-taught)	1	22	15[6]	14 / 8	3 Black, 5 SWANA, 14 white	English (77.3%), Arabic (22.7%)	8
5 (co-taught)	2	22	14/15	11 / 11	1 Black, 1 multiracial, 20 white	English (100%)	4
6	1	21	15[7]	10 / 11	4 Black, 17 white	English (100%)	2

[5] SWANA: Southwest Asian/Northern African (used in place of the colonial term "Middle East"; SWANA-LA, n.d.)
[6] February only
[7] November only

Table 3

Video Usage and Details

Research Question	Unit(s)	Class Recordings Used
1	Unit 2: “fit in/stand out” (February)	4
2	Unit 1: “better way to do things” (November) and Unit 2: “fit in/stand out” (February)	8
3	Unit 1: “better way to do things” (November) and Unit 2: “fit in/stand out” (February)	8

Table 4

Categories of Rigor of Student Interactions (National Assessment Governing Boards, 2024; Webb, 2002)

Depth of Knowledge (Least - Most Rigorous)	NAEP Cognitive Target	Definition
1	Locate and Recall	Used to "identify important information and form connections among ideas in a text" or "locate information to fulfill a particular purpose, aid recall, and repair understanding" (National Assessment Governing Board, 2024, p. 15). These utterances typically are answers to closed-ended questions where the information is provided in a text.
2	Integrate and Interpret	Students "make connections across sentences, paragraphs or sections within or across texts to synthesize ideas under a common theme .. or idea" (National Assessment Governing Board, 2024, p. 16) and use the meaning they make through their knowledge to navigate the text.
3	Analyze and Evaluate	Students closely examine one or multiple texts to see "the choices an author makes … and how those choices affect meaning" to judge different components of the text using multiple forms of knowledge (e.g., disciplinary, domain, rhetorical, etc.; National Assessment Governing Board, 2024).
4	Use and Apply	Students use information taken and meaning made from the text to create a new product or apply their learning in a new situation (National Assessment Governing Board, 2024). This is the culmination of all cognitive targets simultaneously.

CHAPTER 3—METHODOLOGY

Introduction

While classroom discussions are vital for educators to understand how students learn from and think about text, they are typically teacher-focused using the I-R-E model (Mehan, 1979), in which the teacher *initiates* with students by asking a closed-ended question, students *respond* with information from the text, and the teacher *evaluates* their response as correct or incorrect. In these loosely-termed "discussions," students recall information rather than provide their own experiences or construct arguments to support an idea. This facilitation of classroom discourse prevents students from thinking critically about a topic and exploring it from multiple perspectives in the name of satisfying content standards (Zimmerman & Robertson, 2017). I-R-E-type discussions can also hinder students' abilities to engage with metacognitive and strategic knowledge. Because the answers required of students follow a closed-ended or test-like pattern, they recall answers straight from text rather than engage more deeply and productively with the content. I consider deep engagement with the text to mean that students go beyond surface-level reading for information and utilize higher-order thinking skills such as comparing one text with another, synthesizing information from multiple texts to create an original thought, or revising their knowledge based on new information. Productive classroom discourse occurs when students share their ideas with peers and those ideas can be examined, challenged, (re)shaped, and refined (L. B. Resnick et al., 2015). Therefore, productive classroom discourse can foster students' participation in new and more nuanced ways of thinking (Golding, 2012). When classroom discourse is used to help students critically think about a text, they can co-construct knowledge and have a deeper understanding of what they read (Ketch, 2005). As metacognitive

and strategic discussion makes students' thinking and knowledge about text visible, it can be hypothesized that such discussions also support students' deep engagement with text.

Methodology

This dissertation is a multiple-case study (Santos & Eisenhardt, 2004; Yin, 2017) which examines how teachers and students in sixth-grade English Language Arts classes at a Midwestern public junior high school engage with TB-SWD, a protocol designed to center students' knowledge and metacognitive strategy use through discussion about text using an abstract and contestable question (Wiggins, 2017). A multiple-case study design, wherein a researcher explores "multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information" (Cresswell, 2013, p. 97), was selected because multiple class periods were observed (Stake, 1995). Use of the multiple-case study format also enabled me to compare findings across the class periods to investigate the same phenomena (Yin, 2017) and identify patterns and trends (Santos & Eisenhardt, 2004).

Below, I describe the research questions, context, setting, and participants, as well as data collection procedures and measures used to answer each question.

Research Questions

This study is guided by the following questions:

1) What are the affordances and challenges of using Spider Web Discussions in a sixth-grade language arts context?
2) In what ways do sixth-grade students apply feedback from previous Spider Web Discussions to subsequent discussions?
3) How do students use knowledge, rigorous thinking, and discussion structures to engage in meaning-making with peers through Spider Web Discussions?

Research Context

This study originated from a pilot study conducted as part of my Community Engagement Certification capstone project. During the 2021-2022 school year, I observed four junior-high teachers' dialogic interactions with students across six class sections to analyze how and when teachers used different kinds of knowledge to support learning. One teacher was sought out to begin the collaboration through professional connections, and three other teachers joined after hearing about the research (i.e., through snowball sampling; Parker et al., 2019). Following this year-long collaboration, two teachers (Ms. Cohen[8] and Ms. Lawrence) continued the partnership. Through observations and interviews, these teachers expressed interest in increasing student involvement through student-centered classroom discourse. In addition to more student participation, Ms. Cohen and Ms. Lawrence expressed the need for students to use text-based evidence and the desire for more time to allow for extended student discourse. We chose to use the TB-SWD protocol (Wiggins, 2017) to support their text-based discussions. This was a novel protocol for them, as neither teacher had heard about it before. I had done some preliminary research to support Ms. Cohen as she mentioned she wanted a way for students to engage with each other using text evidence and increase their agency; the TB-SWD protocol appear to meet their needs satisfactorily.

TB-SWDs are a whole-class discussion method where students engage in discussing a contestable question with participation tracking conducted by the teacher; minimal teacher intervention as students engaged in classroom discourse; and a feedback and self-evaluation session after the discussion for the students to reflect on strengths and challenges that transpired

[8] All names and places referenced are pseudonyms to uphold confidentiality.

as they spoke (Wiggins, 2017[9]). In addition to supporting the teachers' requests for a pedagogy that supported student agency and use of text evidence, it also created space for students to share and revise their knowledge as they made meaning from text.

Units

Entering the 2022-2023 school year, I supported Ms. Cohen and Ms. Lawrence as they revised their existing quarterly units and created two additional new units[10] to follow the TB-SWD format. While data collection began in the first week of school with a new unit based on team-building and important characteristics for group membership, I opted against using the discussion for this analysis due to the dearth of generative discourse, given that it was their first discussion. It was not generative for productive classroom discourse because the question the teachers operationalized was a semi-open question and not truly contestable.

The two focal units in this study included one new unit ("Is 'how we've always done it[11]' the best way to do things?" based on dystopian video games and the 2017 novel *Refugee* by Alan Gratz) and one revised unit ("Is it better to fit in or stand out[12]?" based on the novel *Other Words for Home* (Warga, 2019)). Units were developed or revised using the school's content-focused pacing guide, the English Language Arts state standards, and an abstract, contestable question devised by the teachers to guide students' thinking. Teachers created lesson outlines to determine how the content would be taught, while I provided resources and served as a third party for them to discuss potential ideas (Appendix D).

[9] I abbreviated them as TB-SWD instead of SWD because the questions and discussions for the study utilized text sets for evidence. Spider Web Discussions overall do not necessarily need a text set (see Coppens, 2020 and Giamellaro et al., 2019 for examples of Spider Web Discussions that do not use text sets).
[10] The final unit of the year was devoted to test preparation and both teachers elected not to have a TB-SWD during this time.
[11] Abbreviated henceforth as "the best way to do things"
[12] Abbreviated henceforth as "fit in/stand out"

The first unit ("the best way to do things") was developed in accordance with the sixth grade common text, *Refugee* (Gratz, 2017), and Ms. Cohen's inspiration to design a video-game-themed unit to increase her students' engagement in class. *Refugee* follows the fictionalized accounts of three refugee children at three different points in time and geographic places: Josef Landau is escaping Nazi Germany in 1939, Isabel Fernandez is leaving Cuba during Castro's reign in 1994, and Mahmoud Bishara is fleeing Syria during the unrest and civil war led by Bashar al-Assad in 2015 (Gratz, 2017).

Centering on the storyline from the Fallout series (Cain, 1997), the unit's storyline places the students in a post-apocalyptic future where they must emerge from the safety of their shelter to obtain a fix for their water system. To introduce the central question of the unit, Ms. Cohen modified a plotline from one of the games where the students stumbled upon a cult called the Children of Atom, who worshiped a bomb (Cain, 1997). The cult members had offered the students refuge and hydration in the form of irradiated water. As the Children of Atom had always lived in that manner and the students were disconcerted with the idea of others drinking toxic water, Ms. Cohen used the opportunity to introduce the central question: "is 'how we've always done it' the best way to do things?"

In addition to research students conducted on radiation, (de)hydration, and their effects on the human body, they drew from the text *Refugee* (Gratz, 2017) and a series of three supplementary texts to support their argumentation. Students read articles about COVID-19 hygiene (Yan, 2020), school dress codes (Education Week, 2018), and removing Daylight Saving Time from the calendar (Campbell, 2022) to analyze how societal movements and events have impacted American life, and to provide evidence for their TB-SWD on why continuing the current trajectory for the central question could be positive or negative.

The unit itself took the entire fall semester to complete from introduction to the final exam ("boss battle"). Students began with the central-question-inducing event mid-October and had their TB-SWD mid-November. This timeline was developed to encompass school events (e.g., fall break) and provide enough time for students to complete the readings, take positions on the argument and support them with evidence as they completed the graphic organizers, and have the TB-SWD.

The second unit, taking place from February to March before state testing, was created around the fit in/stand out question. Students read the book *Other Words for Home* (Warga, 2019) as an anchor text and followed the journey of the fictional character Jude and her family as they immigrated from Syria to the United States amid political unrest. The novel-in-verse is Jude's account of leaving her country of origin to a new country, where she is considered an outsider.

The central fit in/stand out question was launched at the beginning of the unit and students revisited it on a semi-regular basis (e.g., two to three times total) before the TB-SWD. In addition to the anchor text, students drew from an article about Sesame Street and the dynamic between Oscar the Grouch and Big Bird (Andrews, 2018), a TED talk about a girl's journey of cultural self-acceptance (Mistry, 2018), and an article about Bianca Smith, the first Black woman to manage a Major League Baseball team (B. Wright, 2021; see Appendix D).

TB-SWDs occurred toward the end of the grading period (e.g., mid-November and early February) for both units. Students were given time in class two to three days before the discussion to formulate a stance on the central question. They were asked to fill out a Google Form pre-discussion graphic organizer (Appendix E) to devise a cohesive argument and collect

text evidence to form their opinion.[13] Students also reported having "practice rounds" where they could discuss their answers with a partner, but those data were not collected as the teachers prioritized recording of the main TB-SWD rather than preliminary discussions.

After the discussion, students were asked to self-evaluate their performance and preparation on a Google Form post-discussion graphic organizer (Appendix F). In alignment with the TB-SWD protocol, students' debrief from the discussion and the post-discussion graphic organizer data were used to formulate goals for subsequent discussions.

Participants

Teachers

Ms. Cohen, a white female with fourteen years of teaching experience, taught the general education English 6 classes and collaborated with Ms. Lawrence. Ms. Lawrence, also a white female with fourteen years of teaching experience, served as the sixth-grade intervention specialist. She co-taught English 6, and independently taught sections of English 6 and a Reading Essentials class for students in need of more intensive decoding support based on their Individualized Education Plans (IEPs). Per the intake interviews at the beginning of the study, both teachers said they were experienced in implementing discourse opportunities in their classrooms. Ms. Cohen explained that she held "open mic" days where students would share their written work, from journal prompts to school-appropriate fan-fiction from popular TV shows; she also mentioned having a debate unit where students created podcasts in the style of *Smash Boom Best* (M. Bloom, n.d.), where students would pair up, select two items to pit against each other (e.g., Pikachu v. Mario; M. Bloom, 2021) and debate which of two items was "better"

[13] The text evidence was not used as an outcome or included in the research due to the district's digital privacy policy.

per their findings. Ms. Lawrence's work with students on IEPs prioritized discussion as a formative assessment as many of her students had discussion- or speech-based goals. Activities included turn-and-talks and cooperative group work to answer reading passages.

Students

Pine Grove is a predominantly white junior high school (76.9%; US News & World Report, 2022) serving grades six through eight. It is in Bowhull, an affluent suburban city in a Midwestern state. Additionally, 7.8% of its students are Latinx, 7.6% are bi-/multiracial, 6.7% of its students are Black/African American, and 0.9% of its students are Asian/Asian American/Desi American (US News & World Report, 2022)[14]. The school also had a growing population of students learning English as an additional language[15], as Bowhull is a sanctuary city receiving refugees (Bowhull School District, 2022). Languages spoken other than English include Arabic, Dari, Tagalog, Ukrainian, and Portuguese. Thirty percent of its students received free or reduced-price lunch (State Department of Education, 2022). Additionally, students at Pine Grove overall performed better than average on the Midwestern State Tests[16], with 66% of its students ranking at proficient or higher in reading (State Department of Education, 2022).

Data Sources

I examined data from five sixth-grade class periods out of the six taught by Ms. Cohen and Ms. Lawrence (111 students with overlap between the English 6 and Reading Essentials classes; 96 unique individuals). Three sections were co-taught by both Ms. Cohen and Ms. Lawrence, featuring both general education and special education students (66 students; average

[14] Alaska Native/American Indian and Native Hawaiian/Pacific Islander were omitted from the analysis as no students belonged to those demographics.
[15] While the population of students learning English as an additional language was rising, no potential study participants in this demographic did not return signed consent forms. Therefore, any contributions they might have made to the research were omitted.
[16] Pseudonym

of 22 students per class) and two sections of general education students were taught only by Ms. Cohen (45 students; average of 22-23 students per class). Fifty-one percent of the students across the five classes identified as male, while forty-nine percent of the students identified as female which differs from the 50/50 gender demographics of the school. Additionally, the racial demographic of the classes differed from that of the school: 82% of the students in the classes identified as white, 9% identified as Black/African American, 8% identified as Asian/Asian American/Desi American, and 0.9% identified as bi-/multiracial. Home languages spoken in the classes were English (81%) and Arabic (19%)[17]. Eighteen percent of the students in the classes received intervention services either through an IEP or a 504 plan. See Table 2 for demographic and speaker breakdown of each class in this study.

Spider Web Discussions. Of the TB-SWD units conducted over one academic year, two are the focus for this study (one in November 2022 and one in February 2023; see Appendix D for unit outlines.) Video recordings were taken of each discussion and used as data. Criteria for inclusion include productive classroom discourse per the L. B. Resnick et al. (2015) definition, and criteria for exclusion include multiple segments of off-task discourse unrelated to the TB-SWD topic. I analyzed up to two videos from each class period (n = 5) in the study, spanning four class periods. Overall, eight videos were used (see Table 3).

Each TB-SWD was video-recorded from start to finish, resulting in a total of 147 minutes of recordings, with an average recording time of eighteen minutes, twenty-three seconds for the discussion itself. In 80% of the recordings, the feedback discussion was also recorded.

[17] Home language was self-reported based on the consent form signed and returned; ppercentages of students who spoke both Arabic and English at home are unknown.

To answer RQ1, only the February videos were used for data analysis given that affordances and challenges were likely to be most present in these well-practiced discussions that were in the final set of observations for the study. For RQs 2 and 3, both the November and February videos were used to demonstrate students' growth in goal setting and their development in knowledge use, rigorous thinking, and discussion structures. See Table 3 for a list of which videos were used to examine which research questions.

Discussion maps to track the progression of speakers[18] (n = 12) were made during the recordings and transcriptions (n = 8) were made from the recordings after being uploaded to a secure cloud server. Memos and observation notes were first written to establish a thick description of each video (Merriam & Tisdell, 2016), then rounds of coding and subcoding were conducted based on each research question (Merriam & Tisdell, 2016; Miles & Huberman, 1994; Saldaña, 2013).

Graphic Organizers. Before each TB-SWD, students completed a pre-discussion graphic organizer (see Appendix E) to organize their thoughts and were reminded of the goals they set from the previous discussion. After students participated in the TB-SWD, they debriefed the discussion as a whole group. Once students shared their initial impressions of how the TB-SWDs went and if they met their goals, the teacher showed them their feedback map and shared the data collected during the discussion. Students used these data points to collaboratively refine their goals for their next TB-SWD, then completed a post-discussion graphic organizer (see Appendix F) to reflect on the proceedings and self-evaluate their performance. Teachers then reviewed the graphic organizers both to serve as a formative assessment and collect feedback regarding students' participation in the discussion.

[18] More information about discussion maps forthcoming on pp. 9-10.

Discussion Maps. Additionally, the TB-SWD discussion maps and feedback notes were collected. To create a discussion map to track student participation, the teacher "traced" the flow of the discussion within a circle wherein students have assigned seats. When a student started the discussion, the teacher drew a star by their name. When someone else joined in, the teacher drew a line from the initial student to the new speaker. The mapping moved forward in that manner, where the teacher connected the previous speaker to the present speaker with a line to make a "web." The teacher could also add other codes by students' names, such as "I" for "interrupted another student" or "K" for "knowledge used." See Figure 1 for an example of a TB-SWD map.

The map also served to take notes during the discussion to share with the students during the closing feedback session. This feedback piece can include but is not limited to: notes about content and students' ideas, amount of participation, and students' goals set from the previous discussion.

Rubric. A final measure used in the data collection was the TB-SWDs rubric (Appendix C; Wiggins, 2017). Criteria on the rubric prioritized meaningful participation, use of text evidence to build and support claims, and quality of discursive interactions. Before each TB-SWD, teachers would review the rubric by posting it on the SmartBoard for all to see and remind the students of the previous discussion's feedback or goals set. Afterward, the teacher would revisit the rubric with the whole class, ask students to provide feedback on their discussion, and then provide data from the discussion map and observations to help them self-evaluate their performance. Students would then use the data to set goals for their next discussion.

Data Analysis

Question 1: What are the affordances and challenges of using Spider Web Discussions in a sixth-grade language arts classroom?

To explore Research Question 1, I examined the affordances and challenges of TB-SWDs in one sixth-grade English classroom over five class periods. Since two scholarly articles (Coppens, 2020; Giamellaro et al., 2019) have investigated the use of TB-SWDs, this question examines the implementation of this protocol to better understand the opportunities it presents. Specifically, *affordances* are thematically-driven student actions that could facilitate their participation or use and revision of knowledge during TB-SWDs; while *challenges* are student behaviors, actions, or qualities of the discussion that could be considered negative regarding their participation or use/revision of knowledge.

The data sources for this question were the video-recorded observations of the student-led TB-SWDs. I analyzed each video in the February data collection period as it was the final set TB-SWDs recorded and was presumed to be the most finessed, having had multiple opportunities to engage with the protocol before. I then conducted rounds of coding and subcoding for specific behaviors, actions, and qualities, coding and memoing first with a round of attribute coding (Saldaña, 2013). Attribute coding lists pertinent background information, such as date and duration of discussion, and levels of students' participation. I then engaged in process coding (Saldaña, 2013) to identify how students interacted with each other. Process coding employs gerunds to pinpoint observed actions or behaviors (e.g., "over-talking," "fidgeting," or "brokering") to demonstrate students' engagement in the discussion. I categorized certain behaviors such as "over-talking" or "fidgeting" as challenges from a classroom- and discussion-

management perspective, while other behaviors such as "brokering" would be considered affordances from the same perspective.

Then a round of thematic content analysis (Braun & Clarke, 2006) was conducted with the process codes to identify larger behavioral categories (e.g., "the me factor"). Thematic content analysis allowed me to analyze trends and patterns within the larger data set. Finally, I used provisional codes or predetermined starter codes (Miles & Huberman, 1994) to categorize the larger themes into "affordances" or "challenges" as defined above.

Use of attribute and process coding, followed by a thematic content analysis, enabled me to answer the first research question and identify affordances and challenges of using the protocol.

Question 2: In what ways do sixth-grade students apply feedback from previous Spider Web Discussions to subsequent discussions?

Because one of the guiding principles of TB-SWDs is that students create their own goals based on self-reflection and teacher feedback (Wiggins, 2017), I evaluated how/if they developed in those areas during discussion. Goal setting can help students learn to learn; that is, they can demonstrate metacognition about their own thinking and learning behaviors (Midwest Comprehensive Center, 2018). Travers et al. (2015) found that teenage students who set goals and regularly reflected on their performance facilitated academic and personal growth. As students set and accomplish goals, they can hone their critical thinking and reflection abilities, and develop intrinsic motivation (Midwest Comprehensive Center, 2018). As such, I analyzed both units' discussions to determine if and how students used November's feedback discussion and goal setting to support their participation in February's discussion.

I used anecdotal notes (Merriam & Tisdell, 2016) taken on the discussion maps and observation transcripts to analyze data from the November and February discussions. Additionally, per the TB-SWD protocol, students self-assessed their performance on a letter-grade-based rubric (Appendix C; Wiggins, 2017) to determine if their participation as a class was satisfactory based on their feedback and teacher observations. This rubric helped students and the teacher determine goals for the next discussion.

