



Reading Horizons: A Journal of Literacy and Language Arts

Volume 51

Issue 2 August/September 2011

Article 6

8-2011

The Three-Phase Reading Comprehension Intervention (3-RCI): A Support for Intermediate-Grade Word Callers

Holly L. Diehl

California University of Pennsylvania

Connie J. Armitage

California University of Pennsylvania

Diane H. Nettles

California University of Pennsylvania

Christine Peterson

California University of Pennsylvania

Follow this and additional works at: https://scholarworks.wmich.edu/reading_horizons



Part of the [Education Commons](#)

Recommended Citation

Diehl, H. L., Armitage, C. J., Nettles, D. H., & Peterson, C. (2011). The Three-Phase Reading Comprehension Intervention (3-RCI): A Support for Intermediate-Grade Word Callers. *Reading Horizons: A Journal of Literacy and Language Arts*, 51 (2). Retrieved from https://scholarworks.wmich.edu/reading_horizons/vol51/iss2/6

This Article is brought to you for free and open access by the Special Education and Literacy Studies at ScholarWorks at WMU. It has been accepted for inclusion in Reading Horizons: A Journal of Literacy and Language Arts by an authorized editor of ScholarWorks at WMU. For more information, please contact maira.bundza@wmich.edu.





The Three-Phase Reading Comprehension Intervention (3-RCI): A Support for Intermediate-Grade Word Callers

Holly L. Diehl, Ed.D.
Connie J. Armitage, Ed.D.
Diane H. Nettles, Ph.D.
Christine Peterson, Ed.D.

California University of Pennsylvania, California, PA

Abstract

This article describes results of a reading comprehension intervention for students with adequate decoding but poor comprehension skills. Five teachers and 25 students in grades 3-5 from two rural public schools participated in this naturalistic experimental research study. Teachers met with identified students in a small group setting for 30 intervention sessions. The intervention involved explicit teaching and gradual release of instruction in three phases: metacognitive strategies, comprehension strategies, and peer-led discussions. To measure growth in reading comprehension, the Qualitative Reading Inventory-3 (Leslie & Caldwell, 2001) was administered as the pre- and posttest and analyzed through t-test comparisons. Interactive teaching is characterized by a dynamic flow of instruction with a powerful use of questioning used as a tool to assist students in understanding what they read. Recitative teaching is marked by static interactions that did not change across treatment intervention. Subsequently, the groups receiving the interactive instruction were compared to those receiving recitative instruction, and growth in reading comprehension for each group was compared. While all students gained in reading comprehension, students in the interactive teaching groups gained more in reading comprehension than those in the recitative teaching groups. Instructional implications of this research are presented and discussed, providing suggestions for teaching reading comprehension.

We can, whenever and wherever we choose, successfully teach all children whose schooling is of interest to us.... Whether we do it depends on how we feel about the fact that we haven't so far (Allington & Cunningham, 1996, p. 24).

Theoretical Background and Significance

In our work with preservice and inservice teachers of intermediate and middle school grades, we encounter a consistent challenge that teachers face: students who can read but cannot comprehend. These *word callers*, or students who can fluently call out words without knowing what the text says, seem to be more prevalent in the later years of elementary school (Meisinger, Bradley, Schwanenflugel, Kuhn, & Morris, 2009; Stanovich, 1986). Typical instruction in primary grades, in which teachers focus on word-level skills, often results in strong word recognition skills at the expense of comprehension abilities. A study conducted by the Institute for Education Sciences (IES) to evaluate the success of the federal Reading First Initiative found that although many students became proficient decoders of text, corresponding gains in reading comprehension were not realized (National Center for Education Evaluation, 2008). Thus, students often enter fourth grade and beyond with the ability to read words relatively fluently but without the necessary strategies to comprehend grade-level materials (Fuchs & Fuchs, 2005; Snow, 2002).

Even though word recognition is a necessary condition for successful reading, it is not sufficient. The National Reading Panel (NRP) identified a set of best-practice strategies that readers can use to enhance their understanding of text (2000), and concluded that reading comprehension instruction must accompany word identification strategies so students can understand what they read. Specifically, direct and explicit strategy instruction to develop these strategies is effective, especially for at-risk students (Snow, 2002).

While the literature is clear that this type of instruction can benefit word callers, elementary teachers have had difficulty using explicit comprehension strategy instruction for many years (Durkin, 1978-79; Pressley 2000; Pressley, 2002a). In fact, Walker (2009) contends that of all the components of reading instruction, comprehension is the most difficult to teach. Therefore, in addition to the need for intervention, studies clearly indicate that teacher knowledge of how to teach and implement comprehension strategies is a crucial variable in student achievement. Yet many instructional reform efforts lack a focus on development of teacher knowledge (Darling-Hammond, 1990). Thus, teachers need new knowledge and support as they implement methods for teaching reading comprehension strategies to their students.

Gradual Release Model

Research on comprehension instruction offers guidance for designing instruction that capitalizes on the constructive nature of making meaning. Such instruction requires a change from a teacher-directed perspective toward a more self-regulated, student-centered process approach (Pearson & Gallagher, 1983). In fact, a common three-phase cycle of instruction can be identified (Block & Pressley, 2003; Duffy, 2002; Pearson & Gallagher, 1983). In describing this cycle, Pearson and Gallagher (1983) coined the term *gradual release* to capture the recursive, interactive flow of comprehension instruction. First, the cycle begins with the teacher's explicit strategy instruction, in which he or she models and explains to students how to use essential comprehension strategies. During the second phase, called scaffolded support, the teacher offers varying degrees of support as students practice the strategy. The gradual fading of this support leads to the final phase, called independent application, which is when students are able to use comprehension strategies while reading on their own. An integral part of the cycle is that each phase is mediated through social interaction in the form of dialogue between the teacher and students as well as among the students themselves.

