Assessing the Metacognitive Dimensions of Retrospective Miscue Analysis Through Discourse Analysis

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This study investigates the manner in which retrospective miscue analysis involves metacognition by analyzing the discourse of weekly retrospective miscue analysis (RMA) sessions conducted with a fourth grade reader over five months. A preliminary structural discourse analysis of the sessions reveals several procedural and format features of the sessions. Each session more or less involves the same broad procedures: a) establishing the purpose and setting the agenda; b) discussing the individual miscues; and c) reflecting on reading or what was learned in the session. Discourse analysis of participants, discussions, and reflections reveals discourse moves that involve metacognitive experiences producing metacognitive knowledge in three domains: procedural knowledge, conditional knowledge, and declarative knowledge. Specific discourse moves that accomplish the metacognitive knowledge are examined.
READING STRATEGY instruction is a mainstay in elementary classrooms and essential to support struggling readers. Practices such as guided reading (Fountas & Pinnell, 1996) and reciprocal teaching (Brown & Palincsar, 1986), which highlight for children a repertoire of reading and comprehension strategies, are widely integrated into elementary reading programs. These instructional strategies are intended to teach readers to use particular strategies while reading, whether or not the readers are aware of the strategies they currently use. Another instructional strategy, called retrospective miscue analysis (RMA), uniquely provides teachers and readers a model of inquiry to reading strategy use by examining their oral reading miscues. In RMA young readers are invited to become metacognitively aware of and celebrate their own strategy use as well as to develop additional useful strategies.

This study investigates the manner in which retrospective miscue analysis involves metacognition by analyzing the discourse of weekly RMA sessions conducted with a fourth grade reader over five months. The bulk of the growing literature on RMA consists primarily of case studies of teachers’ and learners’ experiences demonstrating RMA’s impact on its participants. With the current emphasis in reading instruction on metacognitive awareness of reading strategies, I am seeking to discern what we truly mean by metacognition and to understand how the discourse in discussions about an individual’s reading processes create metacognitive experiences. If it is true that awareness of reading cues and strategies creates a self-extending system through which readers construct meaning, then it is important to understand how conversations such as these bring effective reading strategies to a conscious awareness.

**Retrospective Miscue Analysis**

In an RMA session a reader discusses his/her miscues with either an educator or group of peers in a type of collaborative discourse analysis of the oral reading miscues from a previously-recorded oral reading. Participants analyze collaboratively the miscues that the reader made, revealing the reading process, the specific reading strategies, and the reading cues the reader used. This cooperative investigation creates a window into the reader’s process by providing the reader the opportunity
to explain individual strategies and thought processes during reading and by socially co-constructing with participants an understanding of the reading process. It also encourages readers to discover for themselves that reading is a meaning-making process through an exploration of:

- why they might have made miscues
- if and how miscues affected their understanding of the text
- whether or not miscues were, or need to be, corrected (Goodman & Marek, 1996)

For two decades retrospective miscue analysis (RMA) has engaged young and adult readers in explorations of their own oral reading miscues that resulted in metacognitive awareness of their personal reading strategies, metacognitive knowledge of reading processes, and metacognitive experiences of revaluing themselves as readers (Costello, 1992, 1996; Germain, 1998; Goodman & Marek, 1996; Hajny, Strebel & Stiles, 2001; Martens, 1998, Worsnop, 1996). RMA involves metacognitive awareness about written language and about the reading process. Knowledge and understanding of metacognition itself and metacognition as it relates to reading provides insights into the processes involved in RMA.

I examined the discussion sequences and questioning techniques in six RMA sessions to determine:

- in what manner is RMA a metacognitive enterprise?
- what metacognitive knowledge about reading surfaced in discussions?
- what metacognitive procedures were used?

Definitions and Categories of Metacognition

The purpose of this study is to identify the manners in which RMA is a metacognitive enterprise and creates metacognitive knowledge of reading processes. The following review of literature on metacognition offers a theoretical perspective for metacognition. The section summarizes concepts of metacognition developed throughout the past
three decades and highlights categories of metacognition that have been applied to reading.

Flavell’s (1979) seminal article on metacognition clarifies the conceptual distinctions between metacognitive knowledge, and metacognitive experiences and explains their interaction with goals (or tasks), and actions (or strategies). His developmental-educational perspective is consistent with that of RMA in thinking and talking about one’s own reading process.

