Revisiting Retrospective Miscue Analysis to Support Students and Teachers during an Action Research Project

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In this article, we describe an action research project conducted by the first author in her third-grade classroom over the course of one academic year as she documented four students’ reading growth during a modified version of Retrospective Miscue Analysis (RMA). We highlight an additional step in the RMA process, which includes providing students with the opportunity to self-assess and monitor reading performance prior to the teacher conference. Findings highlight how through the implementation of this additional step, students were able to self-regulate their reading behavior and improve their perception of themselves as readers. We suggest the importance of using RMA with this additional step in today’s classrooms with readers as a way to support and empower students. We discuss implications for educators and teacher educators.

Keywords: literacy instruction, literacy, and miscue analysis
Listening to myself read on the tape recorder helped me as a reader. It helped listening to myself. It helped me fix my mistakes. Then I got to take the book home and I read it to my mom without making any mistakes (Aaron, 3rd grade reader).

This statement was shared by a student termed by the administrative team at the school where this study was conducted as an “at-risk reader” in a third grade class. Although Aaron (pseudonym) was provided with speech services due to a stutter, accommodations like more time on task during in-class reading instruction were minimal, given the school’s emphasis for teachers to stay on pace and to teach to the scripted reading program with fidelity. Teaching that veered away from scripted programs in order to fit the individual needs of students was seen as an act of resistance at the first author’s school and, like other teachers’ experiences across the country, required a sense of agency and fierce negotiating (Vaughn, 2011, 2012). In light of this, the first author implemented a modified version of Retrospective Miscue Analysis or RMA (Goodman, 1996) in her literacy instruction schedule to support students in her class like Aaron, who fell below the school-wide benchmarks for literacy success. Building upon the first author’s experience as a trained Reading Recovery Teacher, and experienced educator of fourteen years, the first author conducted an action research project over the course of one academic year in her third grade classroom, to document the impact of this instructional practice on four of her most “at-risk” readers, three of whom who also had Individualized Educational Plans (IEPs). We focus our discussion on the use of this modified RMA in today’s classrooms with those readers termed as “at risk” and “struggling” and as a way for today’s educators and administrators to rethink supports to literacy instruction that provide opportunities for students like Aaron to feel successful about their reading abilities. The following question guided this research: What resulted for students as a result of their participation in this modified RMA process?
Review of the Literature

Although the No Child Left Behind Act of 2001 required adequate reading progress for all students, reading instruction has often excluded children with disabilities (Al Otaiba & Fuchs, 2006; National Reading Panel, 2000; Snow, Burns, & Griffin, 1998), despite research that suggested early intervention for students with disabilities helped most students, including students with disabilities (Al Otaiba & Fuchs, 2002). Specifically, for early elementary grades, students with IEPs need additional early intervention literacy support (Fuchs et al., 2002). Juel (1998), in her pivotal research, documented the impact of early intervention for students in the primary grades and found that children who were unsuccessful in first grade remained poor readers in fourth grade. Such findings suggest the need to examine instructional supports during the early elementary grades, particularly for students labeled at-risk and who have an IEP.

Scholars have shown the RMA process to be an important instructional tool that helps teachers gather information about reading patterns and miscue rate analysis used when a student reads a text aloud (Beebe, 1976; Wixson, 1979). The RMA process has been shown to promote readers’ metalinguistic and metacognitive knowledge during literacy instruction and serves as a powerful window into the reading process (Goodman, 1969).