The gradual release model represents a journey between two extremes, or "planned obsolescence," according to Pearson & Gallagher (1983, p. 338). The movement from reliance on teacher modeling to the students' independent use of strategies requires an appropriate level of support; the teacher must observe and respond to informal feedback cues from the students. A conversational dialogue occurs when students begin to practice using comprehension strategies as they think aloud about their strategy use, while the teacher responds with additional think-alouds and support.

While such dialogue appears to be natural and easy, the difficulty lies in providing just the right amount of support as the teacher must enable students to practice using the strategy, but not provide so much support that students remain unchallenged. The amount of support gradually fades until eventually students can perform the task independently.

Conceptual Framework for the Intervention Model

Research identifies three key types of instruction that benefit students who are poor at comprehending. First, studies indicate that many students who cannot comprehend text are generally unaware of the kind of thinking necessary for comprehension; that is, they lack the metacognitive skills necessary to think about what they are reading (Keene & Zimmerman, 1997; Pressley, 2002b), and will likely benefit

from instruction in metacognitive strategies (Tregaskes & Daines, 1989; Camahalen, 2006; Boulware-Gooden, Carreker, Thornhill, & Joshi, 2007). Second, an abundance of research shows that the reciprocal teaching framework (Palincsar & Brown, 1984) provides necessary explicit comprehension strategy instruction, using four reading comprehension strategies that students apply while reading: predicting, questioning, summarizing, and clarifying. Third, research demonstrates that students understand text better when given the opportunity to discuss that text with their peers (Maloch, 2002). However, we have found no studies that examine the effects of these three key types of instruction – metacognitive strategies, reciprocal teaching, and peer-led discussions – applied to the recursive gradual release model and embedded within one intervention model.

Therefore, the purpose of our study is two-fold: (a) to investigate the effectiveness of a reading intervention program that integrates all three of these key types of instruction and (b) to gain insight into the particular instructional nuances that lead to comprehension gains for students. The model incorporates teaching through three phases, one for each of the key types of instruction, where each phase is grounded in the recursive gradual release instruction cycle described above. This model, the Three-Phase Reading Comprehension Intervention (3-RCI), was previously developed in a classroom setting, and seemed very successful based on informal classroom assessments (Diehl, 2005). Therefore, with these encouraging results, we tested the model for efficacy in other public school classrooms with other teachers. This study was guided by two questions:

1. What does the instructional dialogue look like when teachers implement the instructional phases of 3-RCI?
2. Does the implementation of 3-RCI impact students' ability to comprehend grade-level text?

Method

Setting and Participants

We conducted this study in two elementary schools within a rural school district. The schools serve students primarily from lower socioeconomic status, and both schools have the same principal. The participants in this study included five classroom teachers and twenty-five students in grades 3-5. Three students were in fifth grade, eight in fourth grade, and fourteen were in third grade. The students were mixed in gender—there were eight boys and six girls in third grade, four boys and four girls in fourth grade, and one boy and two girls in fifth grade. The

participant selection process is described below. Intervention occurred during the regular instructional day, and each participating teacher scheduled her thirty intervention sessions according to the classroom schedule. Therefore, each intervention session took place in the students' classroom with their classroom teacher.

Materials

The teachers had a variety of sets of leveled readers in their classrooms that were provided through district funding and approved for use by the school board. Each set of leveled readers addressed instructional levels from grades 1-6. For each intervention session, teachers selected books from this set of leveled readers, which enabled them to provide instruction using reading materials that matched each student's comprehension instructional level.

Measures

Our study allowed for a naturalistic, experimental research design model where all participating teachers received training in the methodology for teaching readers to comprehend. In this research model, learning and instruction are systematically studied in a natural context, leading to new theories and refined pedagogy for practitioners. This type of research model is very appropriate when studying situations in real-world settings, particularly when looking at variability across classrooms (Barab, Dodge, Thomas, Jackson, & Tuzun, 2007; Design-Based Research Collective, 2003).

We answered the first question of the study – examining instructional dialogue – by reviewing tapes of the intervention sessions as the five participating teachers audiotaped selected sessions while they were teaching. Then we transcribed and reviewed these audiotapes and using deductive analysis, identified a redundancy of patterns and trends in the instructional dialogue. We used this information to develop a coding system, which listed the common instructional elements across all five participating teachers. Once a common coding system was established, lesson transcriptions were reread to identify specific instructional elements found within the instructional dialogue of each individual teacher.

We established triangulation by collecting data on numerous participants in a variety of settings, across multiple collection points, and by using different data collection tools. Additionally, we used these data to clarify and further explain the results of the QRI-3 (Leslie & Caldwell, 2001), enabling examination of recommendations for teaching reading comprehension. This combination provided triangulation of data in quantitative, qualitative, and ethnographic forms (Patton, 2002).

A single group, pretest-posttest design (Macmillan & Schumacher, 2001) measured the effect of 3-RCI (Diehl, 2005) implementation, which is the second question of the study. In this design, we pretested the student group, and followed that with the thirty-session intervention, after which we administered a posttest to assess change in the independent variable. We used the Qualitative Reading Inventory-3 (Leslie & Caldwell, 2001), which offers several passages on each grade level for the initial screening for participating student selection, as well as for the pre- and post-test measures of oral reading and comprehension. Assessment guidelines in the QRI-3 report comprehension at three levels: independent, instructional, or frustration. A reader answering at least 90% of the questions accurately is considered to be on the independent level for comprehension; a reader answering between 70-89% of the questions accurately is considered to be on the instructional level for comprehension; and a reader answering less than 70% of the questions accurately is considered to be on the frustration level for comprehension. Word recognition accuracy is scored as a percentage. It is expected that a student with average achievement can read his or her grade-level passage with at least 90% accuracy and score on the instructional level for comprehension.

