

A Mixed-Methods Exploration of Scaffolded Co-Constructive Interactions with  
Informational Texts in a Middle-Grades Classroom

by  
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## **Dedication**

For Melanie Uzzell, my mother and mentor, whose steadfast support and faith in me made this work possible.

To the Holy Spirit, who guides me always with a still, small voice.

## **Acknowledgments**

I will never be able to express sufficiently my gratitude toward my mom. As a teacher, instructional supervisor, principal, trainer, and consultant, she helped improve teaching and learning in our school district for three decades. She taught me about our craft and has mentored me throughout my career. More importantly, she has modeled hard work, excellence, perseverance, humility, and integrity throughout my life.

I would like to thank my dear husband, Jim, for his help and encouragement throughout this journey. On our evening walks, he helped me wrestle with the concepts and approaches that underlie this study, from the early days (“What in the world is ontology?”) through the refinement of my findings. He read and commented on countless drafts. He maintained our household and never complained about all the take-out. He kept my spirits up when I could not see a way through.

My appreciation also goes to my father, Doug, whose intellectual curiosity and scholarship set a high bar for me. You taught me about research from my earliest days.

To my son Matthew, who has inspired and buoyed me for 21 years, I offer my deepest gratitude. His unwavering belief in me has fueled me when I was at a low ebb. I hope I may always do the same for him.

I would like to thank my students. The seventh graders who participated in this study worked hard and willingly shared their insights. More broadly, I am grateful for each of the 2,000 students who have taught me since 1991. I pray that we will learn to listen to them as much as we insist they listen to us.

To my colleagues along this journey—especially Karen, Becky, Beatrice, Anita, and Paul—thank you for being true friends.

## Abstract

**Background:** As documented by state and national reading assessments, many middle school students have comprehension deficits that leave them unprepared for the reading demands of high school, college, and beyond. In contrast, seventh graders in one southwest Houston middle school made notable progress on state reading assessments. Their English Language Arts teacher facilitated application of comprehension strategies during shared text studies through modeling, discussion, and process writing. Research has demonstrated that co-constructive, text-centered comprehension strategy instruction can help improve adolescents' comprehension skills. **Research Question:** This study explored the following question: How can scaffolded text-centered interactions in a co-constructivist learning community support adolescent students' comprehension of informational texts? **Purpose:** The participant-researcher examined students' internalization of strategies during scaffolded text-centered interactions. The investigation yielded pedagogical insights for the participant-researcher and other educators and researchers who serve and study adolescent literacy. **Methods:** The participant-researcher conducted a mixed-methods study with the purposeful sample of two seventh-grade Pre-Advanced Placement English Language Arts classes, employing a multi-phase explanatory/exploratory design. Data were collected for six weeks during three informational text studies. In the first analysis phase, the participant-researcher mapped the instructional sequence in 14 lessons after coding whole-class transcripts and analyzing instructional artifacts. In the second phase, the participant-researcher analyzed the cohort's growth in informational text comprehension. Scores were analyzed for six comprehension assessments (baseline, pre-test, post-test, two selection tests, and a

delayed post-test), using descriptive statistics, data visualizations, and Wilcoxon signed-rank tests. In addition, four sets of student-composed summaries were scored with researcher-developed rubrics. The participant-researcher employed descriptive statistics, data visualization, and two-tailed *t*-tests to compare students' coverage of controlling ideas, key ideas, and key terms in the first and last summaries. In the third phase, the participant-researcher returned to previously analyzed data and investigated additional data to contextualize tentative findings with three student cases selected via opportunistic sampling. **Results:** Students made statistically significant gains from pre-test to delayed post-test, aggregate starting points to aggregate endpoints, and Selection Tests 1 and 3. The median pre-test and post-test ranks were not statistically different. Students made statistically significant gains in summary rubric scores in terms of their coverage of controlling ideas, key ideas, and key terms. The participant-researcher scaffolded cognitive, metacognitive, and discourse strategies that supported mental model co-construction. These scaffolded interactions among the teacher, students, and text facilitated students' uptake of strategies and ideas. The participant-researcher frequently adjusted instructional moves and strategy focus, providing contingent support. The participant-researcher constructed elaborated textbases along with students. This co-construction prompted a reconceptualization of Kintsch's Construction-Integration model to more fully capture how readers co-construct meaning with informational text and other readers. **Conclusion:** Study findings suggest shifts in adolescent comprehension instruction: (a) greater emphasis on the co-construction of elaborated textbases; (b) explicit teaching of an expanded suite of cognitive, metacognitive, and discourse strategies conducive to informational text comprehension; (c) embedded strategic

instruction within shared informational text studies; and (d) responsive scaffolding during whole-class, team, and individual text-centered interactions. Further research and educator development in these areas will continue to inform and improve pedagogy.

*Keywords:* adolescent literacy, reading comprehension, strategy instruction, co-construction

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## **Chapter I**

### **Research Overview**

In June 2019, the Texas Education Agency (TEA) released the results of the annual high-stakes standards-based examinations known collectively as the State of Texas Assessments of Academic Readiness (STAAR). In all, 210,801 Texas seventh graders (53% of those tested) failed to meet grade-level reading comprehension standards, with 26% not meeting the minimum passing criterion and 27% only approaching grade-level standards (Texas Education Agency, 2019c). For Texas seventh graders labeled economically disadvantaged, results were even more concerning: nearly two-thirds (64%) did not meet grade-level standards. Fewer than half as many economically disadvantaged seventh graders met the “Masters” threshold as their peers who did not qualify for free or reduced-price lunch (19% vs. 43%).

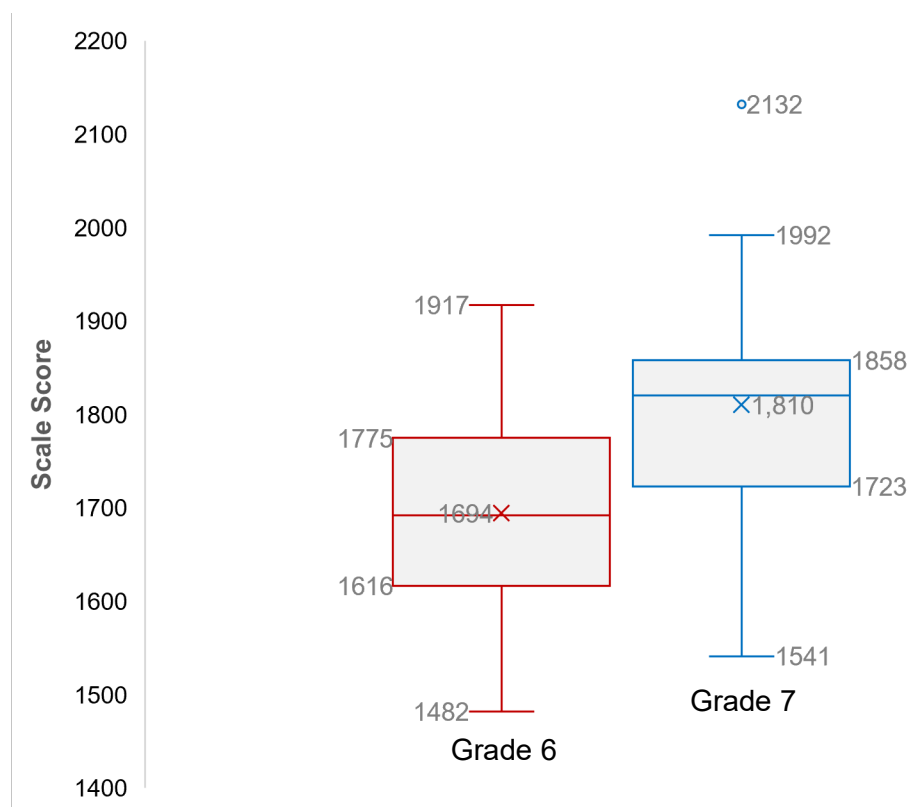
### **Uncommon Reading Results**

The results were quite different for the 49 seventh graders attending Heatherglen Charter Middle School (a pseudonym), the small Houston-area middle school in which I taught Pre-AP English language arts (ELA) for three years from 2017 to 2020. In 2019, 92% of the seventh-grade cohort met or exceeded grade-level standards for reading, with 69% earning the “Masters” designation. Compared with their 2018 sixth grade STAAR Reading performance, 57% more students attained the “Masters” designation (44% vs. 69%). Eighty-six percent of students who did not meet grade-level reading standards in 2018 met or mastered standards in 2019. Unlike results statewide and on many campuses, the performance of Heatherglen’s seventh-grade students labeled economically disadvantaged did not differ significantly from their peers who did not qualify for the

Free and Reduced Lunch Program (FRLP). This designation is used widely as a proxy for economic disadvantage. To an extent, I expected my students to perform relatively well since they had to meet the “Approaches” threshold on the fifth-grade STAAR Reading administration as a condition of enrollment in Heatherglen’s middle school program. Their performance on the May 2019 seventh-grade Reading STAAR, however, surpassed not only their sixth-grade performance but also the performance of Heatherglen seventh graders in previous years. See Figure 1 for box-and-whisker charts comparing students’ performance in 2018 and 2019.

**Figure 1**

*Heatherglen STAAR Reading Performance—2018 Grade 6 (2018) vs. Grade 7 (2019)*



*Note.* Data are summarized for 48 students with STAAR Reading scores for both 2018 and 2019. Data were drawn from the school district’s OnTrack data management system.

An examination of scale score increases provided a finer-grain look at Heatherglen students' improvement. While seventh graders statewide averaged 77 scale score points higher in 2019 than their sixth-grade STAAR Reading performance in 2018, the scale scores of Heatherglen's seventh graders increased 116 points on average (a difference of 39 points). See Table 1.

**Table 1**

*STAAR Reading Cohort Scale Score Comparison – Grade 6 (2018) to Grade 7 (2019)*

	Grade 6	Grade 7	Change
Statewide	1577	1654	+77
Heatherglen	1694	1810	+116
Difference	+117	+156	<b>+ 39</b>

*Note.* Statewide data were drawn from the Texas Education Agency (2019a). Campus data were drawn from the school district's OnTrack data management system.

Scale scores do not increase in regular increments. At the state level, raw scores are converted to scale scores differently each year for each grade, and thresholds are set each year for the minimum percentage of correct answers students must earn to “Approach,” “Meet,” and “Master” state standards. See Table 2 for raw score conversions.

**Table 2**

*Raw Conversions for Spring 2019 STAAR Reading (Grades 6 – 8)*

Grade	Max Raw Score	Approaches		Meets		Masters	
Grade 6	40	1517	58%	1629	78%	1718	88%
Grade 7	42	1567	55%	1674	74%	1753	83%
Grade 8	44	1587	57%	1700	75%	1783	86%

*Note.* These raw conversions apply to Texas STAAR Reading Spring 2019 paper administrations in English (primary administration only for Grade 8). Source: Lead4ward

(2019)

When asked to reflect on their reading experiences throughout the year in a digital writing assignment, students attributed their improvement to strategies we practiced together (such as annotation) and to the teacher-led and small-group discussions in which we frequently engaged. In their written reflections and individual conferences, students who had previously struggled with comprehension also tended to express greater confidence in their ability to make sense of difficult text.

I have helped facilitate dramatic increases in students' performance on STAAR reading assessments in previous secondary assignments as well. For example, in the high-poverty Houston-area high school in which I taught for the 2016-17 school year, only 31% of students enrolled in all teachers' English I classes passed the May 2017 administration of the STAAR English I assessment. Among my non-Pre-AP freshmen, however, 45% passed the examination on the first try. During the 2015-16 school year, I served as an assistant principal tasked with improving STAAR English I and English II scores at a high school campus labeled "Improvement Required" by the Texas Education Agency in the previous year. Student performance improved by 10 percentage points on the STAAR English I assessment and 12 percentage points on the STAAR English II assessment in one year, which helped remove the school from the "Improvement Required" list.

### **An Ongoing Commitment to Sharing Privileged Literacies**

My passion for facilitating reading comprehension—especially for adolescent students facing language, income, and learning barriers—has persisted throughout my three decades in education. Though adolescents engage in multiple valuable literacies, I

have focused on helping students develop a specific set of comprehension skills that can empower them to make sense of challenging texts within academic and professional contexts (Alvermann, 2009). Though I believe these skills help students tackle the challenges of high stakes reading comprehension tests, I also see these privileged literacies as a gateway to attaining higher education and professional outcomes.

Advanced reading skills have contributed to my family's professional success, beginning with my paternal grandparents, who graduated from Texas State Teachers College after both had lost their mothers early and had been reared in great hardship. As a child, I observed my grandparents' work on behalf of special needs students across Texas. Closer to home, I saw firsthand my mother's relentless efforts to make bilingual education a reality in Houston. After my father completed his doctoral fieldwork in poor communities in Lima, Peru, and Oaxaca, Mexico (family in tow), he taught at the university level. My family has always framed education as a social justice issue, and we share the belief that educators are responsible for facilitating young people's access to privileged literacies.

At 28, after studying economics and public policy and working as a consultant and policy analyst, I was inspired to enter the teaching profession. From the beginning, I felt that my mission was to help alleviate, in my small way, the poverty- and race-related educational opportunity and attainment gaps that underlie many of our nation's most damaging societal inequities. I taught social studies courses for nine years but became increasingly concerned about my middle school students' literacy interferences. In 2004, I began teaching middle school ELA and reading, devoting myself to learning all I could about improving my students' literacy. In 2005, I wrote a federal Striving Readers grant



proposal on behalf of the campus at which I was teaching and designed a reading comprehension program for my students that proved successful in helping even my struggling readers improve their comprehension skills. Throughout ten years in central administration roles, my focus on adolescent literacy continued. As an example of my efforts, I spearheaded the development of literacy routines appropriate for the instruction of English learners in heterogeneous content-area classrooms, an initiative still promoted in the district.

My experiences in facilitating the development of reading comprehension skills have led me to draw several conclusions: 1) nearly all middle and high school students can make deep sense of complex texts; 2) many have not had adequate support to develop fully the skills they need for this deep comprehension; 3) teachers play an essential role in supporting this development; and 4) when students develop these skills, their efficacy and motivation to read complex texts increase. As I have observed in classrooms across my district and delved into data and research beyond my local context, I have seen that our approaches to strengthening adolescent students' reading comprehension skills have not borne sufficient fruit. I believe there is a way forward that, though difficult, promises to help many more students than are currently experiencing success in secondary schools across Texas and the nation.

### **Statement of Problem**

In 2007, the Striving Readers Act was introduced in Congress to address the needs of adolescent readers. Eight major reports had been released in the previous two years by national organizations concerned about adolescent literacy achievement (Alvermann, 2009). Despite the increased urgency, the \$24.8 million designated for this adolescent

literacy initiative was paltry compared with the \$1.04 billion designated for Reading First, a similar initiative for readers in kindergarten through grade 3 (Deshler & Hock, 2006).

Adolescents who have not developed deep comprehension skills struggle to pass through the gates established to identify students prepared for scholarly work, such as STAAR, Advanced Placement (AP), and college-readiness assessments. These students face more barriers as they attempt to navigate higher education without the requisite literacy skills. Without advanced literacy or education credentials, access to mid- and high-skilled professions dwindles, reducing potential income and thwarting positive life outcomes.

### ***Thousands of Texas Students Leave Middle School Unprepared***

Since the inception of STAAR in 2012, adolescent Texans' mediocre performance on reading comprehension assessments has varied only slightly. For example, in the first five years of STAAR administration, approximately one in five eighth-graders did not meet the passing threshold each year (Texas Education Agency, 2016). On the first administration of the 2019 STAAR Grade 8 Reading assessment, nearly one in four students (23%) did not meet the "Approaches" threshold, and only 53% met or mastered grade-level reading standards (Texas Education Agency, 2019c). Students who experienced poverty, learning challenges, or language barriers fared even worse. For example, among eighth graders who qualified for FRLP, just 41% met or mastered grade-level reading comprehension standards in April 2019.

Across the state, only 41% of students in grades 4 through 8 who did not meet standards in 2018 were successful in crossing the "Approaches" threshold in 2019;

among eighth graders in Special Education programs, only 21% of previously non-proficient students met the “Approaches” threshold (Texas Education Agency, 2019d). Such students often are passed on to the next grade or even graduate under the auspices of a grade level committee despite significant weaknesses in their comprehension of grade-level literary and informational texts.

This situation unfolds year after year throughout Texas, as it does in much of the nation under the current regime of rigorous disciplinary standards and high-stakes statewide summative assessments. The Texas STAAR results are mirrored in Texas students’ performance on the National Assessment of Education Progress (NAEP) reading assessment. The average score for Texas eighth graders on the NAEP Reading test has fallen slightly since 1998 (261 in 1998 vs. 256 in 2019). The average score has remained below the national average for more than a decade. In 2019, only one in four (25%) of Texas eighth graders met the “Proficient” or “Advanced” standard on the NAEP Reading assessment, while one in three (33%) fell in the “Below Basic” category. Only 15% of Texas FRLP-eligible eighth graders met the “Proficient” or “Advanced” standard of the NAEP reading test, compared with 44% of students who were not FRLP-eligible (National Center for Education Statistics, n.d.).

### ***Consequences in High School***

Texas students’ performance on STAAR English I and English II assessments bears out the comprehension weaknesses suggested by NAEP results. More than one-third (316,446 of 913,292) of high school students taking the STAAR English I and English II assessments in Spring 2019 did not meet minimum standards (Texas Education Agency, 2019b). High school students who do not approach grade-level standards on

STAAR English I or II must retake the test; some retake one or both examinations as many as six times by their senior year. The state may sanction high schools in which a sizable percentage of students fail to meet passing thresholds on STAAR English I and English II. These sanctions can lead to the replacement of staff, reconstitution, or even closure. For most schools in such peril, students perform most poorly on the examinations assessing their reading and writing skills.

Massive resources are invested every year in remediating secondary students' reading comprehension skills. When scores are released each summer, district administrative teams cast about for solutions to flat or falling reading scores. Consultants and trainers are brought in. New initiatives are launched. Remedial programs are mandated. More specialists are hired. Campus administrators purchase test preparation materials, hire fresh staff, and redesign schedules. Students who have missed the mark previously are scheduled into extra reading classes, pulled out of class for one-on-one and small-group intervention, or kept after school for tutorials. Millions of collective instructional hours are spent practicing for the test; many more are spent planning this instruction.

### ***Consequences Beyond High School***

Even those students who demonstrate proficiency on the state's STAAR English I and II assessments may struggle with the reading demands facing them in higher education (Madda et al., 2019). One measure of reading college readiness is the Texas Success Initiative (TSI) assessment, required for most students enrolling in higher education in Texas. Of the 2017 Texas high school graduates who enrolled in Texas two- and four-year public colleges and universities, one in five was deemed not college-ready

in reading based on their TSI performance. Nearly one in three high school graduates considered economically disadvantaged failed to meet the TSI reading standard (Texas Higher Education Coordinating Board, 2018; Texas Higher Education Coordinating Board, 2019). Students who do not meet the TSI reading requirement must enroll typically in “developmental” courses that they must complete before or in addition to their first-year coursework. Unfortunately, students enrolled in developmental classes often do not continue in higher education. In 2010, only 37% of Texas community college students assigned to a developmental reading course had completed their first college-level course within three years of enrolling (Daugherty et al., 2018).

Thousands of students graduate from high school without ever taking the TSI assessment because they do not plan to attend college. As of 2014, only 35.7% of Texans held a two- or four-year associate or higher degree (Education Week Research Center, 2016). In Harris County (anchored by Houston), 52% of public-school students who started eighth grade in 2007 had enrolled in higher education as of 2019, but only 21% had completed a certificate or degree in that time (Texas Tribune, 2019). For some, of course, the obstacles are financial or attitudinal. Others have an alternate plan, such as working in an apprenticeship program or joining the armed forces. But thousands more are shut out of the college option because rigorous academic reading is out of reach.

When hundreds of thousands of young Texans are unable to meet their college goals, the community suffers as well. Texas employers have trouble finding workers who have the skill sets needed for mid- and high-skill jobs (Texas Higher Education Coordinating Board, 2015). Deshler et al. (2007) explained that young people who do not complete college face a growing employment and earnings gap compared with their

degreed counterparts. This gap is exacerbated by the demand for more literacy skills in an “increasingly technology-driven workplace,” which increases “the economic impact for failing to learn to read well” (p. 4). The *2015-2030 Texas Higher Education Strategic Plan* states the consequences in stark language:

Failure to educate students of all backgrounds in larger numbers will result in lower incomes and a lower percentage of educated Texans in 2030 than in 2015. Those losses will spell a decline in the economic future of Texas and the opportunities available to its people. (Texas Higher Education Coordinating Board, 2015, p. 1)

### **Conceptual Framework**

In this study, I have focused on how a classroom learning community learns to use comprehension strategies to help co-construct meaning of informational text. This focus integrates two influential theoretical constructs: Walter Kintsch’s construction-integration (C-I) model of comprehension (Kintsch, 2009; Kintsch & Welsch, 1991; van Dijk & Kintsch, 1983) and Jerome Bruner’s theory of scaffolding (Bruner, 1985; Wood et al., 1976).

According to Kintsch’s C-I model, readers construct a mental model of a text by integrating ideas drawn from the text and their background knowledge (Duke et al., 2011). Kintsch posited that the reader constructs a *textbase* from one set of propositions derived sentence by sentence (i.e., the *microstructure* of the text) and another set of propositions derived from the text’s organization as a whole (i.e., the *macrostructure* of the text). In addition, the reader draws upon prior knowledge and personal experience, integrating the textbase with relevant prior knowledge to form a *situation model* of the

text (Almasi & Fullerton, 2012; Kintsch, 2009; Pearson & Cervetti, 2017). Kintsch (2009) referred to the textbase as “a decent representation of the text itself,” while he described the situation model as the “end result” of the meaning construction process that “faithfully represents the meaning of that text, both at a local and global level, and integrates it with the reader’s prior knowledge and learning goals” (p. 224). Readers then continue to revise the situation model as they encounter related texts, information, and perspectives (American Institutes for Research, 2017). In their concise history of reading research, Pearson and Cervetti (2017) contended that the C-I model describing how “readers actively seek to create coherent mental models of text” is now widely accepted as “the best explanation of how readers make meaning from the written word” (p. 41).

The C-I model does not directly address the instructional context within which students might best develop the meaning-making skills needed to construct robust textbases and situation models (Pearson & Cervetti, 2017). The scaffolding concept innovated by Bruner and informed by the Vygotskian sociocultural tradition adds context for understanding how students develop these skills. As Bruner explained, when an adult or knowledgeable peer scaffolds a learning task, they “make it possible for the child, in Vygotsky’s words, to internalize external knowledge and convert it into a tool for conscious control” (Bruner, 1985, pp. 24-25; cited in Maybin et al., 1992, p. 187). Walqui (2006) clarified that Vygotsky’s notion of the process of “internalization is a process of transformation, involving appropriation and reconstruction” of the task, skill, or concept being scaffolded (p. 162). In response to a discussion of the C-I model's instructional implications, Kintsch (2009) contradicted those who advocate for “minimal guidance and discovery learning” to facilitate internalization. He asserted that “instructional methods

are most effective when they [treat] learning as an active (and, indeed, often effortful) process, with the right amount of guidance determined by the characteristics of the learner and the to-be-learned material” (p. 224). Scaffolding provides this just-right guidance.

Practitioners and researchers (e.g., Stone, 1998) often frame scaffolding as a sustained dyadic interaction between a teacher and a student. However, Maybin and colleagues (1992) pointed out that “discourse between a teacher and an individual pupil is usually contextualized by other discourse, whereby the pupil relates to the teacher as part of a group or whole class” (p. 188). Murphy and colleagues (2009) explained that from the Vygotskian perspective, “children develop reading skills and abilities through authentic participation in a literacy-rich environment and are apprenticed into the literate community by more knowledgeable others (e.g., parents, teachers, or more capable peers)” (p. 741). “In such contexts,” Almasi and Fullerton (2012) explained, “readers gradually internalize instructional principles through guided discovery or scaffolding from more knowledgeable others and through the opportunity to interact with others as they engage in the strategic processing of text” (p. 27).

Consistent with this sociocultural view of scaffolding is the idea that discussion about a text can be a critical conduit of co-constructing meaning if it is a “spoken interaction that scaffolds student learning” (Walqui, 2006, p. 165). As Kamil and colleagues (2008) explained, “the theory underpinning discussion-based approaches to improve reading comprehension rests on the idea that students can, and will, internalize thinking processes experienced repeatedly during discussions” (p. 22). Garas-York and Almasi (2017) went further, arguing that learners internalize both comprehension skills



and the social conventions of dialogue such that they can be applied later in other contexts.

### **Purpose of the Study**

The purpose of this study was to explore how scaffolded, text-centered, dialogic interactions within a middle-grade learning community can support students' development of deeper comprehension skills. During a whole-class study of informational texts, I explored the extent to which and the process by which my students internalized meaning-making strategies as they engaged in scaffolded interactions among the teacher, students, and text. This examination yielded pedagogical insights that will hopefully be useful for classroom teachers like me and for administrators, specialists, and researchers who work in the context of adolescent literacy.

Much attention has been paid in recent years to the importance of independent reading of choice texts, especially within the readers' workshop model. Research suggesting that the volume of text read correlates closely with literacy achievement has led some literacy thought leaders to conclude that the most effective reading intervention is to increase reading volume (see, for example, Allington, 2014). Lost in this conversation is the role the teacher and peers play in scaffolding, modeling, encouraging, and practicing textual meaning construction. Though one-on-one reading conferences and teacher think-aloud demonstrations are strongly encouraged in the workshop model, the value of teacher-mediated conversation among students and the text is often downplayed. I addressed this research and praxis gap by highlighting the influence of the learning community's text-centered interactions on students' comprehension skills.

