Research Related to Strengthening Instruction in Reading Comprehension: Part 2

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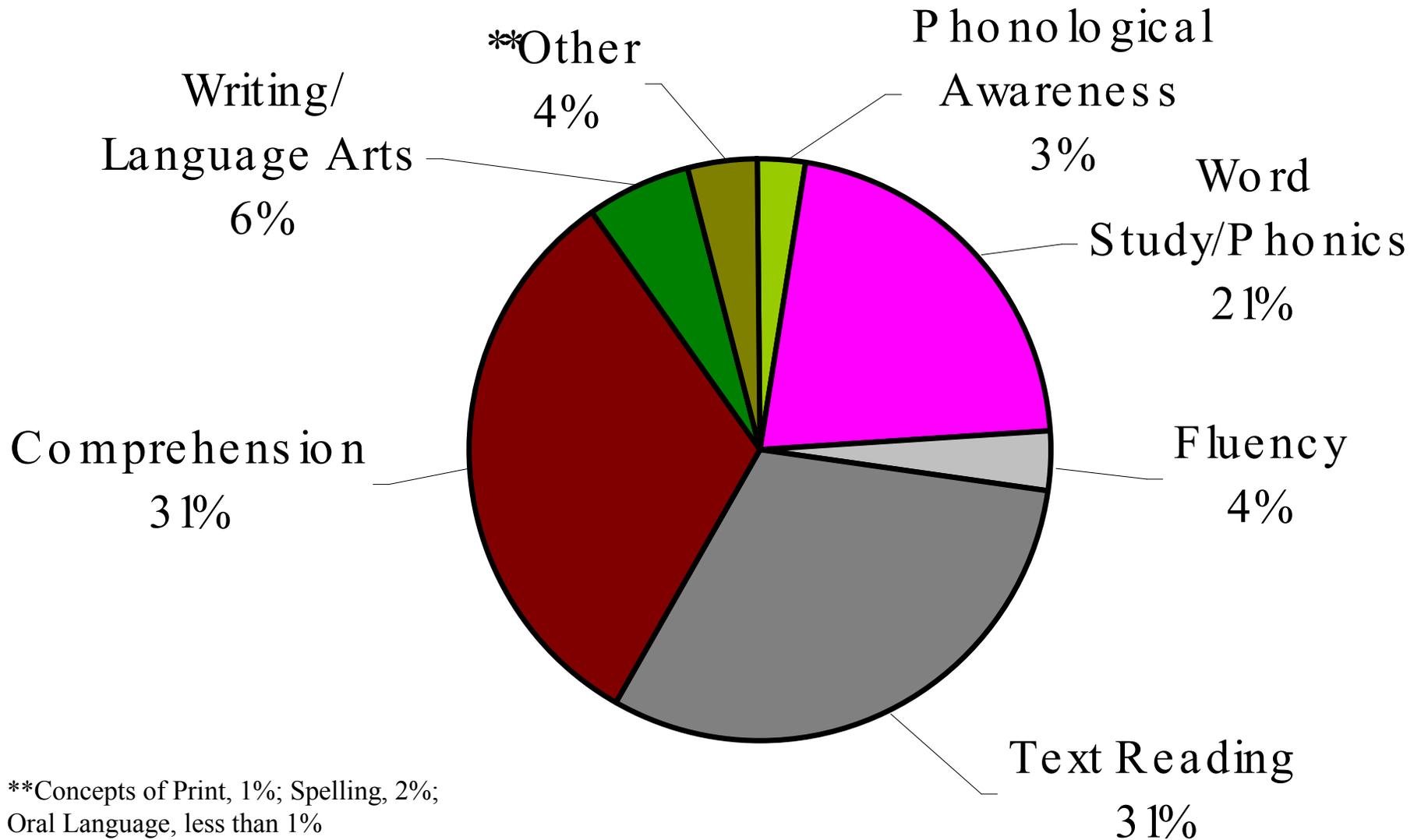# An overview of major topics to be covered

