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(Re)Discovering Retrospective Miscue Analysis: An Action Research Exploration using Recorded Readings to Improve Third-grade Students’ Reading Fluency

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Melissa (first author) planned a lesson for her third-grade students, choosing a short passage that would challenge their ability to read with expression and fluency. She asked her students to record their reading and enjoyed their initial laughter because many had never heard their recorded voices before. After the initial excitement wore off, students assessed their reading by reviewing the audio-cassette tape. Her students loved this activity, and Melissa’s interest was brought to life when she saw how excited her students were to hear their voices and evaluate their strengths and weaknesses as readers. Melissa brought this excitement to planning a 10-week action research investigation using recorded readings in her third-grade classroom.

In this article, we describe our journey as Melissa and her university faculty mentor (second author) explored how to implement recorded readings in her student teaching classroom, discovered benefits for teacher and students, and found that Melissa had (re)discovered Retrospective Miscue Analysis (RMA). We use the term (re)discovered to indicate that Melissa’s discovery emerged out of her teaching experiences and reflections, but her practice also coincided closely to descriptions of RMA in the literature, a process with demonstrated potential for transforming readers and their teachers (Chaleff & Ritter, 2001; Y. M. Goodman, 1996; Y. M. Goodman & Marek, 1996; Y. M. Goodman, Watson, & Burke, 1987, 2005; Martens, 1998; Moore & Brantingham, 2003; Moore & Gilles, 2005; Theurer, 2002). By actively participating in this project, students gained a better sense of the steps they needed to take to become fluent readers. As they continued to reflect upon their reading practice, they learned where they commonly made miscues, how to identify the impact of miscues on their comprehension, and how to correct miscues that impede comprehension.

We briefly summarize RMA before detailing our study and describing what we learned about readers and teaching reading. We conclude this article with practical suggestions for how to effectively and efficiently integrate recorded readings and RMA into everyday teaching practices.
Retrospective Miscue Analysis

Worsnop (1996) developed RMA in the 1970s, working from a foundation of miscue analysis research developed by Ken Goodman (e.g., 1969, 1996) and others (e.g., Y. M. Goodman et al., 1987, 2005; Martens, 1998). As Worsnop and other teachers listened to recorded readings and thought about how and why miscues occurred, they found their attitudes about reading and readers changing, a process later described as revaluing. “They became encouragers instead of correctors; they gave more emphasis to a focus on meaning construction in their reading instruction” (Worsnop, 1996, p.151). Recent educators have developed versions of miscue analysis to build on students’ strengths and help teachers tailor their instruction to individual learners (Davenport, 2002; Wilde, 2000). These approaches differ from RMA because they do not actively involve students in investigating their own miscues. Worsnop believed the revaluing that teachers experienced could happen for readers as well. He set out to include high school students in miscue analysis sessions while listening to recordings of their reading, and RMA was born.

RMA, based as it was in linguistic research on miscue analysis, asked teachers to “consider reading as an active, receptive language process and readers as users of language” (K. S. Goodman, 1994, p.1096). This highly constructivist view of reading was rooted in socio-psycholinguistics, which asserts strong dynamic connections among social, cognitive, and linguistic aspects of reading and language development. Readers use all of their background knowledge to decode, predict, and confirm meaning in text as they read, bringing to bear semantic (meaning), syntactic (grammar), and graphophonic (letter-sound association) language cueing systems (K. S. Goodman, 1996; Weaver, 1994). Theurer (2002) describes RMA as:

…readers listening to audio recordings of their own oral readings and, with the help of a researcher, discussing to what degree their miscues are syntactically and semantically similar to the printed text and to what extent they affected comprehension. RMA combines the power of personal interaction with constructing knowledge in a social context. (RMA section, para. 1)

Readers interested in a more full description of RMA and its use in classrooms should see Reading Miscue Inventory: From Evaluation to Instruction (Y. M. Goodman et al., 2005), Reading Miscue Inventory: Alternative Procedures (Y. M. Goodman et al., 1987), Reading Conversations: Retrospective Miscue Analysis with Struggling Readers, Ages 4-12 (Moore & Gilles, 2005), and Retrospective Miscue Analysis: Revaluing Readers and Reading (Y. M. Goodman & Marek, 1996).

