START Comprehending: Students and Teachers Actively Reading Text

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The START framework can improve students' reading-comprehension achievement and instruction through the modeling and scaffolding of eight comprehension strategies during teacher read-aloud.

Teachers often lament that their students can *read* but they do not *understand*. The most important thing about reading is comprehension. It is the reason that we read. However, many teachers express concern about their ability to effectively teach all of their students to become strategic metacognitive readers. Schools today are spending enormous amounts of time and money preparing students for high-stakes tests even though such a narrow focus on test preparation does not translate into real learning (Klein, Hamilton, McCaffrey, & Stecher, 2000; Linn, 2000). According to Guthrie (2002), one of the most well-established findings in reading research is that comprehension develops through a variety of purposeful, motivated reading activities. By fostering students to become active, engaged readers, teachers enable them to gain competence and a sense of self-efficacy (Guthrie, 2002).

Although comprehension improves through extensive reading, researchers have concluded that comprehension could improve more if all readers were taught to use the comprehension strategies that good readers use (Block, Gambrell, & Pressley, 2002). Nearly 30 years ago, Durkin (1978/1979) reported that students received very little instruction in comprehension. All these years later, despite all that we have learned about comprehension instruction, researchers have found that there is still very little comprehension instruction occurring in the classroom on a daily basis (Pressley, 2006; Pressley, Wharton-McDonald, Mistretta-Hampston, & Echevarria, 1998).

Teachers often struggle with teaching reading comprehension strategies due to the complexity of designing purposeful comprehension strategy instruction, and many reading comprehension programs are overwhelming in terms of time to learn and requirements for implementation (Hilden & Pressley, 2007). For the past 20 years researchers have reported that comprehension strategies instruction is so challenging for teachers that they are not able to learn how to teach the strategies effectively and that models of comprehension strategy instruction need to be made more understandable for teachers to implement them effectively (Almasi, 2003; Hilden & Pressley, 2007; Klingner, Vaughn, & Schumm, 1998; Pressley & El-Dinary, 1997). Researchers have named the improvement of comprehension instruction an "urgent priority" (Gambrell, Block, & Pressley, 2002).

To address this urgent need, I designed a new, inclusive framework, START (Students and Teachers Actively Reading Text) to improve classroom reading instruction. This innovative instructional framework improves comprehension through modeling and scaffolding of eight crucial comprehension strategies during teacher read-aloud and by actively engaging students in strategic reading during independent reading. It was also designed to be easily implemented so that teachers can teach comprehension strategies with a gradual release of responsibility so that students will be able to use the strategies in a self-regulated fashion (as described by Hilden & Pressley, 2007).

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Pressley highlighted that since the 1970s (Pressley, 2002c), researchers have often neglected the average and advanced readers by focusing on how to improve the reading achievement of struggling readers. Certainly, everyone would agree that improving reading achievement for struggling readers is of the utmost importance. However, we must remember that we are responsible for improving the reading achievement of all of our students. It is an incredible challenge for teachers to attempt to meet the needs of all the students in a classroom. START focuses on improving the reading comprehension and metacognition of all students in the classroom including average, advanced, and struggling readers.

In the current study, I attempted to narrow the gap between research and practice in the field of reading comprehension instruction in a manner that is accessible to all teachers. My aim in this intervention study was to design, implement, and evaluate an innovative instructional framework to enhance reading comprehension instruction, achievement, and self-regulated use of strategies.

Reading Comprehension Strategies

Researchers have concluded that comprehension strategies should be taught to students as they are immersed in reading rather than separate from reading (Block et al., 2002; Keene & Zimmermann, 1997; Pearson, Roehler, Dole, & Duffy, 1992; Pressley, 2002a). Good readers are active and use a variety of strategies as they read (Keene & Zimmermann, 1997). Direct instruction in comprehension strategies includes teacher modeling and explaining when and how to use the strategies, repeated opportunities for guided practice, and extended independent reading (Guthrie, 2002).

Comprehension strategy instruction has been identified as effective at increasing children's comprehension (National Institute of Child Health and Human Development, 2000), although most of the evidence relies on research conducted on only a single comprehension strategy in each study (Guthrie et al., 2004). The RAND Reading Study Group (2002) concluded that very little research has been conducted on the use of multiple strategy instruction in the classroom and called for more studies of this nature.