A key to deepening adolescents' comprehension may be sustained, scaffolded

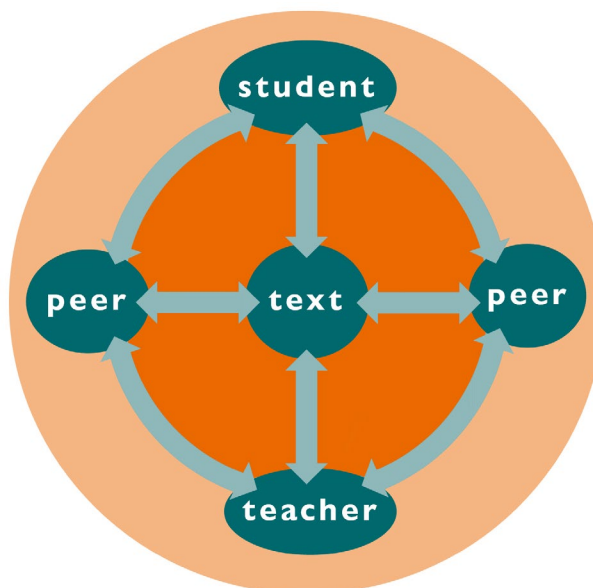
conversations in which students work with their teacher and peers to co-construct meaning from shared texts, engaging comprehension strategies appropriate for each text. Unfortunately, most adolescent students seldom engage in such conversations (Applebee et al., 2003). Such meaning-making discussions in my classroom seem to have contributed to attitudinal and skill breakthroughs for students who have had reading histories just like those of thousands of students across Texas. The current study allowed me to examine the mechanisms by which those breakthroughs occur.

In fall 2018, I conducted a pilot action research study to understand better how my seventh-grade students and I co-constructed textual meaning as we studied a short story. This research revealed that our learning community engaged in frequent purposeful interactions among individual students, peers, text, and teacher. No one dimension of this community dynamic seemed to explain students' engagement with the text nor their deepening of comprehension skills. Instead, it appeared to be the nexus of the voices of the teacher, students, and text, expressed verbally and in writing, independently and collectively, physically and digitally.

The model depicted in Figure 2 represents this multi-dimensional interaction. The model represents the cascade of scaffolded text-centered interactions documented during the pilot study. The model emphasizes the text's centrality as an intermediary and participant in dialogic meaning co-construction and represents all members of the learning community as essential contributors to the textual meaning-making process.

**Figure 2**

*Meaning Co-construction in Whole-Class Text-Centered Interactions*



*Note.* The researcher developed the model based on her findings from a 2018 pilot action research study.

In the 2018 pilot study, I focused only on my teaching practice. In the current study, I examined the nature of these dialogic interactions more fully.

### **Research Question**

In the course of this study, I explored the following question within the context of a middle-grades ELA classroom: How can scaffolded text-centered interactions in a co-constructivist learning community support adolescent students' comprehension of informational texts? Researchers have established that dialogic text-centered discussion supports the deepening of textual comprehension. However, the question of how multidimensional dialogic interaction scaffolds comprehension skills has not been treated adequately in the research, especially as it relates to adolescents' comprehension of

informational text.

## **Definition of Terms**

### ***Reading***

At the heart of the current NAEP Reading Framework is the concept of *reading* as a dynamic, active, and complex cognitive process that involves understanding written text, developing and interpreting meaning, and using meaning as appropriate to the type of text, purpose, and situation (American Institutes for Research, 2017).

### ***Reading Comprehension***

Frankel et al. (2019) defined *reading comprehension* as “a process of extracting, constructing, integrating, and critiquing meaning through interaction with texts in the context of socially situated practices” (p. 225), building upon Snow (2002).

### ***Comprehension Strategies***

Conley (2017) defined *comprehension strategies* as consciously selected “goal-oriented processes that readers and writers use to construct meaning” (p. 407), citing the studies of skilled reading conducted by Pressley and colleagues (e.g., Pressley, 2006; Pressley & Afflerbach, 1995).

### ***Comprehension Skills***

In contrast with consciously employed meaning-making strategies, *comprehension skills* are “automatic actions that result in ... comprehension with speed, efficiency, and fluency and usually occur without awareness of the components or control involved” (Afflerbach et al., 2008, p. 368).

### ***Scaffolding***

*Scaffolding* is a temporary instructional support provided by a knowledgeable other that is calibrated to a student's current understanding or skill level to help the student master a concept or skill (Bruner, 1985; Maybin et al., 1992; van de Pol et al., 2010; van de Pol et al., 2019; Walqui, 2006).

### ***Learning Community***

*A learning community* includes the teacher and all students in a particular classroom “wherein students and teachers construct knowledge together in connected, collaborative, and supportive ways” (Malloy et al., 2019, p. 4)

### ***Dialogic Discourse***

Reninger and Rehark (2009) defined *dialogic discourse* as “thought-shaping dialogue,” in which “participants negotiate and construct meaning (Wertsch, 1991)” (p. 270). This type of discourse typically makes room for multiple voices and considers multiple perspectives.

### ***Uptake***

In the context of discussion, *uptake* is a discourse strategy in which one member of a learning community uses and builds on a previous speaker's comment (Applebee et al., 2003; Mariage et al., 2019; Murphy et al., 2017; Wilkinson et al., 2015). More broadly, however, *uptake* describes an “observational learning effect” (Lin et al., 2015, p. 625) in which a member of the learning community appropriates another member's expression, concept, or strategy (see also Anderson et al., 2001; Klauda & Guthrie, 2015; van de Pol et al., 2019).

### ***Exploratory Talk***

Mercer and colleagues (1999) defined *exploratory talk* (a term borrowed from the seminal work of Barnes & Todd, 1977, 1995) as “a way of using language effectively for joint, explicit, collaborative reasoning” in which “partners engage critically but constructively with each other’s ideas” (pp. 97–98). The researchers contrasted exploratory talk with the more commonly found *disputational talk*, characterized as uncooperative and competitive, and *cumulative talk*, in which students cooperate in an uncritical way (Mercer et al., 1999).

### **Significance of the Study**

#### ***Implications for My Practice***

The fall 2018 pilot study made me keenly aware of pedagogical practices that interfered with or did not contribute to student learning. I became aware of moments when I had little idea of how individual students were making sense of the shared text. I became aware of how long I often waited to seek insight into students’ collective and individual sense-making. Most importantly, I experienced, again and again, the revelatory nature of listening carefully to students’ voices (via their writing, peer conversations, and contributions to whole-class discussions). This study allowed me to explore how scaffolded text-centered interactions both supported and revealed my students’ strategy uptake and mental model co-construction.

#### ***Implications for the Profession***

Many secondary ELA classrooms do not engage students regularly in scaffolded conversations with and about shared texts (Applebee, 2002; Applebee et al., 2003; Langer, 2009). Though a great deal of time and money is devoted every year to tutorials

and intensive intervention, the regular ELA classroom has perhaps the highest potential to scaffold comprehension skills for adolescent readers. ELA teachers have approximately 180 hours each year to support students in developing the comprehension skills they need to enrich their lives as scholars, professionals, and citizens. When teachers understand how to provide this support effectively and efficiently, students benefit greatly.

### ***Implications for Students***

Students' ability to comprehend complex informational text is fundamental to their success, beyond state tests and English classes. Students need this skill set to succeed in reading-heavy courses in high school and college. These skills are also required for many mid-skill and high-skill professions and are necessary for full civic engagement. As stated in a 2012 Texas Interagency Literacy Council report, "Higher levels of literacy and additional education lead to higher wages and less unemployment, a better prepared and more competitive workforce, and myriad other benefits that derive from having a more educated population" (p. 10). As a 2019 research report recently expressed, improved literacy "has large positive impacts on not only skills but also improved job performance, increased employment, higher earnings, and longer-term job retention. Literacy can also improve the quality of a person's life and alleviate the symptoms of poverty" (Lalonde et al., 2019). Much is at stake for adolescent readers, who need their teachers to support their further comprehension development.

## Chapter II

### Literature Review

A large body of quantitative and qualitative research conducted over more than two decades informs our current understanding of reading comprehension instruction (Nystrand, 2006; Pearson & Cervetti, 2017). We know a great deal about the instructional practices that help adolescents develop the comprehension skills they need to make sense of the challenging informational texts (Kamil et al., 2008; Snow et al., 2010). We also know the qualities of text-centered interactions that best support students' meaning-making efforts (Applebee et al., 2003; Soter et al., 2008). However, these practices can be challenging to orchestrate and are often missing from secondary literacy classrooms, especially those that serve students facing language, learning, and socioeconomic barriers.

This chapter lays out the case for strategic, scaffolded, co-constructive reading comprehension instruction centered in texts and driven by dialogic discourse. Research is discussed in light of the following pedagogical themes: (a) reading as meaning construction; (b) informational text comprehension strategies; (c) explicit strategy instruction; (d) the role of discussion in comprehension instruction; and (e) teacher scaffolding. The chapter concludes with a brief discussion of the research-praxis gap that persists despite the accumulating knowledge of research-supported practices in the field.

### **Reading as Meaning Construction**

#### ***Construction-Integration (C-I) Model of Reading Comprehension***

Empirical and theoretical research related to the C-I model provides insights into the obstacles readers may face as they construct mental models of text. Of course, such



research is speculative since we cannot directly observe the private cognitive and metacognitive processes involved in reading comprehension. Nevertheless, readers leave trails of evidence in their speaking and writing that can inform our understanding of these processes.

Over two years, Wade (1990) and her colleagues conducted think-alouds with struggling readers. They found that students who struggled to make sense of text tended to fall into one or more of four categories: *non-risk-takers*, *non-integrators*, *schema imposers*, and *storytellers*. The researchers validated the resulting taxonomy in an additional study. Two of these categories are especially relevant to this research.

Wade found that non-integrators tend to generate a new hypothesis for each segment of the text, disregarding information that conflicts with “the schema of the moment” and sometimes discarding the previous schema as a new one is formed (Wade, 1990, p. 447). Non-integrators may activate prior knowledge relevant to segments of the text but do not attend to the text's macrostructure.

On the other hand, schema imposers form an early hypothesis about the macrostructure and hold onto it despite the contradictory information they encounter as they continue reading. Though schema imposers access text evidence and background knowledge, they do not successfully update their textbase to incorporate new propositions (Wade, 1990; Almasi & Fullerton, 2012).

More recent research has confirmed Wade's findings. For example, van der Schoot and colleagues (2012) conducted two experiments with 10- to 12-year-olds whom they classified as good and poor reading comprehenders. The researchers prepared two versions of a narrative text, introducing an action inconsistent with the protagonist's

character or goals, either adjacent to the character description or separated by a substantial amount of intervening text. Measuring eye fixation and time spent reading, the researchers found that both strong and poor comprehenders slowed down when they read a sentence describing an action inconsistent with a character description that immediately preceded it. However, if the inconsistent action fell after a long filler paragraph, poor comprehenders did not slow down to make sense of the contradiction. The researchers posited that strong comprehenders slowed down to integrate the contradictory information into their evolving mental models, while poor comprehenders did not successfully update their mental models or realize that such updating was necessary.

In their multiple-case study, Mateos and colleagues (2008) asked 15-year-old secondary students to think aloud as they read and summarized two short texts. The researchers found that students mostly paraphrased and made surface connections to prior knowledge without constructing new knowledge or a coherent text representation. They observed that students focused on comprehension at the word and sentence level and did not typically draw conclusions or connect ideas across the text.

### ***Constructing Meaning with Informational Text***

Though many comprehension processes can be activated in various genres, researchers have found that comprehension is genre-specific to a significant degree (Duke & Martin, 2019; Fisher & Frey, 2019). The NAEP 2017 Reading Framework specified that the informational genre includes exposition, argumentation, and persuasive text (American Institutes for Research, 2017). As described in Applebee et al. (2003), Langer's earlier research (1986, 1987, 1990) "found that literature and exposition required very different sets of cognitive and linguistic strategies" (p. 691).

The cognitive demands of informational text can be daunting. Hebert and colleagues explained that to comprehend informational text, a reader must “make inferences, solve problems, reason, and use complex and varied text structures in ways that are not commonly needed in narrative texts (Armbruster & Anderson, 1980; Snow, 2002)” (p. 609). As Applegate and colleagues (2004) wrote, “When we react and respond to informational text, our aim is to incorporate new information into our existing frameworks of understanding. In many ways, this task is more challenging than it is when we are reading narrative text” because the ideas we encounter may be so new to us “that we must create new schemata as we are reading in order to actively process the ideas (Bransford, 1984)” (p. 3).

Informational texts tend to possess distinct organizational patterns designed to help readers organize the ideas presented in the text (Kobayashi, 2002). Britt and Sommer (2004) suggested that “authors generally attempt to write coherent texts, ... often employing devices to aid the within-text integration process” (p. 318). In addition to being organized around text structures distinct from the story grammars of literary texts, informational texts also tend to foreground features such as “pictures, charts, tables, and other graphic elements that augment the text and contribute to its meaning. Ancillary aids such as headings, bolded text, or bulleted lists emphasize specific components of the text to reinforce authors’ messages” (American Institutes for Research, 2017, p. 10). Recognition of these patterns and features can be beneficial to meaning construction.

### ***Increased Reading Demands***

As Wharton-McDonald and Erickson (2017) wrote, “the task of constructing meaning is far more arduous” for middle grades readers, who are “challenged by more

complex texts—especially nonfiction texts,” compared with their younger counterparts (p. 354-355). Specifically, older students are more likely to encounter unfamiliar topics, new technical terms, and more complex linguistic structures than they did in elementary grades (Wharton-McDonald & Erickson, 2017). Even adolescents with a history of successful textual meaning-making can falter as they encounter increasingly dense and challenging text (Duke & Martin, 2019).

In their 1999 position statement on adolescent literacy for the International Reading Association (now renamed the International Literacy Association, or ILA), Moore and colleagues (1999) wrote that “middle and high school students build on the literacy strategies they learned in the early grades to make sense of abstract, complex subjects far removed from their personal experiences” (pp. 3-4). In its 2012 revision of the position statement, the ILA (2012) added that “as texts become increasingly complex, multimodal, and necessary for discipline-specific learning, middle and high school students must adapt by using more advanced, specific strategies for deeper understanding and composing (Moje, 2008; Shanahan & Shanahan, 2008)” (p. 4). Almasi and Fullerton (2012), citing Graesser (2007), elaborated on this point, explaining that even skilled adult readers must “slow down and become strategic” when the meaning-making process breaks down as they tackle complex informational texts (p. 2).

### **Informational Text Comprehension Strategies**

Deane and his Educational Testing Service (ETS) colleagues (2015) identified “key practices in which literate individuals are expected to be able to participate” (p. 3). According to the researchers, “building and sharing knowledge” is a critical meaning-making practice specific to informational text that “plays a key role in the development of

literacy” (p. 19). O’Reilly and her ETS colleagues (2015) further specified five complex, intertwined literacy activities involved with the “building and sharing knowledge” key practice: (a) laying the foundation for understanding, (b) constructing textual understanding, (c) repairing and refining understanding, (d) consolidating and elaborating understanding, and (e) communicating understanding. These activities enable readers to construct and consolidate a coherent, elaborated mental model of an informational text or texts and then convey their new understanding. As they engage in each activity in the key practice, proficient readers draw upon a suite of comprehension skills and strategies.

Kintsch (2009) explained that though many adolescent students can form an adequate textbase if a text covers a familiar topic, many other students still must exert conscious effort to form a textbase even if the topic is familiar. However, whether students have strong generalized comprehension skills or not, making sense of an academic text on an unfamiliar topic is “an active, effortful, resource-demanding construction process” (Kintsch, 2009, p. 227). Effective readers activate cognitive, metacognitive, and discourse skills and strategies to help them construct meaning with text and other readers.

### ***Cognitive Strategies***

Though strong readers engage many cognitive skills and strategies as they make sense of informational text (Booth et al., 2007; Duke et al., 2011; O’Reilly et al., 2015), four strategies addressed explicitly during the study are detailed below: (a) annotating text, (b) recognizing or inferring text structure, (c) discerning key ideas and information, and (d) summarizing.

**Annotating Text.** Fisher and Frey (2019) discussed the power of *annotation*, or

“marking and writing on the text in a meaningful way,” to promote “cognitive interaction and metacognitive thinking” and “contribute to discipline-specific thinking” (p. 163). Marking text and jotting “down questions, clarifications, comments, or connections” (Mariage et al., 2019, p. 36) can facilitate the activation of other cognitive strategies (such as recognizing text structure and questioning the text) and enhance students’ awareness of their strategy use (Zywica & Gomez, 2008). Annotation makes students’ thinking visible for themselves (as they re-read strategically or pinpoint text evidence to answer open-ended questions), for their peers (in co-constructive discussions), and for the teacher (to enable formative assessment and coaching) (Castek & Beach, 2013; Zywica & Gomez, 2008). Finally, annotation facilitates active engagement in meaning-making, as students focus “closely on the structure and content of the text” (Zywica & Gomez, 2008, p. 156).

Drawing upon extensive interview data from Texas elementary and middle schools, Davis and Wilson (2015) described how annotation had been co-opted as a formulaic test-taking strategy and coercive “compliance tool” (p. 10). Teachers in the study described the pressure they felt to teach prescriptive annotation formulas and hold students accountable for performing those methods without the declarative or conditional knowledge that might have made the strategies meaningful for students or the flexibility to empower students to use the strategy for their reading purposes.

To avoid the perfunctory use of annotation, Castek and Beach (2013) recommended setting a collaborative purpose for the practice. The researchers partnered with three middle grades teachers to use digital applications to support inquiry-based science learning. In a collaborative context, students shared their annotations, building on

each other's ideas and questions. Their exposure "to alternative responses that [differed] from their own" resulted "in their appropriation of new ways to interpret texts (Coiro, Castek, & Guzniczak, 2011)" (Castek & Beach, 2013, p. 559).

**Recognizing or Inferring Text Structure.** Pyle and colleagues (2017) defined *text structure* as "the organization of ideas, the relationship among the ideas, and the vocabulary used to convey meaning to the reader (Armbruster, 2004; Shanahan et al., 2010)" (p. 469). Recognizing or discerning an informational text's structure may help students construct coherent macrostructures and microstructures, recall and understand key ideas, and actively monitor their understanding (Pyle et al., 2017). Recent meta-analyses found that text structure instruction improves reading comprehension (Hebert et al., 2016; Pyle et al., 2017). Wijekumar and colleagues (2017) conducted a large-scale randomized controlled efficacy study on the web-based delivery of text structure instruction to seventh-grade students. The study confirmed the beneficial effect of text structure instruction on reading comprehension, with the highest effects reported for the number of ideas included in the main idea statement.

If a text has an explicit structure accurately signaled by text features, the construction of the macrostructure is simplified. As texts become more complex, however, these mediating features may be less explicit. Pyle and colleagues (2017) pointed out that "expository text often includes multiple text structures," which "may increase the overall complexity of the text and moderate students' comprehension" (p. 494). To make sense of a poorly organized text, readers must draw upon their understanding of the text's microstructure to infer the macrostructure. As Stevens and colleagues (2019) wrote, "If macrocues are unavailable, the reader may resort to micro-

based processing of the text. This suggests the need for explicit instruction in micro- and macro-based strategies, so that struggling readers can flexibly apply both processes (Gallini et al., 1993)” (p. 132).

In a study described by Kintsch (2009), McNamara and colleagues (1996) found that readers with little knowledge of the topic covered by a text had difficulty constructing an elaborated textbase or situation model if the text was poorly organized. However, readers with strong domain knowledge benefited from reading a less explicitly organized text since it problematized their construction of a textbase and prevented them from rushing to a situation model that did not adequately attend to the text.

**Discerning Key Ideas and Information.** In this study, *controlling idea* was defined as the main idea of the whole passage, whereas *key idea* was more broadly defined as any important idea discussed in the text. These definitions align with Texas state standards and the adopted textbook. In the comprehension strategy research literature, *main idea* seems to be used more commonly and is synonymous with *key idea*. Solis and colleagues (2012) analyzed studies of middle school reading comprehension interventions for students with learning disabilities between 1979 and 2009. Their analysis found large effects on researcher-developed measures for main idea and summarization strategy instruction. Stevens and colleagues (2019) analyzed studies focused strictly on main idea and summarization strategy interventions conducted from 1978 to 2016. The researchers explained that “identifying main ideas is an active, meaning-making process that facilitates comprehension because it helps the reader remember important information and develop a global understanding of the text (Hagaman et al, 2016; Jitendra et al., 2001; Rapp et al., 2007)” (p. 132). They found that



interventions that teach students to discern main ideas and summarize text may “improve struggling readers’ main idea identification and reading comprehension (p. 131). The researchers explained that “identifying the main idea is a critical subskill in the summarization process” (p. 133).

**Summarization.** In van Dijk and Kintsch (1983)’s words, a *macrostructure* is a “coherent network of interrelated propositions” that captures the “gist of a discourse” and is “concerned only with the essential points of the text” (p. 52). Stevens and colleagues (2019) defined *gist* as the “overarching main idea of the text, which can be expressed in one to two sentences” (p. 132). Stevens and colleagues (2019) posited that “summarizing is a difficult skill because it requires readers to actively monitor their understanding and simultaneously identify important information, eliminate irrelevant details, and integrate main ideas across paragraphs and chapters (Duke & Pearson, 2008; Jitendra et al., 2001; Watson et al., 2012)” (p. 132). Finally, the reader must compose the gist statement (or recognize it if it is stated explicitly). In their multiple case-study of 15-year-olds, Mateos and colleagues (2008) found that when students composed summaries, they were chiefly concerned with whether they had “said everything” included in the source text and whether the summary was too short or long (p. 692). They did not focus on emphasizing key ideas or preserving the macrostructure of the source text. In their study of fourth to sixth graders, Turcotte and colleagues (2017) found that even when students had support in constructing a text’s macrostructure, they did not automatically reflect that understanding in well-structured summary paragraphs.

### ***Metacognitive Strategies***

Baker and Beall (2009) explained that metacognition generally consists of knowledge about cognition and regulation of cognition (cited in Almasi & Fullerton, 2012, p. 4). Walqui (2006) explained that our understanding of metacognitive strategies was “derived from studies of how experts carry out specific tasks” (p. 176). She described metacognitive skills activated during reading comprehension: (a) activating strategic knowledge and choosing an appropriate strategy; (b) consciously applying the strategy; (c) monitoring and evaluating the success of meaning-making efforts; (d) adjusting strategy use accordingly; and (e) reflecting on the effectiveness of strategy use and adjusting plans for future reading. Wijekumar and colleagues (2017) confirmed a similar list of metacognitive skills activated during reading comprehension. Cartwright's (2015) scholarship on executive skills shares much common ground with the metacognitive research stream. For example, she describes monitoring as “the ability to step back and reflect on one’s own thoughts, perspectives, and mental processes and assess their effectiveness” (p. 13).

Mayville (2015) conducted a quantitative secondary analysis of PISA 2009 data related to 455 Hispanic English learners in 89 U.S. schools. She found a significant difference in reading achievement scores between the cluster of students who reported moderate to high use of reading strategies and students in two other groups. Walqui (2006) explained that helping English learners develop metacognitive strategies is an essential instructional scaffold.

Researchers often use think-alouds or written artifacts to assess the impact of instructional interventions on students’ metacognitive skills. For example, van de Pol and colleagues (2020) found that generative activities (i.e., diagram completion and diagram

drawing) supported students' comprehension self-monitoring and self-regulation, as well as teachers' ability to monitor and regulate students' comprehension.

### ***Discourse Strategies***

As described in Applebee et al. (2003), Nystrand (1997) examined transcripts capturing the dialogue in more than a hundred eighth- and ninth-grade English classrooms to verify dialogic features of classroom discourse that would support the development of deep comprehension. Nystrand found that productive comprehension-related discussions included authentic questions calling for divergent responses, open whole-class discussion among three or more individuals, and uptake of students' previous comments in follow-up questions.

In their foundational mixed methods investigation of exploratory talk, Mercer and colleagues (1999) found that exploratory talk was associated with an improvement in students' reasoning. Their findings suggested that when children and their teacher use exploratory talk as a cognitive, cultural, and pedagogic tool, this type of discourse can mediate individual children's appropriation of skills. The researchers delineated certain hallmarks of exploratory talk that were employed by later researchers in their investigations of discussion-based comprehension instruction approaches (see Applebee et al., 2003; Maine, 2013; Mercer et al., 1999; Soter et al., 2008). When engaged in exploratory talk, students tend to employ the following discourse strategies:

- They solicit and offer statements and suggestions for joint consideration.
- They challenge and counter-challenge others' ideas, but they justify those challenges and offer alternative hypotheses.
- They use tentative language (e.g., "I think,"), connected cause-and-effect

language (e.g., “because), and uptake language (e.g., “agree”).

- They extend and elaborate on their responses, taking up the ideas of their peers, teacher, and text.
- They ask open-ended, authentic questions that elicit high-level thinking (related to generalization, analysis, and speculation) and connections from outside the text.

Qualitative researchers have continued to investigate how discourse strategies help students make sense of texts together. The studies that grew out of Mercer and colleagues’ (1999) work did not directly measure the effect of exploratory talk on students’ measurable text comprehension. However, they did find evidence of students developing the skills, habits of mind, and self-concepts associated with deep comprehension (Garas-York & Almasi, 2017). For example, after instructing students in the ground rules for exploratory talk, Reninger and Rehark (2009) found that the students in their study “used discussion, and specifically exploratory talk, as a resource to construct meaning about the text” (p. 274). Further, they found that students related “to each other as participants who listen to each other, build onto ideas, ask questions, challenge, and give reasons” (p. 277).

### **Explicit Strategy Instruction for Adolescent Readers**

Kintsch (2009) explained that when students read texts for which they do not have sufficient background knowledge, they “must employ explicit strategies to assure comprehension, strategies that must be directly taught” (p. 226). Almasi and Fullerton (2012) confirmed that “the research has been unequivocally clear that providing explicit instruction about strategies helps students learn to process text strategically and enhances

achievement” (p. 6). As Boardman and colleagues (2008) explained, “Because the need to gain meaning from text increases dramatically as students progress through school, knowing how to apply comprehension strategies is necessary for adolescent readers (Biancarosa & Snow, 2004; Perfetti et al., 2005)” (p. 21).