Melissa had begun using recorded readings because of the enthusiasm her students demonstrated while listening to their reading. She involved students in miscue analyses of their reading out of a desire to see her students more actively engaged. As we became familiar with literature on RMA, we were struck by clear correspondences between RMA and Melissa’s emergent teaching practices. With the possible exception of Y. M. Goodman and Flurkey (1996), who worked with...
16 middle school students, research into the impact of RMA on teachers and learners has predominately utilized case study methods (e.g., Chaleff & Ritter, 2001; Y. M. Goodman & Marek, 1996; Martens, 1998; Moore & Brantingham, 2003; Theurer, 2002). This makes the present investigation a particularly relevant contribution in that we explored the impact of RMA on a group of elementary school learners within an action research framework for informing emergent teaching practices through daily reflection on instructional characteristics and learner performance.

**Action Research Context**

Our action research project was conducted within the context of the Benedum Collaborative, a partnership including five county school systems, 28 Professional Development Schools, and West Virginia University (WVU). The College of Education & Human Services and the Eberly College of Arts and Sciences at WVU collaborate with P-12 school personnel in delivering a five-year teacher education program in which teachers-in-training accumulate over 1,000 hours of clinical practice experiences, a bachelor’s degree in a content area, and a master’s degree in education. Action research has been defined within the Benedum Collaborative as “a deliberate, improvement-oriented investigation of teaching practice, characterized by an ongoing process of problem identification, systematic data collection, reflection, analysis, data-driven action, and problem redefinition” (Webb-Dempsey, 2003, p. 29), a definition that is consistent with literature on action and teacher research (Cochran-Smith & Lytle, 1993; Mertler, 2006; Thomas, 2005).

Melissa, a recent graduate of the five-year program, and Reagan, Melissa’s university faculty mentor and liaison to the school that Melissa did her student teaching in, collaborated on this action research project. We began with the following guiding questions:

1. How will having third-grade students listen to their reading on audiotape impact their fluency?
2. What are the successes and challenges of implementing recorded student readings in the classroom?

As a teacher, it is imperative to incorporate effective teaching strategies that are manageable in the everyday classroom. By using audio-cassette tapes and recorders, students could record their reading individually and be mentored by the teacher in small groups.

Our focus on reading performance was particularly relevant in the context of this school, where federal Reading First funds and assessments made Melissa particularly aware of struggling readers and her role in supporting them. In a Reading First school, K-3 students are taught five key early reading elements: phonemic awareness, phonics, fluency, vocabulary, and comprehension (U.S. Department of Education, 2004). Teachers use a variety of measures to assess students throughout the school year and record appropriate benchmarks to document students’ development.
Educational Setting

Readwell Elementary School (pseudonym) is located near a major university in a mid-sized city in West Virginia. Readwell had 655 students, 47 faculty and staff, and offered pre-kindergarten through grade five with four to five classrooms per grade level at the time of this action research project. Similar to many schools in Appalachia, diversity in socioeconomic status was more marked than diversity in ethnicity. The Readwell student body was 87% Caucasian/Non-Hispanic, 9% African American, 1% Hispanic, <1% Asian/Pacific Islander, <1% Native American, and 1% multi-racial. While Readwell was not Title 1 eligible, 46% of students qualified for free or reduced lunch.

The West Virginia Educational Standards Test (WESTEST), given to students in grades three through five, demonstrated strong performance in reading and language arts for Readwell students, with the exception of students with disabilities. WESTTEST performance for all students was 81%. Economically disadvantaged students scored 75% compared to 95% for economically non-disadvantaged students. Females scored 87% compared to males 73%, and students with disabilities scored 41% compared to 86% for students without disabilities.