**Metacognitive Knowledge**

Flavell establishes a definition of metacognitive knowledge:

Metacognitive knowledge is that segment of your (a child’s, and adult’s) stored world knowledge that has to do with people as cognitive creatures and with their diverse cognitive tasks, goals, action and experiences. An example would be a child’s acquired belief that unlike many of her friends, she is better at arithmetic than spelling. (p. 906)

Metacognitive knowledge consists primarily of knowledge or beliefs about what factors or variables act and interact in what ways to affect the course and outcome of cognitive enterprises. (p. 907)

Flavell distinguishes three categories of factors about which people hold beliefs and knowledge:

- **person**
- **tasks**
- **strategies**

"The person category encompasses everything that you could come to believe about the nature of yourself and other people as cognitive processors" (p. 907). This category includes beliefs about intra- and interindividual differences and universal tendencies. First, when individuals express their belief of being better at one cognitive task than
another, they are expressing *intraindividual* differences, such as “I’m better at multiple choice items than fill-in-the-blank items on tests.” *Interindividual* differences might be reported as a comparison of one’s own cognitive abilities with another’s as in the example, “I am better than my friends at arithmetic.” Flavell labels *universal* more general knowledge such as the idea that the material one wants to remember needs to be read more carefully than texts read for enjoyment. Hence, metacognitive knowledge about *person* can refer to interindividual difference, intraindividual differences, or universals.

According to Flavell, a second factor of metacognitive knowledge is the “task demands or goals.” For example, “The child will come to know that some cognitive enterprises are more demanding and difficult than others, even given the same available information” (p. 907), or that material on a familiar topic is easier to remember than material on an unfamiliar topic.

The last factor Flavell discusses relates to strategies. He states, “... there is a great deal of knowledge that could be acquired concerning what strategies are likely to be effective in achieving what subgoals and goals in what sorts of cognitive undertakings” (p. 907). For instance, skimming a text helps to locate answers to specific questions about its content.

These three factors (person, task, and strategy) necessarily interact with one another. Flavell states, “... most metacognitive knowledge actually concerns interactions or combinations among two or three of these three types of variables” (Flavell, 1979, p. 907). For instance, if I am studying for an exam covering detailed material from a text (task) I know that developing a written outline (strategy) for it will help me, but not my classmate who remembers material better with verbal rehearsal (person, strategy). This involves person + strategy + task where I believe that, unlike my classmate, I should use the strategy of outlining as opposed to verbal rehearsal in the task of preparing for an exam based on text content.

Flavell proposes, “metacognitive knowledge is not fundamentally different from other [kinds of] knowledge” (p. 907). Metacognitive
knowledge, like other knowledge, can be declarative and some can be procedural. It may be intentionally activated in the search for a strategy within a task situation or activated automatically by cues within the task. He cautions that also like other knowledge, individual’s metacognitive knowledge can be flawed, inaccessible even when it is needed, or fail to be useful altogether when acted upon. Finally, metacognitive knowledge can lead you to select, evaluate, revise, and abandon cognitive tasks, goals, and strategies in light of their relationships with one another and with your own abilities and interests with respect to that enterprise. Similarly, it can lead to any of a wide variety of metacognitive experiences concerning self, tasks, goals, and strategies, and can also help you interpret the meaning and behavioral implications of these metacognitive experiences. (Flavell, 1979, p. 908)

One of the purposes of RMA is to enhance a reader’s metacognitive knowledge about the reading process and the strategies that are available in the reader’s own repertoire. With this knowledge the reader can, as stated above, select, evaluate, revise, or abandon strategies in the process of reading.

Metacognitive Experiences

Metacognitive experiences occur as a cognitive regulation of intellectual practices. Flavell (1979) explains:

Metacognitive experiences are any conscious cognitive or affective experiences that accompany and pertain to any intellectual enterprise. An example would be the sudden feeling that you do not understand something another person just said. (p. 906)

Metacognitive experiences can be brief or lengthy in duration, simple or complex in content. To illustrate, you may experience a momentary sense of puzzlement that you subsequently ignore, or you may wonder for some time whether you really understand what another person is up to. These experiences can also occur before, after, or during a cognitive enterprise. (p. 908)
A metacognitive experience may occur before, during, and after reading. Before reading one might experience a conscious sense of relief that the text appears to be in a preferred, familiar format. During reading, a reader may realize that underlining important names or dates will assist in remembering them for an upcoming quiz. After reading, a reader may notice boldface subheadings which will help to guide further studying of the text (Garner, 1987). One well-known metacognitive experience is the "tip-of-the-tongue" phenomenon, discussed by Flavell and Wellman (1977), when an individual knows that she knows an item of information, such as a name, but cannot recall it. In this experience, monitoring of the knowledge occurs without the knowledge being activated. Similarly, after reading the reader may know that he knows but cannot recall the setting, the name of a character, or perhaps the motive for a character’s actions.

Flavell (1979) elaborates that “many metacognitive experiences have to do with where you are in an enterprise and what sort of progress you are making or likely to make” (p. 908). For instance, a reader may suddenly realize that she has been reading along in a text without making any sense of it or an individual may feel that he is not adequately explaining directions to a friend. In some cases metacognitive knowledge overlaps with metacognitive experiences. Flavell describes them as “items of metacognitive knowledge that have entered consciousness” (p. 908). In other words, the metacognitive knowledge that a person has about a particular situation enters into the individual’s conscious awareness, creating the metacognitive experience. Furthermore, once a metacognitive experience occurs, it may guide further cognitive activity. For example, a sudden awareness that you are not making any sense of the text may result in rereading the previous page of the text. Awareness of cognitive processes involved in thinking is a fundamental aspect of metacognition.

