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Is reading fluency a key for successful high school reading?

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Findings in this study suggest that reading fluency is a significant variable in secondary students' reading and overall academic development.

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With the publication of the report of the National Reading Panel (National Institute for Child Health and Human Development [NICHD], 2000), reading fluency has become more recognized as a key element in successful reading programs in the primary grades. Indeed, Chall's (1983) seminal model of reading identified the attainment of reading fluency as one of the earliest stages of reading achievement. Given that reading fluency deals with mastery of the surface level of text—learning to recognize (decode) words in a passage automatically (effortlessly) as well as accurately and to express or interpret those words in a meaningful manner when reading orally—it is quite appropriate to think of fluency as a goal in reading that should be mastered as early as possible in one's reading development.

Recent research, however, has suggested that the issue of reading fluency goes beyond the primary grades. Our own work among struggling elementary-grade students (grades 1–5) referred for Title I supplementary reading instruction (Title I is a U.S. federally funded program for at-risk students) by their regular classroom teacher found that the lack of reading fluency appeared to be the area of greatest impairment in reading (Rasinski & Padak, 1998). Pinnell et al.'s (1995) study of the relationship between oral reading fluency and fourth graders' silent reading comprehension found that nearly half of the 1,000+ sample of fourth-grade students had not yet achieved a minimal level of reading fluency.

One hypothesized explanation for the connection between fluency and comprehension comes from LaBerge and Samuels's (1974) theory of automaticity in reading. According to this theory, readers who have not yet achieved automaticity in word recognition (fluency) must apply a significant amount of their finite cognitive energies to consciously decode the words they encounter while reading. Cognitive attention or energy that must be applied to the low-level decoding task of reading is cognitive energy that is taken away from the more important task of comprehending the text. Hence, comprehension is negatively affected by a reader's lack of fluency.

Our work in a university reading clinic indicates that difficulties in reading fluency are manifested in the majority of students in grades 2 through 8 who are referred for reading difficulties. Although the primary reason for referral may ostensibly be difficulties in reading comprehension

(especially among intermediate and middle-grade students), we also find that a lack of fluency accompanies the difficulties in comprehension. Our clinical intervention program provides work in fluency and comprehension, and, for the most part, students make significant gains in both areas.

Fluency beyond the elementary grades

Although fluency is generally thought of as an elementary grade issue, we wondered if fluency could be still be an issue in the reading difficulties experienced by large numbers of students beyond the elementary grades. In particular, middle and high school students from urban areas appear to experience more difficulty in reading than students from nonurban areas (e.g., National Center for Educational Statistics, n.d.). Could one source of their difficulties in reading stem from a lack of reading fluency?

To answer this question, we assessed the decoding accuracy and fluency levels of a large group of ninth-grade students at the end of the school year. In this study, fluency was defined as students' reading rate. Although reading rate does not capture the full meaning of fluency, it is considered a useful and valid measure of fluency (Rasinski, 2004). The ninth graders in this school, which is part of a moderate-sized urban district in the U.S. Midwest, have generally performed poorly on the state high school graduation tests—a series of tests across important content areas in which students read and respond to text passages that reflect the various content domains. On one day during the last week of the school year (June, 2003) we visited the high school at which half of the school district's freshmen were enrolled. We selected the last week of the school year to ensure that the reading samples we obtained reflected the most advanced levels of reading exhibited by students during the year. During the day, we tested 303 students using a one-minute reading probe, also known as Curriculum-Based Measurement (CBM) in reading or Oral Reading Fluency (ORF) Assessment (Deno, 1985; Deno, Mirkin, & Chiang, 1982; Marston, 1989; Rasinski, 2004). Working individually with one of us, students read a ninth-grade-level passage, taken from the *Secondary and College Reading Inventory* (Johns, 1990), for one minute. Although we recognized that the passage may have been at a frustration level for some students, using grade-level materials is the convention for CBM/ORF assessments (Rasinski). Students were asked to read orally in their normal voices and were told that they would be asked to retell what they had read at the end of the reading. During the reading we marked any uncorrected errors students made during the one-minute period. We also asked them to do a quick retell of what they had read. The primary purpose for the retelling was to ensure that students read in a normal manner—to read for understanding rather than speed.

The high school at which we worked was divided into individual "houses" in order to provide students with a smaller, more intimate learning environment. Students were randomly assigned at the beginning of the school year to one of the houses. We positioned ourselves at each house so that reading samples of students from all segments of the school could be taken. Teachers who were willing to allow their students to leave class for periods of less than five minutes provided us with students to assess. We were assured by the teachers and administrators in the school that the students we tested were a representative sample of all of the students in the school.

From the one-minute reading we were able to determine each student's word-recognition level, as measured by percentage of words read correctly, and reading fluency, as determined by number of words read correctly in the time period. We were also able to obtain students' performance scores on the state high school graduation test—a silent reading comprehension test across all major subject areas that they had taken earlier. The high school graduation test consists of a series of passages read silently, and

each passage is followed by a set of comprehension questions. The test is given in the ninth grade, and students are required to pass it in order to qualify for a high school diploma.