Although there is a strong research base that demonstrates RMA as an effective practice with readers during literacy instruction (Brown, Goodman, & Marek, 1996; Moore & Gilles, 2005), miscue rate analysis and RMA is a somewhat dormant area of interest in classroom instruction today. One possible for reason for this may be recent educational reform efforts (No Child Left Behind, 2001; Race to the Top, 2009) that have emphasized a “one-size-fits-all” approach towards literacy instruction or an approach that required educators to use one basal program to support all of the needs of their students despite individual differences and abilities.
In this way, educators have been pressured to teach literacy instruction from a “skills and drills” approach with little variation. Such an approach has often failed those students labeled at-risk, students with disabilities, and those whose first language is not English (Hardman & Dawson, 2008; Hursh, 2007). As a result, scholars contend that such initiatives have created problematic contexts for educators to thoughtfully adapt their instruction to fit the specific and individual needs of their students (Bradshaw, 2011, 2012; Valencia, Grossman, & Martin, 2004). Recently there has been relatively little attention to using authentic assessments like RMA during literacy instruction. For example, of the articles published in *The Reading Teacher* within the past ten years, only two discussed miscue rate analysis in classroom settings (see Kabuto, 2009; McKenna & Picard, 2006). As students face increased attention to master reading skills with the advancement and implementation of the Common Core State Standards (CCSS, 2010), refocusing literacy instruction to include RMA may be an important step towards improving classroom interactions during literacy instruction that meet the individualized instructional needs of students.

**A Brief History of Miscue Analysis**

For over two decades, RMA has been used to document the miscues made during the reading process among struggling readers (Alan & Watson, 1976; Goodman, 1969). Because a review of the literature suggests that RMA is not widely used across classrooms today, a brief overview and history of RMA is provided. The use of RMA is grounded in miscue analysis research beginning with the work of Ken Goodman (1969). Goodman (1979) described the RMA in the following steps: 1) A teacher selects an appropriate text for a student to read. This text should be short enough to be read in one sitting yet challenging so that the student will utilize their reading strategies and self-correct their errors as needed. 2) The teacher copies or
retypes the text to allow for analysis. 3) The student reads the text into an audio recorder on his/her own with no assistance from the teacher. As he/she reads, the teacher marks miscues on the copied/typed text to examine later. 4) The student retells the story again, unassisted by the teacher. This is where an analysis of comprehension occurs. 5) The teacher listens to the audio tape and codes all miscues on their copy of the text. 6) Patterns of miscues are analyzed so the teacher can identify what instruction the reader needs. The teacher has a conference with the student about their reading. Each miscue is then coded according to questions (i.e., dialect, graphic and sound similarity, intonation, grammar, correction, and meaning) to provide assistance to teachers during their literacy instruction (Y. Goodman & Burke, 1972).

In this way, these miscues provide an opportunity for readers to demonstrate their abilities and strengths (Goodman, 1996). Moore and Aspergen (2001) in their research of the use of RMA with high school students found that through the use of RMA, students felt a sense of empowerment and accomplishment. The teacher in this study shared that through the implementation of RMA in his classroom, he was “even more certain than before that listening to one’s mistakes as deviations establishes a basis for reflexivity and critical thinking” (Moore & Aspergen, 2001, p. 502). Chaleff and Ritter (2001) examined the impact of RMA with deaf students and highlighted how through this process, it “deepen[ed] understanding of the reader’s strengths and weaknesses and obviates objectives for highly individualized remediation… [this process] changes the perspective of “mistake” to something that tells about the student’s reading development” (Chaleff & Ritter, 2001, p. 200).

Self-regulated learning (SRL) has a prominent strand in the research literature and is interconnected with theories of metacognition (Flavell, 1979) and social cognition (Bandura, 1986, 1991). These theories emphasize the students’ control of their learning “rather than
viewing them as empty shells regulated by environmental stimuli or as passive consumers of information” (Baggetun & Wasson, 2006, p. 453).

Building upon her experience as a Reading Recovery Teacher and to support SRL, the first author included an additional step in the RMA process. She encouraged her students to listen to their individual recorded readings, highlight any miscues they heard, and record their findings on the copied text. By introducing this additional step to the RMA process, it was the intention of the first author to provide a context for students to self-regulate their learning by adding a second read to notice their miscues. We suggest that including students in the interpretation of the miscue analysis, and collecting data about their miscues can contribute to student conferences by providing for a richer discussion of students’ reading behaviors. As a result, students may be better equipped to recognize their miscue patterns and improve in their ability to self-correct these miscues during the reading process.