Though stronger readers may have internalized many strategic approaches to reading, their peers who struggle with challenging text benefit considerably from explicit instruction (Boardman et al., 2008). When students have not yet developed sufficient comprehension strategies or cannot apply them with the more complex academic texts they encounter as they get older, they benefit from explicit instruction in comprehension strategies (Almasi & Fullerton, 2012). For example, in their eight-year study of secondary teachers applying a cognitive strategies approach to reading and writing instruction, Booth and colleagues (2007) found that English learners who received cognitive strategies instruction outperformed their peers on various measures.

### ***The Hallmarks of High-Quality Explicit Strategy Instruction***

To empower adolescent readers to develop their meaning-making skills, educators can arm them with the comprehension strategies strong readers employ naturally before, during, and after reading (Pressley & Gaskins, 2006). Effective strategy instruction involves not only teaching students declarative knowledge (the “what” and “why”), but also teaching procedural knowledge (the “how”) and conditional knowledge (the “when”) (Almasi & Fullerton, 2012; Pearson & Cervetti, 2017). This detailed strategic knowledge allows students to select the most useful strategies for a particular reading task and apply them successfully (Booth et al., 2007; Mayville, 2015).

Kamil and colleagues (2008) summarized the research-supported components of

explicit strategy instruction (teacher explanation and modeling, guided practice and feedback, and independent application). They also pointed out that active student participation and sufficient scaffolding were essential to the success of this explicit instruction. When Boulay and colleagues (2015) reviewed independent evaluations of programs funded by the U.S. Department of Education's Striving Readers grants, they found direct strategy instruction of this kind to be a hallmark of successful programs. For example, Xtreme Reading, a University of Kansas program deemed to have potentially positive effects according to the U.S. Department of Education's What Works Clearinghouse (WWC) standards, included direct instruction, teacher modeling and think-aloud demonstrations, collaborative paired student practice, and independent practice, including with self-selected texts. Walqui (2006) argued that with English learners, teachers need to use strategies "more extensively, continuously building scaffolds as the need arises, and we need to communicate their purpose and uses to students" (p. 178).

### ***Multiple Strategy Approach***

In 2002, the RAND Reading Study Group (Snow, 2002) concluded that "effective reading instruction provides students with a repertoire of strategies for fostering comprehension" (as described in Sturtevant et al., 2006, p. 10). Kamil and colleagues (2008) explained that because most research studies compared the use of one or more strategies against a control condition, it is nearly impossible to determine the comparative cognitive or pedagogical value of individual strategies. Nevertheless, they concluded, "it appears that multiple-strategy training results in better comprehension than single-strategy training" (p. 17). In their practice brief, Boardman and colleagues (2008)

recommended engaging “students actively in using multiple strategies through cooperative learning, group discussion, and other interactive modes” (p. 26).

In his remarks at the 2019 Literacy Research Association conference, Pearson (2019) reflected on the future of the gradual release of responsibility model he conceptualized 30 years earlier. He expressed his support for the multiple strategy approach, explaining that there is “precious little evidence of separate skills” involved in reading comprehension. Challenging the practice of teaching based on a scope and sequence of comprehension skills, Pearson offered the metaphor of orchestration to describe a preferred approach in which teachers guide students to activate “mini-assemblages,” or small clusters of related skills, to assist in sense-making.

### **Discussion-Based Comprehension Instruction**

Summarizing adolescent literacy research that met WWC standards and showed positive or promising results, Kamil and colleagues (2008) pointed out that “most, if not all, [of] the studies that examined instruction in comprehension strategies indicated the importance of practicing those strategies in the context of discussions about the meaning of texts” (p. 6). The researchers went on to explain that, “in effect, students’ interactions with one another, and with the teacher as they apply various strategies[,] give students multiple opportunities to discover new ways of interpreting and constructing the meaning of text” (p. 22).

### ***Discussion Improves Comprehension***

A robust body of research links quality classroom discussion with improved reading comprehension, including specific studies of middle grades learners (Fisher & Frey, 2019; Nystrand, 2006). Madda and colleagues (2019) confirmed “that rich

conversations about text can improve comprehension of both the texts within which the instruction is embedded and new texts that students subsequently read on their own” (p. 33). In their foundational large-scale mixed-methods study of 64 middle and high school English classrooms, Applebee and colleagues examined relationships between students’ literacy performance and discussion-based approaches to building reading comprehension. As the researchers observed, “the results suggest that students whose classroom literacy experiences emphasize discussion-based approaches in the context of high academic demands internalize the knowledge and skills necessary to engage in challenging literacy tasks on their own” (p. 685). Such discussion allows for mutual scaffolding to support students as they co-construct meaning and try unfamiliar strategies (Almasi & Garas-York, 2009; Walqui, 2006).

### ***Hallmarks of Effective Text-Centered Discussion***

In their summary of the reviews and meta-analyses of studies examining the effects of discussion on comprehension, Garas-York and Almasi (2017) noted that Murphy and colleagues’ (2009) analysis had become one of the most influential. After combing through thousands of studies to identify those that met WWC standards and showed positive effects, Murphy and her colleagues examined empirical studies related to nine established discussion-based pedagogies to examine how well group discussion promoted students’ “high-level comprehension of text” (p. 741). The researchers “found that many of the approaches were highly effective at promoting students’ literal and inferential comprehension,” especially those that focused on retaining, using, or acting upon the ideas and information in a text (p. 759).

Nystrand (2006) explained that “the positive effects of classroom discourse are ...



organically related to the epistemic environments [which] various modes of classroom discourse create for learning” (p. 393). According to Sturtevant and colleagues (2006), a core principle of adolescent literacy instruction is that adolescents need to engage in active learning environments characterized by explicit, facilitative literacy instruction. The researchers explained that talk is distributed in active classrooms (not centralized in the teacher), with dialogue occurring in various constellations (partners, small groups, and whole class) among students and between students and the teacher.

In their synthesis of quantitative research on reading programs for secondary students (almost all of which took place in high-poverty schools with many struggling readers), Baye and colleagues (2018) pointed out that “cooperative learning approaches have been shown to be among the most effective strategies for improving adolescent literacy (Dietrichson et al., 2017; Herrera et al., 2016; Slavin et al., 2008)” (p. 139). According to the researchers, “cooperative learning can also provide opportunities for participation in high-quality discussions of text that support and increase comprehension (Guthrie, 2015; Kamil et al., 2008)” (p. 139).

### **Teacher Scaffolding**

In her five-year Beating the Odds research project, Langer (2009) studied the features of 25 middle and high schools considered “schools that worked.” The researcher found that in the effective schools she studied, “teachers try to help students engage in ‘meaning in motion,’ questioning ideas, leaving them open to new refinements and connections as they are in the act of gaining fuller understandings” (p. 59). In this way, effective teachers of discourse-based comprehension instruction empower their students to grow in their understanding of the texts they are studying together. According to

Langer, this kind of instruction also strengthens students' ability to co-construct mental models of new texts. Given the cognitive load students face as they form and solidify their mental models of a text or texts while simultaneously constructing and integrating the unfolding conversation, "the teacher's role in scaffolding, monitoring, and facilitating becomes immensely important and complex" (Croninger et al., 2017, p. 8).

### ***Scaffolding: Characteristics and Variations***

Van Lier (2004) laid out six conditions for scaffolding in language classes within the constructivist context:

- *continuity* – tasks are repeated with variations and connected
- *contextual support* – a safe learning environment promotes access to needed resources and support
- *intersubjectivity* – learning community members are mutually engaged and encouraging of one another
- *contingency* – learning experiences are adjusted in response to the current state and actions of the learners
- *handover/takeover* – the knowledgeable other carefully monitors the learners' readiness and hands over responsibility when the learner is ready
- *flow* – the learners' skills and the learning challenges are in balance, with participants focused on the task and each other

Instead of simplifying texts and tasks to meet students' current level of competence, a constructivist approach to scaffolding emphasizes access to more complex content, concepts, and skills than the student can access without support (van Lier, 2004). A teacher's approach to scaffolding is driven in part by her epistemological and

pedagogical stance. Almasi & Fullerton (2012) explained that *endogenous* constructivists scaffold by creating learning environments in which students explore and discover a careful sequence of experiences and texts intended to lead them to deeper comprehension. In contrast, *exogenous* constructivists explicitly teach through gradual release a predetermined set of strategies that strong readers use, intending for students to internalize a clear body of strategic knowledge and apply it in novel situations. *Dialectical* constructivists attempt a middle path, providing explanation and modeling but also hinting and prompting so that “readers gradually internalize instructional principles through guided discovery or scaffolding from more knowledgeable others and through the opportunity to interact with others as they engage in the strategic processing of text” (p. 27).

Expanding the notion of who can provide support in a classroom learning community, Walqui (2006) laid out four types of scaffolding identified by van Lier (2004): (a) receiving assistance from a more knowledgeable other (peer or teacher); (b) interacting with peers; (c) supporting a less knowledgeable other; and (d) self-scaffolding by activating models appropriated from knowledgeable others. Focusing on the immediacy of the scaffolding support, Almasi and Garas-York (2009) distinguished *microgenetic* scaffolding, which they described as close support to assist comprehension of a particular text, from *ontogenetic* scaffolding, which promotes students long-term development of comprehension strategies. As the authors explained, short-term microgenetic scaffolding might involve the teacher questioning, probing, and prompting. On the other hand, longer-term ontogenetic scaffolding might rely more on peer discussion and metacognitive reflection.

### *Scaffolding Strategy Use*

Madda and colleagues (2019) discussed the need to shift students away from “a strict diet of texts solely at their reading level” (p. 36) to prepare them to make sense of dense and challenging texts. However, the authors contended that “making more difficult texts accessible to students requires a good deal of teacher support and scaffolding to assist comprehension through use of reading strategies and text discussion” (p. 37).

Van de Pol and colleagues (2010) outlined the actions teachers could take to provide this scaffolded support. The authors recommend that teachers engage in ongoing formative assessment of students’ learning, provide sufficient support that is responsive to students’ needs, and then fade that support when the time is right, transferring responsibility to the student. Teachers in effective dialogic classrooms are very intentional in their scaffolding, sometimes withholding immediate support to allow students to wrestle with the text. At other times, the teacher moves in to address a misconception that might derail students’ co-construction (Garas-York & Almasi, 2017).

Almasi and Fullerton (2012) detailed how a dialogic constructivist teacher might approach explicit strategy instruction. The dialogic teacher explains, models, thinks aloud, guides practice, gradually releases responsibility during independent practice, and provides feedback, as a more traditional teacher would do. However, instead of breaking down individual strategies into steps, the dialogic teacher demonstrates the entire strategic process as appropriate for a specific text. In this way, the teacher models the flexible strategy use characteristic of skilled reading. Instead of correcting a student’s efforts to apply a strategy, the dialogic teacher “would provide alternative suggestions, or multiple ways, of approaching a task” (p. 31). This

approach is in keeping with a dialogic view of students as essential contributors to the meaning-making dialogue.

An outcome of such scaffolding is what Frankel and Fields (2019) termed “collaborative authoring.” In their case study of a middle school tutee and the teacher who tutored him throughout the spring semester, the researchers found an increase in collaborative authoring over time, with their collaborative “endeavors centered increasingly around the reading and writing of texts” (p. 10). Beyond making meaning together, the student and teacher discussed strategies collaboratively, with the student increasingly agentive and engaged in choosing appropriate strategies.

### ***Scaffolding During Small-Group Discussion***

In their study of six fourth-grade teachers implementing Collaborative Reasoning (a critical-analytical group discussion approach), Lin and colleagues (2015) found that though teachers’ support during discussions appeared minimal, it had “a considerable influence on relational thinking—the crucial ability to perceive the deep structure of systems of concepts (Chi & VanLehn, 2012; Richland et al., 2004)” (p. 625). Frequently employed scaffolding moves documented in an earlier study of Collaborative Reasoning small-group discussions included asking for clarification, praising the use of evidence, prompting for evidence, challenging, and asking students to sum up (Jadallah et al., 2011). Catalyzing these discussions, the “teacher stimulates one student to generate relational thinking,” after which “other students in the group spontaneously generate relational thinking collaboratively at an accelerating rate without further teacher support” (Lin et al., 2015, p. 625), demonstrating the process of uptake that Anderson and colleagues (2001) termed the “snowball phenomenon” (p. 1). Consistent with the

sociocultural framework, students internalized not only content and concepts shared by teachers but also their scaffolding moves.

In their 2019 mixed-methods study, van de Pol and colleagues (2019) investigated how secondary students working in small groups took up their teacher's support after the teacher walked away. When teachers faded their support too soon, it reduced students' uptake of the support. According to the researchers, the gradual fading of scaffolding was the most effective way to facilitate students' uptake of support. They also noted that when teachers failed to monitor students' understanding at the end of their scaffolding move, they could leave students confused and frustrated. When a teacher models and prompts more complex content or strategies, students' successful uptake may take more time and repeated experiences (Lin et al., 2015; van de Pol et al., 2019).

To ensure that small-group discussions operate productively, the teacher must play the role of instructor, facilitator, and feedback provider, often shifting from one role to another and sometimes playing multiple roles simultaneously (Wei & Murphy, 2018). As Madda and colleagues (2019) warned, "discussion left too open-ended can leave students floundering in the absence of set purpose, organizational structure, and support" (p. 41). Without careful modeling, monitoring, and guidance, students can easily slide into disputational or cumulative talk (Mercer et al., 1999).

### **Research-Praxis Gap**

The reading comprehension instruction commonly found in secondary classrooms across the United States continues to bear little resemblance to the effective instructional practices described in this chapter, according to large-scale observational studies conducted in the late 1990s and early 2000s (Applebee, 2002; Applebee et al., 2003;

Nystrand, 2006; Nystrand & Gamoran, 1997). Though a large body of research has confirmed the hallmarks of effective reading comprehension instruction, the secondary students who need this support the most are often least likely to receive it (Applebee et al., 2003; Risko & Walker-Dalhouse, 2019).

As Mada and colleagues explained, “when compared to ‘mainstream peers,’ low-income or minority students tend to receive a great deal of instruction in lower-level skills and little instruction in reading comprehension and higher-level thinking about text (see Amendum & Fitzgerald, 2010; Amendum et al., 2009; Darling-Hammond, 1995, 2004; Kong & Fitch, 2002)” (p. 30). Further, struggling students are less likely to experience discourse-rich classrooms that could scaffold their reading comprehension skills (Langer, 2009). In content-area classrooms, teachers of struggling adolescent readers may avoid the comprehension issue altogether, distilling the content in slide lectures, for instance (Snow & O’Connor, 2013). Though a lack of access to high-quality comprehension instruction may limit many students’ academic and professional prospects, the failure to provide this instruction to students already challenged by income, learning, and language barriers can only exacerbate already widespread opportunity gaps.

## **Chapter III**

### **Methods**

The chapter begins with a discussion of the research question and an overview of the mixed-methods multi-phase research design employed to address that question. The research site and the researcher's role are then detailed. The chapter then describes the student participants and the sampling, recruitment, and enrollment procedures used in the study. Next, data collection procedures are specified, including the measures and instruments employed. The chapter concludes with a description of data analysis procedures for each phase.

### **Research Design**

The following research question guided the study within the context of my seventh-grade English Language Arts (ELA) classroom: How can scaffolded text-centered interactions in a co-constructivist learning community support adolescent students' comprehension of informational texts?

I employed a mixed-methods design to explore the research question, drawing from qualitative and quantitative research traditions. Creswell and Plano Clark (2011) acknowledged the legitimacy of a dynamic approach to designing mixed-methods studies "that considers and interrelates multiple components of research design rather than placing emphasis on selecting an appropriate design from an existing typology" (p. 59). As proponents of this dynamic approach, Ventakesh and colleagues (2016) viewed "the design of a study as comprising several different dimensions (from many different typologies) that researchers can flexibly integrate to meet their studies' purposes" (p. 436). I crafted a multi-phase explanatory/exploratory design aligned with the Ventakesh



et al. (2016) framework that allowed for theory generation related to the interplay between a teacher's scaffolding of interactions with informational texts and the learning community's co-construction of textual understanding. As analysis proceeded, my interim findings led me to adjust my analytical focus in Phases 2 and 3.

To generate robust and multi-faceted answers to the research question, I collected data from multiple sources on the planned and improvised instruction I provided during 14 lessons in the six-week study period. I also collected numeric and non-numeric student data using various procedures and measures during the same study period.

Data analysis proceeded in three phases: 1) a mapping of the instructional scaffolds provided to support students' informational text comprehension, 2) a parallel analysis of qualitative and quantitative student data, and 3) a deeper dive into three case study students' co-construction of textual meaning. The design facilitated the integration of insights drawn from both numeric and non-numeric data streams (Ventakesh et al., 2016, p. 436), allowed the analysis of student learning to be mapped directly to my teaching, and enabled me to apply insights gained in each phase to the analysis in subsequent phases (Scoles et al., 2014).

This mixed-methods design yielded several additional benefits. First, the design allowed a close examination of both macro-level phenomena (such as shifts in group language usage and performance on closed-ended comprehension measures) and micro-level phenomena (such as shifts in an individual student's language) (Mills & Gay, 2019; Onwuegbuzie & Leech, 2005). Second, collecting qualitative and quantitative data served to offset each type of data's relative weaknesses. The inclusion of context-building qualitative data enriched the ecological validity of the quantitative data. The inclusion of

quantitative data that offered potential generalization tempered the context-dependence of the qualitative data (Mills & Gay, 2019). Finally, methodological flexibility allowed me to respond to my students' needs while also exploring the teaching and learning that occurred in our classroom. See Table 3 for a schematic of the de-facto research design.

**Table 3**

*Research Design Schematic*

Phase	Unit of Analysis	Data Collection	Data Analysis
Phase 1 <i>Explanatory</i>	Teacher	- Audio recordings/transcripts of whole-class instruction - Lesson plans	- Audio recording and transcript analysis
Scaffolding Moves		- Models - Research journal	- Coding - Document analysis
Phase 2 <i>Exploratory</i>	Enrolled Gr 7*	- Student-composed summaries (digital text-centered responses) - Student-composed reflections	- Document analysis - Coding - Data visualization - Rubric scoring - Statistical analysis
Phenomenon of Individual Student Meaning-Making	Enrolled Gr 7*	- Baseline (STAAR Reading 2019 Gr. 6) - Pre-test/post-test (STAAR Reading 2017, 2018 (Gr. 7) - Delayed post-test (STAAR Reading 2017 (Gr. 7)	- Descriptive statistics - Data visualization - Statistical analysis
Integration, Initial Findings			
Phase 3 <i>Exploratory/ Illustrative</i>	Three Cases**	- Audio recordings / transcripts - team and whole-class discussions - Student written responses - Test data and summary analysis from Phase 2 - Additional process writing - Selection test responses	- Audio recording and transcript analysis - Document analysis - Coding - Data visualization - Item analysis
Phenomenon of Individual Student Meaning-Making			
Integration, Revised Findings			

*Note.* \* In Phase 2, I originally intended to disaggregate the cohort based on baseline comprehension assessment. \*\* In Phase 3, I originally planned to delve deeper into the interactions and learning of a team of students rather than individual students.

**Research Site**

Heatherglen Charter Middle School (a pseudonym), in southwest Houston, Texas, is a selective-enrollment pre-Advanced Placement program serving approximately 140 students in grades six through eight. Incoming sixth graders' acceptance into the middle school program is usually contingent on their performance on the fourth- and fifth-grade STAAR reading and math tests. Each day, seventh- and eighth-grade students cycled through five 55-minute classes before lunch (ELA, Science, Math, Social Studies, and Spanish); after lunch, students read choice texts for approximately 45 minutes then attended an elective of their choice.

The middle school program is an integral part of the larger Heatherglen Charter School (HCS) (a pseudonym), a pre-kindergarten through grade 8 (Pre-K – 8) school serving approximately 600 children. HCS was chartered in 1997 in a large urban district in southeast Texas as a constructivist learning community to provide a choice for parents seeking a warm, child-centered learning community within the district. HCS earned a preliminary “A” accountability rating from the Texas Education Agency and was awarded all seven distinction designations based on the Spring 2019 STAAR assessment results. In the 2018-19 school year, more than half (53%) of HCS students were labeled economically disadvantaged, and more than one-fourth (28%) were English learners in the 2018-19 school year (Texas Education Agency, 2019a).

**Researcher Role**

I acted as a participant-researcher in this naturalistic study, investigating a critical aspect of the teaching and learning that occurred in my classroom. I transferred to Heatherglen in August 2017. I have worked as an educator in the same district since

1995. At Heatherglen, I was the only English teacher serving the 96 seventh- and eighth-graders.

### **Sampling Design**

I employed mixed purposeful sampling for the study, as the research goal was analytical rather than statistical generalizations (Onwuegbuzie & Collins, 2007). I selected the purposeful sample (Marshall, 1996) of my two seventh grade classes for two reasons: (a) my younger students had not been exposed previously to my teaching approach, and (b) their collective performance on the 2019 STAAR assessment suggested that a significant number needed additional support to develop their comprehension skills. By providing the same instruction to both classrooms, “potential research effects [were] not confined in any particular classroom” (Shank & Brown, 2007, p. 127), and both participants and non-participants received the same instruction.

For Phase 1 of the study, I collected artifacts of my instructional practice to understand better the scaffolded instruction I provided related to the comprehension of a particular text and the development of informational text comprehension skills. For Phase 2, I applied an identical concurrent sampling design (Onwuegbuzie & Collins, 2007), which allowed me to explore the development of the cohort’s meaning-construction skills from both a quantitative and qualitative perspective. For Phase 3 of the study, I used an opportunistic sampling scheme (Johnson & Christensen, 2014b) to select three students to help give voice to the learning community and provide additional insights.

All seventh-grade students (ages 12 to 13 years old) attending Heatherglen at the beginning of the study were invited to participate. This purposeful sampling strategy (Johnson & Christensen, 2014b) included all students “who have experienced the central

phenomenon ... being explored in the study” (Creswell & Plano Clark, 2011, p. 173). By selecting all seventh-grade students receiving explicit, scaffolded comprehension instruction within a meaning-making community, I strove to reduce selection bias and treat all students as integral contributors to the learning community. Students enrolled in the study at a response rate of 79% (37 of 47 students).

I initially disaggregated two subgroups within the larger sample based on the criterion of their performance on the state’s 2019 STAAR Reading assessment (Johnson & Christensen, 2014b). Disaggregating subgroups using previous test data to provide additional support is a common formative assessment practice. Quantitative analysis of starting point measures revealed significant volatility, especially in the cohort with lower initial performance. Given the instability of test data for this group, I decided that a comparative analysis of subgroups would obfuscate rather than shed light.

Finally, I chose three students for further study using an opportunistic sampling strategy. I used the following criteria to select case study students: (a) they had consistent challenges with demonstrating their reading comprehension at the beginning of the study; (b) they engaged fully in team discussions, whole-class discussions, and written text interactions; and (c) they demonstrated growth in comprehension throughout the study. These students were members of three teams in my second-period class that seemed consistently engaged throughout the study period. The teams were well balanced in terms of gender diversity and previous test performance. Students in these teams had excellent attendance, which allowed for a complete set of audio recordings for team discussions and facilitated tracing their development across the study period.

## **Participant Recruitment and Enrollment**

Given the students' vulnerability to potential coercion (since I was their teacher), it was essential that I not participate in the recruitment process. Once I obtained approval from the university's independent review board (IRB), the school principal conducted a call-out to all seventh-grade parents inviting them to an optional information session held before school. The counselor, who agreed to serve as a recruiter for the study, posted the invitation and consent documents on the school's web-based communication platform, Living Tree. I made multiple attempts to enroll all parents and guardians of seventh-grade students in the platform before the recruitment period began to ensure all families received the study information. All seventh-graders received a packet with assent and consent forms from the counselor. Two homeroom teachers collected forms from students.

Throughout the recruitment and enrollment process, it was emphasized to parents, children, and school staff that participation was optional. The counselor followed up with students who did not return forms or returned forms in which consent was unclear; she also responded to students' questions about the study. When asked by individual students or parents, I also provided information about the study, reinforcing that study participation was optional. In several cases in which students submitted forms without the necessary information, I brought this to the students' attention and asked them to provide the needed information.

Of the 47 students enrolled in Heatherglen's two seventh grade classes, 35 students fully enrolled in the study, providing child assent and full parent consent forms. Two additional students provided child assent and partial parent consent forms (parents

signed and dated the consent form but checked the box indicating that they opted out of transcribing their students' utterances for use in a research paper with potential for publication). The choice of ten students not to enroll provides evidence of a noncoercive recruitment enrollment process.

I made adjustments regarding the study design and prioritization of data analysis since seven of twelve heterogeneous teams (including six of seven in one period) had non-participants. Though I considered changing the heterogeneous team assignments to cluster study participants within teams, I decided that I could not do this in a way that preserved heterogeneity and team cohesion in my two classes.

### **Participant Characteristics**

Participants included all students enrolled in my two seventh grade Pre-AP ELA classes who opted into the study, as well as myself. Sixty-two percent of student participants were female, 57% were labeled economically disadvantaged, 41% were identified as gifted and talented (G/T), 5% were diagnosed with dyslexia, and 57% were either current, monitored, or former English learners. Identifying participating students by race or ethnicity was problematic, as the district and state's descriptors did not adequately describe the group's diversity. The cohort included students whose families had immigrated from Southeast, South, and East Asia, Africa, the Middle East, and Latin America (some recently) and students who identified as White American, Hispanic American, or Black American. By chance, the sample was demographically representative of the underlying seventh-grade student population in terms of the percentage of students identified as economically disadvantaged, active and former English learners, dyslexic, and gifted and talented. The sample had a slightly higher

proportion of females (62% vs. 57%) and monitored English learners (57% vs. 51%), as well as a somewhat higher average STAAR scale score (1688 vs. 1675) than did the underlying population. The sample represented nearly the range of the underlying population in terms of STAAR performance, upholding the promise of data saturation (Mills & Gay, 2019). See Table 4 for more information about student participants.