We conducted our action research in a third-grade classroom containing 23 students. During their reading block, students received differentiated instruction, along with teacher-directed lessons, constituting 120 minutes of uninterrupted reading time as mandated by Reading First. Students typically work in centers during this time, with each group responsible for completing different tasks. One station was typically run by the teacher and another by a reading interventionist, with the other stations requiring student groups to work relatively independently. Students spent 15 to 20 minutes at each station before rotating to the next station.

Participants

Focus students were selected based on Dynamic Indicators of Basic Early Literacy Skills (DIBELS) test results, assessments given periodically to all K-3 students as part of the Reading First program. “[DIBELS] are a set of standardized, individually administered measures of early literacy development. They are designed to be short (one minute) fluency measures used to regularly monitor the development of pre-reading and early reading skills” (University of Oregon Center on Teaching and Learning, 2007, para. 6). The two groups of students with lowest DIBELS scores included five boys and one girl. They will be referred to by pseudonyms. The intensive group (Jim, Charles, and Danny) were identified by DIBELS as “high risk” with below average oral reading fluency scores (ORF = number of correct words per minute). The “strategic” group (Gary, Dyson, and Brandy) were identified by DIBELS as at risk for falling into the intensive group if they were not closely monitored. From teacher observations, these students generally struggled with reading and were likely to benefit from one-on-one weekly interventions.

Jim, lowest scoring with ORF of 44, was aware of his difficulties in reading and had struggled through previous grades for the same reason. However, he was very dedicated to becoming a more fluent reader and gave his best effort almost every day. On several occasions, Jim asked to borrow books from the teacher’s library to participate in the monthly reading program.
Danny and Charles were Jim’s group mates. With ORF below 77, they were placed in the intensive group based on teacher observation that their phonemic awareness was below that of their peers and impaired their fluency. Charles struggled not only with his ability to read, but was also identified with a behavioral disorder. He would become frustrated easily and defiant at times. On several occasions, he had to leave the classroom due to his outbursts. He received modified work assignments in class and special services through the school. Danny was new to the school and had recently re-entered the public school system after having been home schooled. He struggled in reading, writing, and mathematics and on occasion would become defiant.

Students in the strategic group scored in the low to mid 60s on ORF and were slightly better readers than students in the intensive group. However, because their ORF did not exceed 77, they were placed in this group for closer observation. From a teaching perspective, this group was monitored to ensure they were moving forward and not backward. Students in this group had stronger phonemic awareness and recognized high-frequency words more accurately than students in the intensive group. Gary, Dyson, and Brandy were hard working and got along well with each other. Gary and Dyson received daily speech services. Brandy’s participation in this group ended after a few weeks, as her weekly progress reports showed great improvement. She moved into another group where she could practice reading more difficult text and continue to improve her fluency and comprehension. We believe Brandy’s initial DIBELS scores were negatively biased by anxiety as she appeared extremely nervous when she took the first test.

Data Sources

DIBELS ORF test results provided baseline and post-intervention measures of reading fluency. While some reading experts might argue for other measures of reading fluency, it is important in action research studies that data collection does not impede instructional strategies. We utilized DIBELS because it was part of existing teaching practice in this classroom. Students read *Quick Reads: Level D* (Hiebert, 2005). These were relatively short passages with numbered words so students could easily identify their own words per minute. Students recorded their words per minute on a graph for each passage and kept portfolios of their work. Audiotapes of students’ reading were included in their portfolios. Finally, students completed self-assessment sheets, writing reflections about their audiotaped recordings, and how they could improve next time they read. Melissa’s reflective teaching journal provided context for interpreting all other data sources and insight into how classroom practices influenced students.

Instructional Practices and Data Collection

Each week students read a new passage, familiarized themselves with it, and then recorded their readings on an audiocassette tape. The following days were spent listening to the recordings, identifying problematic areas, and using strategies to help correct reading miscues. Our goal was to allow students to develop a better understanding of how they read, learn about their strengths and weaknesses, and discover how to use new strategies to improve fluency and comprehension.