**Method**

In the section below, information about the research site, participants, data collection, and analysis are discussed.

**Research Site**

Duncan Elementary (pseudonym) is a K-5 Title I elementary school in a rural town in the Pacific Northwest. There are two major universities in close proximity to the school. Of the 340 total number of students, 40% of the students qualified for free or reduced lunch. Of the total student population, 8% of Latino, 68% of Caucasian, 3% of African American, 28% Asian American, and 6% identified as of two or more ethnicities. Eighteen percent qualified for free or reduced lunch. The first author was a teacher at Duncan Elementary at the time of the study.
Participants

Four students were purposefully selected from the first author’s classroom because they were identified as significantly below grade level in reading based on the Dynamic Indicator of Basic Early Literacy Skills (DIBELS) and Measure of Academic Progress (MAPS). DIBELS is an assessment used to measure the acquisition of a set of K-6 literacy skills. MAPS is an assessment used to measure students’ instructional levels in the areas of language arts, reading, and math. All names are pseudonyms.

Table 1
Participant Information

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>On Grade Level *IEP</th>
<th>Race/Ethnicity</th>
<th>Age</th>
<th>Gender</th>
<th>Word per minute</th>
<th>Miscue rate and Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aaron</td>
<td>No</td>
<td>Latino</td>
<td>8</td>
<td>M</td>
<td>14</td>
<td>7/67%</td>
</tr>
<tr>
<td>Wanda</td>
<td>No</td>
<td>Caucasian</td>
<td>8</td>
<td>F</td>
<td>50</td>
<td>9/85%</td>
</tr>
<tr>
<td>Logan</td>
<td>No *</td>
<td>Latino</td>
<td>8</td>
<td>M</td>
<td>17</td>
<td>7/60%</td>
</tr>
<tr>
<td>Scott</td>
<td>No</td>
<td>Caucasian</td>
<td>8</td>
<td>M</td>
<td>46</td>
<td>11/76%</td>
</tr>
</tbody>
</table>

Data Collection and Analysis

The data collected during this study consisted of a survey, individual interviews, reading assessment data, observational and reflective teacher notes, and recorded RMA sessions.

Survey data. The Motivation to Read Profile Reading Survey (Gambrell et al., 1996) was administered at the beginning and conclusion of the study. This measurement tool assessed project participants’ attitudes regarding their self-concept as a reader as well as their perception regarding the value of reading. Students ranked their self-perception attitudes using a 4-point response scale. This survey was used to gain an understanding of students’ attitudes toward reading and whether these perceptions shifted as a result of this intervention.
Interview data. Author 1 used a series of questions during the pre- and post-study interviews to ascertain students’ perceptions about reading. Protocol questions (How do you feel about yourself as a reader; do you think you are a good reader; do you read at home; what kinds of books do you like to read, and do you like to be called on in call to read) were adapted from the Reading Attitudinal Survey (McKenna et al., 2004) in order to measure students’ perceptions about reading. Much like the Motivation to Read Profile Reading Survey (Gambrell et al., 1996), these questions were used to gain insight about students’ attitudes toward reading and to determine if these perceptions shifted as a result of this intervention. Students’ pre- and post-interview responses were coded for positive and negative feelings and experiences.

Reading assessment data. DIBELS and MAPS were collected at the beginning and the end of the year. A paired-samples t-test was performed using SPSS statistical software to analyze statistical significance of two sub-assessments in DIBELS: fluency rates and DAZE assessment. MAPS scores were also analyzed using a paired-samples t-test for statistical significance. DRA assessment levels were also analyzed using a paired-samples t-test through SPSS statistical software for statistical significance.

RMA sessions. Over the course of the study, students read and recorded 30-45 books. Student and teacher conferences were audio-recorded and transcribed for analysis. Each RMA session lasted approximately thirty minutes. The first author conducted 45 RMA sessions during the study. During each session, she asked students to look back at the story they recorded to examine 2-3 errors and 2-3 self-corrections if present during the recorded reading. The intent of the research study was to have students learn and practice reading strategies that would be effective on specific errors made. It was also a celebration of self-corrections made while
reading to encourage this during independent reading and to help students reflect on what strategies they successfully used that led to the self-corrections.