**Table 4**

*Demographic and Performance Information for Participating Students*

	#	Male	Eco Dis	G/T	Dys	English Learner			2019 STAAR Reading Scale		
						A	M	F	Avg	Low	High
Population	47	43%	53%	38%	6%	4%	43%	4%	1675	1431	2056
Sample	37	38%	57%	41%	5%	3%	49%	5%	1688	1506	2056

*Note.* Eco Dis = economically disadvantaged. G/T = gifted and talented. Dys = dyslexic.

A = active. M = monitored. F = former.

**Data Collection**

I collected numeric and non-numeric data concurrently throughout six weeks. The three text studies were part of the first thematic unit of the year, *Crossing Generations*. We engaged in the first informational text study after the class explored introductory unit material and studied a thematically related personal narrative and short story. The second text study followed immediately on the heels of the first. We began the third text study after a brief interruption during which I attended a conference. See Figure 3 for the student handout that summarized the initial Unit 1 plan.



**Figure 3***Unit 1 Plan (Student Handout)*

Grade 7 Pre-AP ELA Pauloski

UNIT 1 – CROSSING GENERATIONS

September 12 – October 18, 2019

Essential Question: What can one generation learn from another?

Themes / Frames: intergenerational learning; comparison; perspective; genre; voice

Vocabulary: generation (-gen-); dialogue (-log-); consequence (-sequ-); perspective (-spec-); notable (-not); contradict (-dict-)

Texts:

Days	Text	Genre	Focus	Products
<b>1/2</b> 9/12	Introduction		thematic and personal connections	
<b>1 1/2</b> 9/12, 9/13	Grounded (mentor text)	personal narrative	genre characteristics, author’s craft, details	craft imitation; annotation
<b>4</b> 9/16-9/19	Two Kinds	realistic short story	character, conflict, plot	plot diagram; character analysis journal; selection test
<b>4</b> 9/20, 9/23-25	Case of the Disappearing Words	feature article	text structure and features; inquiry; summarization	class discussion; inquiry notes; summary; selection test
<b>3</b> 9/26-27, 9/30	Saving Their Language	news article	text structure and features; summarization; comparison	post-reading questions; summary
<b>3</b> 10/1-10/3	Tutors Teach Seniors New High-Tech Tricks	human interest story	genre characteristics; close reading; language and tone; summarization	annotation; tone journal; summary
<b>2</b> 10/4, 10/7	Abuelita Magic, Mother to Son, To James	poetry collection	genre characteristics; graphic elements; author’s craft; theme	analysis/interpretation questions; craft imitation
<b>3</b> 10/8, 10/10-11	from <i>Mom &amp; Me &amp; Mom</i>	memoir	literary devices (dialogue, description, exposition)	annotation; literary analysis journal; selection test

Final assessments: personal narrative composition (10/15-17); unit test (10/18)

Please note that our schedule may shift based on the learning needs of students.

*Note.* I adjusted the unit timeline due to circumstances related to students' instructional needs and changing study parameters.

I use most of the data collection methods and measures employed in this study to assess my students' comprehension as a regular part of my practice (Pearson & Cervetti, 2017). As an experienced and pragmatic teacher, I engage in pedagogical bricolage, drawing upon a broad range of instructional and assessment approaches. As Bazeley (1999) wrote, "The researcher as bricoleur will gather whatever data is at hand, experimenting and exploring to find answers to the questions he or she has set" (p. 279). As a research bricoleur, I also hope to honor the "abilities and insights of" my students by

valuing their “diverse forms of knowledge, especially those knowledges that have been subjugated” (Kincheloe, 2008, p. 317).

### ***Phase 1 Data Collection – Artifacts of Instruction***

For Phase 1, I collected artifacts associated with 12 55-minute lessons focused on three informational text studies over four weeks. I also examined artifacts drawn from two partial preparatory lessons focused on discourse. Artifacts included lesson plans, instructional materials, teacher-created models, and audio recordings of whole-class instruction. On Day 5 of the first text study and Day 4 of the third text study, students completed selection tests and composed summaries. I maintained a research journal to document instructional decision-making, changes from planned instruction, and observations about my teaching. See Table 5 for more detail.

**Table 5**

#### *Instructional Focus, Texts, and Sequence*

<b>Instructional Focus</b>	<b>Periods</b>	<b>Dates</b>	<b>Genre</b>	<b>Source</b>
Discourse Guidelines	Two partial periods	<b>Day 1</b> (Wed., Sept. 11) <b>Day 2</b> (Mon., Sept. 23)	--	--
<i>Text 1</i> The Case of the Disappearing Words: Saving the World's Endangered Languages	Five periods	<b>Day 1</b> (Wed., Sept. 25) <sup>a</sup> <b>Day 2</b> (Thur., Sept. 26) <b>Day 3</b> (Fri., Sept. 27) <b>Day 4</b> (Mon., Sept. 30) Day 5 (Tues., Oct. 1) <sup>b</sup>	Feature Article	Unit 1, Pearson Gr 7 Adoption. Originally sourced from Andre-Clark, A. (2017). <i>MUSE Magazine</i> .
<i>Text 2</i> Saving Their Language: Speakers Try to Revive Lakota and Dakota Before They Disappear	Five periods	<b>Day 1</b> (Wed., Oct. 2) <b>Day 2</b> (Thur., Oct. 3) <b>Day 3</b> (Fri., Oct. 4) <b>Day 4</b> (Mon., Oct. 7) <b>Day 5</b> (Tues., Oct. 8) <sup>c</sup>	News Article	Teacher-adapted text sourced from Andrews, J. (2009, 20012). <i>Southdakotamagazine.com</i> . [Abridged]
<i>Text 3</i> Teens Teach Seniors New High-Tech Tricks	Four periods	<b>Day 1</b> (Mon., Oct. 14) <b>Day 2</b> (Tues., Oct. 15) <b>Day 3</b> (Wed., Oct. 16) Day 4 (Thur., Oct. 17) <sup>b</sup>	Human Interest Story	Unit 1, Pearson Gr 7 Adoption. Originally sourced from Ludden, J. (2011, Dec. 27). <i>National Public Radio</i> .

*Note.* Audio was recorded for whole-class and team discussions on days in bold print.

<sup>a</sup> Informational Text-1 form was administered. <sup>b</sup> Selection test and Informational Text-2 form were administered. <sup>c</sup> Informational Text-2 form was administered without a selection test.

The Texas Essential Knowledge and Skills (TEKS) are the state curriculum standards. TEKS standards include component student expectations that specify what students must do to show mastery. The ELA TEKS, revised in 2017, have a strong comprehension strategy emphasis. I aligned instruction during the three text studies with eleven TEKS student expectations that emphasized cognitive, metacognitive, and discourse strategy use relevant to informational text comprehension. See Table 6 for the target TEKS student expectations.

**Table 6**

*TEKS Student Expectations Addressed During Shared Text Studies*

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The student is expected to:	
1(A)	listen actively to interpret a message and ask clarifying questions that build on others' ideas
1(D)	engage in meaningful discourse and provide and accept constructive feedback from others
5(C)	make, correct, or confirm predictions using text features, characteristics of genre, and structures
5(G)	evaluate details read to determine key ideas
5(I)	monitor comprehension and make adjustments such as rereading, using background knowledge, asking questions and annotating when understanding breaks down
6(D)	paraphrase and summarize texts in ways that maintain meaning and logical order
6(E)	interact with sources in meaningful ways such as notetaking, annotating, freewriting, or illustrating
8(D)	analyze characteristics and structural elements of informational text, including:
	(i) the controlling idea or thesis with supporting evidence
	(iii) organizational patterns that support multiple topics, categories, and subcategories
9(B)	analyze how the use of text structure contributes to the author's purpose
9(C)	analyze the author's use of print and graphic features to achieve specific purposes.

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**Note.** TEKS are available at the Texas Education Agency website (ELA and Reading,

English I, §110.35 T.E.C., 2017).

### ***Phase 2 Data Collection – Student Data***

For Phase 2, I collected numeric and non-numeric data from the same student sample concurrently to allow me to explore the phenomenon of students' meaning-making more fully. I administered a pre-test and post-test, using released passages from Grade 7 STAAR Reading assessments (Texas Education Agency, 2017a, 2018a). I collected data from a January practice exam that served as a delayed post-test. I also accessed archival data—students' performance data on the 2019 Grade 6 STAAR Reading assessment—to determine students' comprehension starting points more precisely and provide context for students' performance on the pre- and post-test. I also collected open-ended digital process writing samples using three forms: the Informational Text-1 Google form, the Informational Text-2 Google form, and the Unit 1 reflection collected digitally through Google Classroom.

### ***Phase 3 Data Collection – Three Cases***

In addition to the qualitative and quantitative data collected for Phase 2, I collected additional data in keeping with my typical teaching practice. Students completed multiple-choice selection tests for the first and third texts and entered their responses into the district's student information management system. I also collected multiple samples of students' "raw" or "slice-of-life" written work to support triangulation (Mills & Gay, 2019, p. 560). I collected students' annotated texts (the pre-test and post-test passages, as well as the physical copies of the three texts we studied). I collected additional written assignments—graphic organizers completed digitally or in print. Finally, I asked all my second-period teams to use digital recorders to capture their team conversations. These additional data sources allowed me to test hypotheses and

further contextualize findings.

## **Quantitative Instruments**

### ***2019 Grade 6 STAAR Archival Data***

As a quantitative baseline measure of students' comprehension, I retrieved the student response report for the 2019 Grade 6 STAAR Reading assessment from our district's OnTrack data management system. These data helped to provide context for students' performance on the pre-test and post-test. Classroom teachers regularly use previous summary test data to help identify starting points for students each year.

The 40-item closed-ended STAAR Grade 6 Reading assessment is considered a valid and reliable measure of students' skills, according to an independent evaluation (Human Resources Research Organization, 2016). The state uses the Kuder-Richardson 20 (KR-20) statistic to estimate internal reliability for its multiple-choice tests. The KR-20 coefficient was 0.89 for the Spring 2018 STAAR Grade 6 Reading, which the state considers an indication of "good" reliability (Texas Education Agency, 2018, p. 4-31). (The coefficient has not yet been released for the Spring 2019 STAAR Grade 6 Reading test, but the consistency in processes used to develop the examinations suggests that reliability can be extrapolated from the previous year's test.) The state develops each assessment in the STAAR battery through a rigorous and multilayered process, including field-testing, committee review, and data review for each item. After tests are constructed, university experts review the assessment to validate content and control for quality (Texas Education Agency, 2018).

### ***Released Grade 7 STAAR Excerpts***

The pre-test and post-test each consisted of two reading passages and 13 closed-

ended items assessing students' comprehension of paired informational passages extracted from the 2018 STAAR Grade 7 Reading assessment (pre-test) and 2017 STAAR Grade 7 Reading assessment (post-test) (Texas Education Agency, 2017a, 2018a). The statewide item analysis reports revealed a nearly identical average percent correct for both selections. The KR-20 coefficient was 0.91 for the Spring 2018 STAAR Grade 7 and 0.90 for the Spring 2017 STAAR Grade 7 (Texas Education Agency, 2017b, 2018b); thus, both assessments met the state's criterion for excellent reliability.

Because I used excerpts from two state-normed assessments with similar designs and an equivalent successful response rate, I could compare results across the instruments while avoiding the internal validity issue of increasing familiarity with the same instrument.

For the pre-test, I asked students to read the 2018 paired informational passages ("Natural Inspiration" and "A Brilliant Beetle") then answer the associated multiple-choice items 17 through 29. For the post-test, I asked students to read the 2017 paired informational passages ("Reinforcing the Past" and "The Cutty Sark") and then answer the associated multiple-choice items 17 through 29.

I administered both the pre-test and post-test in the classroom during one class period, attempting to preserve testing conditions. Students completed the tests on paper with pencils. Students needing additional time were allowed to complete the assessment during their lunch period. Several weeks after the close of data collection, I keyed in student answer choices in the district's OnTrack data management system to allow for report generation and data analysis.

In January 2020, the district required campuses to administer the 2018 STAAR

Reading test in its entirety as a practice test. In this context, my students had another opportunity to read and answer questions regarding the two paired passages used as a pre-test. Because students had not gotten results or feedback regarding the passages, and because more than four months had elapsed since the pre-test administration, I decided to treat this administration as a delayed post-test, notwithstanding the threat to internal validity.

### ***Selection Tests***

I used the selection tests administered at the end of the first and third shared text studies to provide further context in Phases 2 and 3. The textbook company generated the multiple-choice items to assess students' comprehension of the texts. Students completed the assessments digitally during one class period without referring to the texts.

### **Qualitative Measures**

The student-generated texts collected for the study included digital reflection forms that students completed before the first text study and after each text study, written annotations for four texts (including the pre-test and post-test), and a digital open-ended unit reflection that students completed after they finished the post-test.

### ***Informational Text-1 and Informational Text-2 Forms***

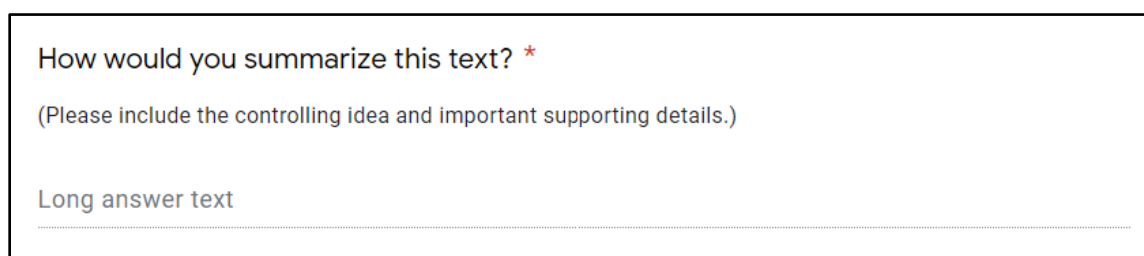
I initially designed two Web-based forms to help document students' meaning-making processes. I designed the Informational Text-1 form to serve as a formative assessment of students' understanding of a text after an initial cold read. I intended the Informational Text-2 form as a final opportunity for students to synthesize their mental model of the text. After students completed the first Informational Text-1 form, I realized that using the form required me to forego pre-reading strategy engagement. After the first

use of Informational Text-1, I only used Informational Text-2 at the end of the second and third text studies.

Though the forms included multiple open-ended and continuous scale items that informed my teaching, I focused solely on students' responses to one question for this study: "Please write a summary of this text. (Please include the controlling idea and important supporting details.)." See Figure 4 and Figure 5 for the segment containing this question in the Informational Text-1 and Informational Text-2 forms. The formulation of the summarization prompt in Informational Text-1 led to confusion for at least one student in the first period, who described the process they would use to summarize rather than summarizing the text. I adjusted the question for the first administration of Informational Text-2. Students responded well to the digital format, and unlimited open-response fields allowed students to respond in as much detail as they wished (Driscoll et al., 2007).

#### **Figure 4**

##### *Informational Text-1 Google Form Summarization Prompt*

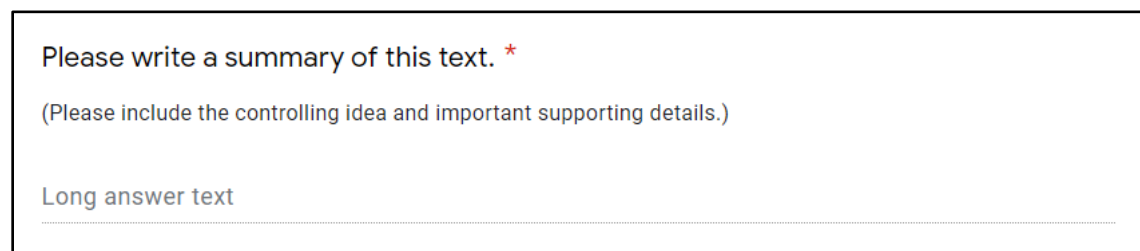
A screenshot of a Google Form summarization prompt. The text "How would you summarize this text? \*" is in bold black font. Below it, the text "(Please include the controlling idea and important supporting details.)" is in a smaller, regular black font. At the bottom, the text "Long answer text" is in a light blue font, followed by a horizontal dotted line.

How would you summarize this text? \*

(Please include the controlling idea and important supporting details.)

Long answer text



**Figure 5***Informational Text-2 Google Form Summarization Prompt*


Please write a summary of this text. \*

(Please include the controlling idea and important supporting details.)

Long answer text

***Text Annotations***

I instructed students in a specific text annotation strategy at the beginning of the second text study, including selectively underlining words and phrases and writing margin notes as they read. I preserved their annotated texts for data analysis.

***Open-ended Digital Reflection***

After the post-test, I instructed students to reflect on their learning experiences by writing open-ended responses to two prompts:

1. Which strategy or strategies did you find most helpful in making sense of the article? For each strategy you found helpful, how did it help you? Please be specific.
2. Which learning experiences did you find most helpful as you learned and applied the comprehension strategies? For each learning experience you found helpful, how did it help you? Please be specific.

Students completed the assignment digitally, typing into a digital document delivered through the Google Classroom learning management platform. The form included examples of strategies and learning experiences listed before the prompts. The digital format of student responses facilitated coding and data visualization.

## **Data Preparation**

I downloaded digital data collected throughout the study into my personal home computer's hard drive. I preserved the case master list in the home hard drive, including identity markers such as class period, team, gender, economic status, and learning differences (gifted/talented, dyslexic, English learner). I maintained physical copies of student documents (test forms, assent and consent forms, and process writing) in a locked cabinet in my home office. I stored a back-up copy of the digital data on an external hard drive in the locked cabinet.

I downloaded test data from the district's OnTrack system into my home hard drive as Excel spreadsheets. I de-identified the data and created a separate master spreadsheet for statistical analysis of paired metrics.

I prepared the Informational Text-1 and Informational Text-2 form data for analysis in two ways. First, I exported student records as spreadsheets into the hard drive. Second, I merged the data into a word document template that allowed me to create a separate record for each student. These records were also de-identified and stored on the hard drive.

I used the Nvivo web-based automatic transcription service to generate rough transcriptions of whole-class audio recordings. I edited the rough transcripts manually within the web-based program, de-identifying students and removing irrelevant segments. I downloaded the transcripts as documents, storing them in my home hard drive. After I further cleaned up and formatted the transcripts, I uploaded them into the qualitative data analysis software package, Nvivo 12 (2018) for coding. I also uploaded other digitized instructional artifacts and de-identified student writing samples into Nvivo 12.

## **Phase 1 Data Analysis: Instructional Mapping**

To code the instructional artifacts and interim texts generated in Phase 1, I began with a narrow *a priori* master coding list (Christensen, 2014). Qualitative codes were “revisited during data analysis in an iterative analytic process to allow for the recognition of emergent themes and insights” (Driscoll et al., 2007, p. 25). As Johnson and Christensen (2014) suggested, I generated new codes to address data segments that did not fit within the *a priori* scheme.

### ***Coding Comprehension Strategies***

I coded comprehension strategy features in alignment with O’Reilly and colleagues’ model of the “building and sharing knowledge” key practice, which describes the process by which students make sense of an informational text in a community. Though researchers have proposed various typologies of comprehension strategies (see, for example, Duke et al., 2011), the model proposed by O’Reilly and colleagues (2015) fits well with the theoretical framework and research antecedents of this study. I made minor adjustments to the model and shared those with the lead author, who confirmed that the changes maintained the model’s integrity. Additionally, I teased out metacognitive strategies from those identified as cognitive strategies and expanded the list (Cartwright, 2015). The coding of comprehension strategies is described further in Chapter 4.

### ***Coding Discourse Features***

To code discourse features, I used a scheme adapted from Soter and colleagues (2016). Because Soter and colleagues (2008) identified discourse features associated with comprehension, adopting elements of their coding system allowed me to focus on the

discourse features that are most salient to the research question. This aspect of the coding scheme remained reasonably stable, though I did add to the list based on transcript analysis. I realized that these discourse “features” were strategies that facilitated comprehension and had to be scaffolded just as cognitive and metacognitive strategies needed to be scaffolded. I thus folded those discourse strategies into the comprehension strategy codebook.

### ***Coding Instructional Moves***

From a shortlist of instructional moves that mirrored a traditional lesson cycle (such as explanation, modeling, and assessment), I expanded the codebook to include more instructional moves with each analysis iteration. As I analyzed audio recordings and transcripts, I continued to read the research literature to inform my understanding of scaffolded instruction (e.g., Almasi & Fullerton, 2012; Jadallah et al., 2011; Lin et al., 2015; van de Pol et al., 2019; Wei & Murphy, 2018). I describe the coding of instructional moves in more detail in Chapter 4.

### ***Creating Instructional Maps***

After analyzing and coding the research journal, transcripts, and instructional artifacts, I developed instructional maps for the three shared text studies, focusing on the sequence of instructional moves and explicit comprehension strategy instruction. I used audio-recorded segments of whole-class instruction to confirm and elaborate details of the instructional map. I revisited audio recordings and associated transcripts, checking my nascent findings against other instructional artifacts and contemporaneous journal entries.

## Phase 2 Data Analysis: Statistical Analysis and Rubric Scoring

In Phase 2, I focused on the cohort's progress in demonstrating their comprehension of familiar and unfamiliar informational texts. To that end, I compared seven paired metrics, including four paired test metrics and three summary rubric metrics. See Table 7 for a list of these paired metrics with the sample size for each. Additional analysis of transcripts and test forms supported this central analysis.

**Table 7**

### *Seven Paired Metrics*

<b>Paired Metrics</b>	<b>n</b>
<b>Test Metrics</b>	
Pre-Test to Post-Test	32
Selection Test 1 to Selection Test 3	31
Pre-Test to Delayed Post-Test	32
Aggregate Starting Points to End Points	28
<b>Summary Rubric Metrics</b>	
Controlling Idea (Summary 1A-3)	31
Key Ideas (Summary 1A-3)	29
Key Terms (Summary 1A-3)	31

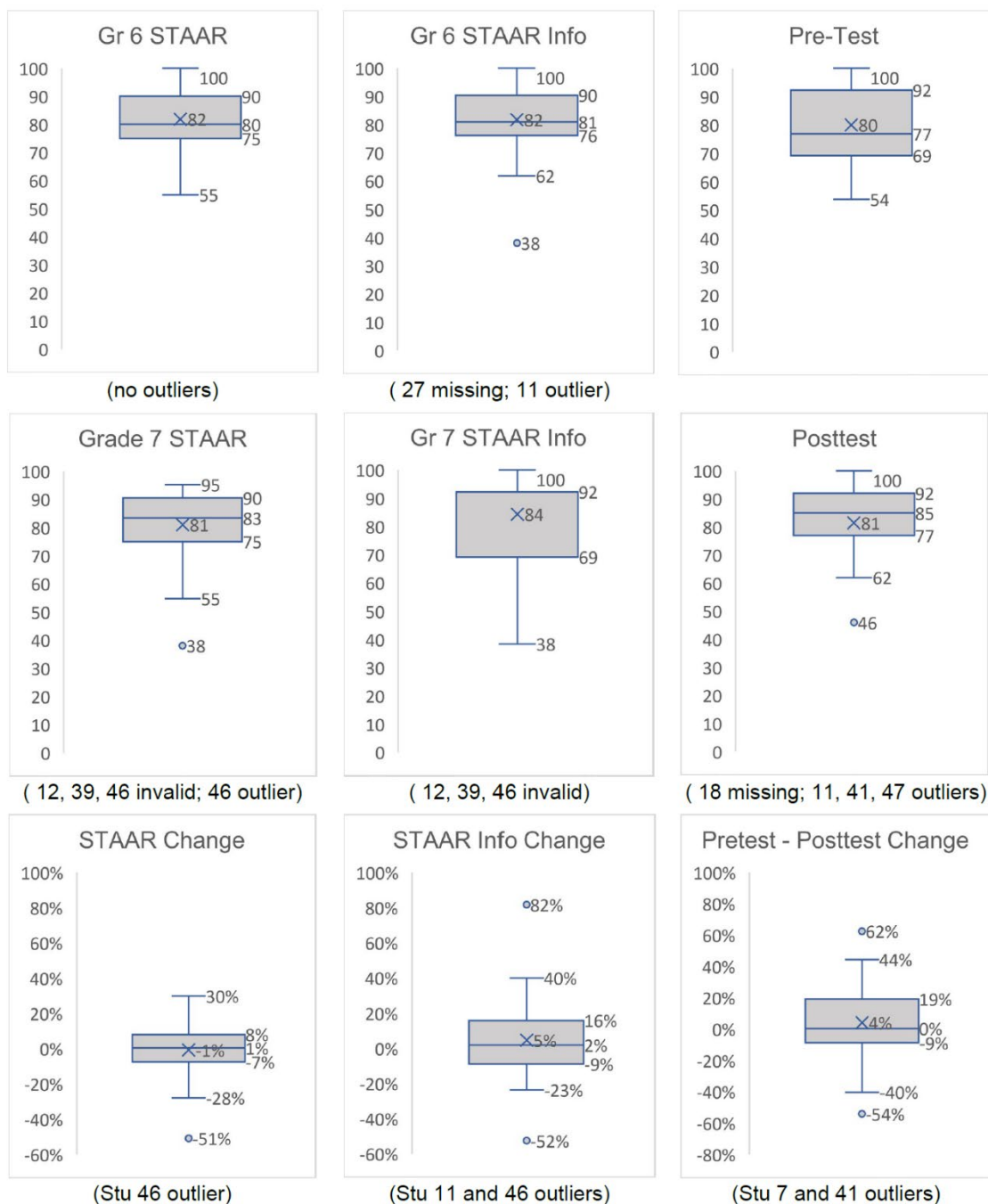
### *Analyzing Test Results*

I first analyzed students' multiple-choice test results. I reported students' performance as the percentage of questions answered correctly. I scrutinized results for anomalies (such as a post-test score much lower than the pre-test score or a spike in the pre-test score inconsistent with baseline and post-test scores). In some cases, student disclosures led me to remove a particular test record from the data set. For example, one student disclosed he had a high fever while taking the delayed post-test. I generated box-and-whisker plots to identify outliers in each paired metric and in the change between

paired metrics. See Figure 6 for the box-and-whisker plots of test metrics.