Such metacognitive experiences may not only have effects on subsequent cognitive tasks or goals, but also add to, delete from, or revise one’s current metacognitive knowledge base. Flavell proposes that metacognitive experiences “play a major role” in the development of metacognitive knowledge. On the other hand, he writes that some metacognitive experiences may not have metacognitive knowledge as
their content and some knowledge may never surface into a metacognitive experience.

As in the reader example above, metacognitive experiences (suddenly realizing meaning has not been constructed) activate strategies (rereading), especially when they occur when cognition seems to fail in some way (sensed by confusion or doubt). Strategies, according to Flavell, are then used to make cognitive progress. Cognitive strategies like rereading are aimed at making cognitive progress. Metacognitive strategies, however, are used to make metacognitive progress, like self-testing on content knowledge can be used to monitor your own knowledge of the material. Thus, the action of monitoring one’s own “cognitive enterprises proceeds through actions of and interactions among metacognitive knowledge, metacognitive experiences, goals/tasks, and actions/strategies” (p. 909).

Metacognition and Reading

Related specifically to reading, metacognitive knowledge has been further organized into three subcategories (Billingsley & Wildman, 1990; Jacobs & Paris, 1987; Paris, Lipson & Wixson, 1983):

- procedural
- conditional
- declarative knowledge

Table 1 presents the three aspects of metacognitive knowledge related to the processes of reading.

Procedural knowledge is an awareness of the processes necessary to complete a strategy or task. “For example, a student could know how to skim, how to use context, how to underline, how to summarize, or how to find the main idea while reading” (Jacobs & Paris, 1987; emphasis in original). Thus, procedural knowledge involves an understanding of the task at hand, knowing of and selecting an appropriate strategy, and knowing how to do it.
Table 1

**Metacognitive Knowledge in the Reading Process**

<table>
<thead>
<tr>
<th>Knowledge Type</th>
<th>Knowledge Characteristics</th>
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</thead>
<tbody>
<tr>
<td>Procedural Knowledge</td>
<td>Specifying the task</td>
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<tr>
<td></td>
<td>Selecting the most appropriate strategy</td>
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<td></td>
<td>Knowing the steps to perform strategy</td>
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<tr>
<td>Conditional Knowledge</td>
<td>Knowing reasons strategies are helpful</td>
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<td></td>
<td>Knowing contexts in which to use strategies</td>
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<tr>
<td>Declarative Knowledge</td>
<td>Task Awareness</td>
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<tr>
<td></td>
<td>- Identifying beliefs about the task</td>
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<td></td>
<td>- Setting goals</td>
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<td>- Responding to information</td>
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<td></td>
<td>- Understanding text structure</td>
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<td>- Knowing about different types of text</td>
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<td></td>
<td>Task Analysis</td>
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<td></td>
<td>- Realizing certain strategies are needed</td>
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<tr>
<td></td>
<td>- Determining level of importance of information</td>
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<td></td>
<td>- Allocating extra attention to information deemed important</td>
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<td></td>
<td>- Adjusting actions to different task situations</td>
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<tr>
<td></td>
<td>Strategy Awareness</td>
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<tr>
<td></td>
<td>- Knowing possible strategies to use</td>
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<tr>
<td></td>
<td>- Realizing when a strategy is helping</td>
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<td></td>
<td>Performance Awareness</td>
</tr>
<tr>
<td></td>
<td>- Realizing when successful at learning or understanding information</td>
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Note. Adapted from Davenport, 1993, p. 81.
Conditional knowledge is an awareness of the conditions that influence the effectiveness of strategies in different contexts (Billinglsey & Wildman, 1990; Jacobs & Paris, 1987). In other words, readers with conditional knowledge know "why strategies are effective, when they should be applied and when they are appropriate" (Jacobs & Paris, 1987). Strategic readers know when and why certain strategies are most appropriate for different reading purposes and learning situations (Baker & Brown, 1984; Goodman, 1994; Paris et al., 1983).

Declarative knowledge is best explained in terms of the three aspects of metacognitive knowledge introduced earlier in Flavell’s (1979) work: task, strategy, and person. It encompasses the knowledge and beliefs readers have about the characteristics of the text, the reading task, themselves as learners, and possible strategies that can be employed. For example, a student might know that prior knowledge of the topic influences reading speed and comprehension (Jacobs & Paris, 1987) or know the relative importance of various information provided in the text. Some models of metacognitive knowledge separate knowledge about different types of reading tasks (referred to as task knowledge) from knowledge of aspects of a particular reading task (referred to as task analysis) (Baker & Brown, 1984; Wade & Reynolds, 1989). Task awareness involves identifying beliefs about a reading task, recognizing a text structure, and knowing about different types of texts. Task analysis involves specifying that certain strategies are needed, determining the relative importance of information, and knowing that adjustments will need to be made for different task situations.