Miscue and self-correction numbers were averaged for each text level a student read during the study during their recorded RMA sessions. These averages were then analyzed using SPSS statistical software by running a paired-samples t-test to analyze the average number of miscues and average number of self-corrections for statistical significance. Additional data included student recorded sheets which were analyzed to see discrepancies between the teacher observations and students’ observations of their miscues.

**Reflective teacher notes.** Teacher reflections were collected throughout the study (roughly about three times per week) as a tool to record what occurred during the study. Examples included journal reflections about guided reading lessons, whole group instruction, and anecdotal notes about practice as it pertained to the participants in the study. Such methods of inquiry about practice are consistent within action research and provide a pathway to reflect critically about one’s practice (Mertler, 2006; Peterson, 2012; Vaughn et al., 2014). These reflections were read by both authors for salient ideas and themes regarding the use of RMA in the classroom, and perceptions about students’ reading behaviors. Such reflection provided the interpretative conceptual framework required by teachers to analyze and interpret data (Cochran-Smith & Lytle, 2009).

**Results**

In the following section, the results of the research as it pertains to the research questions are discussed.
Pre Reading Survey Results

Initially, students had varying perceptions about their perceptions toward reading. Of the four students, two stated negative perceptions while two were sometimes positive at the beginning of the study.

Aaron, who scored 17 out of a possible 40 on the self-concept as a reader portion of the Motivation to Read Profile Reading Survey (Gambrell et al., 1996), indicated he held a negative perception of himself as a reader. In the pre-interview, Aaron stated, "I think I’m a terrible reader."

Similarly, Wanda had a self-concept score of 24, which indicated that, of the total possible points of 40, her score ranged toward the low end much like Aaron. When asked about how she felt as a reader in the pre-interview, Wanda responded, “I don’t know. I don’t really like reading that much.” When asked if she thought she were a good reader, she said, “Sometimes I’m not that good because I don’t read much.” She also reported she felt “frustrated” when she was reading and did not usually like reading out loud because “I’m slower… and worse [than others]. When I read in my head I usually don’t know words.”

Logan had a self-concept score of 30 on the Motivation to Read Profile Reading Survey (Gambrell et al., 1996), indicating that he held a positive self-concept as a reader. During the pre-interviews, Logan stated, “I read good.” However, when asked if he liked reading out loud Logan explained, "I actually have a type of problem…I read really, really bad out loud and I don’t really know any of the words but in my head I know them all."

Scott had 29 points, which indicated that, like Logan, he held a more positive self-concept about reading. He shared in the pre-interview “a lot of times I read better than other kids.”
To obtain additional information about student perceptions about reading and the ways in which students valued reading, the Motivation to Read Profile Reading Survey (Gambrell et al., 1996) was calculated to obtain a score for the value students placed on reading. Aaron had the lowest reading score value of 28; Logan scored 31; Scott scored 32; and Wanda scored the highest with 36 of the possible 40 points. These scores were higher than the self-concept scores and indicated that students appeared to value reading.

**Post-Reading Survey Results**

Overall, based on post-study analysis of the Motivation to Read Profile Reading Survey (Gambrell et al., 1996), students showed a more positive attitude about their self-concept as readers than they had at the beginning of the study (See Figure 1). Interview comments showed students’ feelings increased as the number of positive statements were greatly enhanced (16 positive comments during the pre-interviews, 29 positive comments during the post-interviews). The number of negative comments declined from pre to post interviews (18 comments during the pre-interviews, 11 comments during the post-interviews). All four participants stated positive responses when asked how they felt about themselves as readers as opposed to only two at the start of the study. Aaron stated his change in attitude in the post-interview by saying, “I used to feel like I was a terrible reader, but now I feel like I’m medium.” However, when asked if he thought he was a good reader, Aaron stated, “I don’t feel like I’m a good reader because I’m only at a [level] 28 (on the DRA). I want to be higher than that.” Wanda reported that she liked being called on in class to read. When asked if he liked reading out loud, Logan stated, “kind of” which was a shift for him from “only liking to read in [his] head” at the start of the study. Moreover, when asked if he thought he were a good reader at the end of the study, Logan stated,
“I think I’m kind of a good reader, but sometimes I mess up.” Scott replied, “I don’t know. Yeah…I like to read.”