**Figure 6**

*Box-and-Whisker Plots of Test Metrics*



I treated outliers conservatively, removing the student's data only for that paired metric. Concerned about the volatility of students' performance on individual

assessments, I also aggregated three starting point measures and three endpoint measures. The aggregated starting point metrics were Grade 6 STAAR Reading total, Grade 6 Reading (informational questions only), and the pre-test. The aggregated endpoint metrics were Grade 7 STAAR Reading total, Grade 7 Reading (two paired informational passages also used as pre-test), and the post-test. See Table 8 for the treatment of missing records, invalid records, and outliers for all metrics.

**Table 8***Treatment of Missing Records, Invalid Records, Outliers*

	Total Records	Net Sample	Missing Records	Invalid Records	Outliers
<b>Starting Point Metrics</b>					
Pre-Test	37	36	-	-	Stu 07 ( $\Delta$ ) *
<u>2019 Gr 6 STAAR (May 2019)</u>					
- Complete	37	37	-	-	-
- Informational Questions Only	36	35	Stu 27	-	Stu 11 **
<u>Text 1a Summary</u>					
- Controlling Idea	37	37	-	-	-
- Key Ideas	37	36	-	-	Stu 02 **
- Key Terms	37	37	-	-	-
<b>End Point Metrics</b>					
Post-Test	36	33	Stu 18	-	Stu 11, 47 * Stu 41 ( $\Delta$ ) *
<u>2018 Gr 7 STAAR (Jan 2020)</u>					
- Complete	37	34	-	Stu 12,	Stu 12 *
- Paired Informational Passage (same as pre-test)	37	34	-	39, 46 ***	Stu 46 **
<u>Text 3 Summary</u>					
- Controlling Idea	31	31	Stu 12,	-	-
- Key Ideas	31	30	16, 18, 24,	-	Stu 44 *
- Key Terms	31	31	32, 40	-	-

*Note.* \* Outlier indicated in a box-and-whisker plot. \*\* Outlier indicated by calculation (mean  $\pm$  3x standard deviation). \*\*\* Invalid record determined by student communication (verbal, written).  $\Delta$  - percentage change from pre-test to post-test.

Because the number of high performers skewed the cohort's test performance distribution, I ran Wilcoxon signed-rank tests rather than two-tailed *t*-tests to determine whether the differences between the later and earlier test scores were statistically significant. Additionally, I generated Pearson's *r* statistics for those paired metrics for which I ran Wilcoxon signed-rank tests since the Wilcoxon does not generate a Pearson's *r* statistic. I also generated and analyzed descriptive statistics to construct meaning from the quantitative data set (Johnson & Christensen, 2014a).

### ***Rubric Development and Scoring***

I sought a means to compare students' textbases as captured in earlier and later summary attempts. After calculating word frequencies and generating visual word clouds for the initial and final summaries students composed during the first text study, I decided I needed a more systematic way to assess their textbases.

Though we focused a great deal on identifying or constructing the controlling idea and key ideas of each article, as I began to design an instrument, I realized I still had an incomplete understanding of each text's macrostructure. Even after planning and facilitating multiple-day shared text studies, I needed to re-read and make notes of the articles, revisiting students' summaries and then returning to each article again, thus continuing to co-construct my textbases.

During the shared text studies, I noticed that students tended to construct controlling idea statements that "covered" only the first segment of the article. Because none of the texts followed the convention of expressing the entire controlling idea in the lede paragraph, students' initial macrostructures typically left out an essential aspect of the implied controlling idea.



Given my purpose, I developed text-specific rubrics that allowed me to assess students' coverage of the controlling idea, their inclusion of key ideas, and their incorporation of conceptual terms used in the text. I intentionally avoided evaluating syntax, as this seemed irrelevant to the assessment of the students' textbases.

I improved the rubrics through several scoring iterations, rescoring summaries using updated rubrics to generate a consistently scored data set. I scored controlling idea coverage on a scale from 1 – 3. I tallied key ideas and key terms included in each summary, systematically giving partial credit. To compare the inclusion of key ideas and key terms across texts, I calculated the percentage of the total possible for each text, generating a metric that could be compared across texts.

The resulting data allowed me to conduct a statistical analysis of paired metrics. As with the test data, I generated box-and-whisker plots to identify outliers in each paired metric. I removed outliers conservatively. Because these scores approached a normal distribution, I ran two-tailed *t*-tests on each paired metric to assess statistical significance. See Figure 7 and Figure 8 for the final rubrics used for scoring Text 1 and Text 3 summaries.

Figure 7

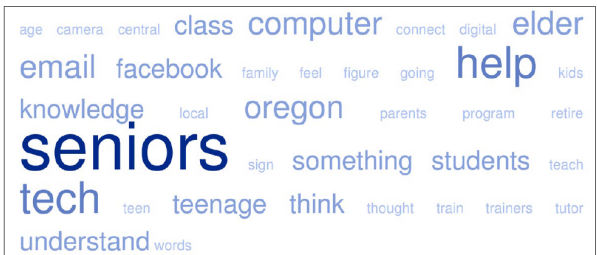
*Rubric—Text 1 Summary: Case of the Disappearing Words*

Text 1 Summary: Case of the Disappearing Words		Google Form	
Info Text-1 (9-25): ____ Info Text-2 (10-1): ____		Case: ____ WC: ____ SC: ____	
<b>RUBRIC</b>	<b>3</b>	<b>2</b>	<b>1</b>
Controlling Idea	• Fully addressed controlling idea.	• Mostly addressed controlling idea.	• Partially or Indirectly addressed controlling idea.
Key Ideas	• Included 4 – 7 key ideas.	• Included 2 – 3 key ideas.	• Included 1 key idea
Key Terms	• Incorporated 7+ key terms.	• Incorporated 4-6 key terms.	• Incorporated 1-3 key terms.

Controlling Idea
<input type="checkbox"/> <b>3:</b> Many languages are endangered + people are acting to try to save them, <b>2:</b> Many languages are endangered and they can OR should be saved. OR Some languages are endangered and people are acting to save them. <b>1:</b> One of these ideas
Key Ideas
<input type="checkbox"/> Thousands of languages are spoken in the world by various cultures. <input type="checkbox"/> Many languages are in danger of disappearing. ( <i>some or one language – ½</i> ) <input type="checkbox"/> The UN uses five categories to identify how at risk a language is. <input type="checkbox"/> Languages are important / should be saved ( <i>½ for stem; full if gave one or more reason</i> ) – <ul style="list-style-type: none"> <li>○ because they preserve cultures.</li> <li>○ because they contribute to cultural diversity (like biodiversity).</li> <li>○ because they reflect and teach us about the culture that speaks the language.</li> </ul> <input type="checkbox"/> Languages disappear ( <i>½ for stem; full if gave one or more reason</i> ) – <ul style="list-style-type: none"> <li>○ because they are not being practiced by younger generations.</li> <li>○ because the new generation wants to fit in with the dominant culture or is forced to give up the language.</li> </ul> <input type="checkbox"/> Linguists are identifying, recording, and cataloguing languages to preserve them. <input type="checkbox"/> Some people are trying to save their own languages ( <i>½ for stem; full if added detail</i> ) – <ul style="list-style-type: none"> <li>○ by teaching younger generations their traditional language, often in schools.</li> </ul>
Key Terminology
<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <input type="checkbox"/> language/s  <input type="checkbox"/> culture/s, society, world  <input type="checkbox"/> endanger/ed, vulnerable, disappear/ing, extinct/ion, vanishing  <input type="checkbox"/> speak/spoke/n, speaker/s, fluent/ly, practice/ing, recite  <input type="checkbox"/> category/ies  <input type="checkbox"/> tradition/s, practice/s/d, ancient             </div> <div style="width: 48%;"> <input type="checkbox"/> native, foreign, minority  <input type="checkbox"/> linguists  <input type="checkbox"/> children, generations, elders, grand/parents  <input type="checkbox"/> important, critical/ly  <input type="checkbox"/> learn/ed, teach, teachers, schools, dictionary  <input type="checkbox"/> preserve/ing, save/ing, document/ing, catalog/ing, record/ing             </div> </div>
Important Examples
<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <input type="checkbox"/> Hebrew  <input type="checkbox"/> Navajo code talkers             </div> <div style="width: 48%;"> <input type="checkbox"/> Other:             </div> </div>

**Figure 8**

*Rubric—Text 3 Summary: Tutors Teach Seniors*

<b>Text 3 Summary: Tutors Teach Seniors</b> Google Form    10-17-2019 <b>Case:</b> ____ <b>WC:</b> ____ <b>SC:</b> ____	
	
<b>Controlling Idea</b>	
<input type="checkbox"/> <b>3</b> – Programs in which teens teach seniors to use tech benefit teens and seniors. <input type="checkbox"/> <b>2</b> – Programs in which teens teach seniors to use technology benefits teens <b>or</b> seniors. <input type="checkbox"/> <b>1</b> – Leaves out teens, technology, seniors, benefits, or programs.	
<b>Key Ideas - 6</b>	
<input type="checkbox"/> Seniors struggle with new technology, isolating them from family. <input type="checkbox"/> Programs use teens because they are the logical technology tutors. <input type="checkbox"/> Teens are teaching seniors to use technology in new programs. <input type="checkbox"/> Teens and seniors bond in the programs. <input type="checkbox"/> Seniors connect with family members as a result of the training. <input type="checkbox"/> Teens build confidence, patience, and/or empathy in the programs.	
<b>Key Word Families - 10</b>	
<input type="checkbox"/> senior/s, senior citizens, elder/s, elderly <input type="checkbox"/> tech, technology <input type="checkbox"/> family/ies, loved ones, grandchildren <input type="checkbox"/> help/ed, helpful, helping <input type="checkbox"/> teen/s, teenage/r/s, adolescents, students, college <input type="checkbox"/> connect/ion, camaraderie, bond, friend/ship	<input type="checkbox"/> program/s, class/es, project <input type="checkbox"/> train/ing, teach/ing, tutor/ing <input type="checkbox"/> skill/s, know/s, knowledge/able, learn/ing, understand/ing, educational <input type="checkbox"/> empathy, perspective, confidence, benefit/s, patience/t, sympathy
<b>Key Examples</b>	
<input type="checkbox"/> TECH program – Norr – Oregon	<input type="checkbox"/> Pace University program – Coppola <input type="checkbox"/> Facebook, email, computer, cameras, Internet, social media

### Phase 3 Data Analysis: Three Cases

For Phase 3, I returned to the test data, transcripts, whole-class and team audio recordings, and process writing to understand better how the three case study students co-constructed their textbases and internalized comprehension strategies.

I reviewed whole-class transcripts and audio recordings as well as team discussion audio recordings, focusing on verbal exchanges involving the case study students. I reviewed the four summaries composed by each case study student and the hand-scored rubrics I completed. I examined their multiple-choice responses on tests analyzed in Phase 2 as well as two additional selection tests. I also reviewed item analyses and test questions to provide context for their answer choices. I reviewed the three students' annotations and graphic organizers. Finally, I re-read their responses to the Unit 1 reflection assignment.

I reconsidered and adjusted themes and tentative findings based on insights gleaned from the deeper dive into qualitative and quantitative data associated with the three students. I created data visualizations placing students' numeric data within the context of the cohort. I also identified representative samples of the team members' written and oral expressions of meaning-making.

## Chapter IV

### Findings and Discussion

In this chapter, I first provide an overview of pedagogical themes and tentative findings that arose from my analysis of teaching and learning artifacts and quantitative data. Next, in the “Discussion of Pedagogical Themes” section, I elaborate on the four themes with narrative description, artifact excerpts, and theoretical propositions. Finally, in the “Discussion of Tentative Findings” section, I lay out my case for the two tentative findings, providing statistical analysis and case illustrations.

#### Overview of Themes and Findings

##### *Pedagogical Themes*

1. **Orchestration of Complexity.** Throughout the three shared text studies, I orchestrated the introduction and practice of cognitive, metacognitive, and discourse strategies useful to informational text comprehension. To facilitate the construction of meaning and uptake of strategies, I orchestrated a complex flow of 46 instructional moves in eight distinct categories.
2. **Responsive Scaffolding.** Informed by ongoing formative assessment, I frequently adjusted instructional moves and shifted strategy focus, providing contingent support for students to construct elaborated textbases and appropriate strategies.
3. **Knowledgeable Other.** I served as a knowledgeable other vis-à-vis my students regarding text interpretation, strategy knowledge, and strategy application.
4. **Co-construction.** As I co-constructed elaborated textbases with my students, I also co-constructed knowledge of useful comprehension strategies and instructional moves. I honed a working model of how my students constructed

meaning of informational text through experimentation, observation, reflection, and consultation of research literature.

### ***Tentative Findings***

#### **1. Students significantly improved their informational text comprehension.**

Students made statistically significant gains as measured by the seven paired metrics used to assess their comprehension skills. Participants significantly improved their performance on multiple-choice comprehension assessments. Participants also steadily increased their coverage of controlling idea, key ideas, and key terms in written summaries.

#### **2. Text-centered interactions facilitated meaning-making and strategy uptake.**

Students' engagement in scaffolded whole-class, team, and individual interactions appears to have supported their uptake of strategies, language, and ideas. Students' engagement with specific discourse, cognitive, and metacognitive strategies seems to have supported their co-construction of meaning. Students perceived strategies and instructional moves as having helped support their meaning-making efforts.

### **Discussion of Pedagogical Themes**

The four themes integrate and build upon research and theory regarding how learners appropriate language and ideas through discourse, construct and integrate mental models of texts, and apply cognitive, metacognitive, and discourse strategies to the act of textual meaning-making. Additionally, the themes address the teacher's role in students' text-centered meaning-making and strategy appropriation.

Given the study's framing in sociocultural theory, I anticipated several pedagogical themes. Others were unexpected. I did not expect to identify such a broad range of strategies and instructional moves during the transcript coding process. I had a sense of my tendency to improvise in response to my students' learning needs. Still, I had not realized how that improvisation unfolded and to what extent it affected meaning-making and uptake. I had expected that our shared text studies would be co-constructive, but I was surprised by how much I learned about the texts, the sense-making strategies we used, and the instructional moves that best supported students.

### ***Theme 1. Orchestration of Complexity***

The analysis revealed complexity in my instructional moves and the cognitive, metacognitive, and discourse strategies I sought to scaffold in support of immediate meaning construction and longer-term strategy appropriation.

**Theme 1a. Comprehension Strategy Orchestration.** Data analysis revealed a much broader set of cognitive, metacognitive, and discourse strategies than I was aware of addressing as I instructed and collected data during the study period. As I designed the unit plan, I intended to provide explicit instruction in a manageable set of strategies aligned with state learning objectives and supported by research. As the three text studies unfolded, I addressed additional strategies, explicitly and implicitly, as scaffolds for meaning-making and strategy uptake. I planned or outlined strategy instruction in some cases, while other additions were improvisational and responsive to my assessment of student discourse or text-centered interactions. For each shared text, I planned to address strategies that I eventually decided to sacrifice to make time for the additional explanation, modeling, and practice for strategies with which students struggled.

*Informational Text Cognitive Strategies.* When planning instruction for this study, I focused almost entirely on the set of cognitive strategies represented in the “Build and Share Knowledge” key practice conceptualized by Deane and his ETS colleagues (2015). The authors delineated the key practice into five interrelated sense-making activities that call for the activation of multiple cognitive strategies.

The “Lay the Foundation” strategies are commonly incorporated into pre-reading activities meant to stimulate the formulation of a situation model of the text (Duke et al., 2011). The Pearson teacher’s edition addressed several of these multi-genre strategies, and I addressed four of the strategies explicitly: “connect to self, world, and other texts,” “discern the author’s purpose,” “scan text features,” and “predict.” Though I worked to “activate background knowledge” (Barth & Elleman, 2017) and help students “set a purpose” for each reading, I did not teach these strategies directly.

I emphasized the “Construct Text Understanding” strategies throughout the study, especially “annotating the text,” “recognizing the explicit structure of the text” (Hebert et al., 2016), “connecting ideas within the text” (Barth & Elleman, 2017), and “discerning key ideas and information.”

Of the set of “Repair and Refine” strategies, I most explicitly addressed “re-reading strategically,” “questioning the text and seeking answers,” and “inferring exposition structure” (a strategy that called for more than the formulation of an initial textbase). Though “checking for understanding” and “noticing confusion” are essential to this activity, I began to code both strategies separately as metacognitive strategies, which I address in the next section.



The “Consolidate and Elaborate” strategies seemed to be activated most successfully in team discussion and the resulting whole-class debriefs, as students worked to “integrate new and previous information” and “reconcile and reorganize information across multiple perspectives.” This co-constructive work seemed to facilitate students’ elaboration of their initial textbases once they took up the metacognitive and discourse strategies essential to meaning co-construction.

Because I did not ask students to formally communicate their new understanding in novel contexts during the unit, we did not activate most of the “Communicate Understanding” strategies during the study. We did “extract principles and concepts for broader application,” especially as we drew conclusions about the topic addressed in the first two texts and considered the implications for intergenerational empathy in the third text.

***Metacognitive Strategies.*** I did not plan to code for metacognitive strategies separately, but transcript analysis revealed that I focused heavily on supporting students’ developing capacity to “focus and maintain attention.” Students were prompted to “activate strategy knowledge” frequently. They were also called upon to “reflect on meaning-making” during and after individual text-centered interactions and team discussions. As I sought to understand the interplay of cognitive and metacognitive strategies in the meaning-making process, Cartwright’s (2015) work on the connection between executive functions and metacognitive strategies influenced my interpretation of instructional and learning artifacts.

***Meaning-Making Discourse Strategies.*** My *a priori* codebook identified discourse markers as characteristics of the kind of classroom discussions that would best

facilitate meaning-making (Applebee et al., 2003; Soter et al., 2008). I inferred from my reading of the literature that my main task was to make explicit my expectations of dialogic discourse and model how to engage in such discourse. I discovered, though, that these ways of co-constructing meaning in conversation with others had to be taught explicitly as well. I could not overcome my students' years of practice engaging in monologic discourse merely by explaining and modeling. Similar to the more complex cognitive and metacognitive strategies, uptake and application of discourse strategies came only after significant scaffolding via explanation, modeling, practice, formative assessment, feedback, and re-teaching. Of the set of identified discourse strategies, I focused most intensively on scaffolding students' "attending to the speaker's and author's meaning," "taking up ideas, language, and strategies," and "using exploratory talk."

Table 9 represents the full list of strategies I identified during transcript coding and artifact analysis. These represent the cognitive, metacognitive, and discourse strategies I addressed explicitly or implicitly during my instruction.

**Table 9***Comprehension Strategies Engaged During the Study*

Category	Comprehension Strategy	Instruction
		Implicit/Explicit
Informational Text Cognitive Strategies ( <i>“Build and Share Knowledge”</i> )*	<b>Lay the Foundation for Sense-Making</b>	
	Activate Knowledge (of Content, of Genre)	e
	Discern Author’s Purpose	e
	Connect to Self, Other Texts, and the World	e
	Set Reader’s Purpose	i
	Scan Text Features	e
	Predict	e
	<b>Construct Text Understanding</b>	
	Infer Word Meanings in Context	e
	Analyze Sentences for Meanings, Implications	i
	Make Knowledge-Based Inferences	i
	Visualize	i
	Annotate Text	e
	Recognize Explicit Structure	e
	Connect Ideas Within Text	e
	Discern Key Ideas and Information	e
	<b>Repair and Refine Text Understanding</b>	
	Define Key Terms	e
	Question the Text and Seek Answers	e
	Re-read Strategically	e
	Paraphrase	i
	Revise Initial Interpretations	i
	Infer Exposition Structure	e
	<b>Consolidate and Elaborate Text Understanding</b>	
	Analyze Ideas	i
	Integrate New Information into Initial Textbase	e
	Pinpoint Text Evidence	e
	Summarize	e
	Reconcile and Reorganize Information Across Perspectives	i
	<b>Communicate Text Understanding</b>	
	Extract Principles and Concepts for Broader Application	i
Metacognitive Strategies / Executive Functions	Focus and Maintain Attention	e
	Check for Understanding	i
	Notice Confusion	i
	Activate Strategy Knowledge	e
	Reflect on Meaning-Making	e
Meaning- Making Discourse Strategies	Attend to the Speaker’s or Author’s Meaning	e
	Take Up Ideas, Language, and Strategies	e
	Engage in High-Level Thinking	i
	Provide Elaborated Explanation	e
	Use Exploratory Talk	e
	Ask Authentic Questions	i

*Note.* \* List adapted from Deane et al. (2015)’s Build and Share Knowledge key practice.

**Theme 1b. Instructional Move Orchestration.** Though I took up different strategies and instructional moves each day, the three text studies had a similar structure. On the first day of each text study, I introduced target strategies through explanation and modeling. I then asked students to read with pen or pencil in hand, marking and making notes as they read. Teams engaged in peer discussions that called for them to compare their initial text-centered insights and understandings. Once students had independently formulated an initial textbase (Kintsch, 2009), I led students through activities and discussions to help them discern and articulate key ideas and information. The co-composition of gist statements helped students to repair and refine their understanding of the text and modeled the connection and synthesis of ideas across the text. Typically, these synthesis activities took more time than initially allotted and therefore represented the final co-constructive step for each text study.

As I coded whole-class transcripts, I identified eight categories of instructional moves and 46 distinct instructional moves. The “Explain,” “Model,” and “Assess Student Understanding” categories were familiar aspects of direct instruction that I expected to identify in whole-class transcripts. I discerned the other categories during coding iterations: “Initiating Interaction,” “Responding to Students,” “Facilitating Interaction,” “Redirecting,” and “Prompting.” I used instructional moves in these categories during whole-class instruction as I attempted to engage students in collaborative meaning-making and discuss the meaning-making strategies we were learning.

I added and adjusted codes in each iteration of analysis to capture the breadth of my scaffolded instruction. I came to understand the instructional moves as conscious, effortful actions taken to support students’ sense-making efforts. I identified instructional

moves commonly described in comprehension research (e.g., Almasi & Fullerton, 2012; Cartwright, 2015; Duke et al., 2011; Kamil et al., 2008; van de Pol et al., 2019; Wei & Murphy, 2018) and others that I had not seen discussed in the literature.

I planned or outlined some of the moves while I improvised others in response to perceived student need. Some moves were associated with comprehension strategies for which I provided explicit instruction, while others modeled an associated strategy or called upon students to engage with the text and each other such that they would co-construct meaning or practice a strategy more effectively. While some moves, especially in the “Redirecting” and “Initiating Interaction” categories, may have served as immediate scaffolds of meaning construction (microgenesis), many of the instructional moves in the other categories may have worked together as longer-term scaffolds (ontogenesis) to support deep comprehension (Garas-York & Almasi, 2017).

Table 10 lays out the instructional moves detected during the analysis of transcripts and other instructional artifacts. I have grouped the moves into categories discerned during iterative coding rounds. I have also indicated whether I used the instructional moves during whole-class instruction, team discussion and co-composition, or individual practice.

**Table 10***Instructional Moves Engaged During the Study*

Category	Instructional Move	Instructional Setting		
		Whole-Class	Teams	Individual
Initiate Interaction	Ask for Response	x	x	x
	Solicit Engagement	x	x	x
	Temperature Check	x	x	x
	Transition	x	x	
	Initiate Discussion	x	x	
Respond to Students	Validate Response (Attempt, Thinking)	x	x	x
	Paraphrase Response	x	x	
	Expand on Response	x	x	
	Restate Question	x	x	
	Probe Response	x	x	x
	Drop Back	x	x	x
	Clarify Response	x	x	x
	Challenge Response	x	x	x
	Correct Response	x	x	x
	Clarify Question	x	x	x
Explain	Explain Instructions	x	x	x
	Explain Cognitive Strategy (Dec, Proc, Cond)	x	x	x
	Explain Author's Craft	x	x	x
	Explain Discourse Strategy (Dec, Proc, Cond)	x	x	
	Give Definition	x	x	x
	Provide Feedback (Verbal, Written)	x	x	x
	Explain Learning Objectives	x		
	Paraphrase Text	x	x	
Facilitate Interaction	Facilitate Whole-Class Peer Discourse	x		
	Facilitate Team Discussion	x	x	
	Facilitate Text Engagement	x	x	x
	Structure Team Discussion	x	x	
	Structure Independent Practice	x		x
Model Strategy	Lead Exemplar Analysis	x	x	x
	Co-compose	x	x	
	Model Discourse Strategy	x	x	
	Analyze Student-Generated Texts	x	x	
	Co-construct Textual Meaning	x	x	x
	Do-Aloud	x	x	
	Think-Aloud	x	x	
Redirect	Redirect Attention	x	x	x
	Redirect Behavior	x	x	x
	Redirect Discourse	x	x	
Assess Student Understanding	Assess Text Comprehension	x	x	x
	Assess Cognitive Strategy (Application, Knowledge)	x	x	x
	Assess Author's Craft Knowledge	x	x	x
	Assess Discourse Strategy (Application, Knowledge)	x	x	
	Assess Content-Concept	x	x	x
Prompt	Prompt Use of Evidence	x	x	x
	Prompt Strategy Application	x	x	x
	Prompt Use of Academic Language	x	x	x

**Theme 1c. Orchestration in a Sample Lesson.** As an illustration of how I attempted to orchestrate strategies and instructional moves during a lesson, I have provided details in Table 11 of a sample lesson delivered during the third shared text study. During the previous lesson, I had worked to activate students' knowledge about the topic as we listened to an audio story and teams discussed text-centered questions. At the beginning of the 55-minute sample lesson, students accessed the article in their consumable student editions. They read and annotated the text independently for 20 minutes as I circulated and provided feedback. I interrupted students' work to give more strategy guidance and modeling. I then gave students time to continue reading and annotating. After I explained text-centered questions and target strategies, student teams discussed the questions for 11 minutes. Afterward, we debriefed their team discussions. I wrapped up the lesson with an explanation of the homework assignment (a graphic organizer focused on key details). See Table 11 for an instructional map of the lesson.