I analyzed the goals students and the teacher set from their "best way to do things" TB-SWDs in November in their feedback session at the end of the discussions based on video observations and transcripts. I used that list of goals as a set of provisional codes (Miles & Huberman, 1994) to analyze the February transcripts for change based on feedback provided and observed interactions. I then watched each recorded observation and created an analytic memo (Merriam & Tisdell, 2016) to identify moments when students did or did not apply feedback to the discussion. The analytic memos, and later transcripts, provided a thick description of the environment (Merriam & Tisdell, 2016) and behaviors occurring within the discussion, so I could use provisional codes with consistency. Examining the anecdotal notes for evidence of students' co-established discussion goals enabled me to determine if they used feedback to support their participation in the discussion.

Question 3: How do students use knowledge, rigorous thinking, and discussion structures to engage in meaning-making with peers through Spider Web Discussions?

Because text-based meaning-making is a social process and can be observed through classroom discourse (Ketch, 2005), student interactions were also observed. I specifically analyzed the video observations and transcripts for forms of knowledge students used incidentally (i.e., not explicitly taught or directed); how they spoke and what they spoke about;

and the kinds of rigor students used in their discussions (e.g., locate and recall or use and apply; National Assessment Governing Board, 2024). Analyzing discussion structures is essential to researchers so they can understand how students use discourse to co-construct meaning about a text.

To complete this analysis, I developed a protocol called the Knowledge Assessment through Talk for Comprehension (KAT-C; Appendix A) to analyze the recorded observations and transcripts for knowledge use (P. A. Alexander et al., 1991; Hattan & Lupo, 2020), alongside Mercer's (2004) categories of sociocultural discourse analysis to identify discussion structures and the National Assessment of Educational Progress's 2026 cognitive targets (National Assessment Governing Board, 2024) and Webb's (2002) Depth of Knowledge scale to measure discourse rigor (Table 4). The KAT-C evaluates multiple categories of knowledge expressed and co-constructed by students through classroom discourse, rather than the dimensions of knowledge and classroom discourse. When compared to other protocols used to evaluate classroom discourse such as Quality Talk (Murphy et al., 2018) and the Scientific Discourse Instrument (Osborne et al., 2019), they capture classroom discourse and how students engage in small and whole groups, but do not focus on student knowledge specifically. Rather, they analyze talk for principles of productive classroom discourse (Murphy et al., 2018) and teacher moves to encourage discourse (Osborne et al., 2019).

On the other hand, knowledge assessments like McCarthy and McNamara's (2021) Multidimensional Knowledge in Text Comprehension framework evaluate assessments of prior knowledge from four dimensions: amount, or how many concepts a student knows that are relevant to what they read; accuracy, or the degree to which their prior knowledge is (in)correct and degree of (in)correctness regarding alignment between concepts; specificity, or how closely

aligned the prior knowledge is in relation to the text; and coherence, or the degree of connection between concepts. Dimensions differ from types of knowledge in that types of knowledge are categories and can be qualitatively measured, whereas dimensions quantify the contributions along a continuum (McCarthy & McNamara, 2021). Because knowledge supports how students interact with text (Rosenblatt, 1982), I found it necessary to use a protocol to evaluate those interactions so teachers and researchers can observe how students deploy their knowledge to think about what they have read. Thus, the KAT-C examines students' discourse from multiple dimensions of knowledge instead of singular viewpoints, providing a more comprehensive snapshot of students' discursive engagement.

Data collected from the transcripts were also analyzed using Mercer's (2004) sociocultural discourse analysis framework. Its purpose is to show how productive classroom discourse can be used to demonstrate collective thinking (Mercer, 2004). Segments of the TB-SWD are evaluated to identify its archetypes, of which there are three: cumulative, expository, and disputational. Cumulative talk is characterized by participants building on a topic together without challenging it, typically through extensions of the initial answer (Mercer, 2004). Expository talk refers to classroom discourse in which participants "engage critically but constructively with each other's ideas" (Mercer, 2004, p. 146), and disputational talk occurs when there is disagreement that does not lead to productive classroom discourse. Examples will follow in Chapter 4 with Research Question 3. In this study, segments of discourse were allocated by the initial provocation, e.g. a question or a claim made. All utterances that pertained to that question or claim were then grouped together. The segment ended when the topic changed.

The KAT-C, sociocultural discourse, and the NAEP (2026) cognitive targets, were then used to conduct a thematic content analysis (Braun & Clarke, 2006) to identify trends and patterns within students' use of knowledge, discussion structures, and levels of rigor within discussion. The KAT-C protocol analyzes the knowledge use in discussions based on knowledge categories established by P. A. Alexander et al. (1991) and Hattan and Lupo (2020), and is paired with criteria for rigorous thinking (National Assessment of Educational Progress, 2026; Webb, 2002) and discussion structures through sociocultural discourse analysis (Mercer, 2004). These elements served as provisional codes (Miles & Huberman, 1994), with subcodes emerging from the above sources. The KAT-C can be observed in its entirety in Appendix A.

I analyzed both units' recorded observations and transcripts using the KAT-C, the sociocultural discourse analysis protocol (Mercer, 2004), and the NAEP (2026) cognitive targets to identify instantiations of knowledge use, rigor, and discussion structures (see next section for definitions). Anecdotal notes were taken and used as a secondary method to identify students' knowledge use and discussion structures.

Data were coded at the idea-level (i.e., a new line of code starts when the initial idea is complete or another student/teacher begins to speak about something else; Navas Brenes, 2011) to isolate individual student contributions. What makes an utterance possible to be coded at the idea-level is the content of the utterance. One participant may have several ideas—when the student switched to a different idea within the same topic or elaborated on the original idea in a different manner, a new line of code would start. For example, Dennis' participation in the February fit in/stand out discussion was broken up into three ideas (Excerpt 0).

Excerpt 0.

Dennis Um, I feel like the one thing that a lot of people misunderstand is just because you don't fit in, doesn't mean you don't fit in with certain groups of people. In my opinion, fitting in means that you fit in with everybody which can cause emotional damage.

Dennis It can also make people think that um, you're a fraud because you can't be all those things at once. Like if, if you choose to be, in my opinion, not being like popular or out there means that you're popular with a certain group of people or you have certain friends that are a specific type of people. It's like, there's groups and you fit in with one of those groups, and if you're popular, you're you're you're, I'm not trying to be rude , but you're a fraud, a coward because 1) you can't pick one, 2) you are betraying all of them at the same time, 3) I, you take advantage of that in very very very cowardly way. Like for instance, you go hang out with one group and you get picked on. You just switch. Just like that, to get out of the situation.

Dennis I feel like if you don't fit in, that means you are someone that is popular to a specific group all the time, and maybe you'll gain new friends. I'm not saying you won't. A lot of people misunderstand the fact that when you're popular, that when you're not popular, you don't have any friends at all. But when you're not popular, you have friends, it's just you're popular in a specific group of people.

Here, Dennis has one large interaction but it has three main topics, or centers of interest (Chafe, 1980). During one section of the TB-SWD, he discussed fitting in with certain groups and its ramifications, how fraudulent fitting into multiple groups can appear, and the context of what it means to be popular in one's own friend group. Segmenting at this level allowed me to examine each idea for the types of knowledge and rigor in the interactions.

Knowledge Use. Using P. A. Alexander et al. (1991) and Hattan and Lupo's (2020) categories of knowledge as indicated from pilot study data and with guidance from Dr. Courtney Hattan, I included eight broad types of knowledge that could be used in the KAT-C. See Table 1 for knowledge types and how they were defined for the study.

These knowledge types served as provisional codes (Miles & Huberman, 1994). Upon the first round of coding, I added subcodes to clearly identify the kinds of strategic knowledge used. (Saldaña, 2013). Two subcodes were based on metacognitive reading strategies (Duke et al., 2011; *clarifying* and *inference*) and four were based on relational reasoning (P. A. Alexander et

al., 2012, 2016; *nuanced thinking or antithetical reasoning, use of scenario or second person or analogical reasoning, antimonious reasoning, and anomalous reasoning***).** Typically referenced as part of monitoring for understanding, clarifying asks students to "engage in critical evaluation" of the text or speaker by using background knowledge and attention to detail (Palinscar & Brown, 1984, p. 120). It was observed in two ways: students either directly questioned the previous speaker about their idea or paraphrased the previous speaker's idea and followed up with a question to confirm understanding such as "Does that make sense?"

Students used inference as they connected knowledge from the world, spoken and written language, and text-based events to make an educated prediction about the text (Duke et al., 2011; Palinscar & Brown, 1984). When students discussed the inferences they made, they could confirm, augment, or add to their knowledge.

Additionally, relational reasoning was used to further identify techniques students used to engage with strategic knowledge. Relational reasoning was applied to identify students' application of knowledge to the text; hence the subcoding. It involves identifying patterns and relations among concepts or items (P. A. Alexander et al., 2012), and is a precursor to metacognitive thinking. When students can locate and operationalize these patterns, they can think more deeply about a topic as observed through productive classroom discourse. How and when students deploy relational reasoning is contextual and based on their knowledge, role in the conversation, and the time point at which the interaction occurs (Dumas et al., 2014).

Relational reasoning consists of four categories: analogy, antithesis, antimony, and anomaly (P. A. Alexander et al., 2016; Dumas et al., 2014). *Analogical reasoning* refers to recognizing commonalities between objects or ideas not typically associated with each other (P.

A. Alexander et al., 2016; Richland et al., 2007). An example would be comparing the muscles in a kangaroo's legs when they jump, to pistons firing in a car engine.

Antithetical reasoning identifies relational opposites or nuances in thinking and "necessitates that students recognize and reconcile conflicting perspectives or sources of evidence" (P. A. Alexander et al., 2016, p. 37). For example, antithetical reasoning may be used when considering if zoos are beneficial or detrimental to animals' health and well-being. The answer is situation-dependent and exists on a spectrum, allowing for consideration of many perspectives instead of a firm "yes" or "no."

Antimonious reasoning refers to establishing criteria for inclusion or exclusion of evidence (P. A. Alexander et al., 2012). Authors who write comprehensive literature reviews often engage in antimonious reasoning when they make clear the parameters of article selection (e.g., articles published in a specific country or articles from a certain timeframe).

The fourth type, *anomalous reasoning*, occurs when a pattern is identified or broken in the data, specifically when deviating from the expectation (P. A. Alexander et al., 2016; Dumas et al., 2013) or identifying inconsistencies and producing a mechanism for change (P. A. Alexander et al., 2016). Documentary producers can help their viewers engage in anomalous reasoning when they reveal previously-unknown information about a business or topic and spur them toward different actions or thoughts (see Schwartzman's 2018 documentary *Roll Red Roll* and 2022 publication of the same title).

Rigor. *Rigor* is defined through Webb's (2002) Depth of Knowledge, referring to the kind of thinking processes students must activate to answer a question. Webb (2002) ascertained four levels of thinking or types of questions teachers use to structure lessons and facilitate

content. I then aligned each level with a NAEP (2026) cognitive target to confirm the data analysis with a standardized measure.

Level 1, or Locate and Recall (National Assessment Governing Board, 2024) statements or questions are commonly known as closed-ended questions and have one correct answer. Students regurgitate disciplinary knowledge to answer these questions. Since the answers are found straight from the text with limited application of higher order thinking to do so, these may be considered less rigorous if a dialogic stance such as that taken up in Boyd and Markarian's (2015) research is not applied.

Level 2, or Integrate and Interpret (National Assessment Governing Board, 2024) statements or questions are very common and have moderate rigor. These questions focus on how students make connections within or across texts, combining their disciplinary knowledge, their cultural/linguistic knowledge, and knowledge of text genres to make meaning.

Level 3, or Analyze and Evaluate (National Assessment Governing Board, 2024) statements or questions, are moderately high in rigor. They involve knowledge analysis and thinking strategically, where readers "must view texts in relation to knowledge from other sources" (National Assessment Governing Board, 2024, p. 23). Questions at this level ask students to judge or evaluate components of a text. Level 3 questions may involve open-ended or semi-open-ended questions, where there is some latitude in how the question can be answered.

Questions or statements labeled as Level 4 utilize the highest kind of rigor and therefore are extremely rare to encounter in one isolated discussion; however, they may be engaged with in multiple discussions or occasions over time on the same topic. Known as Use and Apply statements or questions, they reflect "the culmination of comprehension, in which understandings acquired during reading are used in new situations or applied in the development

of novel ideas and products" (National Assessment Governing Board, 2024, p. 24). Students must use multiple processes from previous levels to take action for an authentic audience or purpose.

Discussion Structures. I examined students' interactions with each other to identify discussion structures. Transcripts were segmented loosely based on the Quality Talk (Murphy et al., 2018) segmenting protocol; that is, a section of discourse was considered initiated when a student brought up a new topic or question and finalized when a student transitioned between topics or when a teacher intervened. A student-signaled transition could consist of a question which moved the discussion in a different direction or a general change in subject. Teacher interventions could take the form of a question intended to prompt students' thinking or a comment that changed the course of the discussion. Because of the student-led nature of TB-SWDs, only student-signaled transitions were included in the analysis.

Mercer's (2004) sociocultural discourse analysis was used to sort the segments into three broad discourse categories: cumulative, exploratory, and disputational. For the purposes of this study, I kept his original three categories as parent codes but expanded on one (cumulative discourse) to clarify and more thoroughly interpret the interactions.

Cumulative talk is characterized by discourse that builds on ideas but does not critically engage or challenge them (Mercer, 2004). Within a cumulative interaction, students co-construct an argument or line of thought by building on it or accumulating evidence in a way that moves the conversation forward in an agreeable manner. These cumulative interactions were observed when students all agreed with each other about the question. One by one, students would state who they agreed with and why, with the next person agreeing with the person before them and elaborating on the previous reason. While idea co-construction was present, it did not lead to

productive discourse. Per L. B. Resnick et al.'s (2015) definition of productive classroom discourse, students should engage in talk in ways that challenge or augment their own and their peers' initial thoughts as they think aloud about a concept. Cumulative talk only builds on an existing argument without more complex layers of engagement.

From the data collected, I derived three subcategories for cumulative talk: cumulative monologic, cumulative dialogic, and cumulative group. The subcategories further delineated how students can co-construct knowledge in a way that does not advance the discussion. *Cumulative monologic talk* occurs when a teacher uses I-R-E to facilitate interactions; or when a student uses the teacher as a processing partner to concretize their understanding. An example of cumulative monologic talk would arise when students recalled definitions from the text to answer a series of questions posed by the teacher. *Cumulative dialogic talk* occurred when two or more students and the teacher engaged in discussion, with the teacher serving as a facilitator, and *cumulative group talk* occurred when three or more students participated in a discussion without the teacher, that aligns with characteristics of cumulative talk.

Exploratory talk is like cumulative talk in that students build on one another's answers (Mercer, 2004); however, in exploratory talk, they challenge or critique answers and evidence to critically evaluate their peers' ideas. The goal with exploratory talk is to move the discussion productively and analytically towards more critical and/or nuanced understandings from the text, thus creating epistemic progress (Golding, 2012). An example of exploratory talk would occur when two students used text-based evidence to take and defend positions on one of the TB-SWD questions, then challenged each other to assert why their answer makes more sense.

Disputational talk occurred when students disagreed about a topic without offering constructive criticism that moved the discussion forward (Mercer, 2004), or when students

argued or made the discussion personal in a harmful way. For example, in one discussion, a student referred to her peers who needed additional academic support using "SPED [special education] Kids" in a harmful manner. This utterance led to students arguing with her about name-calling and being disrespectful. Though Ms. Lawrence stepped in to help the class navigate the discussion, the initial speaker had caused a major disruption in the learning process, did not answer the TB-SWD question being asked, and did not move the conversation forward in a productive manner.

Summary

In this dissertation, I used a multiple-case study to examine how students participated in productive classroom discourse using TB-SWDs with three research foci: 1) the affordances and challenges of the protocol; 2) the use of feedback from past discussions to support interactions in subsequent discussions; and 3) the use of specific criteria (knowledge, rigor, discussion structures) to evaluate students' engagement in the discussions, all in the name of productive classroom discourse. I used qualitative techniques such as thematic content analysis (Braun & Clarke, 2006), process and attribute coding (Saldaña, 2013), and provisional coding (Miles & Huberman, 1994) to analyze the data, as well as the KAT-C, Mercer's (2004) sociocultural discourse analysis framework, and the NAEP (2026) cognitive targets.

Because use of students' knowledge for reading comprehension (Knowledge Matters Campaign, n.d.; Neuman, 2019) and use of discussion as one way to elevate students' thinking for meaning-making (Ketch, 2005) are prevalent in practice, there is a crucial need for research that examines the intersectionality of knowledge, productive classroom discourse, and meaning-making to help students think deeply about text. Coupled with the high use of group discussions in classrooms and the dearth of student-led and data-driven opportunities to engage substantially

on a topic (Elizabeth et al., 2012; Nystrand et al., 2003), the TB-SWD protocol and subsequent observations can provide valuable insight into how students engage with text.

CHAPTER 4—FINDINGS

The goal of this study was to examine students' participation in productive classroom discourse through affordances and challenges of the TB-SWD protocol and use of feedback to support growth and change in their discussions; and analyze how students used different types of knowledge, rigorous thinking, and discussion structures to engage with their peers. In this section, I report the findings from the eight recorded discussions. These questions guided my research:

RQ 1: What are the affordances and challenges of using spider Web Discussions in a sixth-grade English language arts context?

RQ 2: In what ways do sixth-grade students apply feedback from previous Spider Web Discussions to subsequent discussions?

RQ 3: How do sixth-grade students use knowledge, rigorous thinking, and discussion structures to engage in meaning-making with peers through Spider Web Discussions?

To answer the first question, I described the affordances and challenges observed using the TB-SWD protocol. I include excerpts to illustrate my findings for both categories. I then analyzed the data to ascertain the goals set in each discussion through feedback provided by the teacher(s) and examined students' interactions to see if/how they utilized the feedback from their previous discussion (RQ 2). Again, excerpts are included to demonstrate how feedback is or is not used by students in subsequent discussions. Finally, I analyzed the transcripts from the final set of discussions in February to explore how students make meaning from text. Using the Knowledge Assessment through Talk for Comprehension (KAT-C), sociocultural discourse analysis (Mercer, 2004), and the NAEP (2026) cognitive targets, I focused on three main characteristics: students' use of knowledge, the caliber of their interactions regarding rigorous

thinking, and the kind of discussion structures they used as they co-constructed and revised their knowledge (RQ 3).

RQ 1: Affordances and Challenges

In this section, I share findings from the recorded observations to highlight affordances or challenges associated with TB-SWDs. Many affordances were present, especially regarding students' initiation of discussion around abstract topics and engaging with one another directly. However, considering none of the students had participated in a TB-SWD before this year and that many were still unfamiliar with the dialogic power balance as part of the protocol (i.e., that the teacher mostly observes and provides data-based feedback at the end of the discussion; Wiggins, 2017), there were multiple opportunities for growth, especially for these sixth-grade students who engaged in TB-SWDs in an English language arts context.

Affordances and challenges were determined through thematic analysis of the transcripts (Braun & Clarke, 2008), which centered on the fit in/stand out question from the February discussion. The TB-SWD question centered on the book *Other Words for Home* (Warga, 2019), with the main character Jude, a Syrian immigrant to Cincinnati, Ohio.

Affordances

For my study, "affordances" are thematically-driven student actions that could facilitate their participation or use and revision of knowledge during TB-SWDs. The affordances I describe were determined from a thematic analysis of the transcripts. They can be arranged into three categories: 1) collective argumentation; 2) use of higher-order thinking; and 3) social assistance and agreement. See Table 5 for a matrix of affordances, participants, and context.

Collective Argumentation. Collective argumentation refers to when "participants negotiate meanings with each other as they explain their reasoning, listen to and attempt to make

sense of other's reasoning, and articulate conclusions and reasons" (Conner et al., 2023, p. 669), These phenomena were observed as students referred to one another's contributions through elaboration on what the previous speaker stated. This appeared to demonstrate a degree of listening, thinking, and knowledge revision to accommodate the previous speaker's thoughts into the present speaker's idea. In the following exchange (Excerpt 1) between Malcolm, Lacie, Jessie Ann, and Nichole in fifth period's February discussion, the girls both referred to and added on to Malcolm's thoughts about David's contribution to revise their own understanding of the text. Here, students discussed Jude's conversation with her cousin Sara about her experiences as an immigrant to a new country.

Excerpt 1.

Malcolm	I agree with what David said because it depends on like what you're doing on if you want to fit in or stand out.
Lacie	I agree with Malcolm but I also, also feel like Jude wanted to, like she knew that she didn't, she wasn't gonna fit in that well since she's, 'cuz she just like, she's just moved and she's a different culture so she knows that she's not gonna fit in as well but like I feel like she wants to fit in 'cuz she knows that she's just gonna stand out in front of all the other people.
Nichole	I agree with Malcolm because there's like different situations that you can fit in and also stand out. There's negative and positive ways [to fit in].
Jessie Ann	I was gonna add another thing. Like in the book, I think like Sara tries to fit, like fit in, like differently than everybody else because like she wants to be like a person who stands out. But she, but she doesn't know how to do that kinda.