Additionally, two of the four students reported an increase in their value of reading score: Wanda had a score of 37 out of a possible 40 which was up one point from her Reading Survey at the start of the study. Logan also reported a higher value of reading at the end of the study compared to the start of the study. He scored a 37 as compared to his earlier score of 31. Scott decreased by one point scoring 31. These findings suggest that students held a positive attitude regarding the importance of reading. However, Aaron reported a much lower value of reading by the end of the study. He ended the study scoring 20 out of 40 which fit with his more negative attitude about reading he reported during his post-interview. When asked, “How do you feel when you are reading?” Aaron replied, “Um…bored.” When asked, “Do you ever decide to read all by yourself?” he replied, “Uh, no.”

Figure 1.
Self-concept and Value of Reading Scores
Miscues and Self-Corrections

None of the students self-corrected any of their miscues as they read on the DIBELS fluency assessment during the beginning of the phase of the study. Scott’s strategy for what to do when he came to a word he didn’t know was stated during his pre-interview: “I just skip it.” Additionally, because there were many errors with such a limited number of words read correctly, students held low comprehension of the passages. Image 1 provides an example of how Aaron and the first author noted what they heard during the recorded session. The highlighting was done by Aaron and the pen marks were made by the first author.

Image 1

*Grounded to Earth text (Text from readingatoz.com.)*

In this example, Aaron listened to his recording, and highlighted his missed words (e.g., have, spaceships, discuss, powerful, planet, parents, and spaceship’s controls). Aaron made no self-corrections while reading this passage. When Author 1 listened to his recording later that day, she noted those same miscues by circling the words. She then wrote Aaron’s word choice above the highlighted word. During the student and teacher conference, Author 1 shared these miscues with Aaron. “In Aaron’s case, he relied on sounding words out to help him decode words and
self-correct. Such results are showing me that he is using this strategy above other strategies and that this could also be what is slowing him down with his reading and comprehension (teacher reflective notes, October 2014).

Despite the text difficult increasing, most students’ number of self-corrections per text increased during the study (See Figure 2). Three of the four students started with an average of 3 self-corrections per book (Wanda, Logan, and Scott). Aaron had the highest average of 8 self-corrections per book in October. By the end of the study, Logan and Aaron were both averaging 15 self-corrections and Wanda was averaging 10 self-corrections per book. Scott was the only student who did not improve on his self-correction rate. He remained averaging 3 self-corrections per book in March as he had started out with in October. This aligns with his post-interview response to the question, “What do you do when you come to a word you don’t know?” Scott replied, “Skip it,” just as he had before the study began. The other three participants responded with a strategy they used when they encountered a difficult word: Wanda – “Skip it and go back to it”; Logan – “Read the sentence again”; Aaron – “I sound it out.”

Figure 2

Self-Corrections
A paired-samples t-test was calculated to compare the mean self-corrections in October to the mean self-corrections in March. The mean in October was 4.06 (sd = 2.6), and the mean in March was 10.9 (sd = 5.8). No significant increase from October to March was found (t(3) = -2.722, p > .05). Although the increase in self-corrections per book was not statistically significant, the increase does indicate most students were self-correcting more frequently by the end of the study. A paired-samples t-test was calculated to compare the mean DRA level in September to the mean DRA level in March. The mean in September was 15.5 (sd = 3.0), and the mean in the spring was 26.5 (sd = 5.97). A significant increase from September to March was found (t(3) = -3.811, p < .05), as shown in Figure 3.

Figure 3.