**Table 11***Sample Instructional Map – Text 3 (Tutors Teach Seniors); Day 2 of Instruction (Oct. 15)*

**Conditions:** Class conducted face-to-face, full period (55 minutes)

**Instructional Materials:** Print copy of text (removed from consumable student edition); thin markers; learning plan slides; projector/screen; laptop; Google Classroom learning platform; Google document template

**Planning:** No separate lesson plan. Learning plan provided outline. Time provided to annotate text in class because time ran out the previous day. Feedback and coaching were improvisational and responsive to formative assessment. Homework assignment planned (SE activity); graphic organizer prepared during 1st period.

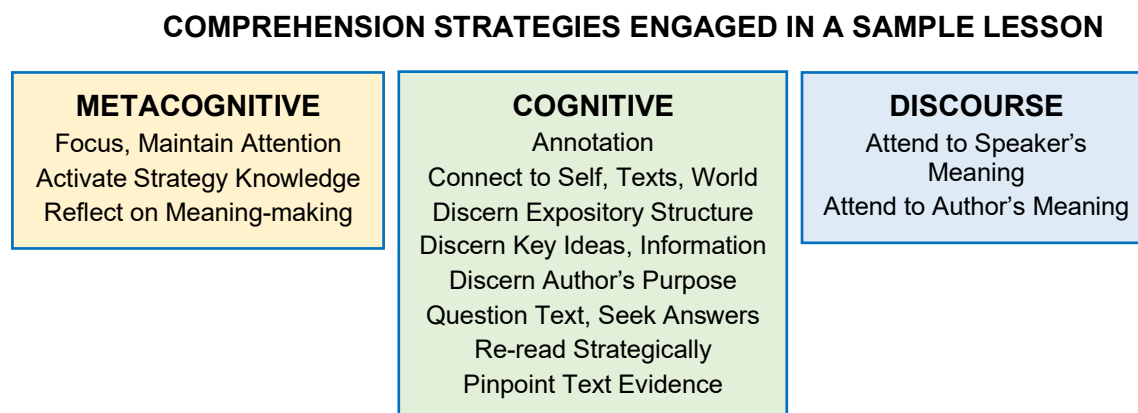
Min	Instructional Element	Interactions	Strategy Focus	Instructional Moves
10	Ss began 2 <sup>nd</sup> read, annotated text introduced 10/14.	S ↔ Txt	Re-read Strategically (e) Annotate Text (e)	Structure Ind. Practice Assess Use of Cog. Strategy Provide Feedback
16	T discussed with Ss rationale for practicing multiple strategies, provided feedback on Ss' annotation efforts, and explained strategies Ss should employ as they read.	T → Ss	Activate Strategy Knowledge (e) Annotate Text (e) Connect (e) Discern Key Ideas, Info (e) Recognize, Infer Text Structure (e)	Provide Feedback Explain Cognitive Strategy (Dec, Proc, Cond) Prompt Strategy Application
10	Ss continued to annotate the text.	S ↔ Txt	Annotate Text (e) Connect (e) Discern Key Ideas, Info (e) Recognize, Infer Text Structure (e)	Assess Use of Cog. Strategy Provide Feedback-Strategy Use
3	T explained discussion questions, making suggestions for how to re-read the text, frame discourse, and think about strategies.	T → Ss	Re-read Strategically (e) Recognize, Infer Text Structure (e) Discern Key Ideas, Info (e) Pinpoint Text Evidence (i) Discern Author's Purpose (i) Question Text, Seek Answers (i) Reconcile, Reorganize Info	Structure Team Discussion Explain Instructions Give Definition Model Discourse Strategy Co-construct Txt Meaning Explain Disc. Strategy (Proc) Prompt Use of Evidence
11	Tms discussed the text, guided by posted questions.	Tm ↔ Txt	Across Perspectives (i) Engage in Exploratory Talk (i)	Facilitate Team Discussion
3	T took up ideas expressed in Tm discussions, added own connections to the text. T explained homework assignment (posted in Google Classroom)	T → Ss	Connect to Self, Other Texts, World (e) Extract Principles, Concepts (i) Discern Key Ideas, Info. (e) Paraphrase (e)	Validate Thinking Expand on S Response Co-construct Txt Meaning Explain Instructions Explain Cog. Strategy (Dec)
--	(HW) Ss completed graphic org., pinpointing evidence and explaining how quotes supported controlling idea.	S ↔ Txt	Discern Key Ideas, Info (e) Paraphrase (e) Pinpoint Text Evidence (i) Connect Ideas Within Text (i)	Structure Ind. Practice, Prompt Use of Evidence, Prompt Strategy Application



See Figure 9 for the metacognitive, cognitive, and discourse strategies engaged.

**Figure 9**

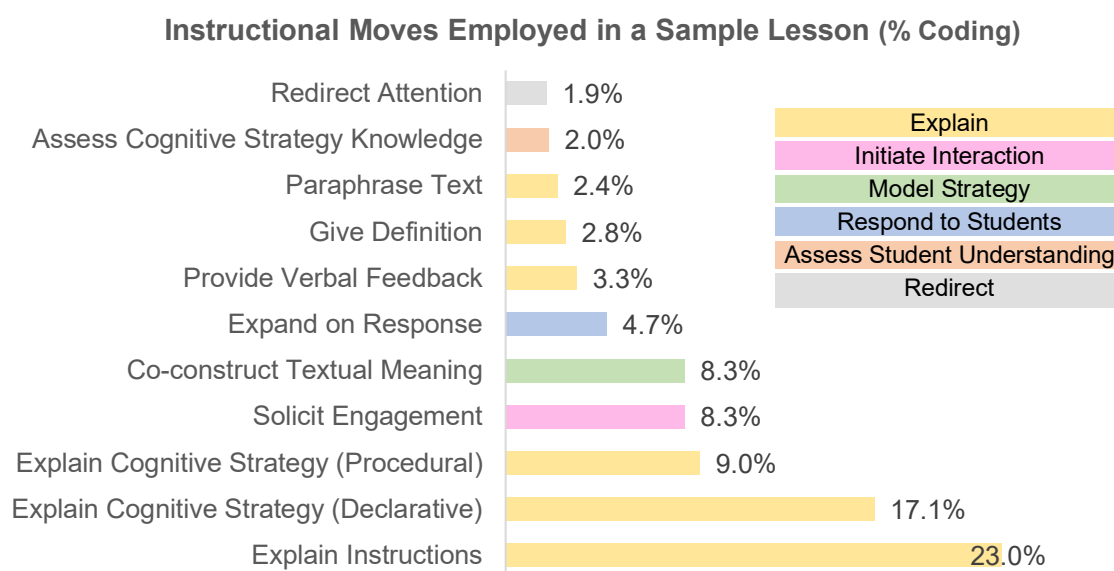
*Comprehension Strategies Engaged in a Sample Lesson*



During the sample lesson, I employed 27 instructional moves (59% of the total identified). Most of the moves scaffolded students' meaning construction or strategy uptake either in the moment or as a longer-term scaffold. See Figure 10.

**Figure 10**

*Instructional Moves Employed in a Sample Lesson*

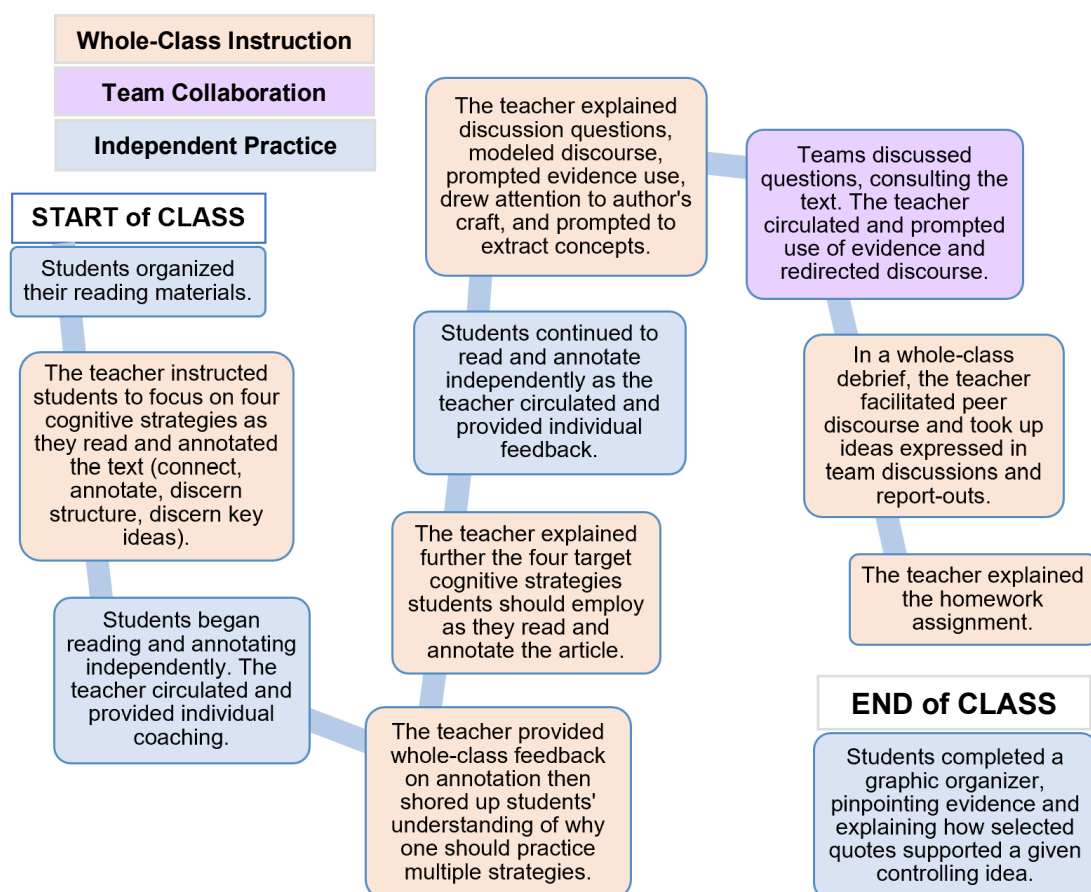


## Theme 2. Responsive Scaffolding

Though the term “scaffolding” can have narrow connotations, the instructional moves I planned and improvised provided contingent support for students’ meaning-making and strategy uptake (van de Pol et al., 2019). Rather than employing a traditional gradual release model, I instead orchestrated a series of semi-structured strategic engagements with text then added additional supports when I determined that students were struggling to make meaning or take up a strategy (Conley, 2017; Garas-York & Almasi, 2017; Langer, 2009; Madda et al., 2019; Wei & Murphy, 2018). See Figure 11 for a flowchart capturing these interactions.

**Figure 11**

*Flow of Interactions in a Sample Lesson (Whole-Class, Team, and Independent)*




In each lesson, I shaped learning experiences around the specific content and structure of the article and then shifted course frequently in response to perceived student needs. In the sample lesson described above, one can detect this responsive scaffolding in the flow of interactions among the teacher, students, and text.

**Theme 2a. Scaffolding of Discourse Strategies.** I introduced a set of discourse strategies in the initial two lessons in the study, working to build strategy knowledge, model negative and positive examples, and provide practice opportunities. See Figure 12 for a teacher-made poster outlining discourse guidelines. Because students struggled to take up those strategies, I devoted more time than expected to scaffold their uptake and application in most lessons.

**Figure 12**

*Teacher-Made Poster Outlining Discourse Guidelines*

## How do we respond?



**All responses:**


- Respond with **complete sentences**; incorporate the prompt.
- Use precise **diction**, including key academic terms.
- **Elaborate** with an **explanation**, **example** or **evidence**.

**Oral responses:**

- **Listen** to others' responses.
- Speak with **tentative** language.
- **Think** through your answer.
- **Take up** others' ideas.

**Written responses:**

- Start with a clear, thoughtful **claim**.
- Compose a **thorough** and **focused** response.
- **Proofread** for grammar, syntax, and mechanics.



*Note.* I introduced the poster during the second lesson and referred to it throughout the study as a visual cue.

*Taking Up Ideas.* To an extent, I assumed that students would be able to take up the ideas, strategies, and language used by knowledgeable others in the meaning-making community. I concluded from theory and research that this was a natural result of thoughtfully structured interaction. Though some authentic dialogic moments arose during whole-class and team discussions, many students struggled to take up others' ideas and needed significant scaffolding in this discourse strategy. I explicitly addressed the strategy in many whole-class discussions and often prompted students to take up each other's ideas in team discussions. I prompted students to listen to each other and to begin their responses with an acknowledgment of their peer's ideas. When a student could not take up the previous speaker's idea successfully, I sometimes interrupted and asked the original speaker to repeat their idea.

On Sept. 30, on the last day of the first text study, I addressed the need for uptake as a reason to come prepared for team discussion.

- T: In my class, how we share ideas about the text that we are studying together is absolutely the essence and center of what we do here. As S21 explained last week, we learn from each other. We pick up each other's ideas, and we deepen our understanding of the text. I'm afraid that some of us maybe are under the mindset that I'm a good reader already, and therefore I don't really need to dig in like this.

Later in the class, after listening in on team discussions, I asked students to pause to discuss with them my continued concern about their lack of uptake and to model how they might take up a colleague's ideas when they disagreed.

- T: Can we take a time out, guys? Sorry to interrupt your conversation, because it's ... it's a rich conversation that you guys are having.... How do I take up an idea if I don't agree with it? How about this? "So I think, S39, that what you're saying is blah blah blah. Am I getting it right?" S39 says, "Yeah, that's pretty much it." And then I say, "OK, I see what you're saying about blah-de-de-blah. I just think maybe also blah blah blah."

When I just kind of look at the person, and they say their opinion, and then I just kind of say, “Yeah, that's not right. Blah blah blah,” that's not letting the person know I even heard them. And I'm certainly not taking up their ideas.

When my efforts did not bear fruit in the whole-class context, I often shifted course, taking up a student's ideas myself. For example, in a whole-class discussion on Oct. 16 at the end of the third text study, after unsuccessfully attempting to facilitate peer uptake, I took up the student's idea.

S46: I disagree with [NP]. I don't think that a controlling idea has details.

T: So they ... so tell me more about that. So S46 is proposing ... I want y'all to listen to this ... S46 is proposing that a controlling idea statement does not include ... put your hands down ... supporting details. Go ... tell us more about that.

S46: [unclear] like, so you if write a summary about an article, it's more of that whole summary in just one sentence.

T: OK, wow. So it is ... it is the ... the ... It's almost like a one-sentence summary of the whole article?

*Attending to Others' Meaning.* More fundamentally, students struggled to attend to others' messages and meaning-making, both in whole-class and team settings. Because the study occurred toward the beginning of the school year, I expected students to need support in honing their discourse practices. However, most of the participants had attended the school in a tight-knit cohort as elementary school students, some since their pre-kindergarten year. The elementary school was founded as a constructivist learning community, reflecting Piaget's emphasis on student exploration and discovery. The school was in the process of becoming certified as an International Baccalaureate Primary Years Programme. In this setting, many of my students had engaged in group projects over the years that encouraged collaborative inquiry. Within this context, I was surprised by the tenacity of students' habit of talking past each other.

During whole-class discussions, instructional moves often addressed this difficulty, both directly and indirectly, as I attempted to facilitate students' attending to others' meanings, whether in text or oral discourse. Themes of "listening" and "attention" arose in my monologic addresses as well as my more dialogic exchanges in the majority of whole-class transcripts.

For example, on Sept. 27, during the first text study, I led a whole-class debrief of a team discussion during which I attempted to help students attend to their peer's meaning.

- S21: So S19 said all the ideas are in one place because that ... we like ... we're focusing on one part of the story. So all those ideas are in one part or like a main section.
- T: OK. Is that what you said really, S19?
- S19: -
- T: No. Can you clarify? Guys, we're having a hard time listening to each other, aren't we? It's hard. You're not used to it. If you're not on deck, you tend to tune out. We're... we have to break that habit. So I really want you to hear what S19 said, because I really think he's getting it. I think he's really getting the idea. And so I suggest that we try again.

On Oct. 2, on the first day of the second text study, I brought students back together after a three-minute team discussion. After pointing out that teams seemed to be listening to each other more effectively in their conversations, I called upon students to share their thinking about attending to each other, asking them to build on each other's responses. It became clear that students could not take up the previous idea because they never really processed it. I addressed the lack of attention and uptake in a coaching conversation that included explanation, rhetorical questions, call-and-response, and personal anecdotes.

- T: This is the problem ... I'm seeing. You guys wait for someone else to stop talking. S19? You guys wait for someone to stop talking, and then you start

talking, and most of the time, it has little to do with what the person just said because we're all just waiting our what?

Ss: Turn.

T: Our turn. Turn-taking is better than everyone talking at the same time. But it doesn't mean you're listening ... really. Is it possible to politely wait for all of your colleagues to finish talking, and you share, and you never really heard them?

S15: Yes.

After the lesson, I journaled about my concern for students' challenges with attending to each other's messages (Author, 2019, Oct. 2).

*We listened to an NPR piece to build background then I asked them to discuss what they heard in their teams. I saw non-dialogic discourse – kids weren't taking up each other's ideas – they had a hard time even demonstrating active listening (lack of eye contact, interrupting, doing other things). I talked to them for a while about the why and how of dialogic discourse. They practiced a bit more, and it seemed better. I don't know how to help really – I may model with a student – I modeled a non-example at the beginning. It just seems they are SO unused to really, really listening to each other. Aren't most adults as well?*

I wondered if there might be a corollary in the way students interact with the author via the text. Students' weakness in this fundamental discourse skill could be a root cause for their thin textbases.

### **Theme 2b. Scaffolding the Uptake and Refinement of the Annotation**

**Strategy.** At the beginning of each school year, I find that many of my students perceive annotation as a marginally useful activity required by their ELA teachers as a way to show evidence of their reading. Thus, they may reluctantly carry out the procedure and only upon request of the teacher (Davis & Wilson, 2015). For example, on the pre-test, many students appeared to annotate after they read the passage, going back to highlight sentences and record each paragraph's topic in the margin.

Though annotation is useful for teachers in revealing students' cognitive interaction with a text, it can also serve as a multi-purpose strategy that stimulates text-

centered cognitive interaction and reveals students' thinking about the text to themselves and others (Mariage et al., 2019). Before I engaged in this study, annotation was the dominant cognitive strategy in my pedagogical repertoire for supporting informational text meaning-making. By the end of the study, students seemed to value the strategy, and many had appropriated it for their personal use.

I first introduced annotation to students as one of a suite of target strategies in the first text study. After the first reading of the second shared text, I introduced the strategy more formally on Oct. 7. I explained that annotation works best as a two-part process of selectively underlining and making notes in the margin as one reads. With Flair pen in hand, I modeled my annotation process with the first page, writing and thinking aloud. I posted a digital photo of my annotation with the online homework assignment so students could use it as a reference. See Figure 13 for the first annotation model provided for students.

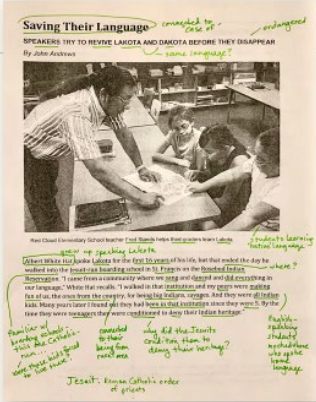
**Figure 13**

*Slide, Reading Response: Annotation, “Saving Their Language” Learning Plan*

### Reading Response: Annotation

Selectively underline words and phrases that—

- seem important
- confuse you
- interest you.



Jot notes in the margins showing your—

- active reading
- questions
- connections.

*Note.* I abridged the article (Andrews, 2009) and added text features to improve readability.



The next morning, students discussed their annotations in their teams while I circulated, checked students' efforts, and provided quick verbal feedback. After noting that many students had annotated perfunctorily, I shared an additional exemplar, which I analyzed with the students, combining an explanation of my thinking with procedural and conditional knowledge of the strategy.

- T: It's almost like a map of your thinking. You can see where you dug in and where you lost track. Did y'all notice that here I got confused?
- T: No. Yes.
- T: I'm still confused ... because I feel like it said that the government changed its mind on the ... how they treated honoring Indian languages versus trying to suppress them? But I feel like it contradicts itself mid-paragraph, which is why I wrote, "may need to look up" because I re-read this, put a big question mark, asked questions of the text, and the text did not tell me anything. It kept a secret from me.

After we discussed the exemplar, students returned to revise their annotations. A week later, on Oct. 15, I asked students to annotate the article they were preparing to discuss. Students annotated in class this time. After 10 minutes of annotation, I dropped back to remind students of the annotation strategy's declarative, procedural, and conditional details.

- T: Guys, we're all over the map right now, which is to be expected. What I mean is there are some people who are annotating very heavily, and there are some people who are just slopping a little bit down.  
I am going to ask you ... listen to me ... to hold your pen or pencil as you read, not after you read. So you're not putting your pencil down, staring at it for a while, "Oh, yeah, I got to do this stupid annotation," picking up pencil. Hold the pencil or pen as you read, and that way, the selective underlining becomes more natural. OK? I am trying to discipline myself to only underline words and phrases.  
Have you guys noticed that when you start skimming, you start underlining whole sentences? Have you noticed that? It's something weird that happens with the brain. When you discipline yourself to choose words and phrases that you then jot a little note about? It's amazing what that does to slow you down and cause you to start paying attention to details.

The support of the annotation strategy across the three shared text studies seemed to make a difference in students' application of the strategy. As I compared students' later

applications of the annotation strategy with earlier attempts, I saw evidence of uptake of the annotation strategy and other comprehension strategies. At the end of the unit, 86% of the study participants identified annotation as a helpful strategy in an open-ended prompt.

In her pretest, Student 37's annotation practice consisted of bracketing paragraphs, making a margin note of each paragraph's topic, and highlighting phrases and sentences that helped her answer a question. However, with explicit instruction and guided practice, she activated the annotation strategy during reading to help her make sense of the text. In Figure 14, her orchestration of several cognitive strategies is evident in her annotations.

**Figure 14**

*Excerpt, Student 37 Annotation, "Saving Their Language"*

Soon White Hat was teaching Lakota studies part time at St. Francis and Sinte Gleska University, which opened in 1971, even though he knew little about teaching. The university hired him full time in 1983. he had an opportunity to teach the language he had always fight for.

**TEACHING THE CHILDREN**

In addition to tribal efforts, Leonard Little Finger hopes students will soon attend his private Lakota language immersion school near Oglala on the Pine Ridge reservation. Little Finger dedicated the Sacred Hoop School (Cangleska Wakan Owayawa) last summer. proud of his culture he did it last summer

"It's a dedication to the ancestry that I come from," says Little Finger, a co-founder of the Lakota Language Consortium. "It also honors my heritage." Little Finger's great-great-grandfather was Chief Big Foot, a signer of the 1868 Fort Laramie Treaty and leader of the band killed at the Wounded Knee Massacre in December 1890. he cares about his heritage Rough past

Little Finger grew up on Pine Ridge. He left to attend school and work for the Indian Health Service in Aberdeen, but he returned after the 1973 Wounded Knee occupation. he went to school, and work why did he have to leave to go to school and work?

Adapted from Andrews, J. (n.d.). Saving their language: Speakers try to revive Lakota and Dakota before they disappear. *SouthDakotaMagazine.com* [website]. Retrieved September 11, 2019, from <https://www.southdakotamagazine.com/lakota-saving-their-language>

*Note.* Students annotated printed copies of the adapted Andrews (2009) article as a class activity.

She connected ideas within the text, realizing that White Hat “had an opportunity to teach the language he had always fought for.” She inferred that Leonard Little Finger had “made his own school,” adding her personal reaction, “Oh La La!!” She made several inferences in the next paragraph and added another inference which she took up after comparing her annotation notes with her partner. She thoughtfully questioned the text, asking, “Why did he ~~live~~ leave [the Pine Ridge reservation] to go to school and work?” Not all students’ annotations revealed a conversation with oneself and the author about the text. Still, the class as a whole appeared to make progress in applying the strategy in a way that supported their meaning-making.

Broadening the scaffolding concept to include responsive instructional moves in interactive whole-class, team, and individual learning contexts allows us to consider the improvisational nature of the work teachers must do to support meaning-making and strategy uptake.

### ***Theme 3. Knowledgeable Other***

This study was motivated partly by my belief that the teacher is a critical member of the meaning-making community—a knowledgeable other who is obligated to share her thinking and strategies with students. My engagement in this research has confirmed this belief. In the analysis of instructional artifacts, however, I found that I struggled to balance my role as knowledgeable other with my desire to support students’ agency and voice. On many occasions, I attempted to step back and make room for students and the text to inform our co-construction of text meaning. My assertion of expertise came more often in the articulation of strategy knowledge than in textual interpretation.

**Theme 3a. Helping Students Activate Strategy Knowledge.** Though many study participants met or exceeded state standards in reading comprehension the previous year, most demonstrated little awareness at the beginning of the study of the cognitive strategies that readers can employ to make sense of complex informational texts. This metacognitive function appears to include the reader's conscious choice of strategies, the retrieval of declarative, procedural, and conditional knowledge, and the strategic assessment of the text (Almasi & Fullerton, 2012).

I played an active role in helping students build and activate strategy knowledge. I quickly found that students would not discover this strategy knowledge through rhetorical questioning and reflection. At the beginning of the first text study, in a whole-class discussion, I attempted to build a bridge from the literary comprehension strategies we had recently activated to the comprehension strategies students might activate when reading an informational text. Students struggled to describe how they approached making sense of informational texts, even after discussing it with their teammates. I shifted to an extended whole-class formative assessment of students' strategy awareness. Students seemed to struggle with the concept that there were genre-specific comprehension strategies, making references to literary terms such as plot and character. Asked, "How do you make sense of informational texts?" one student suggested relating to the text. This response pointed to a strategy that students relied upon heavily, even when their effort to connect the text to personal experience obfuscated textual details outside their experience.

Later that day, I wrote, "I am seeking their input, but I did a lot of recasting and redirecting. It seems clear that the question of how one makes sense of an informational

text (in contrast with how one makes sense of fictional text) was something they had not thought about before, at least not in that way.” (Author, 2019, Sept. 25). I later hypothesized that in the Piagetian constructivist setting of their elementary school, many students might have worked with informational texts for years with little explicit strategy instruction.