Today

1. The relations between reading fluency and reading comprehension

2. Vocabulary instruction and its connection to reading comprehension
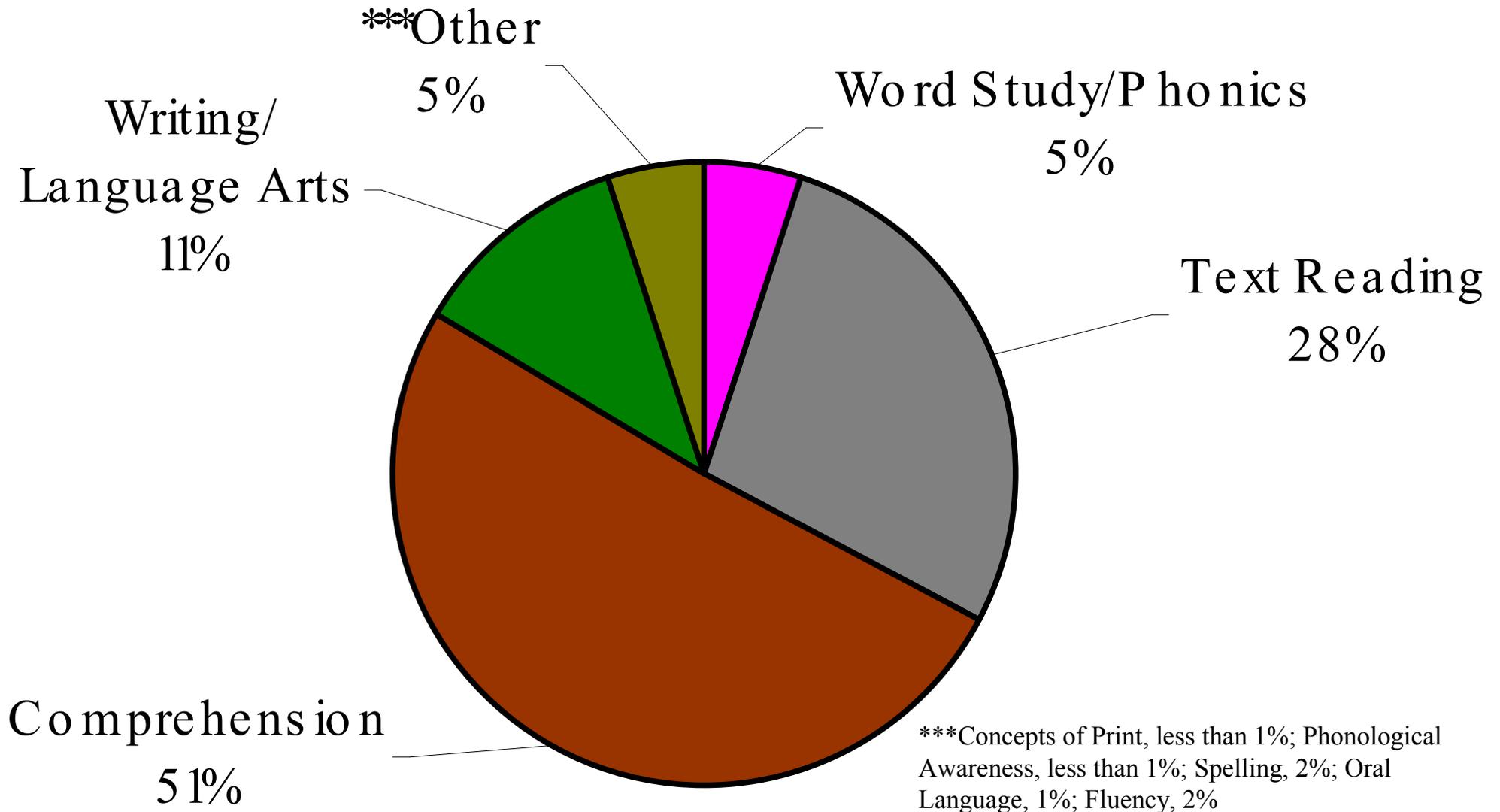
Tomorrow

3. Direct instruction in comprehension strategies as a means of improving reading comprehension

4. Additional, promising directions from current research for practices to improve comprehension
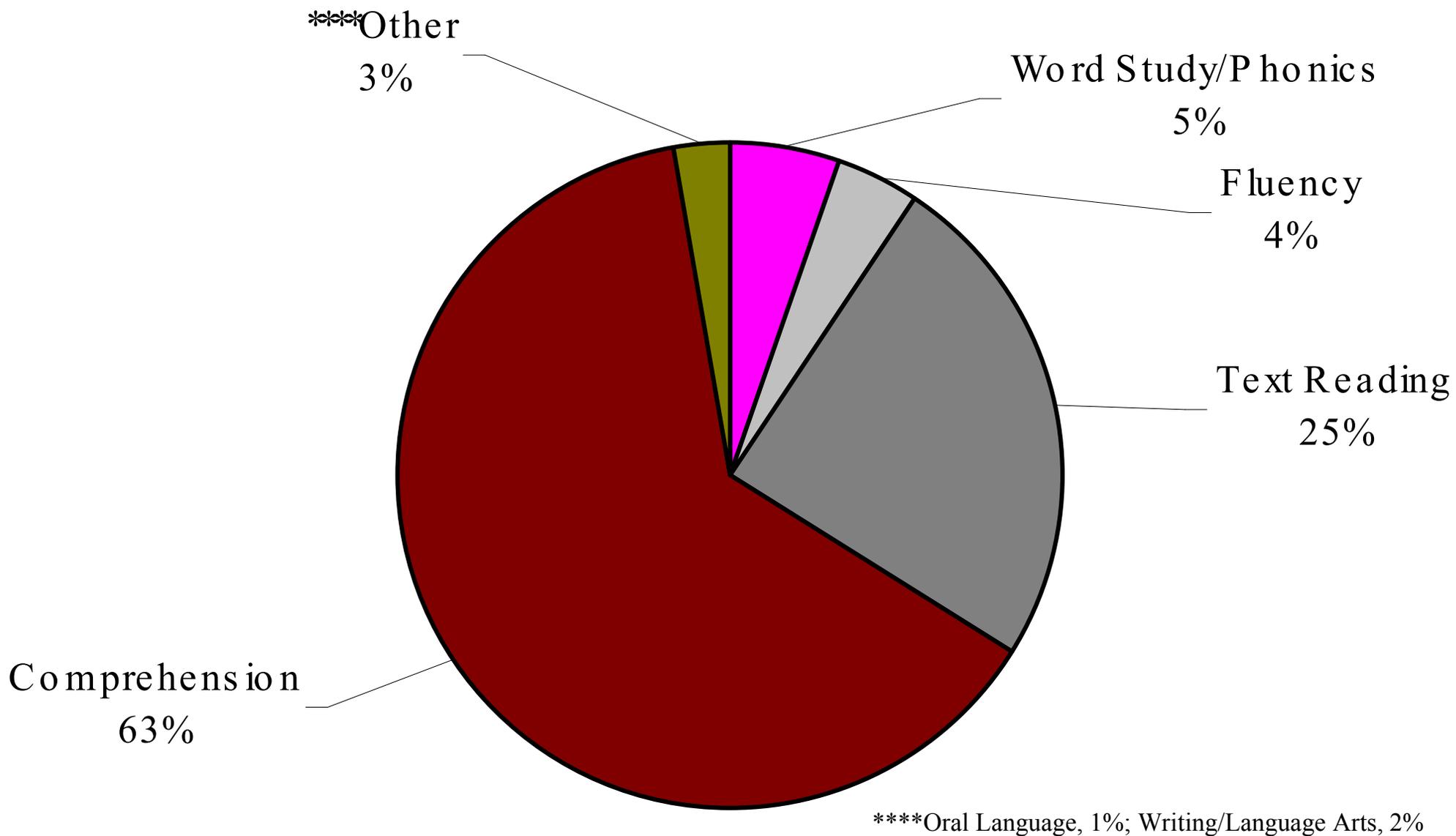
First Grade