Lacie specifically contributed to Malcolm's understanding of David's point by adding that Jude both feared and desired to stand out depending on the point referred to in the text. Nichole agreed with Malcolm and seemingly Lacie as she affirmed that negative and positive ways to fit in exist. Finally, Jessie Ann shared that different ways to stand out are possible, but people can struggle with finding their way. Each student made a unique point that demonstrated knowledge revision and their own thinking about the text. Collective argumentation was

evidenced by including Malcolm's thoughts in their own utterances. Students in this excerpt also used text-based evidence to collectively engage in the discussion.

Excerpt 2 also illustrates how students in fifth period's February TB-SWD used collective argumentation to co-construct knowledge about the text, specifically challenging a paradigm. Students here used an anecdote from the text about how Jude's mother wanted to prioritize the retention of their heritage while still encouraging Jude to fit in.

Excerpt 2.

David	And um…also I noticed that um Jude's mom seems to like, also sort of want to fit in. Like she doesn't like, she like, she's like happy to be in America but at the same time, like she's, I'm starting to like notice like by the tone of her voice and like what she does, she almost kinda wants to fit in.
Alex	I disagree with David, actually, because I think like, her mom, Jude's mom, er yeah, Jude's mom kept saying like, like, she was like "I don't want um Jude to forget about um home" and stuff. I think she wants to stand out in like a way to like make Jude like wanna go back to, er like want to go back to home or something like that. I don't know.
Elycia	I agree with Alex because I think that um Jude's mom really wants her to like not forget about um Syria and to remember her home, remember where she lives, what she does, remember how to speak Arabic, to not forget stuff like like she thought like her uncle did. Or brother.
Lacie	I also think that her mom like, her mom doesn't want her to like fully change but her mom also wants her to get used to living in America because she knows that just because, just 'cuz her family's from Syria, she doesn't know if it's gonna be Syria everywhere they go. They just have to add the same thing on. So where I feel like her mom wants her to keep her culture and remember what it is, but also 'cuz her mom wants her to like help Jude learn more things in America and get used to it more than she would herself.

In this excerpt, David referred to Jude's mother wanting to fit into American culture, but three other students disagree with him. Alex, Elycia, and Lacie collectively built on and challenged David's argument. Alex began by reminding David of the part of the text where Jude's mother mentions she does not want Jude to forget her heritage. Elycia added on to Alex's sentiment, contributing that Jude's uncle and brother eschewed their roots to fit in with

Americans in Syria. Lacie also contributed to the point here, adding that both sustaining parts of the culture to remember one's heritage and developing resilience as Jude lives in the United States are both important things Jude's mother wants for her daughter. Students in the excerpt referred to David's initial comment in some way, either directly or indirectly, then built on it to develop a point.

Higher-Order Thinking. P. A. Alexander et al. (2011) offer a multifaceted conceptualization that supports students' thinking and the knowledge required to do so: "Higher-order thinking is the mental engagement with ideas, objects, and situations in an analogical, elaborative, inductive, deductive, and otherwise transformational manner that is indicative of an orientation toward knowing as a complex, effortful, generative, evidence-seeking, and reflective enterprise" (p. 53). As such, higher-order thinking activities are a form of strategic knowledge (Hattan & Lupo, 2020) application as students actively participate in their learning and engage in strategy use, and classroom discourse enables those higher-order processes to fully emerge (R. Alexander, 2020).

Students who participated in TB-SWDs had multiple exchanges that reflected higher-order thinking. Activities that stimulate this caliber of thinking include synthesizing and analyzing (B. S. Bloom, 1956), and more recently have included "constructing arguments, asking research questions, making comparisons, … dealing with controversies, identifying hidden assumptions, classifying, and establishing causal relationships" (Zohar, 2006, p. 336). As such, these applications and interactions are considered to bring more depth to meaning-making as students include other texts for examples and counterexamples, engage in nuanced and abstract thinking, go beyond what is simply recorded in the text, and utilize multiple and multifaceted ideas to create a line of thinking through exploratory talk. Use of text evidence and students'

knowledge is, therefore, considered a higher-order thinking activity because it requires students to devise and support an abstract yet defensible argument with information from the readings.

Specifically, students used *text evidence to highlight abstract concepts and themes* and represented both sides and nuances of the question. Students additionally engaged in relational reasoning (P. A. Alexander et al., 2016) and exploratory talk, in which the speaker is challenged with multiple points of view to develop a more complex understanding of the topic (Mercer, 2004). Relational reasoning was observed as students applied analogical reasoning, or finding similarities (P. A. Alexander, 2016), to the text as illustrated in Excerpt 3 when students brought up love and again when students spoke about jealousy, and antithetical reasoning, or demonstrating opposition (P. A. Alexander, 2016), when students talked about emotional distress.

On four occasions, students grappled with abstract themes such as love, jealousy, and emotional distress as they spoke about the text. Specifically, they referred to these themes within the relationship between Sara and Jude. As Jude was a recent immigrant who retained her language and culture, she was able to develop rapport with Sara's father in ways Sara was unable to, having grown up in the United States. In Excerpt 3 from fifth period's February discussion, students explored how Jude's entry into the United States may have caused Sara to feel jealous and treat Jude in harmful ways.

Excerpt 3.

Lacie In a way, I feel that Jude is also kinda jealous of her, of her cousin 'cuz like Sara really doesn't stand out in a bad way. She wants to like, like, she wants the world to pay attention to her but I also feel like they both are jealous of each other. Jude is getting all this attention from other people 'cuz she's from another country but Sara's also like jealous of her 'cuz she's getting all this attention at the same time.

Jessie Ann	I agree with Lacie because I think that Sara feels like she wants to uh be like Jude, because I think she wants like more time with her dad and like to be more like her dad, know more about like what her dad's like and what about all her family on her dad's side's like. I think she's kind of jealous of Jude. I think that's why she's being like that, 'cuz she's being that.
Dalton	I agree with Jessie Ann because I remember in one part of the book, Sara says "wow, you're so lucky you speak Arabic" 'cuz her parents were speaking Arabic.
Anthony	Yeah, like what Jessie Ann said, she was like jealous.
David	I'm sorry, go ahead.
Alex	Like what Jessie Ann said, Sara's like jealous in a way. She wants to be like Jude and then it's like back and forth because Jude wants to be like Sara…well, like Jude wants to be like Sara, as cool as Sara but then Sara wants to be like Jude because like Jude gets to speak Arabic and Jude's hanging out with Sara's dad more than Sara's hanging out with her own dad.

Lacie initiated the discussion by suggesting that Sara was jealous, an inference from the character's behavior in the text. The other students in the exchange agreed with and elaborated on her initial idea, though they attributed the idea mostly to Jessie Ann. What is notable about this excerpt is that nearly all other exchanges in this TB-SWD focused on personal or text-to-idea (i.e., recall) connections rather than using more complex metacognitive strategies as they made meaning from the text. This consideration of abstract ideas can illustrate higher-order thinking because students moved beyond just what was in the text to making inferences, which required the ability to 'read between the lines' and use text and observations to draw a conclusion (Wilson et al., 2021). Lacie also identified elements of analogical reasoning as she found patterns of similarity between Jude and Sara, comparing the girls' relationships with Sara's dad.

Another abstract theme students noted was the possibility of emotional distress. In fourth period, Dennis, Jason, Malik, and another student were discussing the contestable question when Jason pointed out a weakness in Dennis' argument. Dennis stated that popular students "pick on"

others to fit in and switching between friend groups to be in the group with more perceived power can benefit one's social standing. Jason indicated that, though switching friend groups may alleviate one issue of fitting in/standing out, it might be more detrimental to learn the new norms to fit in. This "emotional pain and emotional damage" required to assimilate into a new group at the risk of isolating oneself did not seem to be optimal according to Jason, allowing for antithetical reasoning (P. A. Alexander et al., 2016) to hold sway in creating opposition in the discussion between the two ideas. Malik agreed with Jason, referencing how one treats their peers is often the way one treats themselves and that it "could really affect your life" to fit in in a way that causes others intentional harm.

Finally, two students identified love as an abstract theme within the context of the book and the contestable question. In fourth period, Jessie Ann referenced the relationship between Jude, her parents and Sara's dad, and Sara and her dad, indicating the differences in their interactions. Jude got along very well with Sara's dad, speaking Arabic to each other and talking about elements of their culture. Her relationship with her parents was also very strong. Conversely, Sara's relationship with her dad was strained though she wanted it to be more engaging. Jessie Ann highlighted that spending quality time with someone is one way to show love for them. When Jude's relationship with her parents and Sara's dad outshines Sara's relationship with him, it made Jude stand out in a negative way. In Jessie Ann's response, she demonstrated that love can manifest in many forms and can make people go to extremes to fit in, which alludes to analogical reasoning (P. A. Alexander et al., 2016).

In fourth period, Ophelia referenced the same excerpt of text to make a similar point. Within the text, Sara experienced a removal of love and belonging from her friends as they welcomed Jude into the group. Ophelia stated, "I'm pretty sure that that's probably why she

[Sara] tries to hurt, tries to like say that Jude's weird and stuff so she can make herself feel better." This observation of removing love from one person by disparaging them to increase feelings of belonging and love in others was very astute, making for a strong use of analogical reasoning (P. A. Alexander et al., 2016). The comment was a catalyst for deeper discussion, namely identifying ways that fitting in can be dangerous when others are at risk in any way.

Other students *identified the nuances of the question* and explained how its answer was situation-dependent. This kind of reasoning is considered antithetical through relational reasoning (P. A. Alexander et al., 2016) because it encourages students to consider multiple and sometimes opposing lines of thought about a topic. Occasionally the utterance was taken up for discussion through uptake, or incorporation of others' ideas into a speaker's contribution (Nystrand et al., 2003), but other times it was ignored. These statements below taken from all class periods can be considered exemplars of antithetical thinking; that is, thinking that identifies exceptions to the rule (P. A. Alexander et al., 2016) or identifies opposition (P. A. Alexander, 2016). They can be considered antithetical thinking because students demonstrate that the question is broad enough to warrant consideration of circumstances and context, embodying the notion of multiple and conflicting lines of thought. Students in statements 1-4 below addressed the fit in/stand out question. Joey's and Connor's statements served as thesis statements for their answers, referring to lived experiences, while Jason's and David's referred to the text set. Jason used the anchor text *Other Words for Home* (Warga, 2019) to center his argument; David utilized the article about Bianca Smith becoming the first female Major League Baseball coach (B. Wright, 2021) to frame his thoughts.

Statements 1-4.

Joey (2nd period)	I feel like it's only good to like fit in or stand out under certain circumstances, like depending on what the thing is, like if they fit in or stand out.
Connor (3rd period)	I think it's better for both because um say, if you fit in, they're people that you can trust and people you can lean on. And then but you don't wanna steal somebody's personality like Thomas said, like being the exact same person and copy them.
Jason (4th period)	I think sometimes it could be a good idea to stand out and other times it could be better to fit in because Issa wanted to stand out to help Syria, but um one of the characters…the character Jude wanted to fit in so she could have friends. So I think it depends on the situation as to whether to stand in or out.
David (5th period)	Um, so, I think it is better to stand out, well, it depends. Like if you stand out, like how, I think it was um Bianca or something in that one baseball story, she like stood out so she could have like rights for um the African American people to play baseball, I think. But sometimes it's like better to stand out so that you can get like what you want like the rights and then like after that you fit in. I feel like that was like something good, for both them. They're both like really good.

In the TB-SWD, these students' contributions stood out because they articulate dhow the benefits of standing out or fitting in occurred on a spectrum. Other students in the class focused their claims and evidence on why one was better than the other; whereas the students featured in Statements 1-4 were able to see the nuances of the question. Use of antithetical reasoning such as those shared above illustrated how students must be able to grapple with complex issues to arrive at their own conclusion.

Students were also able to use *multiple and multifaceted ideas to create a line of thinking* through relational reasoning (P. A. Alexander et al., 2016). They used relational reasoning in antimonious and anomalous ways, but these occurred less often than other types of relational reasoning (i.e., analogic and antithetical). Specifically regarding the discussion question, students used antimonious reasoning, or the identification of criteria for inclusion or exclusion (P. A. Alexander, 2016), and the text to infer what standing out and fitting in looked like for the main character, Jude. For example, Dylan referred to how Jude's placement in the ESL class at her

school might have made her part of a group but did not contribute to her sense of fitting in because "they're forced to be there, they have to learn English." He exhibited antimonious reasoning by representing what can be included or excluded as part of a group; in this case, his criteria appeared to be a willingness to be in the situation rather than a coerced nature (reason for exclusion) and a common purpose (reason for inclusion).

Anomalous reasoning was also used when students identified patterns and deviations from the pattern as they discussed the topic (P. A. Alexander et al., 2016). As Dennis spoke about his experiences with fitting in and standing out through the lens of popular vs. not popular people, he mentioned that not all popular people are the same. Striving to break away from the stereotype of self-focused, mean, and "cowardly" people, he noted that "there's a lot of popular people. There's a bunch of different varieties. You can be the nice one who is like the popular kid who doesn't use it to their advantage…" His reference to "the nice one" indicated that this type of popularity is atypical to his experience, signaling a deviation from the norm.

Finally, students demonstrated higher-order thinking by engaging in *exploratory talk* to enhance the multiple arguments within a text. From Mercer (2004), exploratory talk occurs in discussion when students add on to the topic but also challenge the speaker with alternate points of view to further critical thinking. Exploratory talk stands in contrast to cumulative talk, in which speakers add on to the topic but do not challenge the speaker or encourage critical thinking (Mercer, 2004). In the excerpts below (Excerpts 4 and 5) from third period's February discussion, students challenged each other to consider alternate perspectives on the central question about fitting in or standing out.

Excerpt 4.

William I think that if you stand out, you can also fit in, 'cuz like, if you're like, if you're like really good at something, you're like at the top with no one else.

Haasim But fitting in so much isn't so good but also standing out so much isn't that good. Like…

Thomas …but fitting in sometimes is fine.

Excerpt 5.

Connor I think it's better for both because um say, if you fit in, they're people that you can trust and people you can lean on.

Connor And then but you don't wanna steal somebody's personality like Thomas said, like being the exact same person and copy them.

Thomas As long as you don't like change your personality or act different around 'em, like if you act slightly different because what they're comfortable with, then I get it.

Thomas But like also like William said, you stand out if you're the best. So standing out isn't always the worst thing.

Lizzie But if you stand out, who will end up following you, I guess? Isn't that the problem with fitting in sometimes?

In Excerpts 4 and 5, Haasim and Lizzie respectively challenged the speaker's initial perspectives to consider broader outcomes. In Excerpt 4, Haasim encouraged William, who expressed that standing out allows one to fit in by being the best, to consider the negative aspects of both fitting in and standing out by articulating that each side of the argument had issues. Excerpt 5 illustrated the exploratory nature of Lizzie's question to Connor and Thomas, seemingly pointing out that followers always exist. It appeared to her to be a matter of who you follow, who follows you, and what legacy you want to leave, as illustrated in the transcript. This question went unanswered by Connor and Thomas, but led to a burst of activity as students talked over each other to contribute their thoughts. The challenges laid out by Haasim and Lizzie

served as a catalyst for deeper and increased higher-order thinking within the group, which spurred on later discussion.

Social Assistance. The final affordance observed in TB-SWDs was social assistance as manifested through *conversational brokering* and *elevating peers' comments*. Social assistance can be defined through the lens of prosocial behavior, or feelings of empathy, sympathy, or altruism toward another person that spur one to action (Pfattheicher et al., 2022). In this context, examples of social assistance are used to refer to behaviors that provide direct help to a peer (Eisenberg & Fabes, 1990). Instances observed highlight one or more students offering aid to a speaker, such as *conversation brokering* and *elevating other students' contributions* during the discussion.

Conversation Brokering. Students participated in *conversation brokering* or ascertaining positions for who got to speak and who had to wait. Because of the diagram on the board, they were able to see who had yet to speak and could monitor their participation appropriately. The projected visual and resulting brokering (e.g., "No, you can go") can be seen as a path toward equitable participation since those who did much of the brokering had already spoken, allowing new voices to be heard.

Elevating Peers' Comments. Social assistance was also offered as students elevated their peers' comments for analysis in the larger TB-SWD. These incidents typically involved students who spoke more often taking up the ideas of peers who spoke less often, and elaborating on them. For example, in third period, Connor initially responded to the fit in/stand out question by saying both opportunities could be beneficial as long as the initiator did not fully embody someone else's character to do so. Other students talked around his idea, including more vocal students Thomas and Lizzie, but Josh elevated Connor's idea to the group. Josh added on to

Connor's statement by saying he agreed with what Connor stated, but extended it by including references to "two different types of fitting in. There's like fitting in with … like people who have the same common interests and people you like being around. But I know some fitting in is changing who you are…." In turn, Thomas added onto and challenged the idea, leading to further productive classroom discourse. Josh's elevation of Connor's statement by referencing his name, adding to the idea, and turning it out to other students using a scenario and the second person pronoun "you" made it so others could participate more easily.

Additional elevation of peers' comments occurred between students who contributed to the discussion often. Here, students who spoke more frequently would uptake the ideas of their peers and use them to infer and synthesize concepts from the text. In fifth period, Samira, Charity, and David spoke about Jude's brother Issa through his choices to stand out. As Issa decided to stay behind and fight for his country rather than immigrate to the United States, Charity and David capitalized on Samira's initial statement to infer (..."he wants to stand out for change in his country") to make inferences about Issa's character. Charity elevated Samira's comment first, adding that Issa might have stood out "so that other people can fit in because he could stand out and make the difference for other people to be able to live normal lives." David took up the expanded explanation from Charity regarding Samira's statement and made a value judgment, inferring that Issa was "a really good person" by fighting for his country and standing out "'cuz if he stands out, um, you can stand out for a right cause and then you can fit in with everybody else after that." Through the elevation of and extrapolation of Samira's comment, Charity and David created a platform for others to participate. This move supports discursive equity as it makes space for those who may otherwise go unheard to share their opinions and co-construct knowledge.

Summary. Overall, the affordances of TB-SWDs include *collective argumentation* where students learn how to be active participants in discussion; the development of *higher-order thinking skills*; and *social assistance* and an equity-focused mindset to co-construct or revise knowledge through brokering classroom discourse and elevation of peers' ideas.

Collective argumentation enabled students to think together toward epistemic progress through knowledge co-construction. Each student's contribution elevated the TB-SWD to levels it may not have reached if each utterance were siloed. As students worked together to answer the question, they provided different examples and ideas to challenge each other and clarify concepts (Excerpts 1 and 2).

The discussions also encouraged the students to develop their higher-order thinking skills. Students engaged in more rigorous cognitive activity as they talked through nuance within the contestable question (Statements 1-4). They also identified abstract themes within the text, using inference and supporting their ideas with evidence to make a complete claim (Excerpt 3). Use of relational reasoning (P. A. Alexander et al., 2016) and exploratory talk (Mercer, 2004) served to increase the cognitive ante for students as they critically analyzed the text and their peers' contributions (Excerpts 4 and 5). These affordances can help students further develop their abilities to understand text through productive classroom discourse and revise their knowledge to refine their ability to make meaning.

Challenges

Though TB-SWDs are rife with affordances, there are also challenges that should be considered when implementing them in the classroom. Challenges can be divided into three main categories: 1) *reliance on the More Knowledgeable Other* (Vygotsky, 1978); 2) *presence of the same voices*; and 3) the "*me factor*." *Reliance on the More Knowledgeable Other* refers to

opportunities where teachers facilitate the discussion for the students rather than allowing them to negotiate it on their own, whereas *presence of the same voices* refers to a core group of students' continual participation. The *"me factor"* refers to the students' prioritization of themselves and their own performance rather than that of the collective. See Table 6 for a list of challenges, participants, and context.

Reliance on the More Knowledgeable Other. Though the focus of the TB-SWD is to support students' knowledge development and revision and understanding of a text through discourse, the teachers served as the More Knowledgeable Other. The More Knowledgeable Other refers to any person who has a better understanding of or higher skill level in a task or process, who can use their knowledge to support those whose abilities are in progress (Vygotsky, 1978). As such, teachers played the part of the More Knowledgeable Other, often intervening to provide direction during the discussion and facilitating help-seeking behaviors such as raising hands to speak. These behaviors presented as a tension between students' participation and the teacher's role as facilitator. Admittedly, help-seeking behaviors are related to cognitive engagement with performance goal orientations (Duchesne et al., 2019) such as those cultivated through productive classroom discourse; and is supportive of social self-concept and academic self-concept (Dueñas et al., 2021), self-efficacy (A. M. Ryan & Shin, 2011) and academic outcomes (Micari & Calkins, 2021). However, it is essential to consider the function and context of the teacher's intervention within the TB-SWD. In some cases, the intervention was necessary to support students in the discussion; however, upholding the social norms of the classroom as implemented by the teacher may have been less supportive of TB-SWDs.

Challenges were observed as the teacher deployed the role of the More Knowledgeable Other to prioritize discussion quantity over quality. Many teacher utterances implored students to

let others think, for everyone to participate, or notably to put people in "time out" as was the case in second period. These comments such as "'K, so there's like two minutes left so our logs [non-participating students] need to, uh, hog it a li'l bit more here. C'mon logs" from fifth period and "I would like you to look at the board before you make that decision [if you want to share again] to see how many of our peers have not shared yet. Okay?" in fourth period shift the focus from what is being said and how, to who has spoken and who has not. In a TB-SWD, the quality of the discussion is the most salient factor; participation quantity is a small element of the quality (see Appendix C for the rubric that is used to measure discussion quality).