Students were selected based upon a screening assessment conducted by the classroom teachers. Using daily observations and assessments that occurred as part of instruction and assessment in reading, teachers selected individual students and administered one passage of the QRI-3 as a screening instrument. Specifically, teachers administered a grade level narrative passage of the QRI-3 to assess word recognition and comprehension. Those students who passed the grade-level word recognition criteria but did not pass the grade-level comprehension criteria were chosen and asked to participate in the study. Following a similar study (Johnson-Glenberg, 2000), students were selected to participate if they read their grade-level passage with at least 90% accuracy, but scored on the frustration level for comprehension. Therefore, we selected and asked only those students who demonstrated the ability to read grade-level text with fluent word recognition but did not demonstrate the ability to comprehend what they read.

Once we identified participating students, we administered further passages of the QRI-3 (Leslie & Caldwell, 2001) as a pretest measure to determine grade-level comprehension. For this administration, we used the screening level as the starting point, and worked backwards in grade levels until participants scored at least instructional for comprehension. For example, one fifth-grade student who was selected for participation read the fifth-grade passage to her teacher with 97% accuracy, but scored on the frustration level for comprehension. Then, to collect pretest measures for this student, we administered the fourth-grade passage, and the student

read it with 98% accuracy but still scored on the frustration level for comprehension. The third-grade passage was administered, and the student read it with 97% accuracy and scored on the independent level for comprehension. Thus, we stopped pretesting at the third-grade level for this student because the comprehension score was at least on the instructional level.

Following the thirty-session intervention, we used different passages of the QRI-3 (Leslie & Caldwell, 2001) following the same procedure. We began posttesting at the students' actual grade levels and worked backwards in grade levels until reaching at least an instructional level for comprehension. Table 1 shows the comprehension deficit of each participant at pretesting and the gains in comprehension demonstrated at posttesting.

Table 1. *Individual Student Grade-Level Performance on the QRI-3 with Identified Teaching Style*

Student	Deficit at pretesting	Deficit at posttesting	Gain pre- to posttesting	Teaching style
1	2	1	1	Interactive
2	2	1	1	Interactive
3	2	0	2	Recitative
4	3	1	2	Interactive
5	1	0	1	Recitative
6	3	0	3	Interactive
7	2	1	1	Interactive
8	1	0	1	Recitative
9	1	0	1	Interactive
10	1	0	1	Interactive
11	2	2	0	Recitative
12	2	2	0	Recitative
13	1	0	1	Interactive
14	1	0	1	Interactive
15	2	2	0	Recitative
16	3	0	3	Interactive
17	2	0	2	Recitative
18	1	1	0	Interactive
19	1	1	0	Recitative
20	2	1	1	Interactive
21	1	0	1	Recitative
22	1	0	1	Interactive
23	1	0	1	Interactive
24	2	0	2	Interactive
25	1	0	1	Recitative

Procedures

For this study, we provided one session of direct staff development as well as ongoing follow-up support to the five inservice teachers who implemented 3-RCI (Diehl, 2005) in their classrooms. In the initial staff development session, we presented the gradual release method of instruction and demonstrated the use of mental modeling in which the teacher shares, with students, his or her thinking when interacting with text. In follow-up visits, we observed intervention sessions and gave feedback to the participating teachers. The implementation period lasted six months, from January to June. Teachers held 30 sessions in small groups with participants and provided explicit, targeted instruction in the three types of instruction associated with this model: metacognition, comprehension strategy instruction, and peer-led discussions.

During Phase One (five sessions), teachers taught metacognitive strategies. The goal of this phase was very basic: to demonstrate that reading is about thinking. To do this, we adapted Tovani's (2000) teaching strategies, in which she described "voices in your head" to adolescent word callers (p. 45). In this phase, teachers described two kinds of voices that go on in readers' heads. One voice, termed the "Conversation Voice," helps readers relate to the text and remember what is read. The other voice, which we modified and termed the "Blah, Blah, Blah" voice, strays readers away from the text. During Phase One instruction, teachers read aloud and modeled the conversations happening in their heads and assisted students to develop awareness by discussing these conversations happening while reading. Additionally teachers taught students how to turn off the "Blah, Blah, Blah" voice by applying specific metacognitive strategies such as rereading, reading ahead, and asking questions.

The goal of Phase Two (15 sessions) was to give the students tools to aid in thinking while reading. Specifically, these tools were the four comprehension strategies featured in reciprocal teaching: predicting, clarifying, questioning, and summarizing (Palincsar & Brown, 1984). During this phase, the teacher spent the first four sessions modeling each strategy independently. She then assisted students as they practiced applying them while reading text. The teacher offered support through discussion of the application of the four comprehension strategies. Additionally, we developed graphic organizers based on the four strategies that the teachers implemented during instruction.

Finally, during the 10 sessions of Phase Three, students were encouraged to participate in peer-led discussions, with support from the teacher. The goal of this phase was to help them apply the strategies while they were reading to construct

meaning. At first, the discussion was led by the teacher, who had to purposefully pull all the students into the conversation but as the sessions continued, she gradually turned responsibility over to the students.

Findings

Instructional Dialogue

Question 1 asked: What does the instructional dialogue look like when teachers implement the instructional phases of 3-RCI (Diehl, 2005)? To answer this, we examined the instructional dialogue that supports reading comprehension. Qualitative analysis of the transcriptions of the audiotaped lessons revealed that two teaching styles were evident, in spite of the fact that all teachers were trained in this type of instruction that comprises the model.