The next domain of declarative knowledge, strategy awareness, is the knowledge that a particular strategy or strategies will be useful (Wade & Reynolds, 1989). For example, a reader may know that the strategy of skimming will provide information about the gist of a text and that the strategy of rereading particular sections of a text will assist in recalling details. It is with this type of knowledge that readers can make decisions about which strategies are most appropriate for each text and each task.

The last domain of declarative knowledge is performance awareness, which relates to Flavell’s notion of awareness of the
knowledge that a strategy is being useful. In other words, it is the knowledge of whether or not a strategy performed during reading was successful in the reading task. Strategic readers evaluate the effectiveness of a strategy based on whether it helped them understand what they read (Baker & Brown, 1984; Paris et al., 1983; Wade & Reynolds, 1989).

Method

Participants

Two educator-researchers engaged in series of weekly RMA sessions for five months with Zach (a pseudonym), a fourth grade student, who was referred to them as a struggling reader who would benefit from their support. They had been closely involved in developing and studying RMA in several instructional settings (see Goodman, Marek, Costello, Flurkey, Wizinowich & Brown, 1989). The RMA team stated several purposes for conducting RMA sessions. They sought to provide support for the strategies and cuing systems that Zach was already using as evidenced by his oral reading and their analysis of his miscues. In other words, they wanted to not only revalue (K. Goodman, 1986,1996; Y. Goodman, 1996) his reading process by demonstrating effective strategies through the co-analysis of Zach’s miscues, but also inspire Zach to revalue himself, and develop a better self-concept as a reader. In addition, the RMA team intended to provide instruction about reading strategies involved in the reading process by illuminating Zach’s and other readers’ strategies and cuing systems. In so doing they hoped to encourage Zach to continue to use his own strategies as well as integrate other effective reading strategies.

Procedures

In this study, the discourse of six of the eleven RMA sessions are analyzed. By examining the features of each session, I set selection criteria for a representative sample of sessions. Each session would:

- discuss the miscues of one story reading at one sitting
- involve the three participants consistently
- include discussion of at least five miscues
The first two sessions would be critical in observing how the RMA leaders framed and set purposes for RMA sessions with the reader. Also, they introduced essential vocabulary—language about the reading process and reading strategies—which allowed metacognitive discussions to occur. Thus, in addition to these two sessions, four RMA sessions were transcribed for analysis. The discourse of RMA sessions conducted throughout a semester was analyzed to identify the organization and metacognitive elements inherent in retrospective discussions. Each session was transcribed verbatim for structural and conversation analysis (Gumperz & Berenz, 1993). A structural analysis was conducted by mapping instructional conversations (Green & Wallat, 1981) of each RMA session into phases, instructional sequences, interaction units and message units. This analysis revealed the organization of RMA sessions. Then, conversation analysis involved labeling each message unit according to its function as a speech act move. It assisted in examining speaker intentions and in observing relationships and patterns among moves (Gumperz, 1992; Ramirez, 1988). Once I established instructional sequences (ISs) and moves, further categorical analysis resulted in the development of categories related to the purposes of RMA sessions and to metacognitive dimensions they served.

Analysis of RMA Sessions

Organization of RMA Sessions

A preliminary structural discourse analysis of the sessions reveal several procedural and format features of the sessions. The first two sessions establish procedures and vocabulary to discuss miscues located at different points in the text. The third selected session involves the participants analyzing miscues within close proximity in longer segments of the text. The second set of three sessions introduces a new format which involved analyzing another reader’s miscues occurring in the same stories Zach read. The miscues of the other reader are analyzed before Zach’s miscues are discussed and compared.

Each session more or less involves the same broad procedures:
Metacognitive Dimensions of RMA

- establishing the purpose and setting the agenda
- discussing the individual miscues
- reflecting on reading or what was learned in the session

The beginning of the RMA sessions generally focus on establishing rapport and setting the context for the sessions. Setting the context may involve recalling the story read for the session, reviewing terms such as "miscue" or concepts such as predicting, checking on the understanding for the purpose of conducting RMA sessions, and/or setting the agenda for the day's session. After establishing the context, the participants analyze the selected miscues.

The procedures the team uses to discuss miscues—locate the section of text, read the section, listen to the tape, discuss the miscue, generalize and revalue—are repeated for each new miscue they discuss with some variability. In some phases generalizing does not occur.