Students also appeared to be reliant on the teacher's guidance as the More Knowledgeable Other for how to proceed in the discussion. While it is typically beneficial to follow the teacher's leadership to maintain order and classroom management, TB-SWDs emphasize *student-led* discussion (Wiggins, 2017). Though present in all recorded sessions, this reliance was especially prevalent in the third period discussion. As they began to discuss their stance on the fit in/stand out question based on what they had read, students raised their hands to signify speaker turns. Their prior experience in whole-group discussions had made raising hands before speaking a commonly agreed-upon norm where the teacher selected who would speak next. This norm contrasts with that of TB-SWDs, where students are encouraged to speak freely and share spontaneously as a conversation about text might otherwise.

Additionally, after a tenuous dialogue between two students in the same third period classroom during the "fit in/stand out" discussion, Ms. Cohen paused the class to facilitate the interaction. Namely, she indicated that TB-SWD discussions were not to be a platform for bringing up personal sleights, even if students did support their statements with evidence from

the text. Though the intervention interrupted the flow of the discussion, it was highly beneficial as the discourse had turned harmful and disputational.

Ms. Cohen then chose a new student to begin the discussion after the disputational matter was settled. When students questioned the decision and why she would not choose the next speaker all the time, Ms. Cohen said it was because the referenced student "had her hand in the air a LONG time." She upheld traditional classroom speaking norms where the teacher initiates the interaction and decides who can speak rather, exerting what could be considered undue influence over a student-led experience. Rather than providing scaffolds before the discussion or feedback after about the incidents, the teacher's consistent interventions as the authority figure may have prevented students from developing strategies to navigate the situations independently.

Presence of the Same Voices. Commonly observed was the presence of the same voices, or the same group of students dominating the discussion. In each recording, there were one to five students who consistently held the floor despite others' interjections. Occasionally, Ms. Cohen or a student would invite another person into the discussion, but they either made a single short statement or were spoken over by the frequent speakers. Many students did not participate in the discussions at all, though it is beyond the scope of the study to ascertain if it was because the same students consistently spoke up.

The "time out" session from second period, referenced below, was notable because it made overt how students responded to a teacher's intervention to let others share. Even after the teacher's reminders to let others talk or to sit in silence for others to gather their thoughts before speaking, a handful of students who had a large presence (Aubree, Nancy, Brianna) continued to dominate the conversation. As a result, other students did not participate as frequently. Excerpts 6 and 7 illustrate how Ms. Cohen attempted to elevate other voices with her "interruptions."

Excerpt 6.

Aubree	I agree with Brianna but like um…
Class	(overtalking)
Ms. Cohen	Okay, I'm, I'm interrupting. Aubree and Brianna, you're in timeout.
Class	(reacts loudly; some with dissent and some with laughter)
Aubree	What did I do?!
Class	(overtalking; some students are gesturing to the diagram on the board)
Brianna	Why am I in timeout?!
Class	(overtalking; laughter)
Ms. Cohen	Nancy's in timeout too.
Nancy	(shrieks twice)
Class	(overtalking)
Ms. Cohen	Alright, let's let other people share.

Excerpt 7.

Nancy	I have something *really important* to say that makes sense!! PLEASE!
Class	(overtalking)
Nancy	It's something about this! It might help! It's related to the topic!
Class	(overtalking)
Ms. Cohen	If not talking is going to help.

Even though Ms. Cohen's intervention did open space for more students to participate, it was not successful in that students still did not engage as actively or independently (i.e., without teacher prompting) as they might have otherwise. This cycle of certain students' "high amounts of discourse/teacher intervention" or "teacher request/minimal increase in participation" was seen in every recording and presented a challenge because TB-SWDs should provide opportunities for all students to share and revise knowledge about the text through productive classroom discourse.

Also in second period, some students recognized and upheld the authority of the core group of participants. The students seemed to be so used to Nancy, Brianna, and Aubree dominating the discussion that the extent of their participation was non-participatory, i.e. they were too focused on getting the three girls to speak that they did not contribute to the discussion productively. After Nancy, Brianna, and Aubree were not allowed to participate further in the

discussion, other students identified that "it's going to the same people!" and tried to call the exiled speakers back into the discussion. Another student, Linda, spoke directly to Ms. Cohen about her decision, stating "I think you made the wrong choice by putting her [Aubree] in timeout!" These ideas reflect the central opinions and nature of a handful of students as driving the discussion rather than promoting opportunities for other voices and forms of knowledge to be heard, and reinforce culturally dominant expectations. Interestingly, the Arabic-speaking students that were present did not participate in either TB-SWD. This is a significant limitation as both the Gratz (2017) and Warga (2019) texts feature Arab students' experiences; therefore, valuable knowledge from their perspectives was omitted and the culturally dominant narrative remained in effect. While it is beyond the scope of the study to infer why this occurred, it can be partially attributed to the return rate of their consent forms. None of the Arabic-speaking students returned their forms, so any exchanges they would have had would not be permissible to use.

The "Me Factor." The above examples also lend themselves well to the final finding, what I am calling the "me factor." This refers to students' prioritization of themselves and their own performance rather than the collective understanding or meaning-making of abstract topics through TB-SWDs. It surfaced in two main ways: *use of personal anecdotes or connections* rather than text evidence, and a *focus on performance*.

Personal anecdotes. Personal connections and anecdotes promote connections to the text and allow many students pathways to connect to the text; however, there were multiple missed opportunities for students to engage in stronger argumentation using text-based evidence. Thus, it is categorized as a challenge given its hindrance of deeper engagement. These personal anecdotes may be considered off-task in the discussion but still vital to students' use of knowledge and meaning-making in productive classroom discourse.

However, a tension was still present between students' use of these connections for sociocultural and/or cultural/linguistic knowledge and the teachers' stated desires to utilize higher-order and strategic or metacognitive knowledge. Using personal anecdotes at the expense of textual evidence could be attributed to discussion norms imposed by Ms. Cohen. Specifically, students had completed Google Forms graphic organizers to prepare and had had multiple teacher-initiated text-based discussions connecting *Other Words for Home* (Warga, 2019) and the conceptually coherent texts, but they were not permitted to use their notes during the TB-SWD per Ms. Cohen's instructions. As such, they only had access to their own experiences rather than text-based support. Access to notes during the discussion may have supported discussions with higher-order thinking orientations, rather than merely recalling personal experiences.

To make meaning from the text without access to their textual notes, many of these personal connection statements were uttered as parallel dialogue, which is similar to parallel play among children. Brigano (2011) defines parallel play as "a form of play during which two children engage in similar play activities in proximity to each other without sharing thoughts, play goals, or engaging in play together" (p. 1057). Students engaged in parallel dialogue when they referred to someone else's comment, then took their contribution in a different direction (Orland-Barak, 2006). Parallel dialogue is different from cumulative talk (Mercer, 2004) in that cumulative talk builds on the previous speakers' utterances to build a coherent argument. Excerpt 8 demonstrates what parallel dialogue can be as Aubree and Alyssa take up Steffani's answer to the fit in/stand out question.

Excerpt 8.

Aubree I agree with Steffani because a lot of people like don't act like themselves, like if you like see a lot of people in public, like if you really notice how a lot of people act like other people just because they're like "Oh I think they're cool, they look cool, I want to be like that and do what they do," but then like as time goes by, they realize that like it's not good for them. It's not good for their brain because they're thinking that they're somebody else but they don't know who they truly are and then they'll never get past in life without thinking that they're somebody else, and they're like "why aren't you yourself? Learn how to be other people."

Alyssa I agree because like I know this is weird, but my mom always says that if everyone was the same, it'd be boring. So like you need like different people so it's not boring.

A third student agreed with Steffani but added their own thoughts rather than building on Alyssa or Steffani's thoughts. Though Aubree did agree with Steffani, demonstrating cumulative talk about people not knowing who they are if they continually fit in, Alyssa and the third student added in separate ideas that are tangentially connected (i.e., not cumulatively building). As with parallel play, the last two speakers were engaged with similar ideas but took them in a different direction while seeming on the surface like they were cumulatively building on the initial speaker.

Students also demonstrated "off-task" participation in the discussion as they answered questions. While not a true challenge in that students still used their knowledge and experiences to participate in the TB-SWDs, it was not in alignment with the expectations set forth by the teacher. Examining how and why students' knowledge veered into off-task tangents may be worthwhile for future research.

Performance. Secondly, students often intensely focused on their performance rather than the quality of the discussion. In second period, one student focused on the informal grade they gave themselves during the self-assessment. He asked in this recording and in others if this

discussion was for a grade, highlighting the performance aspect. Other students asked after recording if their contribution was "enough to count," while others gave quick personal connections or parallel dialogue at the one-minute warning so they could be counted as speakers. This focus on performance rather than on preparation and quality of the discussion can be troubling. In schools in the United States, individualistic tendencies and a quantitative mindset pervade how teachers teach and students learn (Grove, 2005). As evidenced by students' prioritization of their own efforts and emphasis on their grades, this contradicts the nature of TB-SWDs. TB-SWDs should provide space for all students to revise and co-construct knowledge without fear of answers "counting" or receiving a score. When a performance orientation prevails within schools, students often miss out on opportunities to learn with and from each other, explaining their process and offering ways to hone the argument through knowledge co-construction.

Summary. The potential challenges of TB-SWD cannot be dismissed. Overall, the teacher's positionality as the More Knowledgeable Other (Vygotsky, 1978) to control the flow and content of discussion, the presence of the same voices dominating the TB-SWD despite the teacher's interventions, and the focus on the self through personal connections and a focus on performance can detract from the overall affordances of the protocol.

The teacher's positionality as the More Knowledgeable Other in certain discussions, though intended as a catalyst to invoke student participation, served either to uphold traditional Western individualistic behaviors (Grove, 2005) or control the TB-SWD. By enforcing who could speak and when, and prioritizing quantity of utterances over quality, the teacher interjections sometimes reduced the possible community-centric interactions and richness of co-

constructed classroom discourse. In the same manner, the consistent presence of the same voices may have also reduced the number of students engaging in the discussion.

Conclusion

There are multiple affordances and challenges to using TB-SWDs with students in a sixth-grade ELA context. In considering affordances, students can demonstrate agency and metacognitive self-efficacy as they lead the discussion and illustrate how they made meaning from a text. Collective argumentation can cultivate an atmosphere where they develop their thinking and revise their knowledge about a text with social assistance from peers. Within the discussion, students can demonstrate higher-order thinking skills through recognizing levels of nuance in questions, incorporating text evidence to strengthen their claim, and challenging each other to develop more complex understandings of the text.

As for challenges, teacher control through their positionality as the More Knowledgeable Other, participation and perspectives from the same students, and prioritization of the individual rather than the collective were observed most frequently. Some of these are elements outside the students' control, as these may stem from participants' experiences with traditional teaching and learning practices such as I-R-E without dialogic stance (Boyd & Markarian, 2011, 2015) and the competitive nature of the U.S. education system (West, 2012). Additionally, TB-SWDs were a new protocol for teachers and students, so there was a steep learning curve for all participants. This may have made a difference in how teachers and students engaged in the discussions.

Relatedly, the challenges and affordances counterbalance each other. To counter the effects of the "me factor," prioritizing collectivism through higher-order thinking supports students' collaborative learning. In his eight principles of connectivism, Siemens (2004) explains that "learning and knowledge rest in a diversity of opinions" and that the "capacity to know more

is more critical than what is currently known" (p. 61). As students cultivate a collectivist mindset through further participation in TB-SWDs, higher order thinking through co-construction of knowledge and engagement with text can develop. Similarly, collective argumentation can negate the influence of the "presence of same voices." Through ample opportunities to practice TB-SWDs, students may learn how to negotiate meaning with each other as they develop their collective argumentation abilities. Finally, social assistance from peers can compensate for teacher intervention that hampers the discussion. With more experience in TB-SWDs, students may be able to broker conversations more frequently and become self-aware of their own participation.

RQ 2: Use of Previous Feedback to Improve Future Performance

The goal of the second research question is to evaluate how students used self-reported and teacher feedback to set and accomplish goals in their TB-SWDs. There were no reported issues with the November discussions; however, due to the nature of the school year and timing of the discussion (e.g., Spring Break and state standardized testing), the February unit had to be shortened, ending in late March 2023. Data from the previous TB-SWDs conducted in November served as the initial discussion for goal-setting and the February discussions served as data collection opportunities for feedback application. I recognize that the temporal delay between the discussions may serve as a limitation, yet despite the lack of continuity, the results can still be illuminating. Students did make some level of improvement even with the extended time between sessions, so it can be surmised that having TB-SWD with greater frequency would amplify the success.

While each class' discussion yielded different claims, reasoning, and evidence for the question, the feedback for the sixth grade overall remained largely the same. Positive feedback

from students' self-reflections and the teachers' observations during the November discussion included use of personal connections and agreement with peers to cumulatively build on a statement. With encouragement from the teachers, students set goals to include specific text evidence to engage in the discussion, diversify the use of Accountable Talk sentence stems (see Appendix G) beyond "I agree with…" to move the conversation forward, and utilize wait time appropriately so all perspectives could be heard without calling others out.

For the February discussion, students were reminded of their goals before they began. Mrs. Cohen adopted a saying of "no hogs, no logs" to remind students to share wisely and thoughtfully (i.e., not "hogging" the air or only observing as if they were a "bump on a log"). Additionally, Accountable Talk sentence stem bookmarks were made available at different points during the discussion: some students such as Dylan in fourth period and most of fifth period requested them beforehand, while in other periods, Mrs. Lawrence distributed the bookmarks to students on the periphery at the halfway point in the discussion. Discussions were analyzed to observe how or if the students utilized previous feedback at any point during the recording.

Goal: Use Specific Text Evidence

Students engaged in using textual evidence more in November than they did in February as measured by rate of references (e.g., referring to characters or events, using the sentence frame "In the text…", etc.). In November's discussion about the best way to do things, students consistently brought up articles from the conceptually coherent text set more often and needed few reminders from teachers to utilize the evidence. However, use of evidence was more surface-level and provided ways for students to personally connect rather than dig deeply to synthesize from and analyze the text. Excerpt 8 from sixth period and Excerpt 9 from fifth period (both

from the November discussion) each illustrated a brief mention of one of the articles and focused on personal connections rather than the question. Excerpt 9 referred to the article about dress codes, whereas Excerpt 10 referred to an article about pre- and post-COVID hygiene.

Excerpt 9.

Brett	Also, along the lines of the dress code, I notice a lot more people wearing coats then, um, 'cuz there was a rule in the old one, that you couldn't wear coats and stuff, er, I don't think hoods either. Or hoodies. Or anything like that.
Ophelia	With the dress code, I just like, I like how it changed because now stores like, for girls, they only really sell crop tops and stuff and like tank tops so it would be really hard to find something that would like, be suitable for the old dress code.
Ophelia	Unless you actually have a uniform, uniform. And those can be hard to find too. So I'm just saying it just makes it easier for everybody.
Andrea	Yeah, I agree with that. And like in the the old one, you couldn't like, people couldn't wear shorts unless it's like summer or August and stuff but I've seen people in shorts out of summer.
Cassie	[unintelligible] fingers down to the leg, I'd be wearing that small of shorts.

In Excerpt 10, David referred to Alex's thoughts on how COVID had changed how people interact in the world, even for a brief period. Dalton and Lacie connected to David's way of coping. Again, there is a brief mention of the article topic and then substantial use of personal connections.

Excerpt 10.

David	I want to add on to Alex because I feel like, yeah, COVID did change us.
David	It also changed like the way we think about things.
David	But in general, we were just bored during quarantine . Especially when I had COVID, I missed the first week. You guys were all at school, I was like going out, I was just like "can I PLEASE talk to the public? Please?"
David	And I, and I knew I had COVID. But just like going out, back and forth, every single hour, doing whatever I could…I got even so bored, I made a waterslide in my backyard. That's how bored I got.

…

Dalton I agree with David a couple statements ago because he said he was so bored during quarantine that he made a waterslide.

David I got COVID during winter break here and was stuck in my basement for a week. And then I got so bored, I just built a pillow fort and then slept in it the whole time.

…

Lacie I think I relate with Dalton because I was stuck underneath my bed and I put a blow up mattress underneath my bed and just slept underneath my bed for a whole week straight, while my brother played Roblox 24/7 and all I heard was some "Adopt Me" background music.

Because one way students demonstrate thinking about a text is by sharing connections, this was an easy opportunity for students to engage with the practice (e.g., Ophelia's mention of her shopping experience or David, Dalton, and Lacie's experiences during quarantine). However, the connections made were not deeply connected to text—students participated in more tangential utterances surrounding how they spent their COVID quarantines rather than engaging with the discussion question. As a result, students used the text topic, but not evidence from the articles to support their stances in a substantial manner.

Conversely, in the February discussion for the fit in/stand out question, students needed to be reminded to use text evidence but did so in a more analytical way. After the initial reminder, they consistently drew from the conceptually coherent texts to answer the question. Excerpt 11 from fourth period demonstrated how students grappled with the nuances of the question through use of text evidence.

Excerpt 11.

Ophelia Like yeah, and also *Other Words for Home*, like the uh, the girl that, Jude's cousin Sara, she tries so hard to fit in with her friends and she, and then she just ends up being really popular, like what you said when someone gets really popular, people don't want to hang out with you because you're so strict on who your friends are,

	she's extremely strict considering what she said to Jude. Like how she said she was weird and stuff and how she was like "don't act weird in front of my friends."
…	…
…	…
Dylan	There's no guarantee that you'll fit in eventually.
Hannah	Also I think that when Jude and her mom like, I think they were walking somewhere and a girl said like, stopped them on the side and was saying like "you can take 'em off," like the hijab, and she said "no thank you, I'm fine with it on" and she like doesn't want to fit in with…like sometimes she wants to fit in and stand out. She wants to fit in in the school and have friends and um she also wants to stand out, like she doesn't want to be just like normal people. She wants to feel special?

Ophelia's comment demonstrated monitoring of the text to illustrate her thinking, which Hannah capitalized on as she indicated the nuance in the argument. Both students drew from specific text evidence to strengthen their claim or challenge the question. Additionally, Ophelia's ability to make meaning appeared to shift from surface-level in Excerpt 9 to more analytical in Excerpt 11 as she uses the anecdote from the novel. She moved beyond a connection to the text in the first excerpt to illustrate her thinking process about the text in the second excerpt. Monitoring of this caliber seemed to strongly support how she derived meaning from the text and the question itself.

Therefore, based on the observations of the February discussions, each class met their goal from November of using specific text evidence to engage deeply with text. The difference between deep and shallow engagement is found in how students used the text to support their claims. Deep engagement was characterized through utilization of quotes or paraphrases from the text to make and support a claim using a higher-order thinking strategy such as analysis, inference, and synthesis. Shallow engagement was characterized by tangential connections to the text or claims without evidence provided.

Goal: Diversified Use of Accountable Talk Stems

Regarding the diversified use of Accountable Talk sentence stems, there were some small changes between the November and February discussions. At some point during each class' discussion for both units, students received a handout listing Accountable Talk sentence stems including "I agree with…", "At first I thought X, but now I think Y", and "I want to add on to…" These handouts served as a scaffold for students to demonstrate their thinking verbally. In November, the most-used teacher-provided sentence stem used was "I agree with…" While that was not the only way students initiated or participated in the discussion, it appeared the most often and in every observation. Agreement overall could signify that students focused more on harmony than building a multifaceted argument to advance the discussion in a more analytical way. Similarly, cumulative talk prioritizes constructing an argument by building on the previous utterance through agreement or addition of details. (i.e., cumulative talk; Mercer, 2004). This type of talk stands in contrast to exploratory and disputational talk, where the former prioritizes critique and challenge to advance the discussion and the latter has an emphasis on non-productive argumentation.

In February, the sentence stem "I agree with" remained the most common, but a few students drew on other sentence stems or their variants to engage in the discussion. These occurrences were specifically observed in fourth and fifth period only; second and third periods solely used the "I agree" sentence stem. Statements 4-11 provide examples of the other sentence stems used.

Statements 4-11.

Malik (4th period)	**I disagree with Dennis.** If you're popular, it doesn't really mean that you're a coward. And, you can be popular with the kids that can [unintelligible]. I agree with certain groups within society but that doesn't make you a coward.

Dylan (4th period)	**I see your point**, but also um you don't really even have to be in a group. You could just, um, you could just do, you could just do something on your own. Um, **in addition**, I also think that um like in the story *Other Words for Home*, Jude, um she isn't really in a group, because she's friends with Layla but just one person isn't enough to make up a group. …
Alex (5th period)	**Going back to what like David said** about like kinda not having an opinion, 'cuz like if you wanna be like, I guess you like, in someone else's like point of view, you could wanna like just fit in and like, and just like be like, like just like be like, try to be like the other people but then like for some people you want to stand out because you do really want to make like a change in like your life
Jessie Ann (5th period)	**I was gonna add another thing**. Like in the book, I think like Sara tries to fit, like fit in, like differently than everybody else because like she wants to be like a person who stands out. But she, but she doesn't know how to do that kinda.
Anthony (5th period)	**I want to disagree** with David because Jude was in a class with kids from other countries and they actually fit in because she stood out in a way. Does that make sense?
Lacie (5th period)	**That's like what Charity's saying**. I feel like Jude also like didn't wanna like stand out in a way that made her, like in a way that people label her in a certain way or thought she was weird or thought of her in a different way. Like she might have like knew, like she knew that she was going to stand out but she also didn't want people to think of her, like label her or like think of her in a weird way 'cuz she's from a different country.
Sammy (5th period)	**I want to add on**, on to something from this conversation. There's different groups of fitting in, like how different places have different cultures and things that they do. So depending on which place you go, you can fit in or fit out.