**Other 4%

Writing/ Language Arts 6%

Phonological Awareness 3%

Word Study/Phonics 21%

Comprehension 31%

Fluency 4%

Text Reading 31%

**Concepts of Print, 1%; Spelling, 2%; Oral Language, less than 1%

Second Grade

**Other
5%

Writing/
Language Arts
11%

Word Study/Phonics
5%

Text Reading
28%

Comprehension
51%

***Concepts of Print, less than 1%; Phonological
Awareness, less than 1%; Spelling, 2%; Oral
Language, 1%; Fluency, 2%

Third Grade

***Other
3%

Word Study/Phonics
5%

Fluency
4%

Text Reading
25%

Comprehension
63%

****Oral Language, 1%; Writing/Language Arts, 2%

Definitions of Reading Comprehension

"intentional thinking during which meaning is constructed through interactions between text and reader."   Durkin (1993)

"the construction of the meaning of a written text through a reciprocal interchange of ideas between the reader and the message in a particular text." Harris & Hodges, 1995

meaning arises from the active, deliberate thinking processes readers engage in as they read.

Definitions of Reading Comprehension

Said concisely:

"reading comprehension is thinking guided by print"

Perfetti 1995

Said not so concisely but more completely:

"the process of simultaneously extracting and constructing meaning through interaction and involvement with written language. It consists of three elements: the reader, the text, and the activity or purpose for reading"   Rand Reading Study Group, 2002

Text structure, vocabulary, print style and font, discourse, genre, motivating features

Word recognition, vocabulary, background knowledge, strategy use, inference-making abilities, motivation

Text

Reader

Comprehension

Context
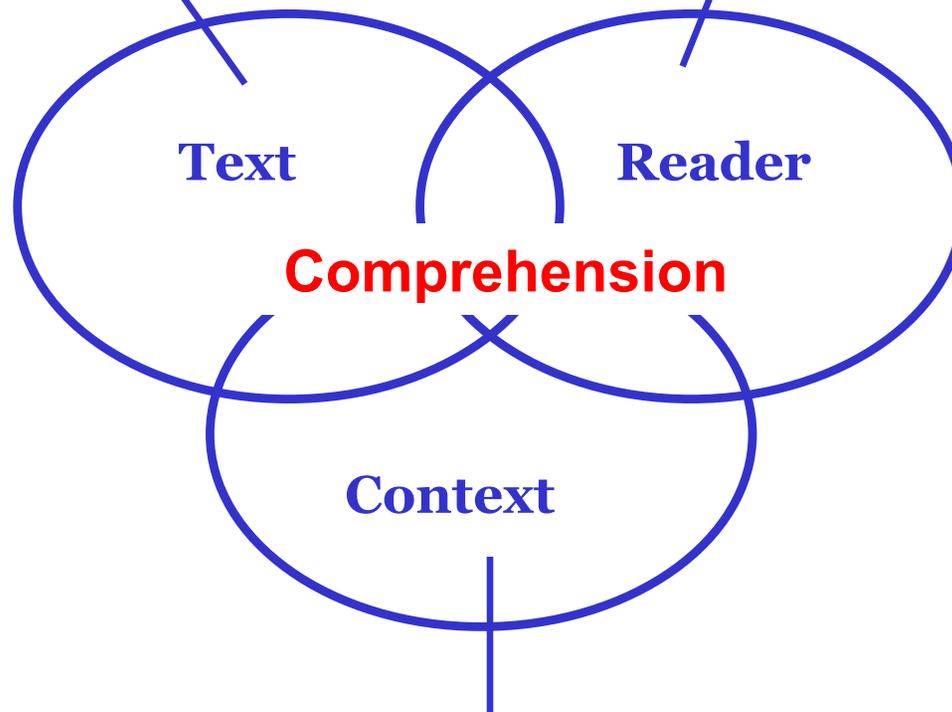
Environment, purpose, social relations, cultural norms, motivating features (e.g. school/classroom climate, families, peers)

Summary: a research-based view of reading comprehension

Reading comprehension involves active mental effort to construct meaning

Good readers use prior knowledge, information in text, and thinking/reasoning processes to construct new knowledge and understanding

Evidence for instruction in comprehension strategies comes from three sources:

1. Proficient readers monitor their comprehension more actively and effectively than less proficient readers

2. Proficient readers are more likely to use a variety of active cognitive strategies to enhance their comprehension and repair it when it breaks down

What Good Readers Do When They Read:

"What they found was that good readers achieve comprehension because they are able to <u>use certain procedures</u> — labeled <u>*comprehension strategies*</u> by the researchers—to relate ideas in a text to what they already know; to keep track of how well they are understanding what they read; and, when understanding breaks down, to identify what is causing the problem and how to overcome it." (Lehr & Osborne, 2006)

Evidence for instruction in comprehension strategies comes from three sources:

1. Proficient readers monitor their comprehension more actively and effectively than less proficient readers

2. Proficient readers are more likely to use a variety of active cognitive strategies to enhance their comprehension and repair it when it breaks down

3. Explicit instruction along with supported, scaffolded practice in the use of comprehension strategies produces improvements in reading comprehension in both younger and older students

From the Report of the National Reading Panel:

"The idea behind <u>explicit instruction of text comprehension</u> is that comprehension can be improved by <u>teaching students to use specific cognitive strategies or to reason strategically</u> when they encounter barriers to comprehension when reading." (NRP, 2000, p. 4-39).