During the first two weeks, Melissa gathered initial data and began her reflective teaching journal with observational notes and reflections from the classroom. She focused on students’ strengths and weaknesses in fluency, phonics, phonemic awareness, vocabulary, and
comprehension. Observational notes and DIBELS ORF were used to identify struggling readers. The DIBELS tests were set up much like our reading centers. Students recorded their words per minute (WPM) and made note of their miscues from the text. In the following days, students analyzed their miscues and made suggestions for improvement. Our action research project spanned 10 weeks: two weeks of baseline observations and preparation, seven weeks of data collection during centers, and one week to wrap up the experience with the children. At the end of the study, students looked back on the experience and reflected whether they believed the experience was beneficial for them. While Melissa worked with each group, the rest of the students were moving through other centers in the classroom.

Students followed the same schedule for each of five readings for which data were collected during centers. Day 1, students became familiar with the passage. First, students read the passage silently. Next, students wrote down words that were unfamiliar to them and then shared those words with the group. Then, Melissa modeled how to read the passage within a minute while maintaining timing, phrasing, and pauses. Students then read their passage aloud, with the strongest readers going first as models for their peers. Finally, students wrote down the “main ideas” from the passage and discussed what the passage was about, focusing on comprehension.

On Day 2, students recorded their first readings on audiotape and recorded their WPM on a graph. After all of the students recorded their first reading, they played their tapes to listen for areas where they struggled, mispronounced a word, or ignored punctuation. Students learned to complete informal miscue analyses. Given the symbols for each type of miscue, Melissa guided each student as they listened to their recording and identified each type. Then, students reflected on how well they read the passage, what they noticed about their reading, what slowed them down, and what they could do to improve next time.

Melissa taught a mini-lesson on Day 3 designed to improve students’ fluency, comprehension, and reading confidence. Students worked on word decoding skills, word recognition, sight words, phonics, syllables, and other concepts using games targeting graphemes and phonemes, word walls, clapping and tapping syllables, and build-a-word activities. These mini-lessons were based on the needs of students identified in their self-assessments and Melissa’s reflective teaching journal.

Day 4, students recorded their second reading of the passage and their WPM. Then, students analyzed their recording for mispronounced words, problems with punctuation, and other miscues. They reflected on how they improved from the first recording. Students did not work in centers on Friday. While we planned to cover each passage in a single week, Days 2 and 4 sometimes took more than a single day to complete, and other events at the school occasionally interfered with center time, so that five passages were covered in seven weeks.

What We Learned

How did having third-grade students listen to their reading on audiotape impact their fluency? RMA procedures engendered excitement and motivation in Melissa’s students. This motivation seemed to translate into reading fluency gains for most students (see Figure 1). Melissa’s emergent teaching practice differed from RMA as described in the literature in that students
became familiar with each passage prior to their first recording. This may explain (a) higher words per minute than might be expected by students with ORF below 77, and (b) high comprehension noted in Melissa’s reflective journal even when fluency was sometimes quite low. Figure 1 illustrates the mean words per minute for the first (Day 2) and second (Day 4) read for each student averaged across all five passages. Second readings revealed a mean words per minute gain for all students combined and individual gains for every student except Jim, who was also well below the mean for the group.

Jim’s second read mean was lower than his first because of two passages with relatively long and difficult vocabulary words. The mini-lesson for that week focused students on breaking down parts of words and looking for the little words they knew. This technique was helpful for most of the children, but Jim struggled with it. This helped Melissa recognize that the “little words” strategy is problematic for some children. Jim did show improvement from first to second read in later weeks (see Figure 2). These data are consistent with case studies utilizing RMA (e.g., Y. M. Goodman & Marek, 1996; Theurer, 2002), where learners decreased the amount of miscues they were reading and increased their awareness of the text. Our findings are also consistent with Y. M. Goodman and Flurkey’s (1996) study of the impact of RMA on a classroom of seventh-grade students. Our project extends these earlier results to an elementary school context, where we found that RMA is both feasible for classroom teachers and effective for supporting struggling readers as identified by Reading First assessments.