Based on our reading assessment, we found that the end-of-the-year ninth graders in this urban school read with an average word-recognition accuracy rate of 97.4% (standard deviation = 2.8%) correct and a reading fluency rate of 136.4 (standard deviation = 33.2) words correct per minute. Now just what do these scores mean? For word recognition, it appears that the students were able to decode words quite accurately. Normally, a 95% word-recognition accuracy level is considered to be an instructional level. Thus, the students in our sample displayed, on average, strong proficiency in word recognition.

Fluency, however, seems to be a different matter. Because students' reading rate increases as they mature across and within grade levels, it is necessary to compare students' oral reading fluency performance against established norms. It was unfortunate that we were not able to find established norms for students in grade 9 or above. To the best of our knowledge, such norms do not currently exist and reflect the conventional wisdom that reading fluency is not an issue at the secondary level. We were, however, able to find spring fluency norms for grade 8 students (Johns & Berglund, 2002). We chose to use these norms, recognizing that they are conservative estimates of ninth graders' reading and generally understate their reading performance. According to these norms, the 50th percentile spring norm for eighth-grade students is 171 words correct per minute (wcpm); the 25th percentile norm for eighth graders is 145 wcpm. Extrapolating these data, we could logically expect ninth-grade students to read at an even higher fluency level than eighth graders. Once we put this in context it was apparent that, on average, these ninth graders' fluency levels were below the 25th percentile *for eighth graders.* These ninth graders read at a fluency level that was about 80% of what might be considered the norm (50th percentile) for eighth-grade students. It was clear then that these students, as a whole, had not achieved a level of fluency that would be considered normal or average for their grade level.

To further detail the performance of this group of ninth-grade students, we report their fluency (rate) scores in Table 1. Using the eighth-grade norms, we should expect 25% percent of eighth-grade students to fall at and above the 75th percentile, 25% of students to fall at or below the 25th percentile, and 50% of students to fall between the 26th and 74th percentile. In our

Table 1
Ninth-grade student fluency performance compared against existing norms for grade 8

Eighth-grade student norms	Number of ninth-grade students in current study	Percentage of ninth-grade in current study
75th percentile and above ≥ 193 wcpm	13	4.3
26th–74th percentile 146–192 wcpm	114	37.6
25th percentile and below ≤ 145 wcpm	186	61.3

study of ninth graders, fully 61% of students scored at or below the 25th percentile. More than two times the number of ninth-grade students fell within the bottom range than what should normally be expected of eighth graders.

We also determined the number of students from our sample who read at less than 100 words correct per minute. We selected 100 wcpm as a conservative indicator of significant concerns in reading fluency. A rate of 100 wcpm is generally reflective of an end-of-year reading rate for grades 2–3 (Hasbrouck & Tindal, 1992). A total of 36 ninth graders (12%) read below this benchmark rate. Taking 167 wcpm as the average reading rate against which teachers measure reading assignments, any reading assignment given to this group of students (nearly one out of every eight students) requires at least 150% more time to complete than what the teacher might otherwise expect. It is clear that these various analyses indicate that a significantly large number of students in this low-performing school are not close to adequate levels of fluency and may benefit from specific instruction in reading fluency.

Because fluency appears to be an area of concern among this group of students, we attempted to determine the relationship between reading fluency and reading comprehension for these ninth graders. We did this by running a correlation between the fluency (rate) scores and the students' scores on the state high school graduation test—a test of reading comprehension. We found a statistically significant ($p < .001$) and moderately strong relationship between these two variables ($r = .530$). This means that about 28% of the variation in student achievement on the high school graduation test could be accounted for by variation in students' reading fluency.

We believe that the correlation statistics reported here actually underestimate the relationship of fluency to comprehension among high school students because those in our study represent a restricted sample—they performed, on average, at a level that is below grade-level expectations for fluency and comprehension. Had the study also included more higher achieving students so as to be representative of the full population of high school students in the state or nation, it is likely that the correlation between fluency and comprehension would have been even stronger.

Nevertheless, the relationship between fluency and comprehension that we report in this article suggests that reading fluency is indeed a factor that needs to be considered even among high school students, and especially among struggling readers. The high school students in our study, on average, read at a fluency level that is below what would normally be expected of eighth graders; moreover, their reading fluency levels were related to their comprehension performance.

What does this mean?

Although a correlation between fluency and comprehension does not prove causation—that fluency or lack of fluency leads to improved or deficient comprehension—the findings do suggest that this is a possibility. The theory of automaticity again offers a compelling explanation for this finding. Although the high school students in this study read with a high degree of accuracy, they had to invest so much of their limited cognitive energy in accomplishing this task that they drained cognitive capacity away from where it could and should have been used more profitably—to comprehend the text.