One style, which we call interactive teaching, is closely aligned to the characteristics that distinguish best practices in reading instruction (see Table 2) (Beck, McKeown, Hamilton, & Kucan, 1997; Palincsar & Brown, 1984; Pearson & Gallagher, 1983). The other, described here as recitative teaching, more closely resembles the typical practice found in most classrooms as described by Pressley (2002a). Three teachers exhibited characteristics of interactive teaching, with $n=15$, and two teachers exhibited recitative teaching, with $n=10$. Table 1 includes the type of teaching style each student received during implementation of the intervention model. Through concrete instructional examples, we were able to capture a snapshot of what each of these styles of teaching look and sound like in authentic settings.

Table 2. *Stages of Teaching in the Interactive Style*

Stage	Specific Teaching Characteristics
1	Teacher modeling of strategies: Explicit demonstrations of comprehension strategies
2	Gradual release to students: Demonstrations of strategy application to text and support as students practice
3	Joint peer construction of meaning: Group works together to apply strategies to construct meaning together
4	Independent strategy application: Students internalize and apply strategies

Interactive Teaching Style

The first style, interactive teaching, is characterized by a dynamic flow of instruction with a powerful use of questioning embedded throughout. These teachers

used questioning as a tool for assisting students in the comprehension process as opposed to merely checking to see if the students “got it.” Instruction in this style flowed through four distinct stages that follow the recursive instructional cycle described earlier. These stages are included in Table 2.

In Stage One of the interactive teaching style, the teacher provided explicit demonstrations of the comprehension strategies. Shown below is an example taken from the lesson transcripts that exemplifies an explicit demonstration of the summarizing strategy. The teacher very clearly described the thought processes she used in order to summarize the book, *Arturo's Baton* (Hoff, 1995).

If you look at all those pieces of information we have talked about, like our story map—our setting, the main characters, the problem and the solution—we can put them in an orderly fashion. Put them in an order that makes sense to summarize the story. We can say this is a story about Arturo and his baton and it took place on stage and in his apartment. And the problem was he lost his baton. Felix, his manager, tried to help him solve this problem of the missing baton by taking him shopping to find another one, but none of them worked out. And so he told Arturo that he could just use his baton because he was a great conductor. He did and saw that the audience enjoyed his orchestra anyway. At the end we found out what happened to the baton when Tuscany had taken it and put it somewhere. And that is how we summarize a story.

During Stage Two, the teacher provided scaffolded support as she gradually lessened explicit demonstrations and assisted students in applying the strategies to text. Several excerpts, shown below, demonstrate these teaching characteristics. The following quote shows the beginning of the gradual release process where the teacher is providing strong support to the students, helping them try out their metacognitive strategies: “We’ve been talking about conversations with the author. I want you to read and then tell me what went through your mind just like I did.”

In the next example, the teacher is nearing the later phases of the gradual release process as she provides less support in helping the students use the strategy of questioning while reading *Whales* (DuTemple, 1996):

Teacher: OK, does anyone have any questions?

Student 1: Why do those creatures come on them?

Student 2: “Barnacles are attached to the whale.” It says, “Close up look at barnacles there...”

Teacher: So how do we help Megan answer her question?

Stage Three involved peer construction of meaning as the group worked together to apply strategies and construct meaning. The following example taken from the instructional dialogue demonstrates this type of teaching as students work together to come to a joint understanding of the book *Wagon Wheels* (Brenner, 1978). Notice how the role of the teacher shifted to facilitator, suggesting strategies for the students to apply in order to gain meaning.

Student 1: "Take care of little brother and never let him out of your sight. There were tears in his eyes when he said good bye."

Student 2: I don't get it. Why is he leaving?

Teacher: Who can help? Remember a summary is the big ideas. So far, what's going on in this chapter?

Student 3: Um, the dad leaves to find some shelter. And he leaves them there because they have friends.

Student 2: But I thought he was going to build a house, so why not take them or is he going to build the house and come pick them up again?

Teacher: What did we read? What is the answer to that question?

Student 3: Well I think he is going to come back for them. Well, I don't know if he's gonna come back but...

Teacher: What's going on so far in the story?

Student 1: "I will go along and I will send for you when I find a place."

Teacher: OK, now we're making some sense! You are using your questioning strategy to help you understand.

Finally, Stage Four marked independent strategy application where students internalized and were applying the comprehension strategies to understand text. The examples shown below demonstrate conversation within this phase. Here, students commented without prompting from the teacher, in the course of peer conversations.

In the first quote, the student is applying the strategy of questioning while reading *Cam Jansen and the Triceratops Pops Mystery* (Adler, 2004), in which Cam and his friends are trying to solve the mystery of missing CDs in the music store.

The student wonders aloud, “I wonder if the girl was trying not to have them go in the back ‘cause maybe she’s working with the thief and he can get away.”

The second example shows a student demonstrating application of the predicting strategy while reading *Aldo Ice Cream* (Hurwitz, 1981), in which Aldo is trying to earn money to purchase an ice cream machine for his sister’s birthday. Without any prompt from the teacher the student uses knowledge of summer and personal experience to predict: “Um, he might have a lemonade stand...maybe, ‘cause it’s during the summer.”

Recitative Teaching Style

The second teaching style, recitative teaching, is marked by static interactions that did not change throughout intervention implementation. In this style of teaching, teachers used questioning as a tool to assess student comprehension and gave instructional support by either asking another question or by providing the answer. The instructional dialogue followed a back-and-forth flow of verbal exchanges in which the teacher posed a question and called on one student to respond, then offered an evaluative feedback comment, a type of discourse called I-R-E, or Initiation-Response-Evaluation (Cazden, 1986). The two excerpts shown below are taken from the lesson transcripts that exemplify characteristics of this style of teaching, while reading the book *The Paper Crane* (Bang, 1985).