### **Theme 3b. Imparting Declarative, Procedural, and Conditional Strategy**

**Knowledge.** In whole-class discussion transcript analysis, explanation emerged as a major instructional move. During whole-class discussions, I approached the explanation of cognitive, metacognitive, and discourse strategies creatively. I used rhetorical questions, call-and-response, and personal anecdotes to hook students’ attention as I assessed and shared declarative, procedural, and conditional knowledge. While I had ready explanations for some strategies, I felt my way through other explanations as I interacted with students, searching for metaphors and other conceptual and personal hooks that would be meaningful to them.

For example, as I introduced the first shared text, I explained several strategies students would be asked to take up as they made sense of the text. When my check for understanding revealed that students could not distinguish between scanning and skimming, I slowed down and provided procedural and conditional knowledge.

T: One strategy that is a fantastic strategy that everyone can use forever as long as they’re alive, is to scan the text features. That means titles and subtitles, background notes, subheads, images and captions, bold words and definitions – all the stuff that stands out when you flip through? Yeah? Do we know what scanning means?

Ss: Yeah. [Several unclear responses.]

T: Just look fast. Skip through it. You are not trying to read for deep understanding. You’re not even trying to read the paragraphs at all. Yeah? Go ahead, S04?

S04: Isn’t it also called skimming?

- T: Skimming is different. Thank you for asking. Scanning is mostly about my eyes picking up the most ... dramatic things on the page. Maybe I read a ... a subtitle, but I ... or a caption. But I don't start reading....
- S03: Uh. I was gonna say when you're scanning, you kind of like pick up ... dates ...
- T: Yeah.
- S03: [unclear]
- T: Yeah. Yeah. Sometimes when you're scanning, those dates or ... any numbers, right? ... are gonna grab your eyeballs. Some of 'em are important, some are not important, but those ... those still stand out. So from that scanning, just flipping through, I can predict three things. The topic, for sure. From the title, the pictures, I can predict the topic. The controlling idea just means the ... the main purpose and idea of the whole text. Supporting evidence. I can kind of see maybe from the subheads, maybe from the pictures, the captions, I can kind of get the sense of what kind of supporting evidence they're going to give me.

This two-minute explanation was typical of my approach to introducing an unfamiliar strategy. I attempted to simultaneously assess and build students' declarative, procedural, and conditional knowledge quickly. I took up two students' offers to add meaning, recasting and expanding on their responses. My original lesson plan stated that I would "discuss/model the pre-reading scanning and predicting strategies." Instead, pressed for time, I relied on explanation with several pauses for student input.

In many lessons, I explained multiple strategies or provided various takes on one strategy. Sometimes without visual reinforcement, these verbal explanations often seemed not to lead immediately to students taking up the intended strategies. The repetition of certain aspects of strategic knowledge, however, seemed essential for student appropriation. As one student wrote, "when the teacher explains the strategy it helps me understand how to do the strategy and when I know how to do the strategy I understand the text more."

This study confirmed that the teacher plays an essential role in serving as a knowledgeable other in terms of sharing strategy knowledge and helping students activate and apply that knowledge. However, there may be value in the teacher muting

her prior knowledge of the text itself. I found myself attempting to co-construct a trustworthy map of the text to guide students while also facilitating students' discovery of the text. I noticed a perpetual tension between the desire to facilitate discovery and the need to serve as a knowledgeable other.

#### ***Theme 4. Co-construction***

The analysis of instructional artifacts allowed me to see that my interactions with students shaped my understanding of strategies, instructional moves, and the texts themselves. I learned by observing and listening to students, reading their work, reflecting on the success or failure of instructional moves, and planning my next instructional moves.

**Theme 4a. Co-Constructive Modeling.** Teacher modeling is often framed as an element of direct instruction in which the teacher transmits to students how they should carry out an activity before the teacher “releases” them to engage in the activity (Duke et al., 2011; Fisher & Frey, 2015). Though some of my modeling fit that description, I also used modeling to facilitate co-construction of textual meaning and strategy knowledge, mainly by leading the analysis of teacher- created exemplars.

***Leading the Analysis of an Exemplar.*** I employed teacher-generated exemplars and draft texts regularly as grist for students' thinking. In the second text study, I explained the annotation strategy, projected my annotations of the first page of the article, and then asked students to discuss briefly what they noticed. In my debrief of their discussions, I started with statements I had heard then wove those into an additional procedural and conditional explanation.

The next day, after observing that many students were annotating thinly and mechanically, I projected an additional exemplar and again prompted students to analyze my strategy application.

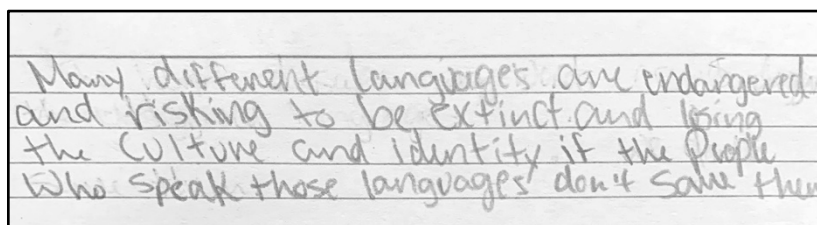
- T: So I'm going to show you my next section. I showed you the other section last time. What do you see? Talk at your tables.
- Tms: *[Teams discussed.]*
- T: And now take a moment to actually read the words that I wrote and look at where I pointed my little lines too so you can kind of see what I connected, what I was connecting it to.
- Tms: *[Teams discussed.]*
- T: Guys, take a moment to actually read the words now. What do my words and the lines that I draw - not the underlining, but the lines that I draw here - What are the words and the lines - how do they connect with text? OK, so have that conversation.
- Tms: *[Teams discussed.]*
- T: Alright. Now. I'm going to ask you to look back at your own work again fresh ... I want you to review your articles' annotations and think about how you did the same thing and how and where you may need to go back.

I then asked students to evaluate their initial efforts and coached them before they returned to independent practice.

**Co-composing.** In each text study, I engaged students in co-composing to refine their understanding of key ideas. On the third day of the first text study, I challenged teams to co-compose a statement that captured the article's controlling idea and then shifted to a whole-class discussion in which we evaluated teams' draft statements. After providing coaching on idea coverage and syntax, I asked teams to revise their statements. See Figure 15 for one team's revised controlling idea statement.

**Figure 15**

*Team 1 – Revised Controlling Idea Statement*



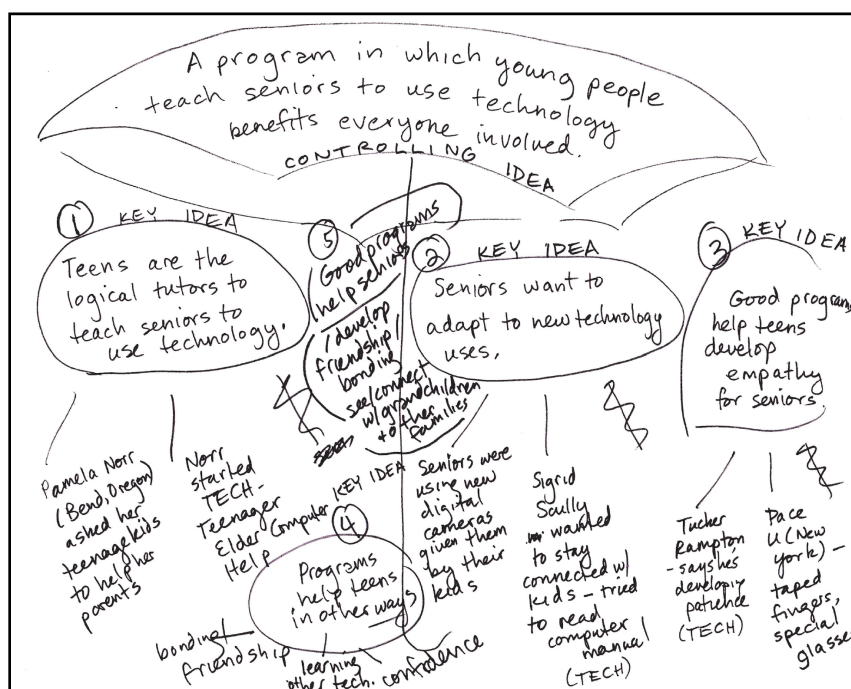


In the third text study, I used drafts as a launching point for co-composition. I asked students to co-compose a definition of controlling idea and then help me revise my draft definition.

The next day (Oct. 16), I projected a concept map and asked the class to critique and revise it with me. See Figure 16 for an image of the concept map.

**Figure 16**

*Impromptu Concept Map Co-constructed with Student Input*



I had not planned to use the concept map as an anchor for discussion. However, my assessment of textual understanding in my first-period class revealed significant gaps in students' textbases on the last day of the shared study. The hastily drawn map served as a model of my textbase and provided students a way to discuss key ideas and details that I had left out. I did not intend these omissions—the students and I identified and filled gaps in my concept map as they continued to re-read, question, and discuss sections of the text. Sharing my draft concept map and engaging in discussion with students about

how to improve it shaped my understanding of the text. It also caused me to reconsider how the controlling idea and key ideas are articulated in authentic informational texts.

**Theme 4b. Co-constructing a Model of Strategy Activation.** Throughout data collection and analysis, I revisited strategic text sense-making models to understand better how students activate cognitive, metacognitive, and discourse strategies to construct and integrate an elaborated textbase and situational model of an informational text. When I re-read Kintsch (2009) in light of what I had learned about the teaching and learning occurring during the study, I began to understand more fully a concerning trend in strategy application I had noticed.

Kintsch explained that readers with abundant background knowledge of the topic of an informational text tend to begin forming their situation model at the same time they construct the textbase itself. I realized that my students might have received more explicit instruction in the all-purpose cognitive strategies ELA teachers often employ to prepare students to read (including connecting, activating background knowledge, and setting one's purpose for reading). Though these cognitive strategies are essential for constructing a stable situation model, students may over-rely on these familiar strategies without developing a coherent, elaborated textbase. This tendency would help explain my students' habit of rushing to offer up surface-level connections that suggest the lack of a coherent, integrated mental model.

I also realized that the textbase evolves as readers have multiple encounters with the text in a meaning-making community. Though a surface comprehension of an informational text may be all that is necessary to meet a reader's purposes and interests, my students did not always seem to know how to activate the strategies needed to

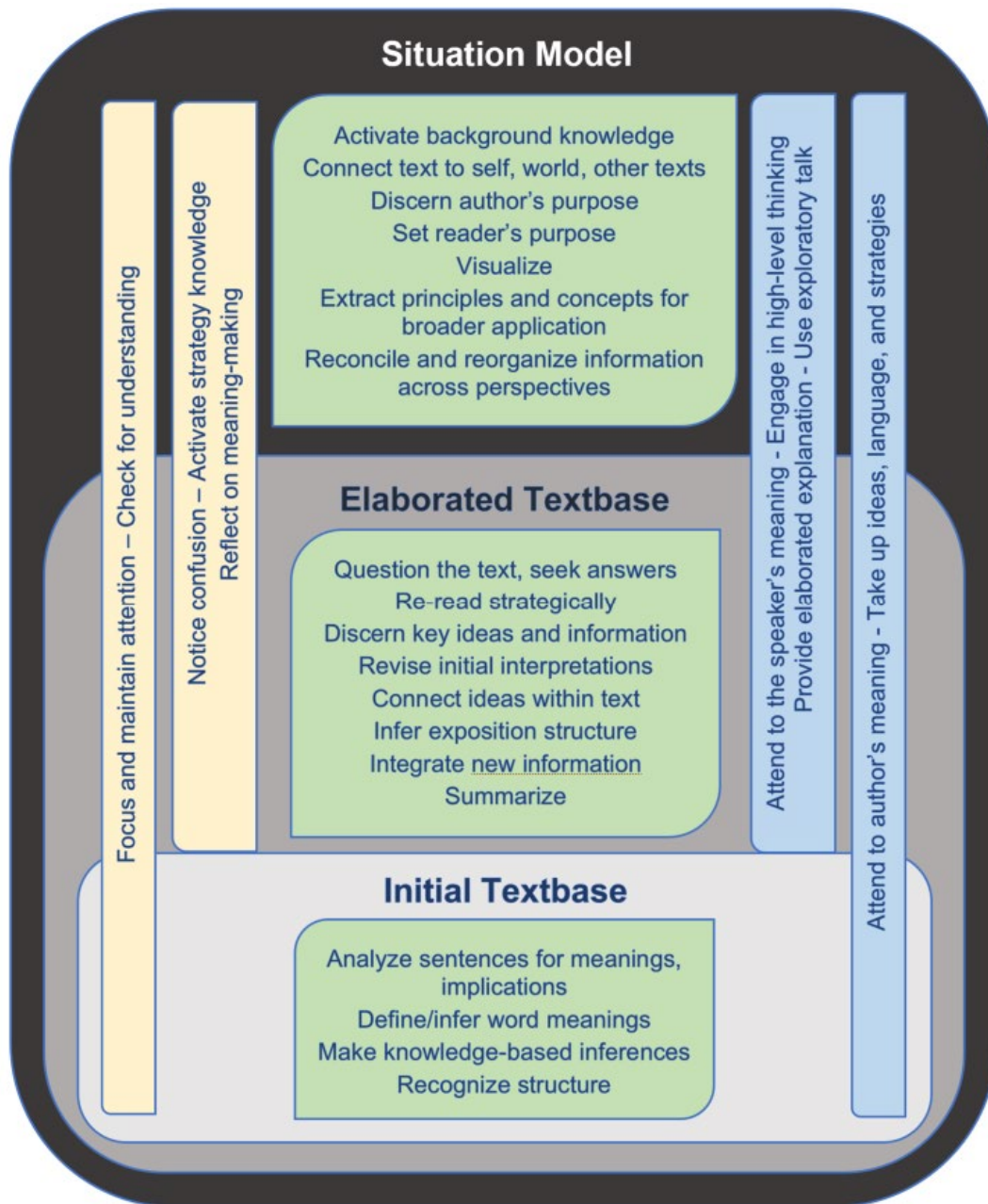
construct a more robust, consolidated textbase. Some of the cognitive strategies needed to construct a more elaborated textbase (such as questioning the text and summarizing) are often taught explicitly starting in elementary school. However, students may not receive instruction in other cognitive, metacognitive, and discourse strategies they need for more advanced meaning construction.

See Figure 17 for a model of how students activate comprehension strategies in the co-construction of informational text meaning. The model builds upon concepts introduced by Walter Kintsch in his Construction-Integration Model (Duke et al., 2011; Kintsch, 2009; Kintsch & Welsch, 1991); Educational Testing Service researchers in the Build and Share Knowledge key practice model (Deane et al., 2015); and Martin Nystrand in his conceptualization of dialogic discourse markers (Applebee et al., 2003; Soter et al., 2008).

Figure 17

*Informational Text Comprehension Strategy Orchestration: A Model*

### INFORMATIONAL TEXT COMPREHENSION STRATEGY ORCHESTRATION



Informational Text Cognitive Strategies

Metacognitive Strategies – Executive Functions

Meaning-Making Discourse Strategies

With careful planning, self-monitoring, and reflection, I was able to expand opportunities for co-construction in the course of facilitating the shared informational text studies. Co-constructing our understanding of the text in whole-class discussions proved more difficult than I expected. However, as we worked together, the students and I learned from each other about the texts themselves, the strategies we were using together to make sense of those texts, and how I could best support students in both meaning-making and strategy uptake.

### **Discussion of Tentative Findings**

#### ***Finding 1: Students Significantly Improved Their Informational Text Comprehension***

Though I did not design the study as a controlled experiment, findings suggest that students improved significantly in their ability to make sense of informational texts as measured by multiple-choice comprehension tests and student-composed summaries. I compared seven distinct paired data sets to measure the change in students' informational text comprehension skills. Six of the metrics showed statistically significant improvement in students' performance on comprehension assessments.

These findings cannot be assumed to validate a particular teaching protocol. Given the classroom environment's complexity, several factors could have contributed to students' growth in comprehension measures. Nonetheless, students demonstrably improved their comprehension of familiar and unfamiliar texts by both closed-ended and open-ended measures. To contextualize the data, after I present the cohort-wide findings, I also offer data for the three case study students who struggled to make sense of informational text at the beginning of the study.

**Students Improved Their Comprehension Test Performance.** The first set of

metrics focused on students' performance on multiple-choice reading tests: pre-test, post-test, delayed post-test, and two selection tests. I used the percentage of questions answered correctly to summarize students' performance on each test. Aggregate starting points and aggregate endpoints each averaged three multiple-choice test measures.

Because high performers skewed the cohort's test performance distribution, I used the Wilcoxon signed-rank test rather than a two-tailed  $t$ -test to determine whether the differences between the later and earlier test scores were statistically significant. At the  $\alpha = 0.05$  level, Wilcoxon signed-ranks tests indicated the following: (a) there was no statistically significant difference between the median pre-test and post-test ranks,  $p = .054$ ; (b) the median Selection Test 3 ranks were statistically significantly higher than the median Selection Test 1 ranks,  $p < .0001$ ; (c) the median pretest ranks were statistically significantly higher than the median delayed post-test ranks,  $p = .026$ ; and (d) the median aggregate starting point ranks were statistically significantly higher than the median aggregate endpoint ranks,  $p = .022$ .

Pearson's correlation coefficients for all comparisons showed positive correlations. The two comparisons that included the January delayed post-test scores (pre-test to delayed post-test and aggregate starting points to aggregate endpoints) indicate a moderate effect size (Pearson's  $r = .537$  and  $.594$ , respectively). The nearer-term comparisons (pretest to post-test and Selection Test 1 to Selection Test 3) indicated a smaller effect size (Pearson's  $r = .261$  and  $.174$ , respectively). See Table 12 for descriptive statistics.

**Table 12***Comprehension Test Score Comparisons – Descriptive Statistics and Pearson's  $r$* 

Comparison	Mean	Median	SD	Pearson's <i>r</i>	<i>n</i>
Pretest to Post-test					
Pretest	.803	.808	.110	.261	32
Post-test	.842	.850	.114		
Selection Test 1 to Selection Test 3					
Selection Test 1	.786	.818	.091	.174	31
Selection Test 3	.949	1.000	.066		
Pre-test to Delayed Post-test					
Pretest	.817	.846	.113	.537	32
Delayed Post-test	.865	.923	.115		
Aggregate Starting Points to Aggregate End Points					
Aggregate Starting Points	.825	.810	.073	.594	28
Aggregate End Points	.855	.870	.091		

*Note.* SD – standard deviation.  $n$  = sample size for paired data set.

The performance of the three case study students helps contextualize the cohort performance. Student 05 regressed on the three released STAAR passage comparisons, while his performance on selection tests improved from 73% on Selection Test 1 to 83% on Selection Test 3. Student 05's selection test improvement, however, fell short of the cohort mean improvement. Student 15 and Student 37, on the other hand, made steady progress, according to the four comparative test measures. All three students' scores remained well under the cohort mean, except for Student 37's post-test score. However, Student 15 and Student 37 far exceeded the cohort average improvement on the post-test compared with the pretest and the delayed post-test compared with the pretest. See Table 13 for the case study students' test scores and percentage change from starting measure to end measure, in the context of cohort means.

**Table 13***Three Cases – Comprehension Test Performances*

	Pretest to Post-test			$\Delta$	Selection Tests (Text 1 and Text 3)		$\Delta$	Aggregate Starting and End Points		$\Delta$	Pretest to Delayed Post-test		$\Delta$
Case													
S05	77	69	-10%	73	83	14%	71	65	-9%	77	62	-20%	
S15	54	69	28%	64	67	5%	66	70	6%	54	69	29%	
S37	62	85	38%	64	83	30%	76	77	1%	62	69	12%	
Cohort Mean	80.3	84.2	5%	78.6	94.9	21%	82.5	85.5	4%	81.7	86.5	6%	

*Note.*  $\Delta$  - Percentage Change (latter metric/earlier metric).

Student 05's relative improvement on the selection test administration may be due to an improved ability to co-construct an elaborated textbase for the article in a supportive community assessment. In contrast, he had to tackle the unfamiliar released STAAR test passages alone. This uneven test performance was characteristic of several students in the cohort, especially those who had a history of struggling to demonstrate comprehension. Students' psychological reactions to testing conditions could contribute to such variability, but their performance could also be affected by their ability to activate background knowledge and interest in an unfamiliar article.

The unexpected administration of the same paired passages on the delayed post-test that I had used for the pre-test allowed me to compare how the case study students fared on the same questions more than four months later. Though both Student 15 and Student 37 improved their performance on the later administration, the improvement was not due to their responses to questions assessing their understanding of each text's macrostructure (versus the sentence- and paragraph-level microstructure). Students'



answers remained unchanged on an item that offered four possible summaries of the first article. Student 05 missed the question in both administrations, while Student 15 and Student 37 answered both times correctly. On a question about the author's purpose for writing the second article, Student 05 and Student 15 answered correctly on both administrations, while Student 37 missed the item both times.

**The Cohort Improved Its Summary Writing.** The second set of paired metrics assessed students' comprehension of familiar texts, as demonstrated in text summaries. The three paired metrics compared the students' initial summary of the first shared text (composed after their initial independent reading) and their summary of the third shared text (written after they completed the selection test). I scored students' summaries using text-specific rubrics that assessed their coverage of the controlling idea, key ideas, and key terms used in the text. Controlling idea coverage was scored on a rubric scale of 1 to 3, while key idea coverage and key term coverage were reported as a percentage of the total possible.

A paired-samples *t*-test was calculated for the three data sets. Statistically significant increases were measured between Summary 1a and Summary 3 mean scores for all three measures: (a) controlling idea coverage between Summary 1a ( $M = 1.806$ ) and Summary 3 ( $M = 2.581$ ),  $t(30) = -4.509$ ,  $p = 9.29\text{E-}05$ ; (b) key idea coverage between Summary 1a ( $M = .266$ ) and Summary 3 ( $M = .457$ ),  $t(28) = -7.396$ ,  $p = 4.71\text{E-}08$ ; and (c) key term coverage between Summary 1a ( $M = .333$ ) and Summary 3 ( $M = .667$ ),  $t(29) = -11.705$ ,  $p = 1.65\text{E-}12$ . The Pearson's correlation coefficients for all comparisons showed positive correlations. The comparisons that included key idea and

key term coverage appear to show a moderate effective size (Pearson's  $r = .423, .332$ ).

See Table 14 for descriptive data.

**Table 14**

*Summary 1a and Summary 3 Comparisons – Mean Scores, Pearson's  $r$ , and Sample Size*

Comparison	Mean	Pearson's	
		<i>r</i>	<i>n</i>
<b>Controlling Idea (Summary 1a vs. 3)</b>			
Summary 1a	1.806	.155	31
Summary 3	2.581		
<b>Key Ideas (Summary 1a vs. 3)</b>			
Summary 1a	.266	.423	29
Summary 3	.457		
<b>Key Terms (Summary 1a vs. 3)</b>			
Summary 1a	.333	.424	30
Summary 3	.667		

*Note.*  $n$  = sample size for paired data set.

Though I did not explicitly instruct students to incorporate terminology from the article in their summaries, their inclusion of key terms increased significantly, especially from the beginning to the end of the first summary. Given that students were not observing the article when they wrote the summaries, their inclusion of academic vocabulary not directly taught was even more striking. Students had completed a selection test before they began their summary writing assignment, so the text of the test's questions and answer choices could have cued students to remember specific terminology. Students' use of key terms was natural and appropriate, on the whole. See Table 15 for the three case studies' summary performance scores in the context of cohort means.

**Table 15***Three Cases – Summary Rubric Scores*

	Controlling Idea Coverage				$\Delta$	Key Idea Coverage				$\Delta$	Key Terms Coverage				$\Delta$
	1A	1B	3			1A	1B	3			1A	1B	3		
<b>Case</b>															
Stu 05	1	3	2	100%		7%	43%	33%	371%		8%	50%	60%	650%	
Stu 15	2	3	3	50%		14%	36%	42%	200%		17%	33%	50%	194%	
Stu 37	1	2	3	200%		14%	46%	50%	257%		33%	42%	60%	82%	
<b>Cohort Mean</b>	1.8	2.4	2.6	44%		28%	37%	46%	64%		36%	46%	66%	83%	

*Note.*  $\Delta$  - percentage change in scores from Summary 1a to Summary 3.

See Table 16 to read the three case study students' summaries.

**Table 16***Three Cases – Text Summaries*

Summary	Stu 05	Stu 15	Stu 37
<b>1a</b>	the topic of this text was how people wanted to save languages	The texts talks about how we can save endanger language. Also how are language disappearing, and can they disappeared language come back.	Over the year people have stopped sharing there native language to the new generation and that has decreased the amount of people that are speaking their languages.
<b>3</b>	seniors are struggling to use technology to keep in touch with their far away family, but teenage tutors are helping the seniors with there high-tech problem.	Their is this senor needed help from someone to help her how to use Facebook, twitter, etc. Teenagers help them with teach, but according to a collage student he said that it change its perspective and to think how was back then with no internet or Facebook.	Different program are helping senior learn how to email or even use a computer, teens are helping the seniors to learn and are experiencing how the senior would. Also that is benefitin seniors becasue now they can talk to their grandbabies.

***Finding 2: Text-Centered Interactions Facilitated Meaning-Making and Strategy***

Though not a controlled experiment, the study findings suggest that our shared

text studies supported students' construction of elaborated textbases of the specific texts we investigated together. With each text study, students appeared to strengthen their ability to discern the text's controlling idea and key ideas. They appeared to formulate a more integrated textbase. They also demonstrated uptake of cognitive, discourse, and metacognitive strategies in their conversations and their written work. Students appeared to learn the language and strategies of informational text sense-making, as evidenced by the thoughtfulness of their annotations and their use of tentative language in peer discussions.

Students showed awareness of how comprehension strategies and instructional moves had helped them in their meaning-making efforts. In an individual written reflection assigned after the administration of the post-test, I asked students to identify the cognitive strategies and instructional moves they found most helpful in their meaning-making.