Although variation in fluency does not account for a majority of variation in comprehension on the state high school graduation test, the 28% that is accounted for by fluency represents a significant portion of comprehension performance. The results of our study lead us to conclude that improvements in fluency could account for significant and substantial gains in students' reading comprehension.

It is clear that this hypothesis needs to be tested. High school students deficient in reading fluency could be given an instructional intervention that focuses on reading fluency. If fluency

does indeed contribute to comprehension among high school students, gains in fluency and comprehension should be detected.

Beyond future research, however, these findings indicate that some attention to reading fluency in high school is called for. At the very least, it is clear that overly slow and disfluent reading is a detriment to reading proficiency. Readers who read at an excessively slow pace, even without affecting comprehension, are at a disadvantage when compared with their classmates who read at a more normal rate. In our study, we found that 186 of 303 students (61.3%) read at a rate that was at or below the 25th percentile rate for eighth-grade students. This means that these students require significantly more time to accomplish any reading assignment than do students who read at a normal reading rate. Such levels of reading performance can easily lead to frustration, avoidance of reading, and, ultimately, school failure.

Students learn what teachers teach. And because reading fluency has generally been thought of as within the domain of the elementary grades, it is unlikely that fluency is taught directly or systematically in the middle and secondary grades. Students who lack sufficient fluency entering into the middle grades are not likely to find much instructional support for their difficulties. If fluency is a concern among middle and high school students, it needs to be taught.

Fortunately, it is not difficult to integrate reading fluency into regular classroom instruction in literacy and other content areas. Reading fluency develops with contextual reading practice. Wide reading of independent-level material (Allington, 2000) and guided reading of instructional-level material are clearly good ways to develop reading fluency. Repeated readings, another form of reading practice, is one of the most powerful ways to increase reading fluency (Dowhower, 1994; Kuhn & Stahl, 2000; NICHD, 2000; Rasinski & Hoffman, 2003; Samuels, 1979). Through repeated readings of a particular text, students increase their fluency and comprehension of the passage practiced. What is more important, however, is that the repeated readings also lead to gains in fluency, comprehension, and overall reading on other passages not previously encountered. In other words, student practice on certain passages generalizes to improved performance across all reading.

Repeated or practiced reading is best accomplished through performance activities. When students are asked to perform for others, they have a natural inclination and desire to practice the passage to the point where they can read it accurately, with appropriate rate, and especially with meaningful expression and phrasing. Texts such as poetry, scripts, oratory, and song lyrics are meant to be performed and could be incorporated into any secondary content area classroom with a bit of creative planning by the teacher.

A second proven method for developing fluency has been termed assisted reading (Kuhn & Stahl, 2000; NICHD, 2000; Rasinski & Hoffman, 2003). That is, students read a passage while simultaneously listening to a fluent oral rendering of the same text by a person or persons or on a previously recorded version of the reading. Choral reading is certainly one way to provide assisted reading. Another is for the less fluent reader to read along with a more fluent partner. That partner could be the teacher, a tutor, a classmate, or a parent. Teachers might also tape record selected passages for less fluent readers and ask them to read the passage while listening to the tape repeatedly until they feel that they can read the passage independently.

Employing methods such as these to improve students' reading fluency does require additional work for the teacher. However, if our goal is to improve student performance across content areas, then improvements in general reading ability must be a goal. As the study reported here tentatively suggests, lack of reading fluency, an instructional goal of the reading curriculum that has not traditionally been given importance in secondary schools, may be one important cause for reading comprehension difficulties among secondary school students. Some attention to fluency for those students who are not fluent readers

offers promise of significant improvements in reading comprehension and overall academic performance across the content areas.

A caveat

Although we have identified reading rate as a method for assessing reading fluency, we want to make it clear that reading rate does not represent the full meaning of fluency. We define *reading fluency* as reading with appropriate accuracy and rate but also with good and meaningful phrasing and expression. This oral interpretative aspect of fluency is the pinnacle. Teaching students to read quickly will not necessarily lead to more fluent readers or better comprehenders.

Our point is to suggest that teachers beware of fluency programs or interventions that seek solely to boost student reading rate. Rate-building exercises and admonitions to read faster will result only in students who read quickly but still do not comprehend what they read. Our own work in fluency suggests that the instructional activities outlined earlier—repeated and assisted reading for meaning—will lead to faster reading and, what is more important, readers who read with and for meaning.

Although clearly not definitive, this study suggests that fluency needs to be a concern for teachers at all grade levels, not just teachers of beginning readers. It makes good sense that even older students who read with a lack of sufficient fluency will have difficulty comprehending what they read. We hope this article will lead to further research into the role of fluency in the middle and secondary grades and will inspire middle and secondary teachers, regardless of their content specialty, to attempt to make reading fluency an integral part of their reading instruction.

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