Once they exhaust the miscues (or time) for a given session the researchers close them in a reflective manner. Every session, except one, includes an instructional sequence in which the researchers recall with Zach the reading strategies they highlight in the session. As sessions progress, the researchers ask Zach to list them cumulatively. Overall, the closing phases leave the session on a positive note, focusing on Zach's effective reading strategies.

Co-constructing metacognitive awareness of reading

After reviewing the stated purposes of the RMA sessions, as well as literature on interactional analysis of instructional events (Farrar, 1988; Johnson, 1979; Bellack, Kliebard, Hyman & Smith, 1966) I established a set of guiding categories to directly relate the discourse of each RMA session to their specific purposes:

- Discourse moves providing revaluing
- Discourse moves providing instruction
- Discourse moves encouraging Zach's strategy use
First, I placed relevant excerpts of the transcripts into these three categories. Then, I analyzed the relevant excerpts further to determine the types of statements and questions the team uses to accomplish their three main purposes. I found that the team uses position statements about readers and reading and “you-declaratives” about Zach’s reading process to both provide instruction and revaluing.

The ensuing discussion describes the statements used in the three types of discourse moves to accomplish the team’s goals. It also includes an analysis of how these statements and questions create metacognitive knowledge and experiences. Discourse moves providing revaluing create metacognitive knowledge relating to person and to task and strategies. Discourse moves providing instruction create metacognitive knowledge relating to tasks and strategies. Discourse moves encouraging Zach’s strategy use create metacognitive knowledge relating to strategies. All three types of moves address procedural, conditional, and declarative knowledge to varying degrees.

Statements used: Position statements and “you-declaratives”

Two primary sets of statements are used in the instructional and revaluing discourse of RMA sessions. As part of their explanations about reading strategies, the team makes position statements regarding miscues, good readers, and specific reading strategies. With these statements they make explicit their positions on effective reading strategies, efficient reading practices, and the characteristics of proficient readers. Another way to highlight and explain Zach’s knowledge, use of cuing systems, and reading strategies is with a set of statements that I labeled “you-declaratives.” These statements are propositions stated as observations by addressing Zach directly as “you” as in “It didn’t sound right to you so you self-corrected.”

Position statements

The RMA team members make several position statements about reading and readers in each RMA session. These statements are used to provide both instruction and/or revaluing depending on the discourse
stretch in which it is embedded. Position statements consist of three categories:

- miscues
- good readers
- specific reading strategies

In RMA sessions 1 and 2, team member 1 (T1) introduces the concept of 'miscue' making the following position statements:

**RMA-1**

T1: Did you know that all readers do these kinds of things? Make those kinds of mistakes? Everybody. That's why we call them miscues. And we want you to know that that's a good thing to do. There's some mistakes that don't help us. But most, many mistakes are good mistakes.

**RMA-2**

T1: . . . we believe that not all miscues are bad and that some miscues are good when you read. Everybody who reads makes miscues. And that doesn't mean you're a bad reader, it means you're a good reader. Especially if you can fix the ones that are a problem.

During later sessions T1 reiterates his position about miscues:

**RMA-6**

T1: The miscues don't mean that you're a bad reader! Miscues tell us good things about readers. But we can tell from miscues what... **smart** things you do.
RMA-8

T1: And by the way, lots of miscues that we make as good readers we don’t notice. We don’t even know that we make them.

RMA-9

Synthesizing a questioning cycle about why a miscue is a good one.

T1: So those words mean the same, and the story means the same, and the sense is the same, and you said all those things, right? And it sounds good, it sounds like language.

By stating their position about miscues, the team brings to metacognitive awareness the knowledge that readers make miscues whether or not they realize it, and the knowledge that not all mistakes, or miscues, are bad. In the RMA-9 example, T1 explains the criteria for what is considered a good miscue: one that sounds like language and retains the meaning of the story.

The second type of position statement the team members use in RMA sessions are about good readers. The position statements they make about good readers and typical readers occur after they determine the strategies or cues Zach was using to make a particular miscue. The statements convey the idea that good readers make miscues and use the same strategies and cues that Zach does. The position statements they make include:

- Good readers self-correct (RMA-1)
- everyone who reads makes miscues (RMA-2)
- everybody makes predictions (RMA-4, 6)
- all readers have some problems (RMA-4)
- Yetta, an expert reader, makes miscues (RMA-6)
- everybody has to deal with reading like Zach does (RMA-6)
- natural readers use everything they know about reading (RMA-6)
everybody gets into trouble when they read sometimes (RMA-6)

- everyone has to learn new words all the time (RMA-6)
- when good readers come to something that doesn’t make sense they go back and self-correct (RMA-8a)
- good readers don’t stop, wait or try it five or six times, they put what they think is there. If they know it’s important it’ll come up later, if it’s not important it won’t come up again and [they] just keep going (RMA-8b)
- good readers make miscues they don’t even know about (RMA-8c)

These position statements explicitly create interpersonal metacognitive knowledge about readers and universal metacognitive knowledge (Flavell, 1979) about the strategies effective readers use. Statements explaining what good readers do as in RMA-1, RMA-4, RMA-6, and RMA-8, provide procedural knowledge of the strategies they use. They also demonstrate declarative knowledge of task awareness, strategy awareness and, in RMA-8a and RMA-8b, task analysis as the ‘good reader’ decides what is important, realizes what strategies are needed, and adjusts actions to different task situations.