Figure 2 illustrates the individuality of each student’s performance across time. All students made considerable progress as indicated by the upward trend from left to right. Jim was the most obvious success story. He started off reading approximately 70 words per minute and ended in the high 90s. On the other end of the spectrum, Gary’s reading was consistent as he maintained high words per minute with only slight gains. Other students, like Danny, experienced some dips in performance, but ended the study with overall improvement. The mean performance shows a slow, but steady increase in students’ words per minute.
Figure 2. Words per minute for 1st and 2nd reads across 5 passages (and 7 weeks).

Figure 3 displays DIBELS screening results before and after our action research project. Every student did better on their posttest compared to their pre-test. Jim’s before and after data show his remarkable increase, almost 20 words per minute. Gary also had a very high posttest score. The mean for the group showed that students gained approximately 10 additional words per minute compared to their last DIBELS ORF benchmark. Wilcoxon signed ranks test indicated that this pre to post difference was large and statistically significant ($Z = -2.02, p < .05, r = .90$).

Figure 3. DIBELS test results before and after action research project.
Our data clearly demonstrate improvements at individual and group levels in reading fluency. We believe our modified RMA strategies contributed to these improvements. By completing an analysis of their recordings, the students recognized their miscues. When they recognized their areas of weakness and practiced strategies to make them strengths, the ease and smoothness of their reading improved.

Fluency is most meaningful within the context of comprehension. Because our primary focus was on fluency, however, our instructional methods did not allow us to separate how much of students’ comprehension came from their own reading and how much came from listening to others read. Regardless of the source of students’ understanding of the passages, students demonstrated high comprehension. From Melissa’s journal, “…they would hear me read the story, and then each of their classmates, by the time we finished all of the parts of my action research for that week, they pretty much knew the story inside and out.” Even with generally high comprehension, increases in comprehension were evident across the seven weeks of the study. Students’ written “main ideas” consisted of single words or short phrases on the first few passages, but these were much more detailed and complete in the final weeks of the project.

What were the successes and challenges of implementing recorded student readings in the classroom? This action research successfully impacted Melissa’s students as developing readers and also impacted Melissa as a teacher. Melissa now thinks differently about students who struggle with reading. For example, many students would lose their place or misread middle parts of words. Sometimes students would forget to stop at punctuation marks or omit words from a sentence. These miscues often made students stop reading and inevitably lowered their words per minute. Even though miscues disrupted the flow of reading and lowered fluency, students could often recall many aspects of the story, and their ability to comprehend the passages was rarely a problem. Nevertheless, by having students complete miscue analyses they really began to understand why they made the mistakes they did when reading aloud, and also to recognize the wealth of knowledge and skills they could bring to bear while reading. This was the beginning of a process Y. M. Goodman and Marek (1996) identified as the central goal of RMA and called revaluing.

…students must be helped to revalue themselves as learners. They must revalue the process of reading as the construction of meaning in response to print. They must come to appreciate their own strengths, to recognize the productive strategies they already use, and to build positively on those. (p.17)

As Melissa implemented recorded readings and RMA in her classroom, students gained an increased awareness of their ability in reading. We could see the positive influence this had, and the excitement and motivation students demonstrated fueled excitement and motivation in us as teacher-researchers.

As the study progressed, Melissa felt a need for her students to see where they were making their mistakes. Melissa could pick out their miscues as their teacher, but when she discussed them
with students, they often argued that they had said them correctly. To solve this dilemma, Melissa started using a copy of the passage that students could write on, and having students conduct an informal miscue analysis of their reading…essentially (re)discovering RMA in a form that emerged naturally in her teaching context. Students were very much a part of the teaching and learning “action” in the classroom. They kept track of their progress and identified their strong points and areas they needed to develop.