DRA Growth

DIBELS results. A paired-samples t-test was calculated to compare the mean DAZE score in the fall to the mean DAZE score in the spring. The mean in the fall was 2.5 (sd = 3), and the mean in the spring was 13.25 (sd = 8.95). No significant increase from fall to spring was
found \( (t(3) = -2.901, p>.05) \). A paired-samples t-test was calculated to compare the mean fluency score in the fall to the mean fluency score in the spring. The mean in the fall was 31.75 (sd = 18.87), and the mean in the spring was 57.5 (sd = 35.67). There was no significant increase from Fall to Spring \( (t(3) = -3.156, p>.05) \).

**MAP results.** Students receive a RIT score which was used to find their percentile as compared to other students in their same grade across the district or nationwide. The Fall district average for reading RIT scores was 192 (Norm group average – 190). Students in this study ranged from 157 to 180 on their Fall reading RIT scores which indicated that they were below their average peers. In the Spring, the district average was 205 (Norm group average – 199). Students in the study ranged from 174 to 218 on their Spring reading RIT scores. A paired-samples t-test was calculated to compare the mean RIT score in the fall to the mean RIT score in the spring. The mean in the fall was 166.0 (sd = 9.83), and the mean in the spring was 191.25 (sd = 18.79). A significant increase from fall to spring was found \( (t(3) = -5.61, p<.05) \).

Additionally, all students progressed in text difficulty throughout the study (October to March) as evidenced in the DRA assessments (See Figure 3). Aaron moved up 3 text levels in the DRA assessment (started at level H and went up to level K), Logan and Scott moved up 4 text levels (Logan started at level H and went up to level L while Scott started at level J and went up to level N), and Wanda moved up 5 text levels (started at level K and went up to level P). The fact that this increase in scores showed statistical significance suggests an increase in students’ metacognition about their reading behaviors. As seen in these reading assessments, the students made significant progress in terms of their reading skills throughout the year.
Discussion

With a shift to an increasingly complex approach to literacy instruction as suggested by the CCSS, RMA can be an important tool in helping today’s educators individualize their literacy instruction to meet a variety of learners. As seen in these four students’ reading assessment scores at the end of the year, students were able to make significant reading progress. Interestingly, these students’ perceptions of themselves as readers grew as well. It appears that when given the opportunity to monitor their reading patterns and behaviors, they were able to learn of their common miscues and make different decisions about the strategies they used when reading. Such results, although limited to these four students suggests that by inviting students into the RMA process, students may be able to become more metacognitive when it comes to reading. As seen in the results of this study, students’ increase in self-corrections at the end of the study as compared to the beginning of the study suggests that through the use of this modified version of RMA, students can grow in their perceptions of themselves as readers as well as reading performance.

Findings suggest the importance of explicitly teaching students to identify miscues and to record and keep track of the kinds and types of miscues they make. Moreover, the increase shown in students’ perceptions about reading and resulting assessments also suggests that such an intervention is an effective intervention for some students. Other students who rarely self-correct as they read could benefit from the opportunity to engage in the RMA process with this additional step (e.g., hearing how they sound when they are reading and track what they say with the words in the text to self-discover some of their miscues). Additionally, for those preparing beginning teachers, we suggest having discussions with prospective teachers about ways to use the RMA process to enrich classroom instruction.
We want to highlight how the students in this study were labeled at-risk and failed to initially meet school-wide literacy benchmarks. Although this study was limited to four students, we suggest that the positive results yielded from this research are promising. Future studies that include additional students and track students over a series of years would be helpful to learn if the use of this modified RMA has a long-term impact.

**Conclusion**

Educators are continually under pressure to get all students to perform at or above grade level reading standards in today’s high-stakes educational climate. Authentic assessments such as the modified RMA can guide teachers (and students) in developing their reading behaviors, and navigating classroom instruction to meet these new standards. By refocusing literacy to include students in monitoring their miscues as seen in this action research study, today’s educators can carefully craft their instruction to support the individual and targeted instructional needs of their students. As a result, classroom interactions may become more productive.
References


to read. *The Reading Teacher*, 518-533.