"Reading instruction is effective in stimulating student comprehension abilities to the extent that it stimulates students to process texts <u>as good readers do</u>." (Pressley, 2000, p. 545)

What are reading comprehension strategies?

Comprehension strategies are specific procedures children can use to help them:

1) become aware of how well they are comprehending text as the read

2) improve their understanding and learning from text

- Generating questions
- Using background knowledge to make predictions
- Constructing visual representations
- Summarizing

What do we know from research about the impact of directly teaching reading comprehension strategies? The review of the National Reading Panel (2000)

Two preliminary considerations for our purposes

Most studies have been conducted with students in grades 3-6 (76%)
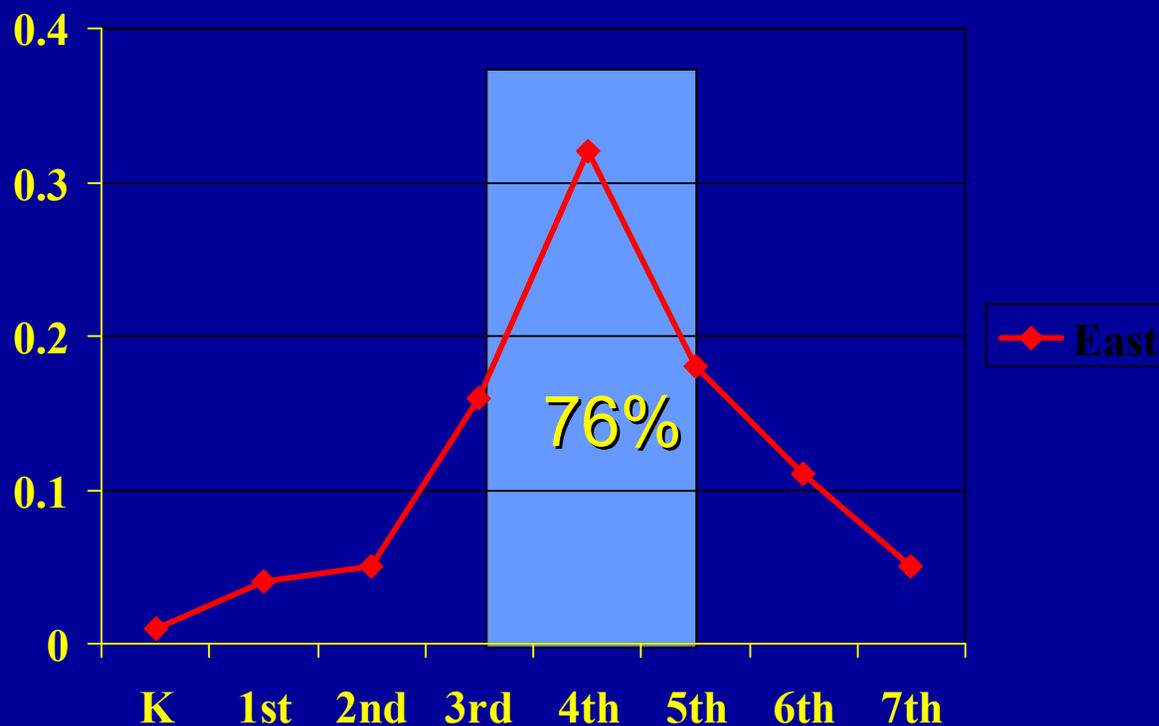
What do we know from research about the impact of directly teaching reading comprehension strategies? The review of the National Reading Panel (2000)

Two preliminary considerations for our purposes

Most studies have been conducted with students in grades 3-6 (76%)

Most studies reviewed tested the impact of only one strategy at a time- in relatively short-term studies

First wave – 1970's and early 80's

Second wave – Early 80's through present

What do we know from research about the impact of directly teaching reading comprehension strategies? The review of the National Reading Panel (2000)

1. Identified 16 categories of strategy instruction, with 7 having "firm scientific basis" for concluding they improve comprehension in normal readers

Comprehension monitoring
Cooperative learning*
Graphic organizers
Question answering
Question generation
Story structure
Summarization

Generally much stronger evidence for <u>specific learning on experimenter tests and from text read in the experiment</u> – less evidence for generalization to standardized measures of reading comprehension

What happens when you are not good at summarizing:

Actual summaries of traffic accidents published in *Toronto Sun*

"Coming home, I drove into the wrong house and collided with a tree I don't have."

"The other car collided with mine without giving warning of it's intentions."

"I collided with a stationary truck coming the other way. ."

"A truck backed through my windshield into my wife's face

What do we know from research about the impact of directly teaching reading comprehension strategies? The review of the National Reading Panel (2000)

Comprehension strategy instruction can be thought of as having two goals

<u>Short term -</u>

Improve comprehension and learning from text that is read while strategy instruction is taking place with teacher support

<u>Long term -</u>

Independent, sustained use "changed reading habits"

Impact on generalized measures of reading comprehension

What do we know from research about the impact of directly teaching reading comprehension strategies? The review of the National Reading Panel (2000)

Example: Evidence for effectiveness of teaching students to generate questions about material they are reading

"the strongest scientific evidence was found for the effectiveness of asking readers to generate questions during reading" (p 4-45).

Found 27 studies with students in grades 3-9

Effect sizes on experimenter developed tests - .95-.85

Median effect size for standardized tests was .36. However, only 3 of 13 effects were statistically reliable. – "..casting doubt on the generality of this single strategy instruction."