Teacher: How did the old man repay him?

Student: With a paper crane.

Teacher: Yes, with a paper crane.

And there is a similar recitative flow in the following example as well.

Teacher: What does overjoyed mean?

Student: Excited?

Teacher: Excited. Very good. Why do you think he was excited to see the man?

Student: Um, probably to take the paper crane home?

Teacher: You think he was going to take it home?

Student: I think that, um, he might get something to eat again.

Teacher: But what did this man do for them? How was he important to them?

Student: He makes the paper cranes and the customers come in.

Teacher: Yes, now you got it.

Reading Comprehension Growth

Question 2 concerned examination of the growth in reading comprehension and asked: Does the implementation of 3-RCI (Diehl, 2005) impact students' ability to comprehend grade-level text? To answer this, we performed t-test comparisons to compare growth in grade-level comprehension, pre- to postintervention using the QRI-3 (Leslie & Caldwell, 2001). The mean comprehension level for all students ($N=25$) as measured on the pretest was 1.92 with a standard deviation of 0.81. The mean comprehension level for all students as measured on the posttest was 3.04 with a standard deviation of 0.93. This measure reflected an increase in the group mean of 1.12 in grade-level comprehension, with a standard deviation of 0.83. Since the participating students in the study were in three different grades, measures in growth of grade-level comprehension make the data comparable. In this study, 20 of the 25 students showed gains in reading comprehension. A paired sample t-test of the pre- versus posttest measures was significant $t(24)=6.73$, $p<.001$.

Effect size for the pre- versus posttest outcome was calculated by taking the difference between the two means and dividing by the standard deviation of the pretest (Dunlop, Cortina, Vaslow, & Burke, 1996). This resulted in a large effect size of the intervention on the pretest-posttest measure of 1.35 (Cohen, 1988).

This comparison indicates significant gains in grade-level comprehension as measured pre- to postintervention on the QRI-3 (Leslie & Caldwell, 2001) (see Table 3). Hence, all students on average gained a little over one grade level in their abilities to read and comprehend after implementation of the 3-RCI (Diehl, 2005) reading intervention.

Table 3. *Comparisons of Growth in Grade-Level Comprehension*

	n	M Difference	SD	t	p	Effect Size
Whole Group: Pre vs Post	25	1.12	0.83	6.73	<.001	1.35/ Large
Interactive: Pre vs. Post	15	1.33	0.82	6.325	<.001	1.55/ Large
Recitative: Pre vs. Post	10	0.80	0.79	3.207	.011	1.51/ Large
Gains in Interactive vs. Gains in Recitative		0.53		2.53	.024	0.31/ Small-Medium

Closer Examination of Reading Comprehension Growth

When we determined that two teaching styles emerged, we returned to the QRI-3 (Leslie & Caldwell, 2001) data for further analysis. We wanted to compare the growth of students who received the interactive style of teaching ($n=15$) to those who received the recitative style of teaching ($n=10$). These results are also included in Table 3.

Within subjects comparisons demonstrated that each group made growth in reading comprehension (see Table 3). The interactive group improved from pre- to posttesting on the QRI-3 (Leslie & Caldwell, 2001) with a mean difference of 1.33 and a standard deviation of 0.82. The pre to post t-test comparison analysis indicates a significant gain $t(14)=6.325$, $p<.001$. Likewise, students in the recitative group improved from pre- to posttesting on the QRI-3 having a 0.80 increase in grade level with a standard deviation of 0.79. Pre- to posttest comparison analysis indicates a significant gain $t(9)=3.207$, $p=.011$. Effect size on these two comparisons was similar with 1.55 for the interactive group and 1.51 for the recitative group. These are considered large effect sizes (Cohen, 1988).

Table 4. *Within Subjects Comparisons of Growth in Grade-Level Comprehension*

	n	M Difference	SD	t	p	Effect Size
Interactive: Pre vs. Post	15	1.33	0.82	6.325	<.001	1.55/ Large
Recitative: Pre vs. Post	10	0.80	0.79	3.207	.011	1.51/ Large

Since both groups made gains, an analysis was conducted to determine if one group outperformed another. In other words, we compared the gains of the interactive group to those of the recitative group. A one-sample t-test comparison analysis indicates a greater gain in the interactive group as compared to the recitative group, $t(9)=2.53$, $p=.024$. Thus, interactive teaching is more effective when compared to the recitative teaching, with a small to medium effect size of 0.31 (Cohen, 1988).

Additionally, to determine if both groups were statistically the same before the intervention, deficits in reading comprehension at pretesting for each group were compared as measured on the QRI-3 (Leslie & Caldwell, 2005). The mean grade-level deficit for the interactive group was 1.73 with a standard deviation of 0.80, and the mean grade-level deficit for the recitative group was 1.50 with a standard deviation of 0.53. Results of a one-sample t-test indicate that the two groups were statistically the same regarding comprehension grade-level deficits at pretesting $t(9)=1.131$, $p=0.277$ ns. The sample was homogenous. Thus, it appears that

students who received the interactive style of teaching gained, on average, a little over one grade level in reading comprehension while those receiving the recitative style gained a little less than one grade, on average. Also, 14 of the 15 students in the interactive group demonstrated growth in reading comprehension as compared to only 6 of the 10 who received the recitative style teaching.