The third type of position statement the RMA team members make in instructional discourse, and by far the position statements they make most often to Zach, is about reading strategies that he uses and the importance of making sense. They are presented below by strategy:

**Self-Correction:** Self-correction is a smart thing to do. When the miscue bothers you, you self-correct. If a prediction does not work you should self-correct it. Self-correcting is not ‘messing up’. When good readers come to something that does not make sense they go back and self-correct.

**Prediction:** Predicting is very smart. Predicting is a good thing to do when you are reading. It is important to guess what a word is even if you do not know. Because is helps
you with the other information in the story that you are reading. If a prediction does not work, you should change it (self-correct) all by yourself. Prediction is something we always do when we read.

Substitution: If I see a name I just say ‘so-and-so’ and keep reading. Substituting a name is not a mistake; it helps you get on with the story.

Keep going: As long as you are understanding the story you keep going.

Making sense: The most important thing is to make sense. The important thing is to wonder ‘what could that be?’ Making sense it important. Understanding is the most important. The most important thing is to get the message. It’s not as important to see if something looks good as it is to see if it makes sense. Making sense is most important, the most important strategy.

Some position statements also report general or typical reading situations as a means to illustrate the wide use of Zach’s strategies that may otherwise be perceived by him to be a personal weakness in reading:

RMA-2

T1: And did you know that lots of times when you have names in stories you don’t always know how to pronounce them. But sometimes when we spend too much time sounding out it takes us a while, we forget to understand the story. And all of those things give you cues to your words. If you’re thinking about the story that gives you all kinds of clues.

RMA-4

T2: What we found out, Z, is that when people back up the way you did, to fix, usually they’re thinking that something else was going to come in the sentence. But they looked and found out that the thing
they thought was going to come wasn’t there, so they went back and fixed.
You did the same thing that other smart readers do.

RMA-6

T1: By the way that happens a lot when you read.
You first say to yourself, ‘Hm, I wonder if that’s what it is.’
Then you check it again.
And I call that confirming but you just check it and sometimes you self-correct when you do that and sometimes you don’t have to and you keep going.

The position statements the team makes about miscues, readers, strategies, and typical reading situations appear to be primarily instructional, but also convey revaluing. Furthermore, positive statements about the very strategies they observe Zach to be using give Zach encouragement to continue to use them.

It is clear that the position statements about reading strategies creates metacognitive knowledge relating to interindividual similarities and strategies Zach and other readers use while reading. These statements also serve as explanations to illuminate procedural knowledge of selecting appropriate strategies, conditional knowledge of identifying beliefs about strategies and knowing the contexts in which to use them, and declarative knowledge relating to responding to information, identifying beliefs about reading, realizing when certain strategies are needed, adjusting actions to different situations, and realizing when a strategy is helping.

Propositional “you-declaratives”

Another set of statements, which simultaneously explain and revalue the reading strategies Zach use emerge as a category of its own, I label “you-declaratives”. These propositions about Zach’s reading which implicitly positively evaluate his reading fall into the following categories.
**You declarative/Observation:** reporting what the team members observed Zach say while reading. e.g., You said ‘cleaned’ and then you said ‘climbed out’.

**You declarative/Explain:** explaining processes that Zach was using and why he was using them. e.g., So that helped you look again. And you said, ‘Hey, I wonder if that’s Mr. or Mrs.’. And you checked again, and you saw the /s/ and so you said ‘Mrs.’.

**You declarative/Cognitive:** stating what Zach knew (or must have known) to make a miscue or use a strategy. e.g., You knew it. You knew it was about the mom.

**You declarative/Compare:** making comparisons between Zach’s and another reader’s reading process. e.g., Gary did what you did. But you did even a better thing than Gary even though you’re younger than Gary. Gary had to wait till he got all the way to the end of the sentence before he self-corrected. You just did it right away.

**You declarative/Define:** stating the strategy Zach used to provide a specific term to the strategy. e.g., You made a good prediction. You self-corrected, all yourself, in your own head.

These statements about Zach’s reading strategies occur in every RMA session, usually at the end of instructional sequences (ISs) and always in revaluing ISs. The function of these statements appear to be to provide positive conclusions to the analysis of miscues by restating and defining what is observed, by explaining the possible reasons why strategies were used or miscues were made, by illuminating the knowledge Zach must have had in transacting with the text, and by making positive comparisons with other readers’ strategies. In essence, they bring to a heightened metacognitive awareness what was most likely going on in his brain.