The students above used sentence stems or variants of them to express disagreement, add on to, or demonstrate alignment with a peer's statement to move the discussion forward. Diversified use of sentence stems can indicate higher order thinking and a willingness to challenge or critique a peer's observation rather than simply agreeing for the sake of it. These dialogic interactions are crucial to students' development as critical thinkers and readers, as the utterances demonstrated how they engaged with each other directly to demonstrate thinking-in-progress. According to LaRusso et al. (2023), these student-to-student discourse moves are rare. As most student-focused discourse moves focus on responses to the teacher's query either

through a claim supported with evidence or an extended statement where a student makes their point clear to the teacher as the audience, capturing these student-to-student moves can craft a comprehensive picture of students' knowledge revision in action.

Knowledge revision through TB-SWDs can help students move toward epistemic progress, or the creation of better and more-thought-out ideas (Golding, 2012). In their 2019 paper, Kendeou and colleagues found that after knowledge has been encoded, coactivation, integration, and competing activation become necessary conditions for revision. Each use of a sentence stem cultivated a space for coactivation where students could entertain new and previously-learned knowledge to begin the revising process. Students participated in integration as they verbally processed new information to integrate it into how they made meaning from the text, building a more complete argument. As the discussion progressed, students experienced competing activation as the newly encoded information supplanted the previous knowledge.

In this study, only students in fourth and fifth periods were observed to have used more diverse Accountable Talk sentence stems to participate in discussion. As students used varying talk stems, it indicated they used active listening to participate in knowledge revision and co-construction. This co-construction took the form of developing arguments as Jessie Ann and Sammy did, examining multiple perspectives as Dylan and Charity had, and engaging with counterclaims such as Malik and Anthony did. The knowledge revision and co-construction process also illuminated students' higher-order thinking. Assimilating knowledge, applying multiple and potentially conflicting lenses to a text, and critiquing an argument use synthesis and analysis to make meaning. Since synthesis and analysis are considered more cognitively demanding according to B. S. Bloom's (1956) taxonomy, it can be deduced that students in fourth and fifth period utilized more complex thinking to engage with the text.

Goal: Utilize Wait Time to Increase Participation

Upon reviewing the November recordings, it was evident that a core group of students had consistent participation while others did not participate at all (see Research Question 2 and the challenge of "the presence of same voices"). Students would be encouraged to wait and let others participate but this often led to long silences (ten seconds to two minutes' worth) or an overabundance of one-line comments from those who simply wanted to be counted among the participants. Occasionally, participating students would "call out" those who had not spoken to incur interactions. The teachers made it clear that they felt this calling-out was not respectful participation in group discussion, bringing it to the students' attention. Therefore, each group set a goal to utilize wait time effectively to encourage participation without confrontation. Ms. Cohen and Ms. Lawrence determined that to effectively meet this goal, the number of participating students should increase and the number of student-generated call-outs should decrease. After analyzing the discussions, I wanted to consider how students used conversational brokering (see "social assistance" in the previous section) to incur more participation as well.

Success for this goal was determined by observations in three areas: use of conversational brokering; increase in number of participants overall through use of the TB-SWD discussion diagram projected on the board; and decrease in "call outs" for prompting others to engage in the discussion. All three criteria must have been observed to meet the goal.

Conversational Brokering. Conversational brokering, or navigating the discussion by consciously stepping back to allow others to speak, was specifically observed in fourth and fifth period's February discussions. However, a distinct lack of conversational brokering was noted in second and third period's February discussions. Specifically in second period, students who were asked to use wait time by the teacher instead of talking got upset and indicated their displeasure

at not being able to participate ("put in time out") through nonverbal interactions. As a result of this "time out" instituted by Ms. Cohen, three students who did not normally participate shared during the discussion. However, this abrupt shift in discussion climate may have created a negative perception or increased unwillingness to participate from others.

Third period's discussion presented with no conversational brokering, as the interactions between students pertained more to talking over each other. While students did yield the floor to a peer when asked, they did not indicate displeasure as the students in second period did. Therefore, second and third period did not meet the criteria for this part of their goal, but fourth and fifth period did.

Increased Participation. Regarding the criteria to increase students' overall participation and decrease "call outs," one of the instructional differences was that in February, Ms. Cohen projected a map of the TB-SWD diagram on the SmartBoard. This decision was made so students could become accountable for their own participation. Students can be observed in the videos as frequently looking at the "web" on the board to ensure they had spoken, checking their own participation against that of their peers by evaluating the thickness of the connecting line between speakers to support their interactions. Use of the projected map plus the other strategies (conversational brokering and use of diversified sentence stems) may have encouraged students' engagement between the November and February discussions, leading to drastic participation increases in third period (81.3%), moderate participation increases in second period (33.3%), and minor participation increases in fifth period (6.25%)[19].

Reduced Call-outs. Though the projected diagram did improve participation, it did not reduce "call outs" completely. Being able to see who had spoken and how often seemed to be

[19] See Table 7 for more specifics on the totals and change in participation.

beneficial to some students; however, it did not seem to support others throughout the discussion and led to the call outs because everyone could see who had not spoken yet. In some instances, Ms. Cohen had to remind students not to reference others to bring them into the conversation (e.g., when students would say "George, do you have anything to say about this?" or "Okay, the logs talk now," Ms. Cohen would remind them of the norms not to do that). On other occasions, she would encourage them to give their peers time to formulate their thoughts. Even with reminders, students still tried to bring others in. While this technique is beneficial to hear from all students and can be used successfully to engage in discussion, the purpose of TB-SWDs is for spontaneous participation without direct or indirect coercion. As a result, students may have prioritized extrinsic motivation rather than pursuit of meaning-making and the ultimate objective of TB-SWDs, which can be intrinsic.[20] Students worried about their participation "counting" due to the grade-based rubric rather than the spirit of collective thinking toward epistemic progress. They also strongly considered the quality of their utterance (e.g., "is this good enough") rather than the thinking process and knowledge revision that could occur.

It should be noted that the goal did not have a number or percentage attached to it to signify a successful decrease in call outs. Since a decrease (but not eradication) in call outs was observed, it can be established that all class periods met this criterion. Based on the indicators listed in the goal made in November, only fourth and fifth periods successfully met all criteria. Second and third periods were successful in utilizing wait time to reduce call outs and increase participation, but not in conversational brokering.

[20] Extrinsic and intrinsic motivation both have a place in classrooms. For example, students may be more intrinsically motivated if they feel they will be successful, and have the agency and perceived competence to do so (Ryan & Deci, 1995). There are also various types of extrinsic motivation which are beneficial to students, including maintained or increased social standing, alignment with values, and achievement of goals (Ryan & Deci, 2000).

Summary

Students used previous feedback to different degrees within TB-SWDs. As they used their feedback from November to act on the goals set for the February discussion, there were varying levels of success. Fourth and fifth periods were the only classes to meet all components of each goal. Second and third periods were successful in use of text evidence only, and had partial success regarding the goal of utilizing wait time to increase participation.

RQ 3: Types of Knowledge, Rigor, and Discourse Processes Used in TB-SWDs

I also examined how students used knowledge, discussion structures, and rigorous thinking during TB-SWD. I used the KAT-C protocol (Appendix A), sociocultural discourse analysis (Mercer, 2004), and the NAEP cognitive targets (2026; National Assessment Governing Board, 2024) to code the data and share the findings from both discussions ("fit in/stand out" and "better way to do things").

Types of Knowledge

Students used various types of knowledge to participate in the discussion. Cultural/linguistic knowledge had the highest usage (37%), requiring further analysis of specific types of cultural and linguistic knowledge used. Sociocultural knowledge was the next largest category (30%), followed by textbase (16%)[21], conceptual knowledge (7%), and strategic knowledge (6%). Principled knowledge and declarative knowledge accounted for 3% and 1% of the knowledge types used, respectively. Please see Table 8 for the specific breakdown of knowledge types and Table 9 for knowledge type usage by class period.

[21] Since TB-SWDs are text-based discussions and textbase knowledge refers to how the text is used in the discussion, this will not feature prominently as it is part of the requirements for the task.

Cultural/Linguistic Knowledge (CLK). Several themes continued to occur in the coding process for CLK. Of particular interest is students' use of scenario and second person to process their thinking through their cultural/linguistic knowledge. They would often use observed experiences, the second-person pronoun "you," and the text to convey a point. Use of scenario and second person is different than an analogy because an analogy does not refer to a person's possible lived experiences. One example of an analogy would be when in third period, Thomas referred to fitting in instead of standing out as being like "just another plant in the forest." This analogy does not refer to a person's lived/observed experiences or a scenario in which people are involved; therefore it cannot be counted as part of the scenario and second person category.

Students used this technique to advance the conversation and build on others' knowledge to create a more complex understanding. This was beneficial in many cases as students could add on to or challenge others' perspectives about the text without having experienced the scenario themselves. The following excerpts (12, from third period's February discussion and 13, from fourth period's February discussion) illustrate how students used this technique. In Excerpt 12, Haasim, Lizzie, Lucas, Josh, and Camryn expounded on the fit in/stand out question:

Excerpt 12.

Haasim	It's better to stand out because if you just fit in and you just don't hide stuff that are unique about you, no one's gonna know about (inaudible).
Lizzie	I agree because fitting in is good, like everybody, like you need to have, you need to have like this (prestigious?) thing, like very (straight?) rules about what to do after a thing, so…
Lucas	I agree because you have to like show who you really are, not just like fit in. Yeah.
…	…

Josh Yeah, like the thing is, if you try to fit in, you're not showing who you are, and who like you actually are. But when you stand out, you like show who you really are and how unique.

Camryn I agree, because there's not really anything you need to fit in with, because it's just more stressful.

Students here used second-person point of view to build on an argument. Haasim began by introducing a vignette about standing out to foster one's unique personality. Though seemingly contradictory, Lizzie advocated for uniqueness by going against the status quo. Lucas and Josh agreed with Lizzie and Haasim, using different explanations to ultimately confirm their position. Camryn provided the concluding idea in the line of thought by saying that fitting in is stressful while standing out and being oneself is not. All students in this excerpt used second-person language to engage in the discussion. While it is beyond the scope of this dissertation to ascertain why second-person language was so prevalent, it can be assumed that students are using a relational experience to provide a foundation of knowledge for their peers to build upon. Many of the students in the sixth grade seem to have grappled with this question even before the discussion was planned and have experienced the pull to fit in or stand out in some way. Using the pronoun "you" instead of making it specific to the speaker's personal experience may have made it so more students could connect with the idea, and therefore co-construct knowledge.

Excerpt 13 also involves the fit in/stand out question. Amelia provided an answer to generate discussion, and Dylan challenged her answer.

Excerpt 13.

Amelia I also think standing out is one of the best choices you can make, 'cuz fitting in is kind of plain, like you wanna stand out in the crowd and you want to feel like special, and then you're like how everyone was saying, you have friends that are popular and but you're not popular, you can also be friends with like the popular

kids and that doesn't really matter. Like it doesn't matter who you are, you can be friends with anyone you want to.

Dylan I see your point, but also um you don't really even have to be in a group. You could just, um, you could just do, you could just do something on your own.

Here, Amelia used a scenario to explain her point as she referenced standing out in the crowd and specific friend groups. She may not have experienced this herself but instead laid the groundwork for others to connect to her. Others may have been able to add to the discussion because of her contribution. Dylan used her scenario to rebut the idea, and later connected this contribution to an example from the text. In this case, scenarios allowed students to challenge existing perspectives to co-construct knowledge.

Sociocultural Knowledge. Sociocultural knowledge was highly applied due to the themes and characters in the conceptually coherent texts. Specifically, students applied their worldviews and experiences to the anchor texts *Refugee* (Gratz, 2017) and *Other Words for Homes* (Warga, 2019) as they made meaning. As the characters in the texts were historically underrepresented in some form (e.g., race/ethnicity, citizenship status, etc.), many students took a topical stance to engage with the ideas rather than seeking more depth as they did not share the same experiences. For example, in the fit in/stand out discussion, one student referred to Jude's relationship with Uncle Mazzan, Sara's dad, as "cool" because both characters spoke Arabic. Some students delved more deeply, such as one who spoke about mental illness, neurodivergence, and the difficulties and opportunities they could connect to Jude's status as a newcomer trying to find her way.

While efforts were made to connect to the text using sociocultural knowledge, the success was dampened by whose voices were not heard. None of the Arab-presenting students offered insight or made connections to the text and their experiences during the TB-SWDs. This finding

is disconcerting, considering that both texts have Arab-identifying protagonists and cultural representation as part of the plot.

Strategic Knowledge. Within the strategic knowledge category, I initially began with that term as the only code but diversified within to accurately identify how students thought about text as the incidences increased. Therefore four child codes were derived from the research to further explicate the findings: clarifying, analogy, use of nuanced thinking, and inference (discussed with the first research question). Antimonious reasoning and anomalous reasoning were included in strategic knowledge, as defined through relational reasoning (P. A. Alexander et al., 2016).

Clarifying took the form of asking specific questions to ascertain the speaker's intention or meaning behind the initial statement. In the following excerpts (14 from fourth period's February discussion, and 15 from second period's November discussion), students used clarifying questions either in rhetorical or authentic form. Use of a clarifying question in rhetorical form consisted of students restating a previous utterance then adding on to or challenging it, then using a question to evaluate if others understood what they said. To qualify as an authentic usage of the clarifying technique, either the speaker must respond to the person asking for clarity or the student asking for clarity must rephrase the initial utterance to which the speaker denies or restates/adds on to the meaning behind the rephrasing. It is assumed that in using a clarifying question, the student addressing the speaker attempted to gain the initial perspective to either build on it for cumulative talk or challenge it for exploratory talk.

Excerpt 14 illustrates use of an authentic clarifying question as Sarah, Zeinab, and Dennis discussed the intricacies of the fit in/stand out question. Dennis sought to understand by asking Sarah to restate what she just said.

Excerpt 14.

Sarah	I agree with (Student) because if you stand out, then you can be yourself. If you fit in, sometimes people wanna ask like other people who fit in.
Zeinab	I agree with Sarah because it's not like (inaudible) to fit in. I feel like it's better to stand out and show your friends who you really are. Better than showing them like the fake person in you.
Dennis	That was exactly my point. There's multiple different ways to, for you to stand out.
Dennis	But um I kind of agree with what Sarah said. Um she said, just because … **what'd you say?**
Dennis	You said something 'bout, just because you um, stand out doesn't mean that you um have to hide yourself to become someone you don't want to be.

Here, Sarah made a statement to which Zeinab contributed. Dennis asked Sarah what she said, then restated what he thought she said to confirm his understanding before he added on to the idea. Sarah agreed that Dennis' understanding and rephrasing was correct through an affirmative nod, to which he continued his line of thinking. Because he was able to seek understanding before continuing as an authentic form of clarification, Dennis was able to better tailor his response to align with both Sarah's response and the overall question being asked.

Excerpt 15 examined the use of a rhetorical clarifying question as Aubree and Samantha took up the "best way to do things" question in second period with the dress code text.

Excerpt 15.

Aubree	Um, I would like to say about dress codes. So, that was like my favorite part about it. But anyway. Um, I don't think it was fair, because we would, girls would have to wear skirts and dresses, compared to guys who go out in like, shirtless and shots, with flip flops on [laughs]. And that just doesn't sound fair at all.
Samantha	I agree with Aubree because like, **what if girls wanted to wear jeans?** They couldn't 'cuz the dress code and I don't think that's fair.

In this excerpt, Samantha supported Aubree's point by asking a rhetorical clarifying question. She did not expect anyone to answer her question ("what if girls wanted to wear

jeans?") but instead used it to add on to Aubree's reasoning ("they couldn't 'cuz the dress code"). The rhetorical question also served as a device to evaluate the reason behind the initial statement, almost explaining it with different words to ensure all participants got the gist of the argument.

Students also used antimonious thinking to represent criteria for inclusion or exclusion. In one example, Dylan addressed what it meant to be considered part of a group for the "fit in/stand out" TB-SWD using an example from the text. He states "…and um, in Ms. Ravenswood's[22] class, I wouldn't also call the um, the kids, all the kids there a group either because they, they're forced to be there, they have to learn English." He used strategic thinking through antimonious examples: he indicated that just because a collection of people was assembled in one place did not make them a group. In later utterances, a peer mentioned the use of shared interests and relationships as the criteria that made them a group (i.e., criteria for inclusion) rather than just proximity, to which Dylan agreed.

With inference, students used their personal experiences to interpret the text through a lens they understood such as in Excerpt 16, taken from fourth period's February discussion. Here, Lacie and Jessie Ann evaluated the text through their conceptualization of Sara's behavior.

Excerpt 16.

Lacie	I also [inaudible], I think it's also not, you know, just wanting to stand out. I also feel like it's her [Sara] just wanting more affection and like having, getting more [inaudible] from her parents, too…like making them jealous, wanting to, like not necessarily wanting to stand out but just being jealous of her, what her life situation is right now.
Jessie Ann	With Lacie, I think, what I said, I think that it was like, she does want more affection but she [Sara] also wants to stand out to her parents more than Jude does. Like she wants like attention too.

[22] Character from the book; teaches students learning English as an additional language.

Jessie Ann Affection is attention to me…

Here, Jessie Ann projected her experience through inference ("she does want more affection…like she wants attention too"). She combined her perception of attention and affection being synonymous with evidence from the text to create an argument about how characters wanted to stand out specifically to be noticed by important adults in their lives.

Summary. Students deployed their knowledge in multiple ways through classroom discourse:

> 1) that they used scenarios or second-person statements to make their ideas more comprehensible and accessible to their peers through cultural/linguistic knowledge; 2) they use behaviors such as clarifying and inferencing to establish their points or understand others more accurately; and 3) that critical thinking processes such as inclusion/exclusion or identifying breaks in traditional thought patterns can be made clear through discussion.

Rigor

Students displayed varying degrees of rigor depending on the quality and purpose of their interactions, based on the cognitive targets established by the National Assessment of Educational Progress (2026; National Assessment Governing Board, 2024) and Webb's (2002) Depth of Knowledge. Each category of cognitive targets was correlated with a level of rigor (e.g, locate and recall/less rigorous; analyze and evaluate/semi-rigorous, integrate and interpret/more rigorous, use and apply/most rigorous). See Table 10 for a breakdown of the types of rigor used by class period.

Within the four main cognitive target categories, three ways to engage in discussion surfaced. These ways were: 1) stating information at the locate and recall level; 2) relaying supportive connections at the integrate and interpret level; and 3) weighing ideas at the analyze

and evaluate level. Though it was possible, the fourth category of use and apply was not observed in any of the TB-SWDs. This absence may be attributed to the short duration and singular nature of the discussions.

Locate and Recall: Stating Information. *Directly stating information* was only used to bring up text evidence or put forth a claim related to the question, placing these utterances in the locate/recall category. When this cognitive target was applied, no explanation or other evidence was offered, and students did not press the speaker to provide more information. These answers qualify as less rigorous because the answer could be taken from the text exactly without more attention given to it by the speaker. This level of rigor occurred seldomly in the February discussions but more often in the November discussions.

Integrate and Interpret: Providing Supportive Connections. While I indicate in chapter 2 that use of personal connections posed a challenge in the TB-SWDs as students used them instead of taking up higher-order thinking, they still represented engagement with the text. Personal connections observed through use of sociocultural and cultural/linguistic knowledge highlighted how students interpreted the texts through their own perspectives and integrated the textbase into their present schema. This level of rigor was especially present in the November "better way to do things" discussions as students brought their experiences with school dress codes and COVID to the forefront. In Excerpt 17 from sixth period's November discussion, Ophelia and Andrea shared their experiences with shopping for clothes to connect to the dress code article.

Excerpt 17.

Ophelia With the dress code, I just like, I like how it changed because now stores like, for girls, they only really sell crop tops and stuff and like tank tops so it would be really hard to find something that would like, be suitable for the old dress code.

Ophelia Unless you actually have a uniform, uniform. And those can be hard to find too. So I'm just saying it just makes it easier for everybody.

Andrea Yeah, I agree with that. And like in the the old one, you couldn't like, people couldn't wear shorts unless it's like summer or August and stuff but I've seen people in shorts out of summer.

Here, Ophelia and Andrea integrated their own experiences shopping for and wearing clothes deemed appropriate by the school dress code as a lens through which to interpret the text. Ophelia and Andrea's references to the "old dress code" was a nod to Pine Grove's recent policy changes for appropriate school attire. Both girls integrated their cultural/linguistic and sociocultural knowledge to interpret the text in a way which indicated how difficult it was to meet the dress code requirements as they were with the present fashion. Use of the integrate and interpret lens allowed them to connect to the topic of addressing crises and expand on it by sharing their experiences.

Students also made supportive but tangential connections as they discussed the "better way to do things" question, regarding COVID-19 hygiene and protocols. This observation was especially present in fifth period's November discussion (see Excerpt 18).

Excerpt 18.

Dalton I agree with David a couple statements ago because he said he was so bored during quarantine that he made a waterslide.

David I got COVID during winter break here and was stuck in my basement for a week. And then I got so bored, I just built a pillow fort and then slept in it the whole time.