Discussion

Instructional Implications

When Teachers Teach, Students Learn

Results of this naturalistic study indicate that all participating students, regardless of type of style their teachers used, made gains in reading comprehension. This may suggest that students' reading comprehension improves when given the opportunity to meet with a small group of peers, with a concentration on reading and understanding, and with a teacher's focused instructional attention and explicit explanations. Whole group data ($N=25$) suggest that students gained slightly over one year in reading comprehension ability, with the mean reading comprehension grade-level progressing from 1.92 preintervention to 3.04 postintervention, as based on the results of the QRI-3 (Leslie & Caldwell, 2001). Therefore, we determined that the 3-RCI (Diehl, 2005) intervention model is effective in increasing students' ability to read and comprehend.

When Teachers Teach a Certain Way, Students Learn More

Literature in the field has identified elements of best practice (Beck et al., 1997; Palincsar & Brown, 1984; Pearson & Gallagher, 1983) and elements of typical practice (Pressley, 2002a) in terms of reading comprehension instruction. When we analyzed the qualitative data from this study, we discovered differences in teaching styles, which mirror the characteristics described in best and typical practices. When teachers taught with an interactive style, embracing the constructs of best practice, their students gained more in reading comprehension than did the students of teachers who continued in the typical, recitative style. Students in the interactive style teaching groups gained more than one grade level in their ability to comprehend text, with a difference in pre- to postintervention grade-level mean scores of 1.33 on the QRI-3 (Leslie & Caldwell, 2001). The students in the recitative style teaching groups gained less than one grade level, with a difference in pre- to postintervention grade-level mean scores of .080. Thus, we conclude that teaching is more powerful when best practices are implemented within the constructs of the 3-RCI intervention model (Diehl, 2005).

Effective Teaching Has Very Distinct and Recognizable Characteristics

Through our analysis of the transcriptions of the audiotaped lesson transcripts, we identified characteristics of two types of instructional dialogue. In line with the characteristics identified as “best practice,” interactive teaching is dynamic, changing in response to the degree of instructional support necessary for students. As the teacher is able to fade away support in one area, he or she must then pick up the level of support in another. Recitative teaching, on the other hand, is similar to the typical practice in many classrooms and does not seem responsive to the needs of the students or the demands of the text.

While we contend that a teaching script is not appropriate, nor desirable, specific and concrete characteristics may be helpful to assist teachers in planning and implementing instruction. Further, the instructional dialogue examples provided can be useful to show what each phase looks and sounds like. Consequently, teachers, literacy coaches, and administrators can use these very specific teaching characteristics to reflect upon and guide reading comprehension instruction.

Teachers Need Differentiated Support Just as Their Students Do

The 3-RCI model of instruction consists of three types of instruction: (a) metacognitive strategy instruction; (b) explicit instruction of four comprehension strategies: predicting, questioning, summarizing, and clarifying; and (c) peer discussion of responses to text. It is imperative for teachers to be aware of the importance of metacognition in reading comprehension (Boulware-Gooden et al., 2007). Likewise, explicit strategy instruction is necessary for an effective reading program, particularly for students with poor reading comprehension abilities (Dole, Duffy, Roehler, & Pearson, 1991; Pressley et al., 1992). However, such instruction continues to elude many intermediate-grade teachers (Pressley, 2000; Pressley 2002a). Moreover, Allington and Johnston (2002) report that exemplary teachers value student interactions with text and support their students as they talk about their responses to reading. Yet typical classroom discourse consists of an Initiation-Response-Evaluation (I-R-E) pattern of talk, in which the teacher asks a question (with an expected answer), then provides feedback to individual students who respond (Cazden, 1986). Teachers need ongoing support as they gain skill in all of the more interactive types of instruction.

The results of our study appear to mirror what is happening in classrooms on a larger scale. While all five teachers in the study received the same type and duration of staff development and support throughout project implementation, only three implemented the elements that made their teaching of comprehension strategies more effective, as concluded through analysis of the audiotaped lessons.

Even more puzzling, it appeared that all five teachers were all equally committed to embracing the instructional constructs embedded in the 3-RCI (Diehl, 2005) model. It may be that some teacher-learners need more scaffolded support than others as they learn methods that are unfamiliar to them. Hence, even teachers need and deserve differentiated instruction.

To gain skill in teaching comprehension strategies, teachers must learn how to model them, which requires the ability to think aloud for the students. A guide that uses templates for creating mental models (Nettles & Diehl, 2010) may increase teachers' ability to show their students how to use specific comprehension strategies by thinking aloud as they read (Diehl & Nettles, 2010). Additionally, teachers need to become comfortable with classroom discourse that allows students to talk to each other as they respond to text (Rosenblatt, 1978), and share ideas about their strategy usage. As they learn to do this support is imperative, as this type of classroom environment is a departure from typical instruction, and acknowledges and accepts the ultimate responsibility for the success of each student. None of this is easy, and teachers may have trouble learning this independently. Schools must seek to become learning communities, in which teachers learn from each other as well as from their students as they implement more student-centered approaches.

Limitations and Recommendations for Future Research

A variety of factors limit the ability to generalize these conclusions. First, our study employed a naturalistic design in order to collect data in an authentic setting, thereby gathering valid data relative to real students interacting with real teachers in a real classroom context. This gave us flexibility in meeting the needs of students throughout project implementation, but the design does have limitations, including lack of control over learner and teacher characteristics. Within this design, the statistical analysis implemented is also a limitation of this study. T-test statistical analysis assumes random assignment and groups with equal numbers. While neither of these conditions was satisfied, a third condition — homogenous groups at the onset of the study — was.