Pressley (2006) concluded that effective comprehension instruction includes teaching a small repertoire of strategies, modeling and explaining, and facilitating scaffolded practice. These comprehension strategies include making predictions and connections to ideas in text based on prior knowledge, constructing mental images that represent ideas in text, asking questions and seeking answers, and constructing summaries of what has been read (Pressley & Afflerbach, 1995). Recently, researchers have emphasized that educators must develop a motivational context for reading, provide interesting and appropriate text, and teach research-based reading comprehension strategies to increase comprehension (Gambrell et al., 2002).

Metacognition

Kuhn and Dean (2004) defined metacognition as "awareness and management of one's own thought, or 'thinking about thinking'" (p. 270). This awareness is developmental and takes the form of a continuum. According to Kuhn and Dean, metacognitive skills do not typically develop to the level that we would prefer. We can teach a student to perform a particular strategy in a particular context. However, we must strive to move the student to the metacognitive level of operations so that he or she is able transfer this strategy to other settings once we are no longer providing support. As students practice reading comprehension strategies through active, strategic reading, the use of the strategies will gradually become self-regulated and students will reach a level of metacognition where they will not only be able to use the strategies but will also know when and where to apply them (Hilden & Pressley, 2007).

Scaffolding

The idea of scaffolding instruction as a teaching strategy originates from Vygotsky's (1978) sociocultural theory and his concept of the zone of proximal development (ZPD). The ZPD refers to the range between what a child is able to do independently and what the child is able to do with the assistance of a more knowledgeable other. In scaffolding instruction, a teacher provides scaffolds or supports to facilitate students' ability to build on prior knowledge and internalize new information. An important aspect of scaffolding instruction is that the scaffolds are temporary. As the learner's abilities increase,

the scaffolding is progressively withdrawn until the learner is able to complete the task independently. Therefore, the goal for teachers is to help students to become independent and self-regulated learners.

The Study

The purpose of this study was to determine the effectiveness of an instructional framework designed to model and scaffold the use of metacognitive reading comprehension strategies. The study also provided opportunities for students to practice these strategies independently with self-selected text.

This research project was conducted in five third-grade classrooms in one school in the southeastern United States. Five teachers with 81 students in those classrooms were randomly assigned to one of three groups. In the control classroom the teacher and students engaged in their usual read-aloud and independent reading activities without any changes. In the strategy-only (ST) classrooms and in the START classrooms, teachers modeled and scaffolded the use of metacognitive comprehension strategies during read-alouds prior to student independent reading of self-selected texts. The teachers were familiar with the metacognitive comprehension strategies and taught them as described in their basal reading program. However, the teachers did not model or teach any metacognitive comprehension strategies during read-aloud.

The importance of self-selected text cannot be underestimated. By providing students choice of texts to read, students are more likely to be motivated to read, read more deeply, and may use metacognitive strategies more strategically than those who are assigned a text (Guthrie et al., 2004). In addition, students in the START classrooms were taught to complete the ART (Actively Reading Text) comprehension self-monitoring recording sheets during independent reading of self-selected text to assist in the development of metacognition. These sheets will be explained in detail in a later section. All of the ST and START classrooms implemented the strategy instruction during read-aloud and independent reading of self-selected text three or four days per week for 20 minutes per day for a total of 40 sessions.

Data Sources

Student participants in all classrooms were assessed using a pretest–posttest design and a questionnaire to determine reading comprehension, the use of comprehension strategies, and reader self-efficacy. The pretests were administered to all students prior to the intervention. The interventions took place for a total of 40 sessions during a five-month period. After that time, the posttests were administered to all students.

Students in all classrooms were assessed with the Gates–MacGinitie Reading Comprehension Tests (Forms S and T; 2004) for third grade. The Gates–MacGinitie Comprehension test is timed and uses a multiple-choice format to assess reading comprehension. Students read passages according to grade level and answer questions at the end of the passage. Students in all classrooms completed a questionnaire to determine their use of metacognitive comprehension strategies and reader self-efficacy (see Figure 1).