What do we know from research about the impact of directly teaching reading comprehension strategies?
The review of the National Reading Panel (2000)

Instruction in multiple strategies

"this method finds considerable scientific support for its effectiveness as a treatment, and it is the most promising for use in classroom instruction." (p. 4-46)

The reciprocal teaching approach, involving instruction in question generation, summarization, clarification, and prediction was most frequently studied

Impact on experimenter-devised tests = .88
standardized tests = .32

However, "good readers benefit more than poor readers"
And, significant effect sizes were not observed at grade 3

What do we know from research about the impact of directly teaching reading comprehension strategies? The review of the National Reading Panel (2000)

An overall statement reflecting the quality of the studies available for review:

"The empirical evidence reviewed favors the conclusion that teaching of a variety of reading comprehension strategies leads to <u>increased learning of the strategies</u>, to <u>specific transfer of learning</u>, to <u>increased memory and understanding of new passages</u>, and, in some cases, to <u>general improvements in comprehension</u>. (NRP, 2000, p. 4-51)

An extended research example of effective comprehension instruction: *Transactional Strategies Instruction* with struggling second grade readers

"Transactional strategies instruction involves direct explanations and teacher modeling of strategies, followed by guided practice of strategies

Teacher assistance is provided on an as-needed basis (i.e. strategy instruction is "scaffolded")

There are <u>lively interpretive discussions</u> of texts, with students encouraged to interpret and respond to text as they are exposed to diverse reactions to text by their classmates

The transactional strategies instructional approach succeeds in <u>stimulating dialogues</u> in which strategic processes are used as interpretive vehicles, with <u>consistently high engagement</u> by all group members."   (Pressley, 2000)

"The strategies are used as a vehicle for <u>coordinating dialogue about text</u>. Thus, a <u>great deal of discussion of text content</u> occurs as teachers interact with students, reacting to students' use of strategies and prompting additional strategic processing.

The Study (Brown, Pressley, et. al. (1996)

The students:
All students began second grade reading below grade level. Were from schools serving predominantly "working class" families – all spoke English

The teachers:
5 experienced TSI teachers – 3-6 years experience
5 other "excellent" teachers nominated by principals and district reading staff – who taught more traditionally

Experimental control:
Quasi-experiment with non random assignment, but students were well matched on pretest reading comprehension and student demographics.

The Study (Brown, Pressley, et. al. (1996)

The instruction:

Took place across the entire school year

Done in both whole group and small group

Strategies taught:

Adjust reading to purposes and to text characteristics

Use background knowledge to make predictions

Generate questions and interpretations while reading

Visualize ideas and events

Summarize periodically

Attend selectively to most important information

Strategies for dealing with difficult words

The Study (Brown, Pressley, et. al. (1996)

The outcomes:

<u>Interviews about the use of strategies during reading:</u>

What do good readers do? What makes someone a good reader?

What things do you do before you start to read a story?

What do you think about before you read a story?

What do you do when you come to a word you do not know?

What do you do when you read something that does not make sense?

The Study (Brown, Pressley, et. al. (1996)

The outcomes:

Interviews about the use of strategies during reading:

TSI students identified more strategies, and mentioned them more consistently:

Uniquely reported: visualizing, looking back, verifying predictions, thinking aloud, summarizing, setting a goal, or browsing

Both groups reported: predicting, using text or picture clues to clarify confusions, making connections between text and their background knowledge and experiences, asking someone for help, skipping over confusing parts, and rereading

The Study (Brown, Pressley, et. al. (1996)

The outcomes:

Performance on stories taught during two lessons that had been monitored for instructional activities, and that showed clear differences between TSI and non TSI classes.

TSI students interjected interpretive comments in their story recall more than students in the other groups (comments that provided a reason for something that happened in the story)

On literal recall of important idea units, the groups differed on one of the stories, but not on the other one.

The Study (Brown, Pressley, et. al. (1996)

The outcomes:

Students were also asked to read a fable, and during the reading, stopped and asked what they were thinking.

TSI students consistently responded with more strategy based responses

The Study (Brown, Pressley, et. al. (1996)

The outcomes:

(The student read the page about the dog rushing out of the house with the piece of meat. The student then started to talk before the researcher asked an initial probe.)

S: I think my prediction is coming out right, (verifying)

R: Why do you say that?

S: Cuz, cuz I see a bridge over there and water, (using picture clues)

R: Uh huh....

S: And he ran out of the house without anybody seeing him. Like I said before . . . .

R: Okay, so you think your prediction is right and you're using, you were pointing to the pictures.

S: Yep.

The Study (Brown, Pressley, et. al. (1996)

The outcomes:

Students were also asked to read a fable, and during the reading, stopped and asked what they were thinking.

TSI students consistently responded with more strategy based responses

The non strategic responses of the TSI students also showed consistently more integration of personal information and response to the story elements, than simply reporting what was going in the text.

The Study (Brown, Pressley, et. al. (1996)

The outcomes:

Text based response

R: Okay, what are you thinking?

S: The dog stole something.

R: Uh huh . . . tell me more.

S: He knocked over the table.

R: He knocked over, talk nice and loud . . . he knocked things off the table . . . okay.

S: Yeah, and nothing really else.

R: Okay. And what do you think about what the dog did?

S: What do you mean?

R: What do you think about what the dog did?

S: He stole something.