Second, the number of participants in our study was only 25, and once the two teaching styles were identified, the number of students within each subgroup was even smaller. To determine the extent to which these results can be generalized to other populations and settings, additional studies, which follow the same instructional pattern but incorporate an expanded population, are needed.

Third, the short implementation time frame of only thirty sessions made it difficult to determine both effect over time and transfer to other settings. When

looking at the learning span of struggling readers, success must be maintained over time and outside the intervention setting in order to be beneficial.

Fourth, the inherent difficulties in measuring one's ability to comprehend is a limitation of this study, as most quantitative comprehension measures are gross in nature, reporting results in grade-level intervals. This makes it difficult to measure fine changes in comprehension ability, which is particularly important with struggling readers who may make smaller steps of progress that go undetected on these measures. More finite measures of progress in reading comprehension are needed.

And finally, a strength of this study was, ironically, also its limitation: the teachers. All five teachers appeared very dedicated to the instructional constructs embedded in the 3-RCI model (Diehl, 2005), yet only three of the five were able to apply them. The question then becomes how to provide the differentiated support to teachers so that they can teach using an interactive teaching style. It may be possible that, just like young learners, teachers benefit from the constructs of the gradual release model (Pearson & Gallagher, 1983) and need explicit demonstrations and sustained support in knowledge, skills, and dispositions. Thus, maintaining treatment fidelity with checklists and classroom observation guides is necessary.

Conclusion

Educators have the responsibility to foster high levels of thoughtful literacy for all students. Ensuring lasting success for students who can recognize words but cannot comprehend what they read is of utmost importance. This basic tenet is easy to acknowledge yet difficult to deliver. Driven by the belief that teachers can make a difference for each student, we contend that the union of research and instruction manifested through this study is a start in the right direction, and agree that "all students have the ability to learn, but teachers make that ability accessible" (NCTE & IRA, 1996, p. 9). Pressley, in an interview (Brownell & Walther-Thomas, 2000), noted that "...struggling readers require support for the long haul, but the type of support changes" (p. 4). The long-term effects of intervention models, including the Three-Phase Reading Comprehension Intervention ([3-RCI], Diehl, 2005), must be considered. A narrow focus on instructional strategies is misguided as research has, over the years, consistently confirmed the critical importance of the teacher in improving students' literacy capabilities (Allington & Johnston, 2002; Darling-Hammond, 1999; Snow, Barnes, Chandler, Goodman, & Hemphill, 1990). Our study validated the contention that when teachers teach, students learn, but when teachers teach really well, students learn even more.

References

- Allington, R., & Cunningham, P. (1996). *Schools that work: Where all children read and write*. New York: Harper Collins.
- Allington, R., & Johnston, P. (2002). *Reading to learn: Lessons from exemplary fourth-grade classrooms*. New York: Guilford.
- Barab, S., Dodge, T., Thomas, M., Jackson, C., & Tuzun, H. (2007). Our designs and the social agendas they carry. *Journal of the Learning Sciences*, 16, 263-305.
- Beck, I., McKeown, M., Hamilton, R., & Kucan, L. (1997). *Questioning the author: An approach for enhancing student engagement with text*. Newark, DE: International Reading Association.
- Block, C., & Pressley, M. (2003). Best practices in comprehension instruction. In L. Morrow, L. Gambrell, & M. Pressley (Eds.), *Best practices in literacy instruction* (2nd ed., pp. 111-126). New York: Guilford.
- Boulware-Gooden, R., Carreker, S., Thornhill, A., & Joshi, R. (2007). Instruction of metacognitive strategies enhances reading comprehension and vocabulary achievement in third-grade students. *The Reading Teacher*, 61(1), 70-77.
- Brownell, M., & Walther-Thomas, C. (2000). An interview with Dr. Michael Pressley. *Intervention in School and Clinic*, 36(2), 105-108. Retrieved September 23, 2001, from EBSCOhost database.
- Camahalan, F. M. (2006). Effects of a metacognitive reading program on the reading achievement and metacognitive strategies of students with cases of dyslexia. *Reading Improvement*, 43(2), 77-93.
- Cazden, C. B. (1986.) Classroom discourse. In M. C. Wittrok (Ed.), *Handbook on research of teaching* (3rd ed., pp. 432-463). New York: Macmillan.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.
- Darling-Hammond, L. (1990). Achieving our goals: Superficial or structural reforms? *Phi Delta Kappan*, 72(4), 286-295.
- Darling-Hammond, L. (1999). *Teacher quality and student achievement: A review of state policy evidence*. Seattle: University of Washington, Center for Teaching Policy. Retrieved October 17, 2010, from http://depts.washington.edu/ctpmail/PDFs/LDH_1999.pdf
- Design-Based Research Collective. (2003). Design-based research: An emerging paradigm for educational inquiry. *Educational Researcher*, 32(1), 5-8.
- Diehl, H. (2005). Snapshot of our journey to thoughtful literacy. *The Reading Teacher*, 59, 56-69.