Teacher Read-Aloud

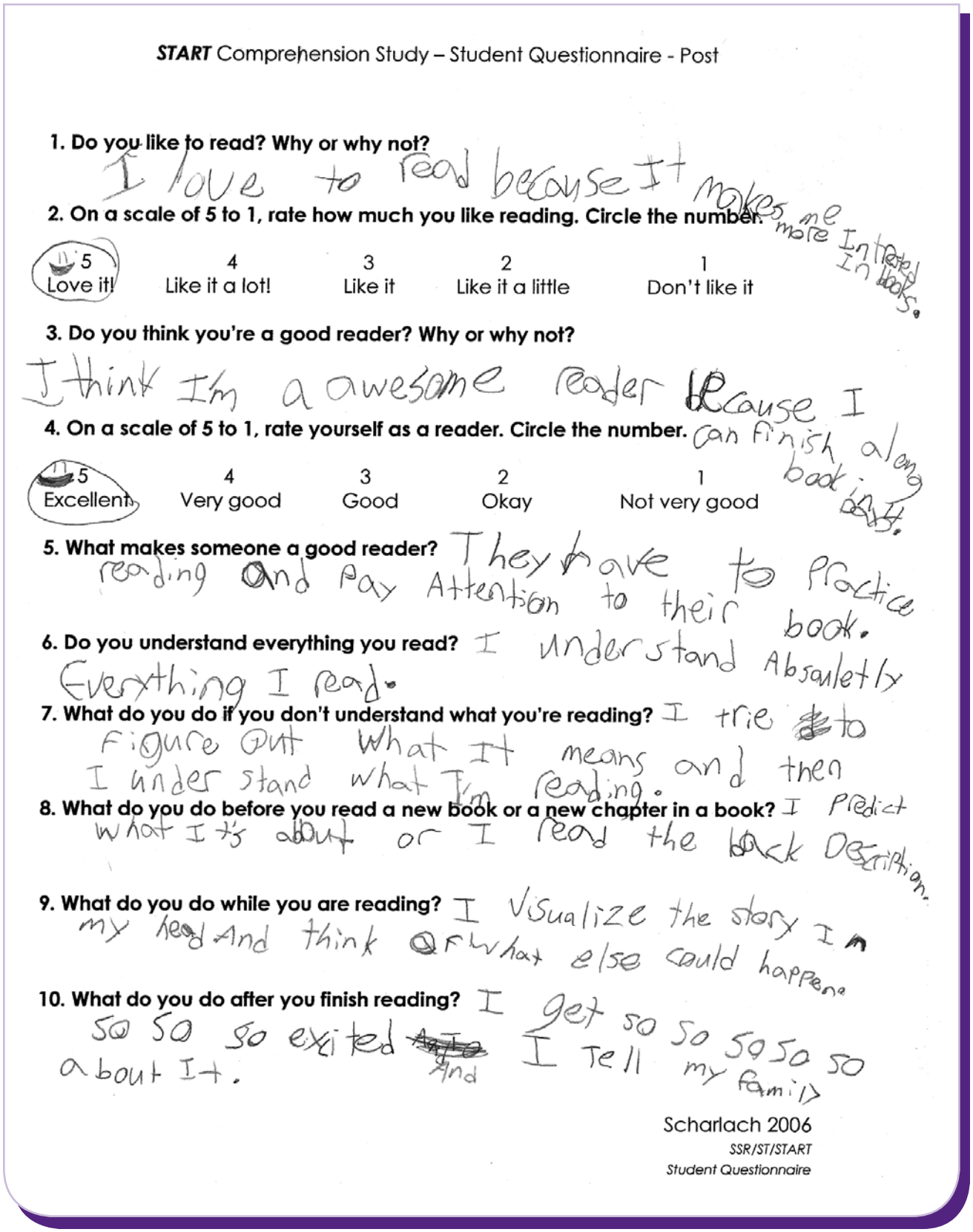
Teachers read aloud from chapter books or picture books during the read-aloud sessions. The START instructional framework is appropriate for either fiction or nonfiction text. The instructional sequence for the teacher read-aloud sessions for the ST and START classrooms began with teachers explicitly modeling and explaining the comprehension strategy during initial introduction. The teachers then provided guided practice, scaffolding students during the read-aloud to use the comprehension strategies with teacher support.

Teachers modeled and scaffolded the use of the following eight comprehension strategies:

1. predicting/inferring
2. visualizing
3. making connections
4. questioning
5. determining main idea
6. summarizing
7. checking predictions
8. making judgments

A chart in the classroom referred students to prompts they could ask themselves when using each strategy.

Figure 1
Completed Student Questionnaire



START Comprehension Study – Student Questionnaire - Post

1. Do you like to read? Why or why not?
I love to read because it makes me more Intrested In books.

2. On a scale of 5 to 1, rate how much you like reading. Circle the number.

5	4	3	2	1
Love it!	Like it a lot!	Like it	Like it a little	Don't like it

3. Do you think you're a good reader? Why or why not?
I think I'm a awesome reader because I can finish a long book in 1 day.

4. On a scale of 5 to 1, rate yourself as a reader. Circle the number.

5	4	3	2	1
Excellent	Very good	Good	Okay	Not very good

5. What makes someone a good reader? They have to practice reading and pay Attention to their book.

6. Do you understand everything you read? I understand Absaulet1y Everything I read.

7. What do you do if you don't understand what you're reading? I trie to figure out what it means and then I under stand what I'm reading.