The explanation of what he was thinking provides examples of possible metacognitive experiences he had while reading (And you said,
‘Hey, I wonder if that’s Mr. or Mrs.’ And you checked again, and you saw the /s/ and so you said ‘Mrs.’). These types of explanatory statements permeated each RMA session to accomplish this awareness of thinking. The definition of the strategies provides language with which to name these cognitive processes while creating metacognitive knowledge of task and strategies. The declaratives which compare his reading to another reader obviously provides interpersonal metacognitive knowledge. These ISs which compare Zach’s miscues with another reader’s miscues from the same story are particularly effective in shifting Zach’s perception of himself as a reader, according to the RMA team. They explain that, once he heard others—even T1—make similar miscues, there was a positive shift in Zach’s self-concept as a reader.

Questions Used

Introductory questions are used to establish the miscue(s) Zach hears while listening to himself or another reader read from the audio tape. RMA questions are posed to analyze the miscues according to their syntactic and semantic acceptability and to their graphic and phonic similarity to the text word(s). Expansion questions are asked to further explore the miscues, to determine strategies and cues Zach and the other readers used in reading, and to push Zach to support his observations with evidence and his opinions with justifications. Revaluing questions are posed to allow Zach to evaluate the acceptability of miscues, to revalue his reading strategies, and to provide the opportunity for him to state his self-concept as a reader.

In my analysis I listed retrospective questions and tallied according to the questions recorded in RMA research as well as those unique to this study. The questions the team uses appear to depend on the instructional stance and the focus of each RMA session. For example, leading revaluing questions direct Zach to draw conclusions about the strategies he uses and about himself as a reader. In addition, questions which focus on naming strategies in RMA-2 differ from those which focus on, for instance, comparing another reader’s miscues with Zach’s in RMA-9. The most frequently used questions are probing questions relating to why Zach (or another reader) made a miscue (Why did you do that? . . . make that miscue?), and to evidence to support position statements (Why do
you think so?; How do you know?). These question types are undoubtedly leading Zach to bring his thinking to a metacognitive level and to use his developing metacognitive knowledge about reading and reading strategies to answer. Zach is asked to state his declarative knowledge relating to his beliefs about, and strategy awareness of, his reading process. The next most frequently used question inquires why Zach self-corrected particular miscues (Why did you correct that . . . change that?). This type of question invites Zach to recreate the metacognitive experience he may have had to self-correct, just as T1 illustrates earlier.

The findings suggest that particular questions may be more effective than others to bring awareness to different aspects of the reader’s process. Questions leading to the analysis of the meaning-making capacity of a miscue (e.g., ‘Does it make sense in the sentence?’) will be more effective at evaluating the effectiveness of miscue. Or, questions leading to the analysis of the cuing systems used (e.g., ‘How did you know that?’) will be more effective at demonstrating the cuing systems involved in the reading process. Thus, it may be beneficial in instructional RMA sessions to select questions, as well as miscues, in advance of RMA sessions in accordance with a particular session focus.

Discussion:
Metacognitive knowledge and experiences in RMA sessions

The data show that the RMA sessions involved metacognitive experiences and a variety of metacognitive knowledge. The RMA team uses:

- position statements about reading and readers
- you-declaratives explaining and praising Zach’s reading strategies
- question types inviting Zach to explain his thinking and reading processes

Metacognitive experiences

Metacognitive knowledge about a particular situation enters into an individual’s conscious awareness, creating the metacognitive experience
Metacognitive Dimensions of RMA

(Flavell, 1979). In turn, metacognitive experiences may guide further cognitive activity. In the RMA sessions the team describe metacognitive experiences that Zach apparently had as he read, especially with you-declaratives. One example is when T1 proposes, ‘And then you realized, “uh oh, that doesn’t make sense,” and then you self-corrected’. The current metacognition paradigm calls the process T1 describes as regulation or monitoring reading. She and her team member recall the processes by which Zach predicted, confirmed or disconfirmed and self-corrected when necessary, bringing to awareness the way he monitored his own reading. Thus, the researchers provide metacognitive experiences to discuss the cognitive processes of reading.

**Metacognitive Knowledge**

First, questions, position statements and you-declaratives create metacognitive knowledge as they convey and negotiate “knowledge or beliefs about what factors or variables act and interact in what ways to affect the course and outcome of” the cognitive enterprise of reading (Flavell, 1979, p. 907) The participants discover intraindividual differences of Zach’s different strategies within and across stories. The RMA team point out interindividual differences when they described and compared Zach’s miscues and reading strategies with other readers who read the same texts and with ‘good readers’. They also provide information in their discussions pertaining to reading universals about reading as a socio-psycholinguistic activity and make position statements about general knowledge and strategies used by readers, and good readers.