… …

Class (giggling)

Lacie I think I relate with Dalton because I was stuck underneath my bed and I put a blow up mattress underneath my bed and just slept underneath my bed for a whole week straight, while my brother played Roblox 24/7 and all I heard was some "Adopt Me" background music.

Class (giggling)

David I want to add on to Dalton. I can definitely agree with that. I did literally almost the same thing. I built a pillow fort and I started wrestling it. I started going crazy and pretended the pillow fort was people I started hating and started kicking it and punching it.

Students used their cultural/linguistic knowledge to connect to each other's responses, namely Dalton's, and employed their sociocultural knowledge as to how they navigated the pandemic. Due however to the tangential nature of their answers, the students may be considered "off-task" as they did not circle back to the question. Other students shared their experiences for another two minutes rather than answering the TB-SWD question. Another student, Alex, connected his experience to the question and the text to bring the discussion back to the topic at hand. This "off-task" nature observed in the excerpt may be considered by non-productive as students do not challenge each other or allude to the text at all; however, it did provide multiple entry-points for those who may not have otherwise participated to contribute knowledge to the collective.

Analyze and Evaluate: Weighing Answers. Students who gave answers at the "analyze and evaluate" level of rigor could be observed "weighing" their answers, striving to examine multiple possible viewpoints to make an informed decision. Because the TB-SWD questions were designed to be contextual and nuanced, students had to use the text and their knowledge to carefully craft their responses. They had to decide which pieces of evidence to give more credence to and develop a rationale to support their claim. In Excerpt 19 from fifth period's February discussion, Samira, Charity, and David discussed whether Jude's brother Issa was standing out for a good or bad reason based on his decision to stay behind as his family emigrated from Syria.

Excerpt 19.

Samira	I agree with David because like the first thing he said, Issa wants to stand out. He's a [inaudible], like to stand out for change in his country.
…	[extended classroom management talk]
Charity	I think that Samira is right about Issa and how he wants to stand out and make it so that other people can fit in because he could stand out and make the difference for other people to be able to live normal lives.
David	I agree with Charity because Issa is actually a really good person. He's staying in Syria so he can fight for his country and stand out, 'cuz if he stands out, um, you can stand out for a right cause and then you can fit in with everybody else after that.

Samira, Charity, and David used pieces of evidence like "staying in Syria so he can fight for his country and stand out" and inference (e.g., "…how he could stand out and make the difference for other people to be able to live normal lives") to analyze and evaluate Issa's decision in the context of the story. David began by initiating the claim that Issa wanted to stand out, which Samira took up, Charity expanded upon, and he recontextualized. As a result of this process, the three students drew on each other's knowledge and interpretation of the text to apply rigor to their thinking.

Summary. Overall, three levels of rigor could be found in the focal TB-SWDs. Students demonstrated less-rigorous (Locate and Recall) thinking least often, which may attest to the dialogic nature of the question. Because students engaged with a question that took on multiple perspectives, they dealt less with content and straightforward answers and more with the abstract nature of the question, all while expanding upon their claims with evidence.

Semi-rigorous thinking involving integration and interpretation of text through students' experiences allowed them the opportunity to connect their knowledge to the text. As observed through its connection to cultural/linguistic and sociocultural knowledge, this level of rigor occurred the most often and may serve as the most prominent way for students in these classes to co-construct knowledge.

More rigorous thinking was also observed as students weighed their answers through use of analysis and evaluation. These utterances produced high amounts of classroom discourse as students interrogated the texts and co-constructed knowledge with their peers. The most rigorous level of thinking at the use and apply level was not observed.

Discussion Structures

The ways students engaged with each other were also measured through sociocultural discourse analysis (Mercer, 2004). See Table 11 for a specific breakdown by class period.

Cumulative Talk. While Mercer (2004) developed the original categories of sociocultural discourse analysis as being *cumulative, disputational,* and *exploratory*, my analysis needed more specificity. I further classified cumulative talk into three categories based on findings from the data: *cumulative monologic, cumulative dialogic,* and *cumulative group*. *Cumulative monologic* is how I described initiate-respond-evaluate (I-R-E; Mehan, 1979) talk without dialogic stance through sociocultural discourse analysis, whereas *cumulative dialogic* talk involved two or more students and the teacher. *Cumulative group* talk was classified as talk having only three or more students as participants without the teacher.

When strictly examining occurrences of classroom discourse, each class period had at least two segments coded as "cumulative group." Cumulative group talk occurred when students talked to each other about the topic but not always in a way that advanced the argument. Examples include students adding on to each other's ideas through contributing details or agreement through identifying different aspects of the question through text evidence as seen in Excerpt 21. Seeing that this category had the highest number of coded segments, it may be said that cumulative group talk is prevalent and beneficial to the learning process. Therefore, use of

cumulative group talk can help students co-construct and revise knowledge through this verbal processing.

In Excerpt 20, William, Josh, Zach, and Maddison discussed the "best way to do things" question by including historical perspectives in third period's discussion.

Excerpt 20.

William	I disagree, because, like the Holocaust is super bad.
…	…
Josh	I agree with William because like, think about it. If no change ever happened, slavery would still be around. Like, and then think about voting. Like women wouldn't be able to vote now because if things hadn't changed, we wouldn't have it.
Class	(crosstalk)
Zach	I agree with Josh because I feel like [inaudible], some rights are more in favor of men and that women should have equal rights.
Maddison	Yeah, I agree with that too.

While it did show their thinking about the topic with some allusion to the TB-SWD question, their utterances did not refine a claim or discuss the idea itself. Tying the ideas together with connections to the question would have made for a stronger argument.

Additionally, cumulative monologic talk did not always lead to productive classroom discourse. In second period's February discussion, students spent more time arguing with each other about who could participate and what could be said, than they did about the topic itself. As observed in Excerpt 21 from third period's November discussion, they often took turns responding to the question by stating information, but did not make any epistemic progress (Golding, 2012) toward co-construction of knowledge or more rigorous thinking, as was the hope for TB-SWDs.

In Excerpt 21, third period's students answered the "better way to do things" question by using text evidence as their answer without taking up a dialogic stance for themselves. Ms. Cohen can be observed facilitating the dialogue to foster productive classroom discourse with

active listening and "response-ability" (Boyd & Markarian, 2015), but the interaction falls short of epistemic progress.

Excerpt 21.

Ms. Cohen	Okay, Zach, we're answering the question "Is how we've always done it the best way to be?"
Zach	It is.
Ms. Cohen	Why?
Zach	[inaudible]. Because we pollute and stuff.
Ms. Cohen	Because the Children of Atom would've, wait, because we pollute stuff? Okay.

Here, students made a claim regarding the Children of Atom, a group from their dystopian unit who worshipped a bomb and drank irradiated water. The initial task was to decide if drinking the water, which was how the Children of Atom had always functioned, would be wise to appease this group who would offer them aid or to decline the water and risk angering the only help available for miles. The question "is 'how we've always done it' the best way to do things?" was derived from this idea.

Zach made a claim that the best way to do things was indeed to continue in the current trajectory but did not advance the argument with text evidence or hone his idea to make it stronger. Ms. Cohen's restatement of his idea and use of active listening could have been used to expand his thinking, but instead another student joined the discussion with a separate idea (see parallel discourse in Research Question 1).

Disputational Talk. Disputational talk was used as a means of manipulating the discussion for certain students' control without engaging in the topic. In second period's February discussion, students argued about who had speaking privileges (i.e., who could participate and who was in "time out"). Though the time out was implemented with helpful intentions to encourage more participation from students on the periphery, it instead served to

draw attention to the more frequent speakers within the time out constraint (Aubree, Brianna, and Nancy). Students on the periphery did participate but also received scaffolding from the three girls, signaling participatory non-participation. Linda, one student on the periphery, even mentioned to Ms. Cohen, "I think you made the wrong choice by putting them in time out!" This deliberate utterance from Linda shows that though Aubree, Brianna, and Nancy were discouraged from participating, they still held control over the discussion.

In third period's February discussion, two students used the TB-SWD to disparage each other's character through fashion choices and behaviors to fit in. This interaction consumed students' attention and was referred to throughout the discussion and after recording. Another interaction observed in multiple videos involved calling other students out to get them to participate. Fifth period's November discussion had a notable occurrence of this phenomenon. Frequent participant Charity used disputational talk to simultaneously oversell her participation and belittle a student. With statements like "I would *love* to let *you* go first because *I'm that type of person*" and "Are you sure *you* don't want to talk, Alex?" (emphasis hers), she concurrently positioned herself as a discourse leader and Alex as someone whose participation may have not been as strong, in a mocking fashion. Both instances signaled students controlled the discussion in a negative way by spotlighting their peers' faults or silence. As TB-SWDs are meant to be constructive opportunities for all students to participate, these instances of control and manipulation through disputational talk could hinder the overall benefits of the discussion.

Exploratory Talk. The class periods that engaged the most with exploratory talk had the fewest instances of cumulative monologic and cumulative dialogic talk overall. Though beyond the scope of this dissertation, it may be argued that more rigorous discussion (i.e., analyze and

evaluate) occurs during exploratory talk. Future research should examine the connection between levels of rigor present in TB-SWD and exploratory talk.

Notably, the class with the most disputational talk (second period in February) had the least amount of exploratory talk. It can be assumed that because the class spent a considerable amount of time arguing with the teacher or their peers, they were unable to challenge each other with text evidence to co-construct knowledge on the topic.

Relatedly, higher numbers of segments coded with sociocultural discourse analysis did not always yield productive classroom discourse. Segments of exploratory talk were substantially longer and used more rigorous thinking than segments with cumulative talk of any kind.

Summary. The three discussion structures observed within the focal discussions highlighted important distinctions for knowledge revision and co-construction. Cumulative talk was the most prevalent and served as a highly prominent way for students to think aloud together (Lipman, 2003), though how it did or did not advance the discussion is debatable. If epistemic progress is the goal for students as they shape their ideas, it may be considered beneficial. However, if challenging paradigms and critical thinking are the criteria for discussion advancement, cumulative talk may not be as helpful.

Disputational talk appeared to serve as a means for control of the discussion. Through arguing, calling out peers, or even scaffolding how those on the periphery participate, students manipulated the focus and outcome of the discussion, potentially jeopardizing the inclusive and productive nature of TB-SWDs.

Finally, exploratory talk appeared to yield more critical and rigorous discussion. As students initiated with peers to challenge existing paradigms, opportunities to co-construct and revise knowledge were more present.

Summary of Findings

This study shows how rich, productive classroom discourse can be cultivated in ways not possible in traditional, teacher-centric I-R-E classrooms without a dialogic stance being taken (Boyd & Markarian, 2011, 2015) or where there is a standardized, expected response. Through TB-SWDs, students demonstrated higher-order thinking by their use of evidence, consideration of nuance, and application of knowledge to make meaning from text. As this protocol can be executed from start to finish in an average of eighteen minutes, it illustrates that critical thinking and knowledge co-construction can be accomplished in a short duration, through talk.

In summary, TB-SWDs are one potential protocol teachers can use to facilitate rigorous group discussions with their students. Their affordances include collaborative reasoning, higher-order thinking, and social assistance and agreement to create or further uphold an inclusive culture. Opportunities for growth and more study include how the teacher facilitates the discussion, how to decrease over-participation from some students and increase participation from those on the periphery, and how to prioritize collaboration rather than self-centered dialogic practices (e.g., parallel dialogue; Orland-Barak, 2006).

One notable feature of TB-SWDs is that students are provided with feedback at the end of the discussion and set goals to improve their future performance. Goals set in one discussion were to use more text evidence, diversify the use of talk stems, and utilize wait time more effectively; these were observed and measured in the next occurrence. Evidence from the recordings suggests that students in all class periods in the study were more apt to use text evidence to support their thinking, which can lead to more developed and critical discussion (De Backer et al., 2017; John-Steiner & Mahn, 1996). Half the classes were able to meet their goal of using different talk stems to engage in discussion and/or utilize wait time effectively to incur

participation. These results, while supporting Raluy and Mislang's (2022) findings about peer support and increased accountability in goal-setting, also indicate room for growth on the part of the students and the teacher as they continue to participate in TB-SWDs.

Finally, multiple patterns of knowledge use, rigor, and discussion structures were observed. Notably the use of scenario and second person through cultural/linguistic knowledge and clarifying techniques played a role in supporting students' contextualization and meaning-making from others' statements or the text itself.

When considering rigor, three main categories emerged: stating information, using supportive connections, and weighing answers using text-based evidence. These were found to be in alignment with the NAEP 2026 cognitive targets (National Assessment Governing Board, 2024) and Webb's (2002) Depth of Knowledge. The categories of rigor that led to the most productive discussions for students occurred in the latter two categories.

Additionally, students' discussion structures also contributed to productive classroom discourse. Cumulative talk (Mercer, 2004), where students built upon others' ideas without challenging or critiquing them, was the most prevalent and helped students co-construct arguments, but the most productive discussions utilized exploratory talk to expand upon and question ideas.

Tables

Table 5

List of Affordances

Affordance	Definition	Month and Class Period	Speakers	Context
Collective Argumentation (Excerpt 1)	"Participants negotiate meanings with each other as they explain their reasoning, listen to and attempt to make sense of other's reasoning, and articulate conclusions and reasons" (Conner et al., 2023, p. 669)	5	Malcolm, Lacie, Nichole, Jessie Ann	Jude shares her experiences about being an immigrant in a new country
Collective Argumentation (Excerpt 2)	See above	5	David, Alex, Elycia, Lacie	Jude's mother grapples with desiring to maintain her heritage and desiring Jude to fit in

Table 5 (cont'd)

Higher-Order Thinking (Excerpt 3)	"Higher-order thinking is the mental engagement with ideas, objects, and situations in an analogical, elaborative, inductive, deductive, and otherwise transformational manner that is indicative of an orientation toward knowing as a complex, effortful, generative, evidence-seeking, and reflective enterprise" (P. A. Alexander et al. p. 53).	5	Lacie, Jessie Ann, Dalton, Anthony, Alex, David	Does Jude's entry into the United States make Sara feel jealous?
Higher-Order Thinking (Statements 1-4)	See above	2, 3, 4, 5	Joey, Connor, Jason, David	Students' identification of the nuances of the central question
Higher-Order Thinking (Excerpt 4)	See above	3	William, Haasim, Thomas	Students consider if it is better to fit in or stand out

Table 5 (cont'd)

Higher-Order Thinking (Excerpt 5)	See above	3	Connor, Thomas, Lizzie	Connor and Thomas think fitting in is better; Lizzie challenges that paradigm

Table 6

List of Challenges[23]

Challenge	Definition	Class Period	Speakers	Context
Presence of Same Voices (Excerpt 6)	Continual participation from the same core group of students	2	Ms. Cohen, Aubree, Brianna, Nancy	Ms. Cohen puts students in discursive timeout for over-participation
Presence of Same Voices (Excerpt 7)	See above	2	Nancy, Ms. Cohen	Nancy tries to participate but is discouraged by Ms. Cohen
Me Factor (Excerpt 8)	Students' prioritization of themselves and their own performance rather than the collective understanding or meaning-making of abstract topics through TB-SWDs	2	Aubree, Alyssa	Students demonstrate parallel dialogue on a topic

[23] Reliance on the Most Knowledgeable Other was omitted from the list as the excerpts were all sentence-long. Excerpts 6-8 are longer excerpts.

Table 7

Total and Changes in Participation, November to February

Class Period	2nd Nov	2nd Feb	3rd Nov	3rd Feb	4th Feb	5th Nov	5th Feb	6th Nov
% Participation	39	52	48	87	68	64	68	71
Change Nov-Feb	33.33%		81.3%		N/A	6.25%		N/A

Table 8

Types of Knowledge Used Overall (Percentage)

Type of Knowledge	Unit Occurrence & Number of Utterances	% Occurring
Declarative (DEC)	Unit 1 (5)	1
Metacognitive (META)	Unit 1 (2)	0
Conceptual (CON)	Unit 1 (12) Unit 2 (28)	8
Sociocultural (SOC)	Unit 1 (79) Unit 2 (92)	30
Strategic (SK)	Unit 1 (21) Unit 2 (13)	6
Textbase (TEXT)	Unit 1 (34) Unit 2 (57)	14
Cultural/Linguistic (CLK)	Unit 1 (102) Unit 2 (104)	39
Principled (PRK)	Unit 1 (14) Unit 2 (1)	2
Knowledge of Multiple Text Use (KTU)	Unit 2 (1)	0
Knowledge of Multimodal Text (KMT)	Unit 1 (1)	0

Table 9

Knowledge Types by Class Period (Percentage)

	2nd	3rd	4th	5th	6th
DEC	0	3	0	0	0
META	0	0	0	1	1
CON	8	6	14	6	6
SOC	33	28	40	27	28
SK	6	8	1	4	5
TEXT	8	12	16	24	6
CLK	42	36	29	36	54
PRK	3	5	0	1	0
KTU	0	0	0	1	0
KMT	0	0	0	1	0

Table 10

Breakdown of Rigor by Class Period (Percentage)

	2nd	3rd	4th	5th	6th
Locate/Recall	8	10	5	2	13
Integrate/Interpret	68	54	45	48	46
Analyze/Evaluate	24	36	50	50	41
Use/Apply	0	0	0	0	0
Total	31	59	43	46	179

Table 11

Breakdown of Discussion Structures by Class Period (Percentage)

	2nd	3rd	4th	5th	6th
Cumulative Monologic	25	15	34	0	0
Cumulative Dialogic	6	5	0	0	0
Cumulative Group	31	40	33	71	62
Disputational	19	15	0	6	13
Exploratory	19	25	33	23	25

CHAPTER 5—DISCUSSION, IMPLICATIONS, AND CONCLUSIONS

Discussion

Whole-group text-based discussion prioritizing productive classroom discourse has multiple benefits for students. Productive classroom discourse supports persuasive writing outcomes (Al-Adeimi & O'Connor, 2021) and text comprehension (Murphy et al., 2009); assists with the development of argumentative reasoning (Kuhn & Crowell, 2011); and supports students' meaning-making as an expansion of literate practice (Janfada et al., 2022). Productive classroom discourse also provides scaffolds for students as they "negotiate with the teacher and each other, elements of the learning process" (Bovill, 2020, p. 1025) to co-construct knowledge. As students use their knowledge to participate in classroom discourse, they can reason more critically and analytically about topics (LaRusso et al., 2016).

However, use of productive classroom discourse is still minimal in classrooms (Elizabeth et al., 2012; Howe & Abedin, 2013; Nystrand et al., 2003). Initiate-respond-evaluate (I-R-E) interactions can be used for productive classroom discourse when coupled with a dialogic stance (Boyd & Markarian, 2011, 2015) but are not typically used in such a manner (Elizabeth et al., 2012). Classroom discourse that utilizes closed-ended questions without a dialogic stance (Elizabeth et al., 2012) is still prevalent despite the strong knowledge base insisting on dialogicity in classrooms (P. A. Alexander, 2016; Gillies, 2016).

The purpose of this dissertation was to observe productive classroom discourse using a discussion protocol to observe the richness of student-centric classroom dialogue with minimal teacher intervention. Through these observations, I identified affordances and challenges in participation and student engagement; explored how students used data from previous discussions to support their growth as readers and speakers; and analyzed the discussions to

determine how different types of knowledge were applied, co-constructed, and revised as classroom discourse occurred. Given the findings of increased higher-order thinking, use of multiple knowledge types, and the increase of social and conversational brokering to facilitate participation, use of text-based Spider Web Discussions (TB-SWD; Wiggins, 2017) support teachers and students in using more and more productive classroom discourse. Students' knowledge use, though primarily cultural/linguistic and sociocultural knowledge, supported their participation in productive classroom discourse through weighing or evaluating answers and making personal connections. Observing these types of knowledge deployed through rigorous interactions adds a new dynamic to comprehension and reading research.

To that end, I conducted a multiple-case study (Santos & Eisenhardt, 2004; Yin, 2017) to collect various sources of information (Cresswell, 2013) including videos, transcripts, and discussion maps to investigate five class periods' TB-SWDs over two units. With the data collected, I examined eight videos (147 minutes of observational data) for affordances and challenges of using TB-SWDs (Research Question 1) and evidence of goals set and accomplished (Research Question 2). Transcripts and discussion maps were analyzed for knowledge use, rigor, and discussion structure (Research Question 3). I used anecdotal notes and coding, sociocultural discourse analysis (Mercer, 2004), the National Assessment of Educational Progress (2026) cognitive targets (National Assessment Governing Board, 2024), and the Knowledge Assessment through Talk for Comprehension (KAT-C) to evaluate students' discussions.

Productive Classroom Discourse

Per L. B. Resnick et al., (2015), productive classroom discourse allowed students to build on, augment, challenge, and question new and existing ways of thinking. In the TB-SWD,

students used conceptually coherent text sets to engage with a contestable question. As students contributed their answers, they actively participated in the discussion through exploratory and cumulative talk (Mercer, 2004). Students in these discussions spontaneously engaged in productive classroom discourse without explicit instruction in what productive discourse was or how to use it.

Students also took up multiple ways to engage in the discussion using text evidence and their peers for knowledge revision. These methods of participation such as knowledge co-construction through providing supportive connections and weighing answers enabled students to take multiple perspectives and develop complex reasoning regarding text (LaRusso et al., 2016).