8. What do you do before you read a new book or a new chapter in a book? I Predict what it's about or I read the back Description.

9. What do you do while you are reading? I Visualize the story I in my head And think of what else could happen.

10. What do you do after you finish reading? I get so so so so so so so exited And I Tell my family about It.

Scharlach 2006
SSR/ST/START
Student Questionnaire

As each strategy was introduced, teachers used think-alouds to explicitly model the strategy and when and how to use the strategy. Below is an example of Mrs. H modeling visualization.

> Mrs. H reading aloud from *The Boy Who Spoke Dog* (Morgan, 2003):
>
> *Humans are complicated, Moxie. I told you they are a mystery. But here are a few of the things that I know. Humans are clever. They can see very well, and they can put things together to make new things. They change the world everywhere they go. This is why we dogs call them the masters. But it is obvious that their smell sense is very weak, and the way they think and communicate is limited, too—to barking, mainly. For example, sometimes humans think by barking out loud. But I was told that often humans think by barking in their minds. The inside of a human's mind must be a very noisy place.* (p. 87)

Mrs. H: [to class] When I was reading that paragraph in my mind I saw a person's head with a little dog inside of it barking. I was visualizing that when I read the part, "humans think by barking in their minds."

Student: I saw that too.

Mrs. H: Good! You were visualizing when I was reading! Visualizing helps us connect with the story and understand better what is happening in the story.

Following the initial modeling of each strategy, teachers scaffold students to use each strategy during every read-aloud session. The purpose of scaffolding each strategy in every read-aloud session was to increase students' metacognitive ability to transfer these strategies to their own independent reading. What follows is an example of Mrs. H scaffolding the strategy of making connections during a read-aloud session.

> Mrs. H reading aloud from *The Boy Who Spoke Dog* (Morgan, 2003):
>
> *He ran as fast as he could. His leg muscles burned, and the air in his lungs rasped. Then the wild dogs caught up with them. Jack saw them out of the corners of his eyes. They were running and loping along beside them, and Jack expected hard, sharp teeth in his neck.*
>
> *But they did not attack, and this frightened Jack more. Instead, the wild dogs kept running along on both sides of them, and they were spreading out in a ragged line as they neared the top of the meadow and the flock of sheep. "Aaaah!" Jack shouted. He had hoped to be saved by the sheep dogs again, but now he needed to warn them. He hardly had any air left in his lungs.* (p. 142)

Mrs. H: Have any of you ever felt that way before—your muscles burning and like you had no air left in your lungs?

Various students: Yes! Mmmhmm.

Mrs. H: When did that happen?

Student: Sometimes you run out of air when you play kickball when you're running really fast.

Mrs. H: And how does that make you feel?

Student: Breathless.

Another student: Like I'm dying.

Mrs. H: Can you talk very well when you feel that way?

Students: No.