Recommendations for Teachers

Perhaps the most critical component from our perspective was having students do the work. Students should be actively engaged in finding their own miscues: identifying, labeling, and discussing whether their miscues impeded their comprehension. We encourage teachers to try this method in their classroom, involving their students as much as possible in the process. Charting their own progress and reflecting on their learning, our students really gained a sense of control over their growth as readers. We were encouraged by the growth we saw in initially timid students who became proud of themselves and their reading accomplishments.

Organization was a key factor in keeping this instructional approach manageable. It was challenging to keep track of all of the audiotapes and other student data. One logistical suggestion we have for teachers who implement this type of instructional practice is to verbally record dates on all of the student recordings before they read. Carefully labeled student work and a detailed reflective teaching journal were critical. We see ways of incorporating technology to assist this instructional practice (e.g., digital recording and organizational software) as a fruitful area for exploration.

We focused on supporting struggling readers, but we believe this approach may prove beneficial to more proficient readers as well. RMA is a great way for students to come to value themselves as readers. We suggest offering this reading technique to all students in a classroom, using it as a reading enhancement opportunity in a learning center through which all students rotate. While we did not attempt this in our study, Moore and Gilles (2005) described Collaborative Retrospective Miscue Analysis (CRMA). This involves the teacher pulling back from guiding the discussions around miscues and allowing students to take the lead. We envision this as a natural next step after students are familiar and comfortable with teacher-led RMA discussions. It was relatively easy for us to set up a RMA learning station. We hope to explore whether a second CRMA learning station will work equally well.

Melissa noted in her reflective journal near the end of this project, "It was a very proud day for [Jim] today, he read 97 [WPM]. The kids were so excited; they patted him on the back. I think he'll probably have a smile on his face for the rest of the day.” Reflecting later on this entry, she wrote, “After my [Action Research] was complete I felt really good about the topic I had chosen, because it was something meaningful to me and I saw the impact it had on my students. Not only did I walk away from this experience with new knowledge and an understanding about teaching students how to read, but also with the unforgettable image of a third-grader who met his goal in reading for the first time.”
Melissa Born is a graduate of West Virginia University where she earned bachelor’s and master’s degrees from the College of Education and Human Services. Melissa currently teaches third grade at Ridgedale Elementary School in Morgantown, WV.

Reagan Curtis is a professor of educational psychology in the Department of Learning Sciences and Human Development and director of the Program Evaluation and Research Center at West Virginia University. He pursues a diverse research agenda including areas of interest in (a) the development of mathematical and scientific knowledge across the lifespan, (b) online delivery methods and pedagogical approaches to university instruction, and (c) research methodology, program evaluation, and data analysis (qualitative, quantitative, and mixed methodological) for studies in developmental, educational, and counseling contexts.

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Appendix

Self-Assessment Sheet #1

Name: ________________________________ WPM: __________
Date: _____________ Quick Reads Title: _________________________

**Read each question. Check all of the answers that apply to you.**

1. **What did you notice about your reading this week?**
   - I had more difficulty this week.
   - I read more smoothly with fewer mistakes.
   - I read the passage correctly with no mistakes.

2. **What were some of the problems you had that slowed down your reading?**
   - recognizing punctuation marks
   - new vocabulary words
   - repeated words/parts of a sentence
   - added words that were not in the passage
   - left out words
   - took long pauses while reading
   - lost my place while reading
   - voice level (read too softly)
   - intonation/expression
   - pacing (read too slow/read too fast)
   - reading at the target rate of one minute

3. **What were some of the strengths you had?**
   - recognizing punctuation marks
   - recognizing new vocabulary words
   - did not repeat as many words
   - did not add as many words
   - did not leave out as many words
   - did not pause for a long time
   - voice level
   - intonation/expression
   - pacing
   - reading at the target rate of one minute

Words I need to practice:

__________________________
__________________________
__________________________