I first prompted students with a list of six cognitive strategies that I believed I had scaffolded the most heavily. Students most frequently identified annotation (86%), re-reading (62%), and identifying controlling and/or key ideas (35%) as helpful strategies. Nineteen students (51%) identified both re-reading and annotating as beneficial. Students elaborated on why and how these strategies were helpful. See Table 17 for data regarding students' views on the cognitive strategies that they found most helpful.

**Table 17***Cognitive Strategies Cited by Students as Helpful in Open-Ended Reflection*

<b>Cognitive Strategy</b>	<b># (%) Students Who Identified as Helpful</b>
Annotating the text	32 (86%)
Re-reading the text	23 (62%)
Identifying key ideas and supporting details	9 (24%)
Identifying the controlling idea of the article	8 (22%)
Scanning and predicting using text features (such as headings, captions, etc.)	6 (16%)
Building background knowledge by discussing and exploring other sources	5 (14%)

*Note.* Students could describe as many as they wished.

The case study students all found their peer discussions helpful. For instance, Student 05 found discussing annotation with his teammates most helpful “because when I discuss them I find out that they have different information and details than me so I would like to see what they got and see what was similar and what was different.” Student 15 found it helpful to discuss his understanding of key ideas and details with his teammates. As he explained, “when I was wrong about my information my table group helped me understand more about the story, for example when I was arguing (kindly) with S21, he showed me some details about that thing we were arguing about.” See Table 18 for case study students’ full responses to the first prompt.

**Table 18***Three Cases – Unit 1 Reflection Excerpts – Strategy Prompt*

<b>Case</b>	<b>Response</b>
<i>Which strategy or strategies did you find most helpful in making sense of the article? For each strategy you found helpful, how did it help you? Please be specific.</i>	
<i>Student 05</i>	I found annotating the text helpful in making sense of the article because whenever I dont understand whats happening in that part I can just go over the annotations I took for the article. I also fond Re-reading the text helpful in making sense of the article because it makes me have a better understanding and a different perspective of the article or text.
<i>Student 15</i>	Annotating the text helped me a lot when I didn't know a lot about the article and when I needed to find the most important details of the story. Also when I wrote in the organs it helped me remember what was I looking for or a summary of a piece so I did not have to read it again, for example when I was doing homework it ask about something in the story, and I had to use the annotating so I will not take me so long to find the answer. Building background knowledge by discussing and exploring other sources helped me when I needed to know a little more information about the story but I couldn't find it in the story. By discussing with my group members sometimes gives me the answer I needed to have a good connection with the story. Rereading also helped me when I was reading too fast and I didn't understand the story very well to do work.
<i>Student 37</i>	... Building background knowledge ... helped me to get a better understanding of the text because knowing what the background of the story is to help me understand what will the story be or why the characters are like that. Another strategy that helped was Re-reading, I had already done reading but these made a stronger in these strategies it helps because sometimes you just skim through the article and don't really pay attention to Article but when you read the second time you notice things that you didnt see before. In addition , ...Identifying the key Idea and the supporting details ... helped me because when you find the Key idea it means that you understand the article and it like saying in one sentence what the story us about and giving details that support it.

I also asked students to identify the instructional moves they found most helpful during the text studies and explain how or why they helped. In the prompt, I listed nine instructional moves that I believed I had used most. Thirty-five of 37 participants described one or more of these nine instructional moves as helpful. Students identified instructional moves that were teacher-led, team-led, and individual. Students identified teacher modeling (17) and team discussion of annotations (16) most frequently. I did not list some of the more subtle scaffolding moves I later detected (Almasi & Fullerton,

2012). See Table 19 for data regarding students' views on the instructional moves that they found most helpful.

**Table 19**

*Instructional Moves Cited by Students as Helpful in Open-Ended Reflection*

<b>Instructional Move</b>	<b># (%) Students Who Identified as Helpful</b>
<b>Whole-Class Interaction</b>	
The teacher modeling using strategies	17 (46%)
The teacher directly explaining strategies	9 (24%)
<b>Team Interaction</b>	
Discussing your annotations with your colleagues	16 (43%)
Discussing your understanding of key ideas and supporting details with colleagues	10 (27%)
Discussing open-ended questions about the article with colleagues	9 (24%)
<b>Individual Interaction with the Text</b>	
Annotating the article	11 (30%)
Re-reading the article	9 (24%)
Writing a summary of the article	7 (19%)
Answering open-ended questions about the article	5 (14%)

*Note.* Students could describe as many as they wished.

Student 05 found that discussing annotations with his teammates allowed him to compare his thinking with others'. Recordings of his team's discussions confirmed that Student 05 considered and took up his teammates' ideas. Student 15 found helpful the teacher's modeling of strategies. He also described how he benefited from discussing his understanding of key ideas and details with teammates, recounting a specific encounter in which he took up a colleague's idea after spirited discussion. Student 37 found teacher explanation, peer discussion, and independent practice helpful. She explained that she benefited from considering her peers' perspectives. See Table 20 for the three students' responses to the prompt.

**Table 20***Three Cases – Unit 1 Reflection Excerpts – Instructional Move Prompt*

<b>Case</b>	<b>Response</b>
<i>Which learning experiences did you find most helpful as you learned and applied the comprehension strategies? For each learning experience you found helpful, how did it help you? Please be specific.</i>	
<i>Student 05</i>	The learning experiences I found most helpful was discussing annotations with my peers and colleagues because when I discuss them I find out that they have different information and details than me so I would like to see what they got and see what was similar and what was different.
<i>Student 15</i>	The teacher modeling using strategies are helpful to me because when I don't know how to do something the teacher shows me how and I can do it myself any time I needed to do it. I can imagine myself what he'd happen if the Ms. [P] didn't do it. I had to tell one of my members in mr table to help me. Discussing your understanding of key ideas and supporting details with colleagues helped me because when I was wrong about my information my table group helped me understand more about the story, for example when I was arguing (kindly) with [S21], he showed me some details about that thing we were arguing about. Writing a summary helped me because when I needed to do a work and I didn't need to read the whole story I can just read the summary and I can do my work.
<i>Student 37</i>	... in the Teacher led activity the teacher is giving you examples and explaining it they show different resources to help you understand. In the Student Group activity it is also helpful because you are learning different opinions from your colleagues and different point of views. I also found helpful the experience Independent Activity because you are doing by yourself to check your understanding of the text and to show that you can do it alone, in addition it also helps me because you are doing at your own paste and you are Re-reading the article annotating the article, answering open-ended questions about the article and writing a summary of the article.

This investigation into teaching and learning in my classroom yielded insights that have already begun to bear fruit. The study also offers potentially generalizable findings that could inform praxis and research in the field of adolescent literacy, especially related to comprehension strategy instruction.



## **Chapter V**

### **Implications**

The implications of this study are wide-ranging. In this chapter, I address those that have the greatest potential to improve teaching and learning related to adolescent informational text comprehension. I briefly discuss the impacts on my teaching practice. I then explore how these classroom-specific findings apply to adolescent literacy instruction more broadly. I discuss present trends in adolescent comprehension instruction (both promising and limiting) then make suggestions for changes to classroom practice, educator development, and adolescent comprehension instruction research.

#### **Implications for My Practice**

This action research study allowed me to explore whether and how my instruction helped my students develop their informational text comprehension skills. As I observed and analyzed my teaching, I began to discern pedagogical patterns. The impact of observing and reflecting on my practice grew as I became more familiar with the corpus of adolescent literacy research. As I returned again and again to audio recordings, my research journal, and the interim texts I created through months of investigation, I also realized that I adapt my practice continuously in response to my students. What I first saw as improvisation was evidence of complex scaffolding based on ongoing formative assessment of individual students, teams, and the class as a whole. What I learned about scaffolding comprehension instruction by observing teaching and learning in my classroom in light of published research continues to shape my planned and actual instruction.

As I shifted the focus to my students' learning in the second and third phases of

data analysis, I could see undeniable growth—documented with qualitative and quantitative data—that I could attribute to our shared learning experiences. I could also see gaps between intended and actual instructional outcomes. By examining students’ process writing, listening to our classroom talk, and examining test scores, I recognized inefficiencies and occasional ineffectiveness in my instruction. However, I could also recognize the accumulation of students’ uptake of strategies over time. I realized that the time spent in an early lesson might yield results weeks later with continued practice. This research confirmed that my students and I need multiple exposures to new concepts and numerous practice opportunities when using new strategies or applying familiar strategies to more complex texts. As is so often the case, my students have taught me how better to teach them. As a result of this investigation, I am more intentional about providing students opportunities to revisit and deepen their understanding of concepts and their ability to employ strategies.

### **Implications for the Field**

In some respects, findings from this study are peculiar to my classroom context. Still, they can inform theory and practice in the field of adolescent comprehension instruction.

### ***Promising Trends***

Five research-driven pedagogical trends in secondary ELA instruction promise to help our adolescent students develop into strong readers: (a) choice reading, (b) gradual release), (c) differentiation, (d) strategy orientation, and (e) increased emphasis on student talk.

**Choice Reading.** In recent years, literacy thought leaders have emphasized the impact of choice and volume on students' reading motivation and efficacy (see, for example, Allington, 2014). Many districts, campuses, and teachers invest heavily in building classroom libraries. Many schools carve out time for students to read independently. Many educators have begun to consider a broader range of genres as school-appropriate, including graphic novels and digital texts.

**Gradual Release.** The gradual release of responsibility (GRR) model introduced by Pearson & Gallagher (1983) has permeated classroom instruction across disciplines. Administrators and instructional coaches encourage teachers to sequence students' learning experiences to move from teacher-controlled to student-controlled, checking for understanding along the way. Even in the readers' workshop context, the emphasis on explanation, modeling, guided practice, and independent practice is often present.

**Differentiation.** Perhaps more than ever before, educators are expected to differentiate their instruction to meet their learners' needs, especially English learners and students with identified learning challenges. The Response to Intervention (RtI) approach has brought much-needed attention to the more intensive intervention some students need to break through significant reading challenges.

**Strategy Orientation.** Awareness of reading strategies has spread among teachers and students, with some general-purpose strategies (such as visualizing, connecting, making inferences, and predicting) now part of many readers' strategic toolkits.

**Increased Emphasis on Student Talk.** Teachers are widely encouraged to incorporate structured academic conversations into their instructional routines, especially in school contexts serving English learners. Many teachers place their students in small

groups for a variety of purposes and encourage discussion and collaboration. Curriculum developers, trainers, and instructional coaches typically encourage ELA teachers to involve students in conversations about texts.

### ***Limitations of Current Approaches***

Other pedagogical trends are less conducive to co-constructive, scaffolded comprehension strategy instruction centered in informational texts. Adolescent comprehension instruction tends to privilege literary texts, personal response, isolated strategy instruction, independent process writing, and text microstructure. Because these are often the main focuses of secondary ELA instruction, secondary students may receive insufficient support to develop the skills they need to co-construct meaning of complex informational texts.

**An Emphasis on Literary Texts.** Literary texts (fiction and non-fiction) still fill much of the space (both physically and pedagogically) in secondary ELA classrooms. In this context, comprehension instruction might privilege strategies that are particularly effective with literary texts, such as predicting a protagonist's next decision or connecting the protagonist's thinking with one's own. Sustained reading of novels during independent reading time builds stamina for longer texts governed by story structures but may not strengthen students' endurance for reading long informational texts.

**An Emphasis on Personal Response.** Pearson & Cervetti (2017) noted that comprehension instruction in the 1980s and beyond "focused on nurturing students' personal responses to text" (p. 41). The emphasis on building personalized situation models of narrative texts is evident in research and praxis. Students and teachers may have little practice with constructing elaborated textbases, especially of informational

texts.

**Rigid and Isolated Strategy Instruction.** Comprehension strategy instruction is often divorced from the context of a rich, interesting text. Teachers often explain and model comprehension strategies then ask students to apply them without sufficient collaborative guided practice. In some settings, students learn formulaic strategy procedures without internalizing the knowledge or motivation needed to use the strategies flexibly and in concert with other strategies. Strategy instruction is often delivered without formative assessment of students' prior strategic knowledge or competence. Informational text strategy instruction usually focuses on strategies that are useful only with controlled texts with an explicit organization structure and text features.

**A Narrow View of the GRR.** Many educators interpret the GRR model as being synonymous with the lesson cycle. Administrators and coaches may expect ELA teachers to devise tightly planned sequences of instruction, with the desired end state being each student working alone with a text to produce a written product that demonstrates his or her comprehension. Practitioners do not often discuss the model as a continuum of support contingent on students' individual and collective readiness that may extend across a series of lessons or even a whole unit of instruction.

**Independent Written Work.** Educators often ask secondary students to complete independent process-writing tasks to assess their text comprehension. Students often have few opportunities to collaboratively co-construct meaning of a text with a teacher and peers before they are called upon to express their understanding of the text. Process writing (such as text annotation and the completion of graphic organizers) can devolve into compliance activities rather than serving as cognitive gateways to meaning-making.

**Microstructure Over Macrostructure.** Assessment and teaching tend to focus on comprehension at the sentence and paragraph level. Evidence suggests that two decades of high-stakes multiple-choice assessments have narrowed the curriculum in many districts and schools (Au, 2007). Most questions on STAAR Reading assessments probe students' ability to make inferences based on proximal text. Students may have scant experience constructing informational text macrostructures, as may also be true of their teachers.

In elementary school, students often learn to use explicit text features and structures to determine an informational text's controlling idea and key ideas. When faced with complex texts without obvious structural cues, adolescent students often struggle to make meaning, either failing to integrate a coherent textbase or imposing schemata that do not accurately reflect the text's macrostructure.

### **Recommended Shifts in Adolescent Comprehension Instruction**

Adolescent students could benefit from four shifts in reading comprehension instruction: (a) a greater emphasis on the co-construction of elaborated textbases; (b) an expanded suite of explicitly taught cognitive, metacognitive, and discourse strategies; (c) embedded strategic instruction within shared informational text studies; and (d) responsive scaffolding during whole-class, team, and individual text-centered interactions.

### ***Increasing Attention to Co-constructing Elaborated Informational Textbases***

A large-scale study recently confirmed the value of academic mindset interventions involving informative modules for adolescent students (Paunesku et al., 2015). Similarly, adolescent students could benefit from age-appropriate instruction in several principles of

text meaning co-construction:

1. Effective readers actively construct mental models of texts that can be retrieved later.
2. A reader constructs a textbase (integrating the microstructure and macrostructure of the text) and a situation model that integrates the textbase with personal experience and background knowledge.
3. Mental models of literary texts with story grammars differ from informational texts with expository structures.
4. Personal experience and background knowledge can both support and interfere with meaning construction, especially with complex texts.
5. Effective readers activate and orchestrate an array of cognitive, metacognitive, and discourse strategies to support meaning-making. Readers must choose strategies carefully depending on the characteristics of the text and their reading purposes.
6. Complex informational texts may have few explicit clues to help readers construct the macrostructure.
7. Macrostructure “drafts” must be continuously revised as readers reconcile new information and ideas throughout the text.
8. Comprehension improves when readers co-construct meaning with peers, teacher, and the author, returning to the text several times.

***Explicit Teaching of a Suite of Informational Text Comprehension Strategies***

Research confirms that readers activate and orchestrate multiple comprehension strategies as they co-construct meaning of informational text. Teachers should be aware

that readers are likely to activate familiar strategies as they construct meaning of a complex informational text, including strategies useful for comprehending considerate, controlled informational texts or literary texts with story grammars. The activation of these more familiar strategies may interfere with students' comprehension, especially for non-integrators and schema imposers. The following strategies (useful in other contexts) appear to be particularly troublesome when readers construct meaning of complex informational texts:

- connecting text to self
- analyzing sentences for meaning and implications
- identifying the controlling idea based on explicit text features and the lede paragraph
- using explicit text features and exposition structure signals to construct macrostructure.

As modeled in Figure 17, many adolescent students would benefit from direct instruction in a suite of informational text comprehension strategies they could use to co-construct an accurate, elaborated textbase of complex informational text. Though each student and each context are different, findings from this study suggest that the following comprehension strategies would be strong candidates for inclusion in this explicitly taught strategy set (see Figure 18 as well):

- **Cognitive Strategies:** discerning key ideas and information, connecting ideas within the text, integrating new information, revising initial interpretations, and summarizing
- **Metacognitive Strategies/Executive Functions:** focusing and maintaining



attention; noticing confusion; activating strategy knowledge

- **Discourse Strategies:** attending to the author’s meaning; attending to the speaker’s meaning; taking up ideas, language, and strategies

**Figure 18**

*Informational Text Comprehension Strategy Suite Recommended for Explicit Instruction*

**RECOMMENDED INFORMATIONAL TEXT COMPREHENSION STRATEGY SUITE**

<p><b>METACOGNITIVE</b></p> <p>Focus, Maintain Attention Notice Confusion Activate Strategy Knowledge</p>	<p><b>COGNITIVE</b></p> <p>Discern Key Ideas, Information Connect Ideas Within Text Integrate New Information Revise Initial Interpretations Summarize</p>	<p><b>DISCOURSE</b></p> <p>Attend to Author’s Meaning Attend to Speaker’s Meaning Take Up Ideas, Language, Strategies</p>
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***Embedding Strategic Instruction in Shared Informational Text Studies***

A bifurcation of comprehension instruction in secondary settings threatens to exacerbate the Matthew effect already at work in adolescent reading. In ELA classrooms with relatively few struggling readers, teachers might engage in rich discussions about interesting texts with their students. Recent studies have confirmed that students with learning disabilities or facing poverty challenges are less likely to receive high-quality comprehension instruction (Langer, 2009; Madda et al., 2019). Shared informational text studies could help mitigate the impact of some concerning trends.

However, high-stakes assessments and narrow local interpretations of legal requirements have led to relentless pressure in many schools to separate struggling readers from their better-prepared peers for scripted small-group instruction, pull-out interventions, or time on computer programs. These tailored interventions may well be necessary for students who read far below their grade level or who have phonemic or

fluency challenges. Unfortunately, the students who would benefit most from meaning co-construction with diverse-ability peers, a teacher, and an interesting text often miss out.

### ***Providing Responsive Scaffolding During Text-Centered Interactions***

The study revealed many instructional moves that were applied flexibly in whole-class, team, and individual settings to support students' meaning construction and strategy uptake. Planning with students' diverse learning needs in mind is an essential first step in providing responsive comprehension strategy instruction. For example, when teachers construct heterogeneous teams, they might balance students' reading readiness, socioemotional strengths, and personalities. When teachers plan explicit strategy instruction as part of a shared informational text study, they must keep in mind the students for whom the strategy is entirely unfamiliar and those who already have significant strategy knowledge. Teachers might frontload strategy instruction and practice for individuals or small groups.

Regardless of the extent of planning, however, teachers will discover differences in uptake as they engage with students in whole-class, team, and individual text-centered interactions. Teachers must then responsively shift instruction for the whole class, for a team, or for an individual as needed to ensure successful meaning-making and strategy uptake. In essence, teachers must monitor individual and collective cognition, metacognition, and discourse as they facilitate whole-class discussions, orchestrate co-construction of a gist statement, listen in on a team conversation, or coach a student as she or he attempts to annotate an article. This ongoing informal assessment allows the teacher to shift course quickly.

### **Educator Development to Support a Shift in Comprehension Instruction**

In many of the studies demonstrating positive effects of adolescent literacy instruction, researchers selected effective, certified teachers to deliver interventions and provided professional development and ongoing support (Herrera et al., 2016; Olson et al., 2012). Pearson & Cervetti (2017) explained that though researchers have found success in training teachers to implement targeted interventions, they have not yet figured out how to help teachers orchestrate the application of those strategies as an ongoing routine. As they wrote, “the Achilles heel for strategy instruction ... is finding a way to make it a part of ‘daily life’ in classrooms” (p. 35). Almasi & Fullerton (2012) suggested that it can take two to three years for a teacher to develop the skills needed to teach students to use comprehension strategies effectively. Because teachers are less likely to have been exposed to effective modeling of informational text comprehension strategies, they may struggle even more with explicitly teaching those strategies to students.

If teachers are to become skilled facilitators of shared informational text studies, they will benefit from training and ongoing support in the following areas:

- understanding how readers build mental models of informational texts, including the distinction between an elaborated textbase and a situation model
- understanding how cognitive, metacognitive, and discourse strategies contribute to the co-construction of robust and accurate mental models
- selecting informational texts for shared text studies
- determining comprehension strategies that might be activated together to make sense of specific informational texts
- identifying strategic knowledge (declarative, procedural, and conditional) for

specific strategies

- explaining and modeling cognitive, metacognitive, and discourse strategies effectively within the context of a shared text study
- scaffolding students' application of strategies as they make sense of texts together and independently
- assessing students' uptake of strategies and construction of elaborated textbases

### **Research to Support a Shift in Comprehension Instruction**

Additional observational and experimental research in authentic classroom contexts could shine a light on how to best support students and teachers. Translating research into pragmatic advice for the busy classroom teacher requires collaboration among researchers, praxis thought leaders, and practitioners.

#### ***State-of-Praxis Studies***

Investigations into the state of praxis in today's ELA classrooms, especially secondary classrooms in high-poverty and medium-poverty schools, would inform practitioners and researchers. Such studies could test prevailing paradigms and provide a much-needed reality check. In an era in which test scores often serve as proxies for instructional quality, a broad assessment of the state of secondary ELA instruction would be useful. Care should be taken to compare classrooms with comparable demographics, as Langer (2009) did in her Beating the Odds research.

#### ***Clarifying Contexts for Successful Comprehension Instruction***

In empirical studies that attempt to measure the effectiveness of comprehension instruction (such as those codified in Soter et al., 2008, and Murphy et al., 2009), researchers typically design instruction and attempt to measure students' application of

strategies or their text comprehension in response to that instruction. In such studies, researchers tend to develop or use scripted lesson plans with controlled texts to ensure faithful implementation. These studies may offer few practical pedagogical insights for educators attempting to design effective instruction based on principles rather than scripted programs.

Several factors related to research design might affect students' successful appropriation and application of explicitly taught comprehension strategies. Studies of classroom comprehension instruction would benefit from explicit treatment of the following contextual questions:

- How do the researcher and teacher understand the strategy?
- What declarative, procedural, and conditional knowledge is operating?
- What awareness does the researcher have of conditions in the student, teacher, and environment that could interfere with successful strategy appropriation?
- What instructional moves are undertaken to teach the use of the strategy explicitly?
- What scaffolds are used to ensure that strategies are successfully internalized?
- What formative assessment and practice opportunities are incorporated?

In addition to controlled intervention studies, the field would also benefit from more observational and action research studies focused on how adolescent readers appropriate and apply comprehension strategies in whole-class, team, and independent interactions with texts.

### **Final Thoughts**

My experience as a teacher, instructional coach, and administrator in high-poverty

schools suggests that many children who attend such schools bring with them a heavier burden of trauma, poor nutrition, family stress, food and shelter insecurity, violence, and poor health than their counterparts in low-poverty schools.

I would argue that a literacy classroom can be a sanctuary. If children perceive themselves as essential contributors to the meaning-making process and begin to see themselves as knowledgeable others alongside their teacher and peers, the potential benefit might extend far beyond an improvement in test scores (Baye et al., 2018; Langer, 2009; Möller, 2004). Pedagogical choices have social justice implications. When students do not have access to engaging meaning-making discussions about shared texts, they lose a critical scaffold. Access to instructional practices often reserved for students in low-poverty schools is not a cure-all, but it can provide the motivation and support needed to help close gaps.

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## Appendix

### Independent Review Board (IRB) Approval of Submission



DIVISION OF RESEARCH  
Institutional Review Boards

#### APPROVAL OF SUBMISSION

September 5, 2019

Gwendolyn Pauloski

gktompkins2@uh.edu

Dear Gwendolyn Pauloski:

On August 29, 2019, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	The Effect of Text-Centered Discussion on Comprehension
Investigator:	Gwendolyn Pauloski
IRB ID:	STUDY00001820
Funding/ Proposed Funding:	Name: Unfunded
Award ID:	
Award Title:	
IND, IDE, or HDE:	None
Documents Reviewed:	<ul style="list-style-type: none"> <li>• Informational Text Response - 2, Category: Study tools (ex: surveys, interview/focus group questions, data collection forms, etc.);</li> <li>• Recruitment Script, Category: Recruitment Materials;</li> <li>• Timeline of Study-Related Activities, Category: Recruitment Materials;</li> <li>• Informational Text Response - 1, Category: Study tools (ex: surveys, interview/focus group questions, data collection forms, etc.);</li> <li>• HRP-503 Protocol - Gwen Pauloski - Rev, Category: IRB Protocol;</li> <li>• Child Assent - GP , Category: Consent Form;</li> <li>• Parental Permission - GP, Category: Consent Form;</li> <li>• Campus Permission Letter - P ____, Category: Letters of Cooperation / Permission;</li> <li>• Communication - ____ ISD Research &amp; Accountability, Category: Letters of Cooperation / Permission;</li> </ul>
Review Category:	Expedited

# UNIVERSITY of HOUSTON

## DIVISION OF RESEARCH Institutional Review Boards

Committee Name:	Not Applicable
IRB Coordinator:	<a href="#">Danielle Griffin</a>

The IRB approved the study on August 29, 2019 ; recruitment and procedures detailed within the approved protocol may now be initiated.

As this study was approved under an exempt or expedited process, recently revised regulatory requirements do not require the submission of annual continuing review documentation. However, it is critical that the following submissions are made to the IRB to ensure continued compliance:

- Modifications to the protocol prior to initiating any changes (for example, the addition of study personnel, updated recruitment materials, change in study design, requests for additional subjects)
- Reportable New Information/Unanticipated Problems Involving Risks to Subjects or Others
- Study Closure

Unless a waiver has been granted by the IRB, use the stamped consent form approved by the IRB to document consent. The approved version may be downloaded from the documents tab.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system.

Sincerely,

Research Integrity and Oversight (RIO) Office  
University of Houston, Division of Research  
713 743 9204  
[cphs@central.uh.edu](mailto:cphs@central.uh.edu)  
<http://www.uh.edu/research/compliance/irb-cphs/>