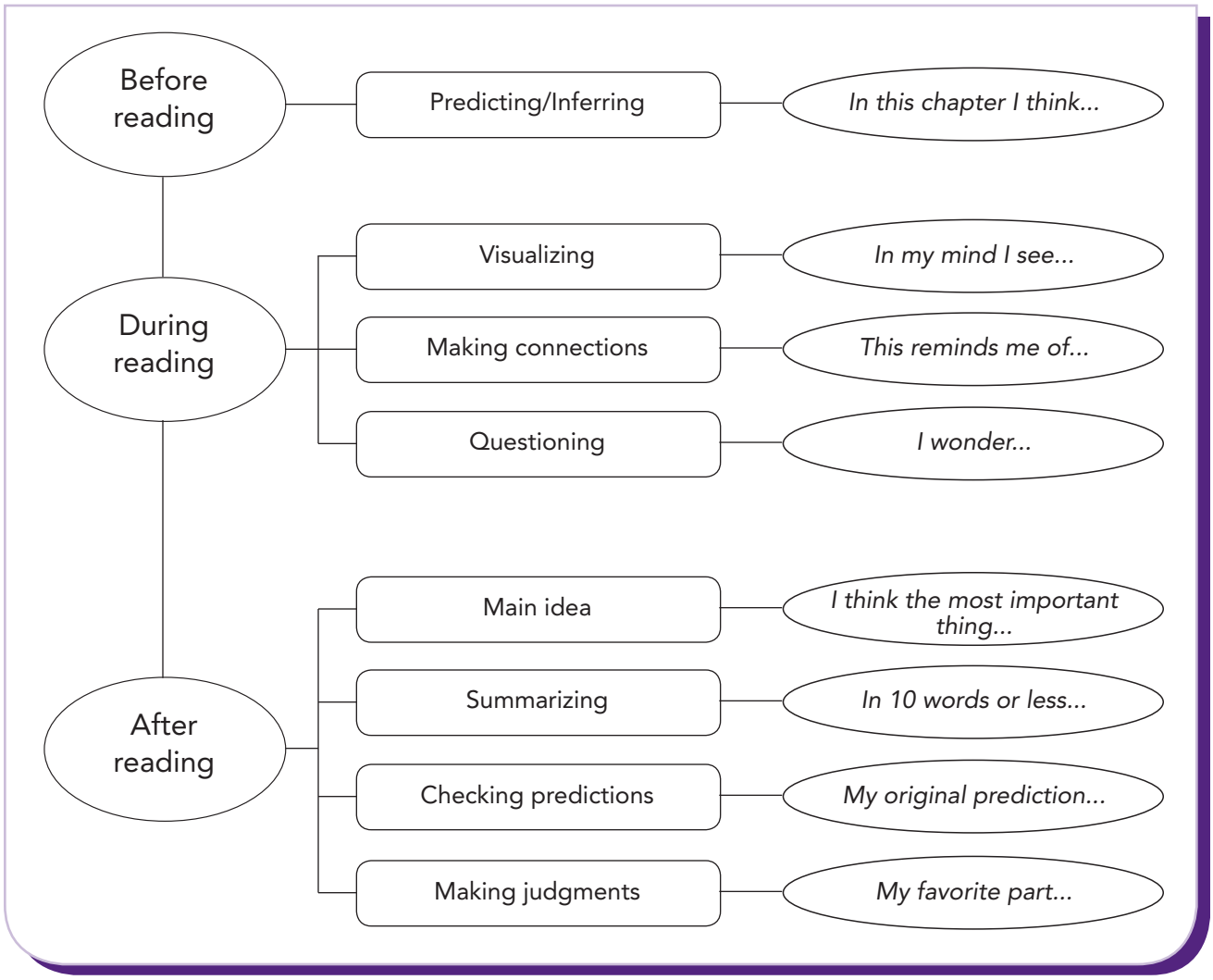
Mrs. H: Those are good connections to our own lives. They help us understand how Jack feels. It reminds you of playing kickball and feeling breathless.

By the ninth session, teachers were scaffolding the use of all eight comprehension strategies during each read-aloud session. Although it might sound a little overwhelming and time consuming to include scaffolding of all eight comprehension strategies during every read-aloud session, it is actually quite easily implemented and flows very naturally into the course of the read-aloud. Figure 2 illustrates the integration of the comprehension strategies for each read-aloud session. If a teacher was reading a chapter book, he or she scaffolded the use of eight strategies for each chapter in the book. Table 1 outlines the instructional sequence that the teachers followed as they modeled and scaffolded each of the eight comprehension strategies.

Independent Reading

Students in the control and ST classrooms simply participated in independent reading time as usual. All students read self-selected text during independent reading time. Students in the START classrooms completed the ART of Comprehension recording sheets to scaffold the transfer of the comprehension strategies and improve their metacognition. A reproducible

Figure 2
START Reading Strategies Diagram



ART of Comprehension recording sheet is available on the Association's website at www.reading.org.

Teachers in the START classrooms modeled the use of the ART recording sheets. During the read-aloud, teachers used sticky notes to jot down each prediction, visualization, connection, question, main idea, summary, prediction check, and judgment and placed the sticky note in the book as they were reading. Before the next read-aloud session, the teacher modeled removing the sticky notes from the previous reading and placing them into the appropriate boxes on the recording sheets. The process would be repeated with each new reading.

Beginning with the 10th independent reading session, after each of the eight comprehension strategies had been modeled, students in the START classrooms completed their own ART of Comprehension self-monitoring recording sheets during independent reading. The purpose of these recording sheets is for students to stop and note the use of each metacognitive comprehension strategy while reading. This ensures that students are actively engaged with the text and increasing their metacognitive use of comprehension strategies. The ultimate goal is for students to increase their independent metacognitive strategy use so that the recording sheets become unnecessary. Figure 3 is an example of a completed student recording sheet.