Goal setting and application of feedback from the observers also enabled students to participate in productive classroom discourse. By providing a means for students to self-evaluate their discussion and co-construct goals to increase certain elements of classroom discourse, they developed their performance more fully, similarly found with Yadin's (2014) results. Specifically, the discussion maps seemed to be beneficial in providing students with a tool to assess their own participation. This opportunity to reflect and make their goals public, both on their performance from November to February and in-the-moment, seemed to promote accountability which aligns with Raluy and Mislang's (2022) findings.

Additionally, the role of the teacher must be considered in productive classroom discourse. Per the criteria of what comprises a TB-SWD, minimal teacher interjection is the goal (Wiggins, 2017). However, the teachers in this study often intervened during the discussions to facilitate students' turn-taking or who got to speak, and maintain order. King's (1993) conceptualization of 'sage on the stage' vs. 'guide on the side' can be considered as teachers transition from a sage to a guide role. Teachers who want to implement this protocol in their

classroom must become comfortable with the discomfort of scaffolding abstract and sometimes controversial questions. Relatedly, teachers will need to shift from I-R-E stances that reflect a "sage" mindset to create space for students to participate in relational reasoning (P. A. Alexander et al., 2016), reflecting a "guide" mindset. Teachers' observations of students' interactions through the discussion must also be astute to determine how they make meaning from text (Boyd & Markarian, 2015. By taking up "response-ability" (Boyd & Markarian, 2011) and identifying examples of relational reasoning (P. A. Alexander et al., 2016), which illuminate trends and patterns in students' thinking, teachers can build on students' existing funds of knowledge. In the focal units from the study, students engaged in antithetical reasoning through finding nuance in questions, antimonious reasoning involving multiple perspectives, and anomalous thinking to detect deviations in patterns. Teachers can capitalize on these observations to assess students' learning.

Use of Knowledge and Text in Classroom Discussions

Findings from this study present important implications to consider when utilizing knowledge to make meaning through productive classroom discourse. Adding classroom discourse to broaden teachers' and researchers' perceptions of what knowledge is—beyond prior knowledge and disciplinary knowledge—allows students to literally join a wider conversation. Hattan and Lupo (2020) and Hattan (2024) posited that activating diverse forms of knowledge before, during, and after reading enabled students to comprehend text more deeply. As Ketch (2005) shared, comprehension occurs most frequently through discussion; therefore, discussion serves as an important medium to facilitate knowledge co-construction and meaning-making about text.

Discourse is also a form of literate thinking (Janfada et al., 2022). By considering how they discuss knowledge obtained through reading, often with co-occurrence between two or more types of knowledge, teachers can ascertain how students make meaning from text. In this way, they can identify misconceptions, connections, and points of strength in students' learning. Teachers' utilization of students' knowledge could also support stronger text-based meaning-making and more analytical thinking about what they read.

Students further demonstrated knowledge use through discourse as they engaged in connectivism (Siemens, 2004). Downes (2022) explained that connectivism refers to knowledge being "distributed across a network of connections" (p. 59) and that learning involves negotiating those connections to lead to more developed ways of thinking. Because knowledge is not static, students continually co-construct knowledge (Cabrero & Román, 2018) both with their peers and based on their context or lived experiences (Johansson et al., 2018).

Specifically, three of Siemens' eight principles were observed as the foundation of their learning. First, students relied on each other's opinions to co-construct knowledge and make meaning from a text as "the capacity to know more" (Siemens, 2004, p. 61) became more supportive of what was known. In the discussions, students built on what each other contributed using text evidence, and expository and cumulative talk to move toward epistemic progress (Golding, 2012). As students co-constructed knowledge, they augmented their conceptions of the topic, leading to more nuanced meaning-making.

It was also observed that students engaged with opinions both similar and dissimilar to theirs, making overt that "learning and knowledge rest in a diversity of opinions" (Siemens, 2004, p. 61). Though limited in capacity due to the questions and conceptually coherent text sets, students illustrated their knowledge as they discussed the questions regarding their experiences.

Notably, use of scenario and second person through cultural/linguistic knowledge and relational reasoning were invoked by students to help them make their points. Students also used multiple kinds of knowledge simultaneously as they co-constructed and revised their knowledge through discourse. The concurrent use of multiple kinds of knowledge to illustrate a point supports critical and analytical thinking about a text.

Finally and most importantly, students were able to use co-constructed knowledge to take clear and cohesive stands on a contestable question as "[the] ability to see connections between fields, ideas, and concepts is a core skill" (Siemens, 2004, p. 61). Students could connect their knowledge and the text, using others' utterances to build their arguments for their position. While not all students navigated this successfully (i.e., retained their original positions or made limited connections between ideas and the text), many of them could make connections to support their answer to the question.

Metacognition, Knowledge Revision, and Higher-Order Thinking

Students were also observed engaging in metacognitive behaviors during the discussion via knowledge revision. As metacognition is widely referred to as thinking about one's thinking (Flavell, 1979), the assumption can be drawn that discourse can make one's thinking about a text explicit (Janfada et al., 2022). Classroom discourse did make students' monitoring, evaluation, and connections within and beyond the text explicit as they shared their knowledge. The participants revised their thinking about the text and their stance on the question as they engaged in productive classroom discourse. Use of supportive connections and opportunities to weigh and analyze their answers with peers created space for students to think deeply and analytically about the topic.

Knowledge revision was also observed as students co-constructed more nuanced arguments. Specifically, coactivation and integration (Kendeou et al., 2019) were observed. The discourse coactivated students' knowledge as they participated in the TB-SWD through expository talk and multiple forms of cumulative talk (Mercer, 2004), allowing the new knowledge brought forth to integrate into previous ways of thinking.

Participants also engaged in higher-order and reflective thinking as they evaluated their performance. P. A. Alexander et al. (2011) posited that higher-order thinking trends toward knowing, acknowledging that it is "complex, effortful, generative, and evidence-seeking" (p. 53). Similarly, M. S. Resnick (2023) referred to higher-order thinking as a way that students can develop their "critical thinking, problem-solving … and the capacity to connect different pieces of information" (p. 2). To that end, students were observed taking up text evidence to support their points; identify nuance within the contestable question; and develop anomalous, analogical, and antithetical reasoning (P. A. Alexander et al., 2016) to share abstract themes in the text. Students also used inference to draw from multiple sources to create a coherent conclusion.

Reflection occurred when students were observed using brokering behaviors. They utilized the discussion map on the board to calculate the frequency of their utterances and used that awareness to moderate their participation. This moderation through conversational brokering (e.g., "You can go"), seemed to establish a means for students to reflect on the amount they had participated.

Students also reflected on their behaviors as they set and accomplished goals based on self-evaluation and teacher-provided feedback regarding their discussions. Wiliam (2018) refers to five important principles for effective assessment and evaluation:

> 1) providing effective feedback; 2) actively involving students in their learning; 3) recalibrating teaching based on what was observed; 4) connecting assessment to motivation; and 5) providing a framework students can use to self-assess their performance. (pg. 41).

TB-SWDs account for all these principles as students make progress toward their goals. Students use the discussion maps, the rubric, and the teacher's feedback from the discussion to set actionable goals (principles 1 and 5), actively becoming participants in their learning (principle 2; see also Tucker & Novak, 2022). The rubric and discussion maps provided motivation for students to participate (or not) in the discussion, encompassing principle 4. As the discussion progressed, students could co-construct knowledge and negotiate meaning from the text and their peers. Teachers then used notes from the discussion and their observations as a formative assessment to recalibrate their teaching (principle 3).

Implications

Given the findings with the present participants, this study demonstrates that the sixth-grade students are capable of higher-level and nuanced thinking and meaning-making with minimal teacher intervention. This thinking was made visible through classroom discourse. Students drew on multiple types of knowledge to support their own answers and co-construct meaning with each other, speaking back to each other and ideas presented in the text, to develop a more comprehensive argument. This fullness of discourse is less possible with the teacher-centric, traditional initiate-respond-evaluate (I-R-E; Cazden, 1988; Mehan, 1979) format or exchanges where a certain response is expected through semi-open questions where there is some flexibility in the response.

Findings from this study have implications for teacher preparation programs and curriculum developers. In the following sections, I describe the implications of the study for each group.

Teacher Preparation Programs

Learning to facilitate productive classroom discourse by utilizing students' knowledge for meaning-making must originate within teacher preparation programs. Many preservice teachers prioritize "transmission of facts or factual elicitation" (Myhill & Brackley, 2004, p. 269) rather than students' sense-making and thinking processes. This use of I-R-E through factual transmission without taking up a dialogic stance (Boyd & Markarian, 2015) can emphasize correctness over learning, as these questions examine surface-level knowledge. As I-R-E interactions are the most dominant in classrooms (Elizabeth et al., 2012; Howe & Abedin, 2013; Nystrand et al., 2003), it can be assumed that participants in teacher education programs would align with this method of instruction as it has permeated their learning experiences.

Learning to be metacognitive and strategic as evidenced through productive classroom discourse should also be a focal point for teacher education programs. When teachers are aware of how they themselves apply metacognitive and strategic thinking to a text, they become aware of how students' metacognition and strategy use might develop (Deniz et al., 2014). Since most students are only aware of their metacognition when their reasoning breaks down (Thomas & Barksdale-Ladd, 2000), teachers must become cognizant of students' thinking while reading. I extend the application of metacognition to include diverse knowledge use, especially since use of strategies through strategic knowledge and knowing how and when to apply them through conditional knowledge are both encompassed in Hattan and Lupo's (2020) knowledge types.

Therefore, by examining how preservice teachers develop the abilities and tools to deploy knowledge use through productive classroom discourse, researchers can analyze the connection between their instruction and student uptake/deployment of knowledge to make meaning from text. J. E. Lee and J. T. Kim (2016) found that preservice teachers need specific instruction into what effective use of classroom discourse can look like; therefore, explicit modeling and opportunities to both participate in and facilitate discourse must be provided. For example, Ness and Kenny (2016) explicitly taught students how to engage in think-alouds with whole-class interactive read-alouds. During the course, Ness and Kenny (2016) directly instructed preservice teachers in what a think-aloud should consist of, modeled the process for them, provided support for them as they designed and later evaluated their own think-aloud lesson, and allotted class time for students to practice and receive feedback from peers. Similar principles of direct instruction, modeling, provision of support, and practice with feedback should be applied as preservice teachers implement TB-SWDs and other modes of productive classroom discourse in their clinical placements.

As such, one implication is that teacher preparation programs should include space and time for preservice teachers to participate and facilitate knowledge-centric classroom discourse. Use of classroom discourse and knowledge can be explored in content areas through disciplinary literacy. Disciplinary literacy refers to the epistemology, inquiry practices, frames, themes, types of text, and discourse/language structures used to facilitate discourse within a subject (Stahl & García, 2022). Specifically, TB-SWDs can be used as a protocol or inquiry practice in any content area or across content areas with multiple texts to engage in disciplinary literacy. For example, students can use primary sources to consider if civilizations should immediately take up new technologies, or discuss if ethics trumps innovation in biology.

To facilitate this learning for preservice teachers, teacher preparation programs should provide ample opportunities to learn about, scaffold, implement, and troubleshoot the TB-SWD protocol in a variety of settings. Knowles' (1978) adult learning theory should be used to model this application through a variety of teaching methods including lecture, participation in TB-SWDs as students and as facilitators, and case study examination. Adult learning theory posits that adults learn differently than children, and should "'let the class do the work'" (Fields, 1940, p. 44-45). In application of this theory, the preservice teachers can design and make ready their own TB-SWDs, having generated abstract questions, practiced wait time and other strategies through micro-teaching opportunities, and led feedback discussions in their preparation programs.

Curriculum Developers

Examining how curriculum is developed can be a catalyst for including more knowledge-based, metacognitive discussion in classrooms. The Knowledge Matters Campaign (n.d.) highlights several knowledge-based packaged curriculums for English language arts classes, such as Bookworms (Walpole, 2023), EL Education (EL Education, 2023), and Wit & Wisdom (Great Minds, n.d.). A cursory investigation of the above programs and others indicate prioritization of content knowledge, cultural/linguistic knowledge, and some prior knowledge activation, but few opportunities to examine broader themes, including culturally inclusive topics, through productive classroom discourse. This is consistent with Hattan et al. (2015) and their study on prior knowledge activation. Rather, supporting additional ways students build knowledge and demonstrate learning (e.g., the Johar family in Mui & Anderson's (2008) article or the preschool students in Souto-Manning's (2010) article) could result in more diverse

meaning-making opportunities. Offering time, space, and direct instruction of how to engage with their peers on a topic can also support students' learning and discussions.

In addition to the forms of knowledge observed in the curricula, including use of Hattan and Lupo's (2020) categories of knowledge can promote equity and accessibility for all students. Considering students' perspectives and funds of knowledge (Moll et al., 1992) can provide avenues for asset-based literacy learning as students make meaningful connections to the content through their experiences (C. D. Lee, 2007).

Curriculum that addresses development and deployment of metacognitive and strategic reading strategies would also be beneficial. When students engage in metacognitive thinking while reading, their ways of making meaning can become evident; however, after my continued exploration of curricula, many programs prioritize specific reading products over the process. Teaching metacognitively can be difficult from both pedagogical and structural standpoints. As teachers, it can be difficult to teach metacognitive strategies because our deployment and application of them is instantaneous; we engage in these processes automatically when our ability to make meaning is hindered (Thomas & Barksdale-Ladd, 2000; Wilson et al., 2024). Direct instruction is also typically not provided to students regarding how to use comprehension strategies (Pressley, 2002) even though the teacher's role in facilitating such instruction is well-known (Kintsch & Kintsch, 2005; National Reading Panel, 2000). Structurally speaking, Gamby and Bauer (2022) identified three challenges when evaluating students' use of metacognitive strategies: "(i) the lack of an operational framework for the development of metacognition; (ii) metacognition instruction models that lack a focus on explicitly engaging students' self-perceptions; (iii) a lack of metacognitive interventions that are easy to implement and require minimal training" (p. 1). Because TB-SWDs use classroom discussion to make overt students'

thinking, teaching students to analyze their discussions as part of the feedback process may be beneficial to observe metacognition, strategy use, and co-construction of knowledge.

Direct and consistent instruction in what metacognition is and how to hone one's metacognitive thinking can also support students' learning (Wilson et al., 2024). Veenman and Beishuizen (2004) indicate that embedding interdisciplinary metacognitive instruction with direct instruction into what metacognition is and how to use it over a long period of time is highly successful. TB-SWDs can act as a vehicle for metacognitive learning because of their sustained duration and opportunities for interdisciplinary use within and across content areas and with text sets.

Limitations

While this study was useful to illuminate the possibilities of TB-SWDs for students' knowledge use and discourse for meaning-making, there are also several limitations. First, data were collected from a case study of five sixth-grade English language arts class periods in one predominantly white junior high school; this may not be reflective of all knowledge everywhere, especially that of historically marginalized students. Additionally, the circumstances under which the data were collected are unique in that some of the classes were co-taught; this may not be representative of all circumstances. Therefore, the data can only reflect the experiences of those populations. Future research is needed to examine how TB-SWDs' deployment in other grade levels and/or with more diverse populations and courses support students' meaning-making and knowledge through discourse.

Second, many students learning English as an additional language and from Arabic-speaking backgrounds did not return signed consent forms. This limited the available participants for data collection but not for participation in the discussion as it was part of regularly scheduled

class activities. This limitation kept me from including their contributions in the transcripts when they did participate, leaving important knowledge they contributed out of the discussion. This is especially important given that *Other Words for Home* (Warga, 2019) is about Arab children's experience and *Refugee* (Gratz, 2017) also focuses on the Syrian immigrant experience. Students could participate in class by sharing knowledge about their lives and culture, but the data could not be captured; this was a missed opportunity.

Third, the application of the terms "knowledge" and different kinds of knowledge observed were highly subjective. Because of the scope of these discussions, capturing the full complexity of them was challenging. This is a cross-sectional observation of students; what they say or do not say is limited compared to the types of knowledge they may utilize over the course of a year. These discussions were just one snapshot within the full year and cannot be considered as representative of all classroom discussions.

Fourth, the three-month time lapse between the focal discussions is a strong limitation. Ordinarily, students would engage with TB-SWDs on a regular basis, either bi-weekly or once a month on the same topic during the unit to analyze the question with deeper nuance. However, due to circumstances beyond the control of the study, there was a significant span of time during which no TB-SWDs were recorded. This may have contributed to students' engagement with the protocols as they had been out of practice with them; students may have been reluctant to share or lost the discursive and cognitive momentum that would have accrued with consistent practice.

Fifth, only including videos that met the definition of productive classroom discourse is a limitation because it does not show the full spectrum of participation for all classes in the study. Students' participation in "off-task" behaviors could have provided rich data, such as insight about the TB-SWD questions or other forms of knowledge.

Finally, perhaps the greatest limitation would be the application of the TB-SWD protocol itself. Compared to traditional weekly coaching sessions in-person consistent with more frequent TB-SWDs, Ms. Cohen and Ms. Lawrence received limited training and feedback on how to facilitate TB-SWDs through frontloading the concepts, pre-observation and post-observation debriefs, and on-demand consults due to circumstances beyond the control of the study. Weekly in-person coaching sessions and more regular TB-SWDs as part of the classroom activity may have supported different outcomes.

Future Research

Future research is needed to examine the implementation of TB-SWDs overall. Since student comprehension outcomes were not tracked in the study, it would be worthwhile to explore if TB-SWDs supported or impacted these concepts. A mixed-methods quasi-experimental study wherein students' scores on comprehension assessments were measured before, during, and after text-based classroom discourse (i. e., through TB-SWDs and another method listed in Chapter 2, with a control group) would provide evidence to further illustrate how students make meaning through discourse and knowledge use.

As the participants in the study were predominantly affluent white sixth-grade students, observing TB-SWD in more diverse sixth-grade classes or with different grade levels may yield different results. Considering that the Common Core State Standards for Speaking and Listening (National Governors Association, 2010) gradually become more complex throughout the grades, it would be worthwhile to see if junior high students and high school students responded similarly to the protocol. Conducting a longitudinal study where TB-SWDs begin at the elementary school level may also prove interesting, through tracking the students' discursive engagement and knowledge use as they progress through their school career.

Relatedly, observing how TB-SWDs can be conducted in content areas and with disciplinary literacy would be highly beneficial. Based on my observations from the pilot study, content area courses such as social studies offer few opportunities for authentic and productive classroom discourse though students want to talk about what they are learning. This study could occur at a preservice teacher level where teacher candidates learn how to facilitate and implement TB-SWDs through their methods courses, or at an in-service teacher level through participatory action research deploying TB-SWDs in their classrooms.

Another area of study may be to focus on how different subgroups of students engage in TB-SWDs. I observed that students on Individualized Education Plans (IEPs) participated the least and students learning English as an additional language did not participate at all in the discussions. Examining the dynamics between and among students in the subgroups may unlock how and why they participate in the way they do. This notion could be examined through diverse classrooms where multilingual students make up much of the student body or in pullout classrooms where students who have IEPs work together with the teacher in a larger cohort. Examining the participation of students learning English who participate in TB-SWDs would also be worthy of study. As the percentage of multilingual students in classrooms has increased (National Center for Education Statistics, 2023), analyzing the knowledge and discursive structures they use in their discussions may expound upon their meaning-making in ways like Ballenger's (2004) work. The analysis could explore the extent to which they use translanguaging, or working fluidly and dynamically with their entire linguistic repertoire (García, 2009), based on their placements in both pull-out classes focusing on multilingual students and in general education classes.

Finally, additional studies should analyze students' use of graphic organizers in preparing for discussions. Research has been conducted on students' use of graphic organizers for written argumentation (Wei et al., 2019), online discussion (Kwon et al., 2018; Reed et al., 2019), and slideshow presentations (Ponce et al., 2018) with positive outcomes, but limited research exists for how students prepare for in-person group discussions. Analyzing students' use of graphic organizers with text sets for discussion can offer insights into how they organize their thoughts and derive meaning.

Conclusion

This study contributes to the field's understanding of how students use text and discussion with student-facilitated whole-group approach to prioritize meaning-making and co-construction of knowledge. This is particularly important as knowledge is considered an essential component of comprehension (Neuman, 2019) and participation in discussion is one way to observe how students make meaning from what they read (Ketch, 2005). Additionally, the protocol used in the study—TB-SWDs (Wiggins, 2017)—supports active participation and utilization of feedback from students to continually improve the discussions. Productive classroom discourse that centers students' voices allows them to become active participants in their own learning through co-construction of knowledge (Tucker & Novak, 2022). This study shows that students who actively participate in these text-based discussions use their knowledge to think deeply about what they read, using complex and nuanced thinking to engage with multiple perspectives. Students also revise and challenge their thinking, and that of their peers, as they engage in discussion. Both findings are significant and relevant as the demands on cognition and comprehension increase (National Assessment Governing Board, 2024).

The lively classroom bursting with discussion can be a reality in all grades everywhere through TB-SWDs. Use of TB-SWDs support productive text-based classroom discourse through knowledge deployment, co-construction, and revision…and that is something to talk about.

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APPENDIX A: KNOWLEDGE ASSESSMENT THROUGH TALK FOR COMPREHENSION (KAT-C)

What is it?

The KAT-C is used to assess how students use knowledge in classroom discourse to make meaning of a text.