- Diehl, H., & Nettles, D. (2010, April). *More than mentioning: Supporting the use of mental modeling in teaching reading comprehension*. Presentation at the International Reading Association Annual Conference, Chicago.
- Dole, J., Duffy, G., Roehler, L., & Pearson, P. D. (1991). Moving from the old to the new: Research on reading comprehension instruction. *Review of Educational Research*, 61(2), 239-264.
- Duffy, G. (2002). The case for direct explanation of strategies. In C. Block & M. Pressley (Eds.), *Comprehension instruction: Research-based best practices* (pp. 28-41). New York: Guilford.
- Dunlop, W. P., Cortina, J. M., Vaslow, J. B., & Burke, M. J. (1996). Meta-analysis of experiments with matched groups or repeated measures designs. *Psychological Methods*, 1, 170-177.
- Durkin, D. (1978-79). What classroom observations reveal about reading comprehension instruction. *Reading Research Quarterly*, 14(4), 481-533.
- Fuchs, D., & Fuchs, L. (2005). Peer-assisted learning strategies: Promoting word recognition, fluency, and reading comprehension in young children. *Journal of Special Education*, 39, 34-44.
- Johnson-Glenberg, M. (2000). Training reading comprehension in adequate decoders/poor comprehenders: Verbal versus visual strategies. *Journal of Educational Psychology*, 92(4), 772-782.
- Keene, E., & Zimmerman, S. (1997). *Mosaic of thought: Teaching comprehension in a reader's workshop*. Portsmouth, NH: Heinemann.
- Leslie, L., & Caldwell, J. (2001). *Qualitative reading inventory-3*. New York: Longman.
- Maloch, B. (2002). Scaffolding student talk: One teacher's role in literature discussion groups. *Reading Research Quarterly*, 37(1), 94-111.
- Meisinger, E., Bradley, B., Schwanenflugel, P., Kuhn, M., & Morris, R. (2009). Myth and reality of the word caller: The relation between teacher nominations and prevalence among elementary school children. *School Psychology Quarterly*, 24(3), 147-159.
- National Council of Teachers of English & International Reading Association. (1996). *Standards for the English language arts*. Urbana, IL: NCTE.
- National Center for Education Evaluation. (2008). *Reading First impact study final report* (Report No. NCEE 20094038). Retrieved January 27, 2010, from <http://ies.gov/pubsearch/pubsinfo.asp?pubid=NCEE20094038>
- National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. Bethesda, MD: National Institute of Child Health & Human Development.

- Nettles, D., & Diehl, H. (2010). *Strategies for powerful comprehension instruction: It takes more than mentioning!* Huntington Beach, CA: Shell Education.
- Palincsar, A., & Brown, A. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction*, 1(2), 117-175.
- Patton, M. (2002). *Qualitative research and evaluation methods*. Thousand Oaks, CA: Sage.
- Pearson, P. D., & Gallagher, M. (1983). The instruction of reading comprehension. *Contemporary Educational Psychology*, 8, 317-334.
- Pressley, M. (2000). What should comprehension instruction be the instruction of? In M. Kamil, P. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research: Vol. III* (pp. 545-562). Mahwah, NJ: Lawrence Erlbaum Associates.
- Pressley, M. (2002a). Comprehension strategies instruction. In C. Block & M. Pressley (Eds.), *Comprehension instruction: Research-based best practices* (pp. 11-27). New York: Guilford.
- Pressley, M. (2002b). Metacognition and self-regulated comprehension. In A. Farstrup & S. J. Samuels (Eds.), *What research has to say about reading instruction* (3rd ed., pp. 291-309). Newark, DE: International Reading Association.
- Pressley, M., El-Dinary, P., Gaskins, I., Schuder, T., Bergman, J., Almasi, J., et al. (1992). Beyond direct explanation: Transactional instruction of reading comprehension strategies. *The Elementary School Journal*, 92(5), 513-555.
- Rosenblatt, L. (1978). *The reader, the text, and the poem: The transactional theory of the literary work*. Carbondale, IL: Southern Illinois University.
- Snow, C. (2002). *Reading for understanding: Toward an R&D program in reading comprehension*. Santa Monica, CA: RAND Corporation.
- Snow, C., Barnes, W., Chandler, J., Goodman, I., & Hemphill, C. (1990). *Unfulfilled expectations: Home and school influences on literacy*. Cambridge: Harvard University.
- Stanovich, K. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly*, 21(4), 360-407.
- Tovani, C. (2000). *I read it but I don't get it: Comprehension strategies for adolescent readers*. Portland, ME: Stenhouse.
- Tregaskes, M., & Daines, D. (1989). Effects of metacognitive strategies on reading comprehension. *Reading Research and Instruction*, 29(1), 52-60.
- Walker, H. (2009). Why Reading First has "failed." *Reading Today*, 25(4), 18.

Children's Literature References

Adler, D. (2004). *Cam Jansen and the triceratops pops mystery*. New York: Puffin.

Bang, M. (1985). *The paper crane*. New York: Greenwillow Books.

Brenner, B. (1978). *Wagon wheels*. New York: Harper Collins.

DuTemple, A. (1996). *Whales*. New York: Lerner.

Hoff, S. (1995). *Arturo's baton*. New York: Houghton Mifflin.

Hurwitz, J. (1981). *Aldo ice cream*. New York: William Morrow.

About the Authors

Dr. Holly Diehl, associate professor at California University of Pennsylvania, supervises student teachers and teaches literacy education. She worked 18 years in public schools as a teacher, curriculum coordinator, and elementary school principal. She has published articles on the topic of supporting struggling readers, and one textbook on reading comprehension.

Dr. Connie J. Armitage is a former classroom teacher, Reading Specialist, and public school principal. She currently serves as an Associate Professor in the Department of Early, Middle, and Special Education at California University of Pennsylvania where she supervises student teachers and teaches courses in the Graduate Reading Specialist Program.

Dr. Diane Nettles has been an elementary teacher and teacher educator for 30 years. A professor at California University of Pennsylvania, she teaches courses in literacy education, with current research interests in explicit strategy instruction. She works with local school districts to implement collaborative projects, and has published four textbooks.

Dr. Christine Peterson is an associate professor at California University of Pennsylvania. She has taught undergraduate and graduate level classes in reading and language arts, computer technology, field experience, and has supervised student teachers. She possesses certification in Elementary K-6, Reading Specialist, and Elementary Principal K-6.