Table 1
START Instructional Sequence

Session	Comprehension strategy
Session 1	■ Predicting/inferring (modeling only)
Session 2	■ Predicting/inferring (scaffolding) ■ Visualization (modeling only)
Session 3	■ Predicting/inferring (scaffolding) ■ Visualization (scaffolding) ■ Making connections (modeling only)
Session 4	■ Predicting/inferring (scaffolding) ■ Visualization (scaffolding) ■ Making connections (scaffolding) ■ Questioning (modeling only)
Session 5	■ Predicting/inferring (scaffolding) ■ Visualization (scaffolding) ■ Making connections (scaffolding) ■ Questioning (scaffolding) ■ Main idea (modeling only)
Session 6	■ Predicting/inferring (scaffolding) ■ Visualization (scaffolding) ■ Making connections (scaffolding) ■ Questioning (scaffolding) ■ Main idea (scaffolding) ■ Summarizing (modeling only)
Session 7	■ Predicting/Inferring (scaffolding) ■ Visualization (scaffolding) ■ Making connections (scaffolding) ■ Questioning (scaffolding) ■ Main idea (scaffolding) ■ Summarizing (scaffolding ■ Checking predictions (modeling only)
Session 8	■ Predicting/inferring (scaffolding) ■ Visualization (scaffolding) ■ Making connections (scaffolding) ■ Questioning (scaffolding) ■ Main idea (scaffolding) ■ Summarizing (scaffolding) ■ Checking predictions (scaffolding) ■ Making judgments (modeling only)
Sessions 9 to 40	■ Predicting/inferring (scaffolding) ■ Visualization (scaffolding) ■ Making connections (scaffolding) ■ Questioning (scaffolding) ■ Main idea (scaffolding) ■ Summarizing (scaffolding) ■ Checking predictions (scaffolding) ■ Making judgments (scaffolding)

The Results

Students' reading comprehension gains between the pretest and posttest administration were analyzed to find if there was a difference in achievement between the three groups (START/ST/Control). Results were analyzed using a one-way analysis of variance (ANOVA) with instruction as the independent variable and Gates–MacGinitie reading comprehension scores as the dependent variable.

Based on this statistical analysis, students in the START classrooms made significantly higher reading comprehension gains on the nationally normed, standardized Gates–MacGinitie reading comprehension test than students in the ST or control classrooms, with $p < 0.05$. In addition, a one-way ANOVA between the students in the START and students in the ST classrooms also showed significantly higher reading comprehension gains for students in the START classrooms. Another one-way ANOVA between the students in the ST classrooms and the students in the control classroom showed no significant difference between the achievement gains of these students. This finding supports the use of the ART of Comprehension student recording sheets as being critically important at improving students' reading comprehension.

As shown in Table 2, students in the START classrooms made an average nine-month gain in reading comprehension compared with a three-month gain in ST classrooms and a one-month loss in the control classroom. In percentile ranks, this represents an average 6 percentile rank gain in the START classrooms compared with a loss of 6 percentile ranks in the ST classroom and a loss of 15 percentile ranks in the control classroom.

In addition, as shown in Table 3, students who were below grade level at the pretest administration of the Gates–MacGinitie in the START classrooms gained an average of six months in reading comprehension compared with two months in the ST classrooms and three months in the control classroom. Students were considered to be below grade level if they scored 2.9 or below on the Gates–MacGinitie reading comprehension test in December. In percentile ranks, this represents an average 10 percentile rank gain in the START classrooms compared with a loss of 5 percentile ranks in the ST classroom and a loss of 2 percentile ranks in the control classroom.