The Study (Brown, Pressley, et. al. (1996)

The outcomes:

A more interpretive, personal response
R: What are you thinking about what's happening on this page?
S: Sort of bad because I see that was part of their dinner, but they would not have all the uhm, protein.
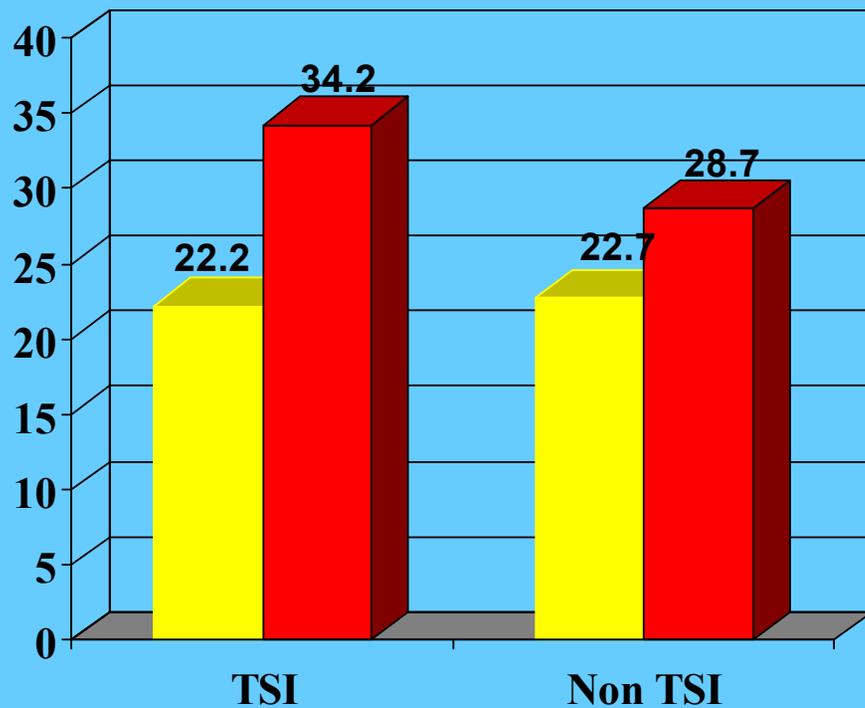R: Okay
S: The dog ate all t h a t . . . .

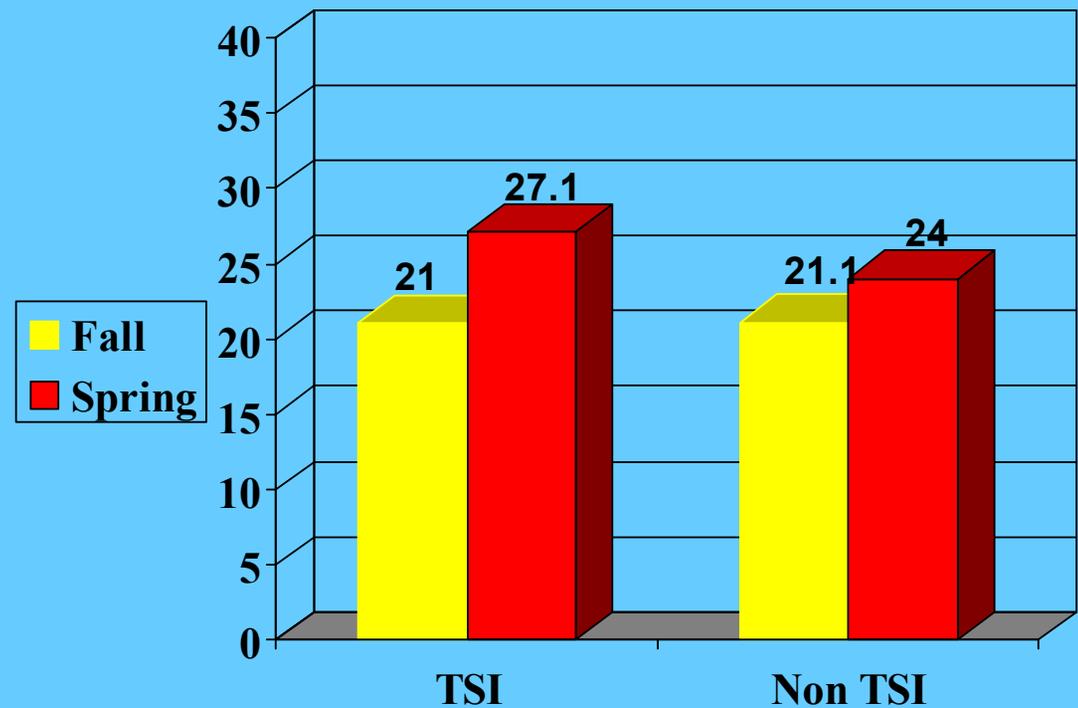# The Study (Brown, Pressley, et. al. (1996)

The outcomes:

Stanford Achievement Test
Reported raw scores on Comprehension and Word Skills
test for fall (form J) and spring (form K)

Passage Comprehension

Word Skills

The Study (Brown, Pressley, et. al. (1996)

Comments from the discussion:

<u>TSI had both positive short-term and long-term benefits</u>

<u>Short term:</u>
 Students acquired more information from stories read
 Developed richer, more personalized interpretations
<u>The inference</u>: TSI students learn more from their daily reading group lessons than control students

<u>Long Term</u>
 TSI students showed greater awareness of strategies
 TSI students used strategies more actively during reading
 TSI students showed greater gains on standardized test
<u>The inference:</u> A year of TSI instruction improved the reading skills of the 2nd grade students more than did alternative high quality instruction.

What do we know from research about the impact of directly teaching reading comprehension strategies? The review of the National Reading Panel (2000)

""The major problem facing the teaching of reading comprehension strategies is that of implementation in the classroom by teachers in a natural reading context with readers of various levels"…NRP, 2000, 4-47

What do we know from research about the impact of directly teaching reading comprehension strategies? The review of the National Reading Panel (2000)

"For teachers, the art of instruction involves a series of "*wh*" questions: knowing <u>when</u> to apply <u>what</u> strategy with <u>which</u> particular students. Having students actually develop independent, integrated strategic reading abilities may require subtle instructional distinctions that go well beyond techniques such as instruction, explanation, or reciprocal teaching…strategies are not skills that can be taught by drill; they are plans for constructing meaning…4-47

What do we know from research about the impact of directly teaching reading comprehension strategies? The review of the National Reading Panel (2000)

"…it may be necessary to free teachers of the expectation that their job is to follow directions narrowly. Being strategic is much more than knowing the individual strategies. When faced with a comprehension problem, a good strategy user will coordinate strategies and shift strategies as it is appropriate to do so. They will constantly alter, adjust, modify, and test until they construct meaning and the problem is solved." P. 4-47

How can we <u>curricularize</u> high quality instruction in the self-regulated use of comprehension strategies?