Three main areas of metacognitive knowledge are discussed in current research including procedural knowledge, conditional knowledge and declarative knowledge (Billingsley & Wildman, 1990; Jacobs & Paris, 1987; Paris, Lipson & Wixson, 1983). Procedural knowledge is an awareness of processes necessary to complete a strategy or task. Conditional knowledge is an awareness of the conditions that influence the effectiveness of strategies in different contexts. The declarative knowledge domain includes the following areas of awareness:

- of the learning or reading task
of the potential learning and reading strategies that could be used to complete a given task or reading experience
of the successfulness of the learning or reading
of oneself as a learner and reader

The retrospective discussions about Zach’s reading represent all three areas of metacognitive knowledge. The RMA team talks about meaning making and making sense as the ‘goal’ for reading and using particular strategies as the ‘task demands’ taken to construct meaning in transaction with text. On numerous occasions they highlight conditions that influence the effectiveness of strategies or cause potential problems. For example, in RMA-6 the researchers demonstrate the text’s language was confusing to Ti, causing her to reread. Also, the researchers point out to Zach that substituting a name is a more effective and efficient strategy than spending a lot of time sounding it out.

The first area in the declarative knowledge domain, task awareness, is represented in the categories of talk discussing and reviewing the strategies Zach used as highlighted by his miscues. Determining and discussing the specific strategies he used in reading examples and verbally listing those strategies at the end of RMA sessions brought to awareness the reading strategies Zach uses in the reading ‘task’. Furthermore, position statements about readers also brought to awareness that all readers use the same strategies and have similar responses while reading.

The second area in the declarative knowledge domain, task analysis, is represented in the questions and discourse analyzing miscues. The analysis of Zach’s and other readers’ miscues bring to awareness not only the very thoughts Zach potentially had and reading strategies and cues he (and the other readers) used, but also highlight potential specific strategies that could be used within a repertoire of reading strategies and reading situations.

The third area in the declarative domain, performance analysis, is represented each time they discuss whether or not the miscue was ‘a good thing to do’, and whether or not it resulted in a sentence that made sense in the story. First, success in reading is based on whether or not the
reading made sense. Zach and the team comment openly about their beliefs concerning the degree to which a miscue or self-correction resulted in a successful, or meaningful, sentence.

The fourth area in the declarative domain, knowledge of oneself as a reader, is represented during discussions about Zach's self-concept as a reader. In this study, Zach demonstrates a shift in his self-concept as a reader and is able to compare his reading process with other readers. By choosing effective miscues and by pointing out the proficiency of the strategies, used the participants demonstrate their knowledge of Zach as a reader. The area of awareness that I did not find in the research literature on metacognition was others' concept of the learner or reader. The RMA team not only demonstrated their knowledge of Zach's strategy use, but they also consistently and openly stated their beliefs about Zach as an effective reader.

**Implications: Benefits of Developing Metacognitive Knowledge**

Flavell (1979) describes the benefits of metacognitive knowledge: Meta-knowledge “can lead you to select, evaluate, revise, and abandon cognitive tasks, goals and strategies in light of their relationships with one another and with your own abilities and interests with respect to that enterprise. Similarly, it can lead to any of a wide variety of metacognitive experiences concerning self, tasks, goals, and strategies, and can also help you interpret the meaning and behavioral implications of these metacognitive experiences.” (p.908)

Analyzing other readers in comparison with his own reading enhances Zach's revaluing. The researchers report that after RMA-6 in which they analyzed T1's miscues, Zach's attitude and perception of himself as a reader changes. Furthermore, Zach has the opportunity to discuss miscues as indications of good reading strategies at work by analyzing 'Gary's' and 'Betsy's' high quality miscues. By taking the focus off of his own miscues, Zach realizes that all readers make miscues and use a variety of strategies in reading. Then the researchers help to make the connection through discussion that Zach also engages in the
same strategies as the other readers. After these sessions he more proudly lists the reading strategies he used.

The data suggests that analyzing other readers’ miscues in addition to the focus-reader’s is a powerful procedure. It may be beneficial to begin a set of RMA sessions by analyzing another reader’s miscues to demonstrate and establish the positive nature of miscues before turning to the reader’s own miscues. The reader may then be more likely to perceive his miscues as signs of good thinking rather than mistakes upon first analysis.

The most compelling evidence that Zach was developing a better self-concept as a reader was in his ability to list the reading strategies he uses while reading when the RMA team asks him to list them. They ask Zach to name all the strategies he can think of that they talk about in every RMA session except RMA-1. Zach lists an increasing number of strategies he uses with each session. Thus, intrapersonal and interpersonal metacognitive knowledge about use of reading strategies and cuing systems results in Zach revaluing himself as a reader. Analysis of his actual strategy use in subsequent readings may reveal an improved use of effective strategies. That is a question for further research. However, this metacognitive inquiry into his own reading processes for Zach leads to more confidence and revaluing, and increased strategy awareness.

References


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