Figure 3
Completed Student Recording Sheet

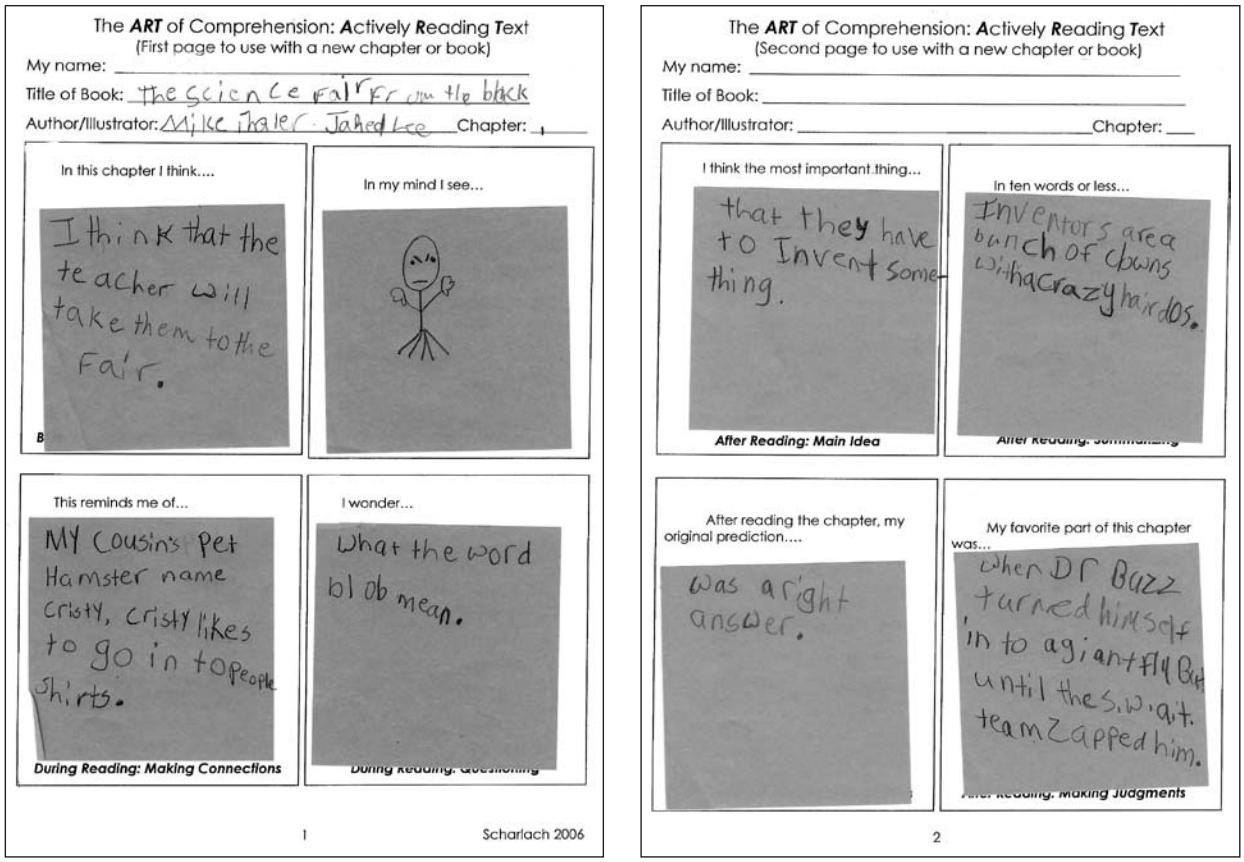


Table 2
Mean Gates–MacGinitie Reading Test Percentile Ranks and Grade-Level Equivalent Scores

Group	Pretest	Posttest	Average gain
Percentile rank			
START	53	59	6
ST	65	59	−6
Control	71	56	−15
Grade-level equivalent			
START	3.3	4.2	.9
ST	3.9	4.2	.3
Control	4.2	4.1	−.1

Table 3
Mean Gates–MacGinitie Reading Test Percentile Ranks and Grade-Level Equivalent Scores for Below-Level Students

Group	Pretest	Posttest	Average gain
Percentile rank			
START	20	30	10
ST	29	24	–5
Control	40	38	–2
Grade-level equivalent			
START	2.3	2.9	.6
ST	2.5	2.7	.2
Control	2.9	3.2	.3

Table 4
Mean Gates–MacGinitie Reading Test Percentile Rank and Grade-Level Equivalent Scores for On-Level Students

Group	Pretest	Posttest	Average gain
Percentile rank			
START	53	59	6
ST	63	62	–1
Control	51	45	–6
Grade-level equivalent			
START	3.3	4.2	.9
ST	3.7	4.4	.7
Control	3.2	3.5	.3

Table 4 shows students who were on grade level at the pretest administration. Students were defined as on grade level if they scored between a 3.0 and 3.9 on the pretest in December. Students on grade level in the START classrooms gained an average of nine months in reading comprehension compared with seven months in the ST classrooms and three months in the control classroom. In percentile ranks, this represents an average 6 percentile rank gain in the START classrooms compared with a loss of 1 percentile rank in the ST classroom and a loss of 6 percentile ranks in the control classroom. Thus, the analysis of the data indicated that students who participated in the START classrooms were significantly more likely to have higher reading comprehension gains than students not participating in the entire intervention.

Some of the most significant findings from the study were the results from the students who were above grade level after the administration of the pretest. Those students who scored above 4.0 in December were defined as above grade level. As shown in Table 5, the above-grade-level students in the START classrooms made an average gain of one year and four months in reading comprehension compared with no gain in the ST classroom and a loss of one year in the control classroom. In percentile ranks, this represents an average 2 percentile rank gain in the START classrooms compared with a loss of 8 percentile ranks in the ST classroom and a loss of 23 percentile ranks in the control classroom.