The concept of "balanced" comprehension instruction. Both <u>explicit instruction</u> and modeling, and <u>lots of time</u> for actual reading, writing, and discussion of text. (Duke & Pearson, 2002)

<u>Critical Elements</u>

1. An explicit description of the strategy and when and how it should be used.

2. Teacher and/or student modeling of the strategy in action

3. Collaborative use of the strategy in action to construct meaning of text.

4. Guided practice using the strategy with gradual release of <u>responsibility – scaffolding by the teacher</u>

5. Independent use of the strategy

How can we <u>curricularize</u> high quality instruction in the self-regulated use of comprehension strategies?

<u>The larger classroom context (desirable elements)</u>

1. Lots of time spent actually reading
2. Experience reading real text for real reasons – have a purpose for the reading
3. Experience reading the range of genres that we wish students to comprehend
4. An environment rich in vocabulary and concept development through reading, experience, and, above all, discussion of words and their meanings
5. Lots of time spent writing texts for others to comprehend
6. An environment rich in high-quality talk about text

(From Duke & Pearson, 2002)

How can we <u>curricularize</u> high quality instruction in the self-regulated use of comprehension strategies?

<u>Other teaching considerations</u>

1. Using well-suited texts

2. Concern with student motivation

3. Ongoing assessment

Can the child ask a meaningful question about a passage just read?

Does the child's story recall include information organized by story grammar?

Can the child summarize a paragraph briefly?

What happens when you are not good at summarizing:

More summaries of traffic accidents published in *Toronto Sun*

"The guy was all over the road, I had to swerve a number of   times before I hit him."

"The pedestrian had no idea which way to go, so I ran over him ."

"The telephone pole was approaching fast, I attempted to swerve out of it's way, when it struck the front of my car ."

"I told the police that I was not injured, but on removing my hat, I found that I had a skull fracture

A second extended research example: *Concept Oriented Reading Instruction* with 3rd grade students

The Goal: Create a method of improving literacy skills that is highly engaging and effective in establishing use of comprehension strategies to increase reading comprehension

Premise: "motivated students usually want to understand text content fully and therefore, process information deeply. As they read frequently with these cognitive purposes, motivated students gain in reading comprehension proficiency" (Guthrie et al., 2004, p. 403)

Four principles for creating engaged readers

➢ When <u>content goals</u> are prominent in reading, students focus on gaining meaning, building knowledge, and understanding deeply, rather than on skills and rewards…<u>meaningful conceptual content in reading instruction increases motivation for reading and text comprehension</u>

➢ Affording students <u>choices</u> of texts, responses, or partners during instruction. Choice leads to ownership and higher motivation

Four principles for creating engaged readers (cont.)

➢ Have an abundance of interesting texts available at the right reading level for every student. Students more readily read text they can read fluently.

➢ Allow students the opportunity to work collaboratively with ample opportunities for discussion, questioning, and sharing

Study I (Guthrie, et al., 2004)

The students:
3rd graders in four schools that were <u>randomly</u> assigned to either CORI, or strategy instruction alone. 22% African American, 75% Caucasian, and 3% Asian. Twenty percent qualified for free and reduced price lunch. Students no more than 2 grade levels behind were included.

The teachers:
Teachers in CORI participated in a 10 day summer workshop in which they received training in methods and also developed science activities that would be used during a 12 week instructional period. Teachers in the SI condition participated in a 5 day summer workshop on methods.

Study 1 (Guthrie, et al., 2004)

The instruction:
Explicitly taught six comprehension strategies over a six week period, then practiced integrating their use over another six weeks. Instruction lasted 90 min./day for 12 weeks.

The strategies taught were:
activating background knowledge
questioning
searching for information
summarizing
organizing graphically
identifying story structure

Study I (Guthrie, et al., 2004)

The instruction:

Created an engaging reading context by teaching strategies in order to accomplish content goals in a life science unit called 'Survival of Life on Land and Water"

Engagement features

"Knowledge content goals provide motivation for students because they provide a purpose for using strategies, such as questioning"

Study I   (Guthrie, et al., 2004)

The instruction:

Engagement features (cont.)

Students were given individual choices about which birds or animals to study in depth and which information books to read on the topic.

"Hands on Activites" were used to provide experiences and knowledge that were followed by opportunities to read

"when students dissect an owl pellet, subsequent reading about owls and the food web in which they exist is energized, long lived, and cognitively sophisticated"

Study I (Guthrie, et al., 2004)

The instruction:

Engagement features (cont.)

Had an abundance of interesting texts available for reading. Texts at several different levels of difficulty were available on each topic

Students worked collaboratively on a variety of reading and study projects

"Students motivation for using complex comprehension strategies is increased when they are afforded opportunities to share their questions, interesting texts, and information being gained"

Overall characterization of CORI

CORI integrates comprehension strategies for which the National Reading Panel (2000) found firm scientific bases for effectiveness (e.g., cooperative learning, comprehension monitoring, summarizing) with inquiry science.

Inquiry science includes hands-on activities such as observation of real-world phenomena and experimentation, designed to support student understanding of scientific concepts. Students use texts to confirm and extend the knowledge they gain through the hands-on activities.

The inquiry science components of CORI provide students with a motivational and conceptual base for developing and applying strategies as they read texts.