Definitions:

Classroom discourse has varying definitions, but the one utilized in this paper will draw on several principles to integrate multiple ideas. Productive classroom discourse is dialogic, involving co-construction of meaning through student contributions and open-ended questions from the teacher and participants, rather than monologic, which is teacher-controlled and uses closed-ended questions to derive a standardized set of answers (Bahktin, 1981) .Productive discourse also invites students to build on, contradict, question, and support answers to generate new or expanded lines of thinking (Nystrand et al., 2003; Resnick et al., 2015). Most often, classroom "discourse" looks like what Mehan (1979) describes as initiation-response-evaluation or -feedback (I-R-E/I-R-F), wherein the teacher asks a closed-ended question, a student responds, and the teacher ascertains if the answer is correct or not. Per Elizabeth et al. (2012), productive classroom discourse, that is, discourse with few I-R-E/I-R-F interactions, is very rare.

Knowledge also has varying definitions. In their literature review, Alexander et al., (1991) posit twenty-one separate definitions and/or applications of "knowledge" were utilized in the texts available at that time. Hattan and Lupo (2020) amplify additional types of knowledge, which I will use when considering knowledge use specifically. Their categories are *cultural and linguistic knowledge* consisting of students' experiences, *principled knowledge* consisting of how ideas connect between subjects or topics, *strategic knowledge* which refer to strategies students deploy to decode and comprehend text, *knowledge of multiple-text use across documents, knowledge of multimodal texts* which include multiple modes of data representation, and *conditional knowledge* consisting of when, how, and why to use certain kinds of knowledge over others (Hattan & Lupo, 2020).

As such, *comprehension* influences and is influenced by knowledge, drawn from multiple theoretical paradigms. Rosenblatt (1978)'s transactional theory indicates that a reader's knowledge influences how they make meaning from text, but also that the text influences the reader's knowledge. As such, the working definition of comprehension for this paper is making meaning from text using one's schema and different types of knowledge to ultimately understand what one reads (see Street, 2008 for additional research on the social nature of comprehension).

Categories for the KAT-C were selected in consultation with Dr. Courtney Hattan (University of North Carolina at Chapel Hill). They were considered to be the most prevalent and broadest for exploration.

Video Selection

- Must be between 10 and 25 minutes (or a combination of clips from the same class, same period, same day, same topic)

    - Example: a social studies lesson with 30 minutes of usable footage can be segmented into 2 15-minute segments, a 10 minute and a 20 minute segment, or 3 10-minute segments, depending on the content
- The group must have three or more students in it if it is a small group or specialized class. One-on-one work and pairwork (the teacher and two students) are not ideal for the KAT-C because use of multiple perspectives or knowledge expression/co-creation may be limited.

Codebook

When coding using the KAT-C, we code for knowledge based on context (what is happening at the time in the discussion and the topic itself), text (what students have read and the evidence they use to support their answer, plus its content), reader (the knowledge they bring to the discussion) and task (how students as readers have been asked to engage with the context and text).

Units are transcribed at the idea level. Transition to a new idea or thought would mean adding a new line of code (see sample).

Each idea can receive multiple codes.

Type of Knowledge	Definition	Code	Example(s)
Conceptual knowledge (Alexander et al., 1991)	"Knowledge and ideas made up of content knowledge and discourse knowledge; comprised of what they are, how they function or operate, and the conditions under which they are used (Carey, 1985; Ryle, 1949)" (Alexander et al., 1991, p. 332)	CON	"I agree because, like I know this is weird, but my mom always says that if everyone was the same, it'd be boring." (Alyssa)
Sociocultural knowledge (Alexander et al., 1991)	"Attitudes and beliefs about the world and how to interact with it that arise from being a member of a particular social group or culture (e.g., Heath, 1983; Rosenblatt, 1978)" (Alexander et al., 1991, p. 333)	SOC	"No. In Lebanon, it sucked. … You're allowed [to have your own opinions] but it sucks. Like they stole your money from the, they they don't they don't give you your money. … And the dollar is like 20,000 [of the Lebanese currency]" (Fariq)

Type of Knowledge	Definition	Code	Example(s)
Strategic knowledge (Alexander et al., 1991; Hattan & Lupo, 2020)	"Knowledge of processes that are effortful, planful, and consciously invoked to facilitate the acquisition and utilization of knowledge (Alexander & Judy, 1988; Prawat, 1989)" (Alexander et al., 1991, p. 333) "Goal-directed processes that improve decoding and understanding of texts" (Hattan & Lupo, 2020, p. S291)	SK	"Un- means what again? Not?" (Dylan)
Textbase (Alexander et al., 1991)	"Occurs at the interface of the individual's existing knowledge and the demands of understanding written or oral communications; involves the combination of *macrostructures* and *microstructures* (van Dijk & Kintsch, 1983)" (Alexander et al., 1991, p. 333; emphasis theirs)	TEXT	"Um, so, I think it is better to stand out, well, it depends. Like if you stand out, like how, I think it was um Bianca or something in that one baseball story, she like stood out so she could have like rights for um the African American people to play baseball, I think." (David)
Declarative knowledge (Alexander et al., 1991)	Factual information (Alexander et al., 1991)	DEC	"It is a peninsula, meaning that is is surrounded by what? Three sides are, that are what?" (Mr. Cooper) "Water." (Students)
Metacognitive knowledge (Alexander et al., 1991)	"Knowledge of knowledge; knowledge about one's cognition and the regulation of that cognition (Garner, 1987; Flavell, 1987)" (Alexander et al., 1991, p. 332)	META	Recognizing when one needs additional knowledge to figure out a word in the text because they have not encountered it before

Type of Knowledge	Definition	Code	Example(s)
Cultural and linguistic knowledge (Hattan & Lupo, 2020)	"Everyday experiences in which students engage peripherally or directly" (Hattan & Lupo, 2020, p. S291)	CLK	"My idea of a utopia would be in my home country on the beach. I used to live near the beach and it was perfect." (Anni)
Principled knowledge (Hattan & Lupo, 2020)	"Knowledge of how ideas are connected to each other" (Hattan & Lupo, 2020, p. S291)	PK	"In social studies we learned about types of government and I can't remember if a monarchy is good or bad" when making a dystopian country in English class (Carter)

Coding Procedure

1. Identify a 10-25 minute segment of video based on classroom activities (e.g., opportunities for students to interact with each other, lecture, etc.). Indicate the total time of the segment.
2. Fill in the video name.
3. List the grade level and topic.
4. List the duration of the discussion.
    1. Please include the feedback session if time permits.
5. List the speakers.
6. Using a table, break the dialogue down into item-of-thought units (see sample).
    1. Number the utterances.
    2. Any student who does not have a consent form on file receives a "Student#" code based on when they are heard in the recording.
7. Identify the speaker in the "speaker" section. If unknown, put "unknown." If multiple (e.g., more than five) voices are speaking, put "class."
8. Enter the utterances exactly as they are, in the "utterance" section. Specificity matters, so include all filler words and repetitions.
    1. XXX is used as a placeholder when what is heard is inaudible or indeterminate. Do not guess.
    2. Any student who does not have a consent form filed must have their utterance labeled as -- (not an em-dash).
    3. Instructions or classroom management (e.g., answering the question "who is speaking", reminding students of the task, etc.) do not receive a code and instead get -- .
    4. Moments where students do not finish a complete thought or are interrupted before a complete thought is finished receive the code of --.

5. Moments of silence longer than 5 seconds receive a time code of (0:XX) in minutes and seconds.

9. Identify the kinds of knowledge used based on the chart listed and place in “code” section.
    1. Any student who does not have a consent form filed must have their utterance coded as -- (not an em-dash).

Scoring Document Template

Video Name: 5th period_DISS_02172023

Grade Level: 6

Topic: "Is it better to fit in or stand out?"

Duration: 18:42

Speakers: Brayden, Samira, (Student1), Alex, Elycia, Malcolm, Lacie, Sammy, Nichole, Jessie Ann, Anthony, Kelsey, David, Charity, Dalton

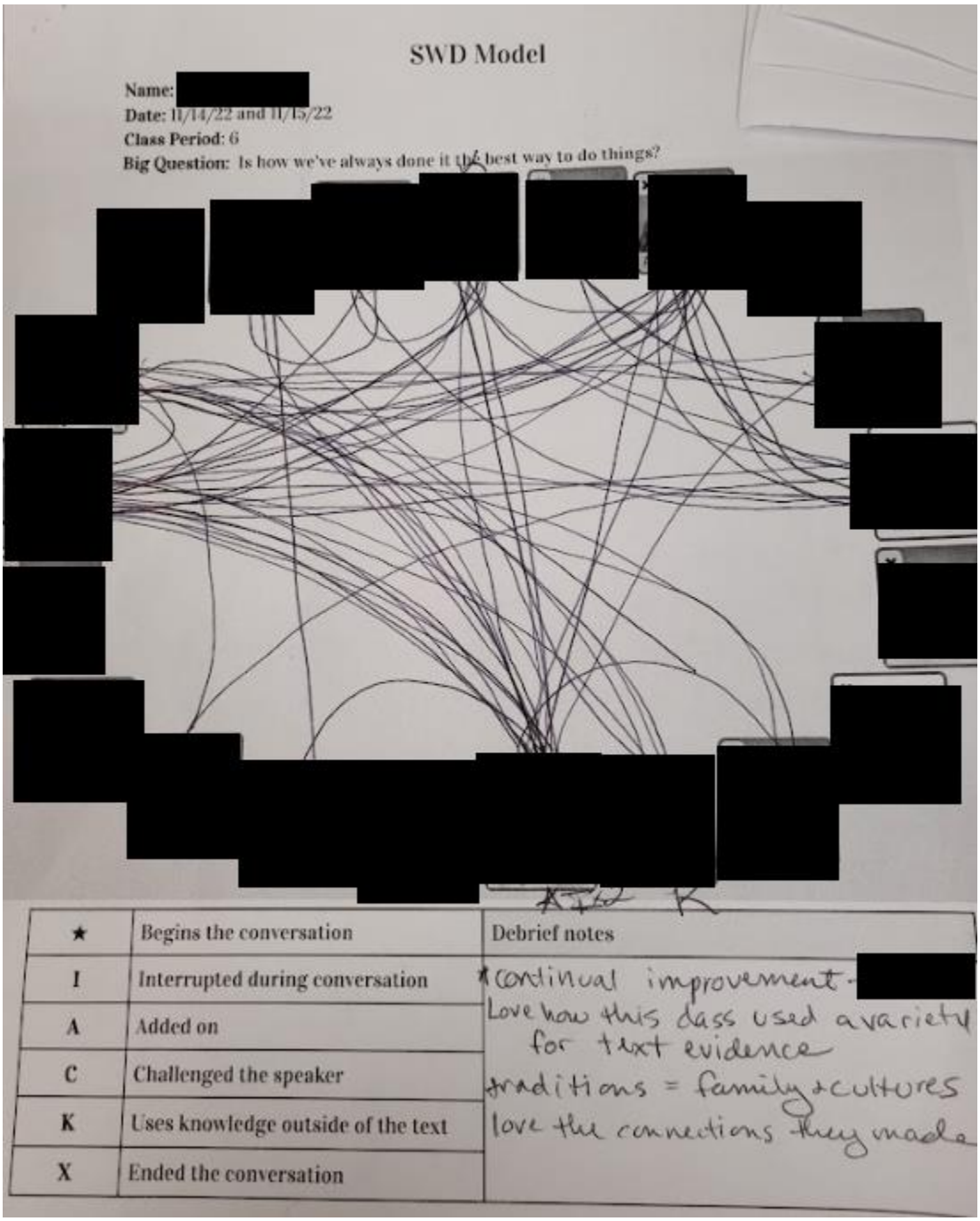
	Speaker	Utterance	Code
1	David	Um, so, I think it is better to stand out, well, it depends. Like if you stand out, like how, I think it was um Bianca or something in that one baseball story, she like stood out so she could have like rights for um the African American people to play baseball, I think.	TEXT
2	David	But sometimes it's like better to stand out so that you can get like what you want like the rights and then like after that you fit in. I feel like that was like something good, for both them. They're both like really good.	CLK SOC
3	Alex	I agree with David because like if you, if you stand out, you can like make a change in the world, I feel like. Like, like, um, Bianca or something like that, like um she stood out. Like she tried, she tried to fit in but like she pretty much stood out and like more Black, more Black people wanna play sports and like coach and stuff	CLK SOC
4	Lacie	I agree with Alex because like if you just, um, is fitting in all the time, you're not going to make a difference in anyone and everyone's just gonna be like they just have to be normal and ordinary like everyone else.	SOC CLK
5	Lacie	I think if people stand out more, then like other people will like feel comfortable enough to also like stand out and not fit in with like every single person.	SOC CLK
6	Student1	--	--
7	Charity	I think that like, it depends because if you are like, you walk in a classroom and all of a sudden you trip and fall on your face, you're the person who's standing out and everyone else is the person, the other people who's fitting in so you don't, you never wanna be that person who's standing out and trips and falls on their face. So I think	CLK

	Speaker	Utterance	Code
		that like, it depends. If you want to make an impression, then I guess it's okay to stand out.	
8	Alex	Can I agree with her?	SK
9	Lacie	I agree with Charity, but like at the same time I don't because sometimes, like, it's not always about like the bad things that happen by standing out. Like it's not always things that are not like, it doesn't always have to be negative things by standing out. You can stand out by like, raising your hand, as simple as that. Like everyone turns their attention to you. It's not as complicated as tripping and falling.	SOC CON
10	David	I agree with Lacie because like, there are, there are like two sides to it. It could be better to fit in or it could be better to stand out. I mean, I don't really have an opinion on this, it's just like, depending on what you want to do, it's better. I don't know.	SOC
11	Jessie Ann	I agree with Lacie because like, it depends on, it it doesn't always have to be like negative. You could be like, you could be funny around like other people or like stuff like that. It's just like, I don't know but like, you could like do different things. It doesn't always have to be negative, like she said.	SOC CLK
Talk continues			
19	David	I agree with Lacie because like Jude just kind of like, she hasn't really ever wanted like to completely stand out. Like back when she was in her country, like she fit in pretty well, and now that she's in America, she doesn't like that she's not fitting in well. I mean, she doesn't like that she's not fitting in. She wants to fit in and she feels like she's standing out.	TEXT
20	Alex	I agree with David, wait. You can go.	
21	Anthony	I want to disagree with David because Jude was in a class with kids from other countries and they actually fit in because she stood out in a way. Does that make sense?	SK TEXT
22	Charity	I kind of like, I kind of also agree with what Jessie Ann said. If Sara is telling Jude like "don't be weird," she doesn't want to be weird. She wants to like fit in with what everyone else is doing.	TEXT
23	Charity	But I think, I also think that for Jude, she wanted to fit in at first but then like when she was talking to that other girl, I don't remember	TEXT

	Speaker	Utterance	Code
		what her name was, but she decided like…yeah, Layla, she decided like that she wanted to actually be in the spotlight and like do a role.	
24	Lacie	That's like what Charity's saying. I feel like Jude also like didn't wanna like stand out in a way that made her, like in a way that people label her in a certain way or thought she was weird or thought of her in a different way. Like she might have like knew, like she knew that she was going to stand out but she also didn't want people to think of her, like label her or like think of her in a weird way 'cuz she's from a different country.	TEXT CON
25	Sammy	I want to add on, on to something from this conversation. There's different groups of fitting in, like how different places have different cultures and things that they do. So depending on which place you go, you can fit in or fit out.	CON CLK SOC
Talk continues			
56	Jessie Ann	I agree with Elycia because like I think her mom doesn't want her to like forget XXX, like to forget about where she's from. Like in that like video we watched, about like the girl being ashamed of her like, what she's surrounded in, um, I think that's like what it's like. Like she, she's not ashamed but she is, 'cuz she wants to be like Sara. And like her mom wants, doesn't want her to forget like how to be. Yeah	KMT TEXT PRK
57	Nichole	I agree with Jessie Ann 'cuz like um, um…Jude's mom was like "I XXX we don't go to Mass like Uncle Mazzan," like he's like forgetting where he's from and stuff.	TEXT
58	Samira	I agree with David because like the first thing he said, Issa wants to stand out. He's a XXX, like to stand out for change in his country.	TEXT
59	Ms. Cohen	'K, so there's like two minutes left so our logs need to, uh, hog it a li'l bit more here. C'mon logs.	--
Talk continues			

APPENDIX B: FIGURE 1: TB-SWD DISCUSSION MAP/DIAGRAM

Figure 1: TB-SWD Discussion Map/Diagram



APPENDIX C: TB-SWD RUBRIC (WIGGINS, 2017)

Spider Web Discussion Criteria

Because this is a team effort, there will be a team grade. **The whole class will get the SAME grade.**
This is what you need to do, as a class, to earn an A:

A truly hard-working, analytical discussion in which:

1. **Everyone** has participated in a meaningful and substantive way and, more or less, equally.

2. The pace allows for clarity and thoughtfulness – but not boredom.

3. There is a sense of balance and order; focus is on one speaker at a time and one idea at a time. The discussion is lively without being "hyper" or superficial.

4. The discussion builds. There is an attempt to resolve questions and issues before moving on to new ones.

5. Comments are not lost, the loud or verbose do not dominate, the shy or quiet are encouraged.

6. Students listen carefully and respectfully to one another. There is no talking, daydreaming, rustling papers, making faces, using phones or laptops, etc. when someone else is speaking (this communicates disrespect and undermines the discussion as a whole.) Same goes for sarcastic and glib comments.

7. Everyone is clearly understood. Those who are not heard or understood are urged to repeat.

8. Students take risks and dig for deep meaning, new insights.

9. Students back up what they say with examples, quotations, etc. Students ask others to back up assertions with proof (if possible). The text is referred to often.

The class will earn an **A** by doing all of this at an impressively high level. (Rare and difficult!) The class will earn a **B** by doing most things on this list (a pretty good discussion). The class will earn a **C** for doing half or slightly more than half of what's on this list. The class earns a **D** by doing less than half of what's on the list. The class earns an **F** if the discussion is a real mess or a complete dud and virtually nothing on this list is accomplished or genuinely attempted. Unprepared or unwilling students will bring the group down as a whole. Please remember this as you read, take notes on, and prepare for class discussion.

APPENDIX D: UNIT OUTLINE

Spider Web Discussion Unit 1: September to December 2022	
Theme	Welcome to Dystopia
Focal Text	*Refugee* (Gratz, 2017)
Bundled Texts	• School dress codes under fire for unfairly punishing girls (Education Week, 2018) • How you and your workplace can protect yourselves from the novel coronavirus (Yan, 2020) • What would happen if we got rid of Daylight Saving Time? (Campbell, 2022)
Spider Web Discussion Question	"Is 'how we've always done it' the best way to do things?"
Unit Activities	• Team role selection • Read novel and bundled texts • Biography writing and research • MLA Mastery checkpoint activity • Research reports: radiation, dehydration/hydration, other survival skills • Spider Web Discussion • "Best way to do things" written argument
Spider Web Discussion Unit 2: February to March 2023	
Theme	Elevating All Voices/The Journey Home
Focal Text	*Other Words for Home* (Warga, 2019)
Bundled Texts	• Red Sox coach Bianca Smith has spent her career proving she belongs (B. Wright, 2021) • How Oscar the Grouch fit into the cast of "Sesame Street" (Andrews, 2018) • Cross-cultural girl power! Self-acceptance leads to truth (Mistry, 2018)
Spider Web Discussion Question	"Is it better to fit on stand out?"
Unit Activities	• Read novel and bundled texts • Country infographic: countries whose citizens have been displaced • Memoir project: a time when you fit in or stood out • Spider Web Discussion • "Fit in/stand out" written argument

APPENDIX E: PRE-DISCUSSION GRAPHIC ORGANIZER

Name: _____
Date: _____
Teacher/Class Period: _____
Big Question:

My Thoughts	Evidence from the Text

APPENDIX F: POST-DISCUSSION GRAPHIC ORGANIZER

Name: _____ Date: _____ Teacher/Class Period: _____
Big Question:

At first I thought… (use your pre-write to help you)

Based on our Spider Web, now I think…

Here's why…

Whose evidence helped support my answer? Why?

Who brought up good evidence that could have changed my mind if I wanted? What did they share?

Based on our Spider Web rubric my teacher posted on the board, I would give our talk today this grade: ___. Why?

What can I do to help my classmates understand the text better?

What do I need to understand the text better?

APPENDIX G: SENTENCE STEMS

Sentence Stems (credit for printable bookmarks: Michelle Giannattasio, The Collaborative Class)

- If you agree with someone…
  - I like what you said about ____ because _____
  - I agree with what ____ said because ____
  - I also think ____
  - I feel the same way because ____
- If you disagree with someone…
  - I see what you're saying, but I disagree because ____
  - I respectfully disagree with what ____ said because ____
  - I don't think ____ because ____
  - Have you considered ____ instead?
- If you want to show evidence…
  - The author stated that ____
  - According to the text ____
  - I know this because ____
  - On page ____ it says ____
- If you want to clarify something…
  - Can you explain that to me again?
  - I didn't understand what you meant when you said ____
  - I have a question about ____
  - I'm confused about ____
- If you are making a connection…
  - This reminds me of ____
  - This makes me think of ____
  - This is similar to ____
  - This is different from ____
- If you want to add on to something…
  - Something else I'd like to add is ____
  - I agree and would like to add ____
  - In addition to what ____ said, I also think ____
  - Also, an example of this is ____