A number of students in the control classroom performed much worse on the posttest than the pretest. It is unclear why this happened. However, the

Table 5
Mean Gates–MacGinitie Reading Test Percentile Rank and Grade-Level Equivalent Scores for Above-Level Students

Group	Pretest	Posttest	Average gain
Percentile rank			
START	85	87	2
ST	88	80	–8
Control	82	59	–23
Grade-level equivalent			
START	5.4	6.7	1.4
ST	5.8	5.8	0
Control	5.2	4.2	–1.0

researcher and the teachers were especially excited about the gains in the above-level students in the START classrooms. This reinforces previous claims that above-level students are often overlooked in the classroom and with the right kind of instruction they are capable of making large gains in reading comprehension achievement.

This pattern of findings led to the conclusion that students who participated in the START framework of instruction and independent reading with the ART of Comprehension recording sheets were significantly more likely to have higher reading comprehension gains than students in the strategies only group or students in the control group. Students who participated in the START instructional framework, including average, advanced, and struggling readers, all made significantly higher reading achievement gains than students in other classrooms.

On the student questionnaire (Figure 1), students rated their feelings about reading on a scale of 5 to 1 with 5 representing a love of reading and 1 representing dislike of the activity. Students in the START classrooms rated their feelings about reading an average 3.42 prior to the implementation of the START instructional framework. After the implementation of the START framework, students in the START classrooms rated their feelings about reading an average 4.52. Students were also asked to rate themselves as a reader using a similar scale, with 5 representing an excellent reader and 1 representing a not very good reader. Students in the START classrooms rated themselves an average 3.79 prior to the intervention and 4.2 after the implementation of START. These patterns of response suggest that students had more positive feelings about reading and viewed themselves as better readers after participating in the START innovation.

Students were also asked on the questionnaire what they do while they are reading. The most common response to this question before the implementation of START was "nothing." Other typical responses to this question prior to the implementation of START included "I read," "Sit in a chair," or "Look at the page." After participating in the START innovation, student responses were longer and more specific. Typical responses to the question of what students do while they are reading after the implementation of the START framework included "Think about what's going on," "What I do is imagine the details they tell you and picture it in your head," "I visualize the story in my head and think of what else could happen," and "Question why they did that."

These patterns of response suggest that students in the START classrooms developed a more strategic, metacognitive awareness of strategies to use while reading. Rather than simply "sitting" and "looking at the page," students were visualizing, predicting, and questioning while reading. Rather than simply reading the words on the page, students were actively engaged with the text.

In addition to the data, teachers reported anecdotal evidence about the success of the program. Teachers in the ST and START groups reported that students were more engaged during teacher read-aloud. Teachers in the START group reported that students were more excited about and more engaged

in independent reading. Parents of children in the START group commented to teachers that students were talking about and using the comprehension strategies at home. This transfer of metacognitive strategy use to the home environment was viewed as a tremendous success by me and by the teachers.

Discussion

It is a great challenge to meet the wide range of needs of students in a diverse classroom. It is imperative that we provide reading comprehension instruction to all students each and every day to improve comprehension for all students regardless of achievement level. Direct instruction in comprehension strategies includes teacher modeling of strategies and explaining when and how to use them, repeated opportunities for guided practice, and extended independent reading (Duke & Pearson, 2002; Guthrie, 2002; Pressley, 2002b; RAND Reading Study Group, 2002).

With this innovative instructional framework, I attempted to narrow the gap between prevailing instructional practice and research evidence in the field of reading comprehension instruction. Using this classroom tested framework, teachers enhanced their reading comprehension instruction, students' reading comprehension achievement, and students' use of metacognitive comprehension strategies. Teachers using the START framework maximized the effectiveness of instruction that was already occurring during the school day and did not add more planning time or take away from other valuable instructional time. The suggestions included here are not intended to replace other small-group or whole-group comprehension instruction but to supplement such instruction.

One of the most important findings from this study is that this easily implemented innovation improved reading comprehension for all students, including struggling readers, average readers, and advanced readers. It is an easy-to-implement instructional framework that provides appropriate strategy instruction for all readers regardless of reading achievement level. The framework met students' diverse needs through modeling, scaffolding, and student choice of independent reading materials. Because students read self-selected text at their own reading level during independent reading, the independent practice of reading strategies was implemented at each student's own achievement level. Students were engaged and motivated, and through this process they became more engaged, strategic metacognitive readers. With a clear focus on student achievement and a grounding in scientifically based reading research, The START framework provides teachers with an effective instructional framework to enhance reading comprehension instruction.

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