Lehr & Osborne, 2006)

Study I (Guthrie, et al., 2004)

The outcomes:

Multiple Text comprehension. Students studied 75 pages worth of text (some at 2nd, some at 4th grade) by taking notes in one 10 minute and one 40 minute activity.

Students were given 30 minutes to write what they knew about the topic. CORI > SI, Effect size 1.01

Passage Comprehension – students read a 500 word passage for 7 minutes.

Students then rated the relatedness of word pairs from the passage. CORI > SI, Effect size 1.32

Motivation for reading questionaire

CORI> SI, Effect size .98

Study 2 (Guthrie, et al., 2004)

Contrasted CORI, SI, and "traditional instruction" in a new school identified by the district as an appropriate comparison

The students:

Came from same schools as Study I., plus one other school that served as control for "traditional instruction." Students demographics- 41-44% minorities for CORI and SI schools, 10% for TI

The teachers:

In CORI schools, 4 of 9 teachers were new.
In SI schools, 2 of 11 teachers were new

Training for new teachers was similar that for study I. Returning teachers in CORI participated during days in which science lessons were developed. Returning SI teachers received 2 days of refresher training.

Study 2 (Guthrie, et al., 2004)

The instruction:

Same as in Study I, with addition of additional 30 min. day for "struggling readers" that focused on fluency and simplified strategy instruction

Study 2 (Guthrie, et al., 2004)

The outcomes:

Passage Comprehension – students read a 550 word passage and then completed the "word relatedness" task

CORI > TI, CORI=SI, SI=TI

Gates MacGinitie Reading Comprehension test

On Extended Scaled Scores   CORI > SI=TI

Study 2 (Guthrie, et al., 2004)

The outcomes:

Teacher ratings of motivation for reading– teachers were
trained to rate each students on
intrinsic motivation,
self-efficacy for reading,
extrinsic motivation

Intrinsic Motivation - CORI > SI
Self Efficacy for reading – CORI = SI
Extrinsic motivation – CORI> SI

The Studies together (Guthrie et al., 2004)

Comments from the discussion:

"Our findings contribute to the knowledge base on reading comprehension instruction by showing experimentally that explicitly combining motivational practices with SI (strategies instruction) increases reading comprehension relative to SI alone or to TI." p. 416

Strategy instruction: Some caveats

The effectiveness of instruction in comprehension strategies depends critically on <u>how they are taught, supported, and practiced</u>

<u>Common instructional mistakes</u>

Strategies taught as "ends in themselves" -- memorized

Too much focus on the strategies themselves, and not enough on constructing the meaning of text.

Can go astray if students spend too much time thinking about how they should process the text rather than thinking about the text itself.

Too much time on the "explicit instruction" part and not enough time on the collaborative, scaffolded, application/discussion part

Strategy instruction: The big ideas

1. Effective long-term instruction will most likely involve teaching students to flexibly use <u>multiple strategies</u> to improve their comprehension of text

2. Effective instruction requires many opportunities for students to discuss and interpret text using the application of strategies as a way of structuring the discussion

3. The focus of strategy instruction should always be on constructing the meaning of the text.

4. Effective strategy instruction always involves explicit description and modeling of strategies by the teacher.

5. Effective strategy instruction always involves extended discussions of text in which the teacher scaffolds student strategy use.

Strategy instruction: The big ideas

6. Always keep in mind that the purpose of strategy instruction is to stimulate student's thinking about the <u>meaning of text (</u>by providing guided opportunities for them to actually think about, and interpret text)– ultimately, their attention needs to be on the text and not on the strategies.

Other promising strategies and practices

1. Increasing the amount of time spent in discussion focused on constructing the meaning of text

The role of <u>discussion</u> in promoting comprehension

During discussions, students can be directly led to engage in thoughtful analysis of text in ways that support their comprehension when they are reading on their own (Beck & McKeown, 2006). .

Increasing the amount of high quality discussion of reading content is also frequently cited as a way of increasing engagement in reading and reading

based assignments (Guthrie & Humenick, 2004).

Characteristics of effective discussions

approaches that emphasized critical analysis of text or that involved discussion (either teacher led or student led) of specific questions about text meaning had the most consistently positive effect on reading comprehension outcomes (Murphy & Edwards, 2005)

Leading students in discussion <u>while</u> they are reading text may be more effective than discussing text after students have read it on their own (Sandora, Beck, & McKeown, 1999)

Other promising strategies and practices

1. Increasing the amount of time spent in discussion focused on constructing the meaning of text

2. Increasing the use of expository text in reading assignments for students in grades 1-3.

   > Based on hypothesis that, "experience with one type of text will help children become good readers or writer of that type of text but not of some other type of text." (Palincsar & Duke, 2004)

   > > Children currently receive very little exposure to informational text in early primary grades—particularly in low SES schools
   > >
   > > There is some beginning evidence that inclusion of more informational text does not hurt early reading acquisition, and can promote growth of content knowledge and teacher attention to vocabulary and comprehension

Questions for further research…

We need more year-long, classroom based studies of instruction in multiple comprehension strategies

We need to understand more about differences in appropriate strategy instruction across grade levels in K-3

How well do current core reading programs implement the general set of recommendations for instruction in reading comprehension strategies exemplified in research?

More research on the benefits and risks of including more exposure to informational texts in the early primary grades

Some relevant advice from Yogi Berra

First: "Never give up, because it ain't over 'till its over"

Second: "During the years ahead, when you come to a fork in the road, take it."

Third: "You've got to be careful if you don't know where you're going, 'cause you might not get there."

Fourth: In conducting your experiments, "remember that you can observe a lot by watching."

Fifth: Replicating your findings is important, "It's déjà vu all over again."

Sixth and last: "Remember that whatever you do in life, 90 percent of it is half mental."

Thank you

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