

## What Is It?

Oral *reading fluency* occurs when a person reads accurately, at an appropriate rate, and with prosody (Hudson, Lane, & Pullen, 2005). That is, the reader is capable of decoding or recognizing words rapidly, effortlessly and with appropriate expression. (Kuhn & Stahl, 2003). Reading fluency has been identified by the Report of the National Reading Panel as one of five critical areas of reading instruction and assessment. Over the last decade, researchers have concluded that many struggling readers, especially those with learning disabilities, are in need of direct and explicit instruction in how to read fluently. It has been noted that many students, even when they become accurate decoders, do not automatically become fluent readers and must be taught to do so by providing meaningful practice through repeated exposure to text.

## Why Is It Important?

Some reading researchers (e.g., Chall, 1996; Laberge & Samuels, 1974; Stanovich, 1991) suggest an important relationship exists between reading fluency and comprehension: Slow word processing or decoding results in decreased comprehension. This relationship is based on the premise that if students are expending all or most of their energy and attention in decoding text they will not have much left over for constructing meaning. Conversely, if reading is automatic they have more capacity to think about what they are reading and the author's intentions.

Kuhn and Stahl (2003) explain it thus:

Without such automatic processing, students will continue to expend a disproportionately large percentage of their attention on decoding, which in turn leaves them with an inadequate amount for comprehension (Adams, 1990; LeBerge & Samuels, 1974; Stanovich, 1980, 1984). In other words, fluency is a prerequisite if learners are to succeed at the primary purpose of reading, the construction of meaning from text (Allington, 1983; Samuels, 1988, Schreiber, 1980).

As will be seen later in this document, empirical studies examining the outcomes of fluency interventions have further solidified the relationship between fluency and comprehension. Additional support of this relationship has come from a different direction in the form of studies investigating whether oral reading fluency is a reliable and valid measure of comprehension (Fuchs, Fuchs, Hosp, & Jenkins, 2001; Fuchs, Fuchs, & Maxwell, 1988). These studies indicate strong relationships between oral reading fluency and performance on more traditional measures of reading comprehension.

Many students with learning disabilities have additional sources of difficulty when it comes to reading fluently. In addition to frequent problems with decoding, phonological processing difficulties related to rapid naming tasks can also slow down the reading process for these students (Chard, Vaughn, & Tyler, 2002) thus making fluency building even more of an instructional issue for these students.

## What Interventions Have Been Used To Improve Reading Fluency?

The present research base contains a number of strategies teachers can use to promote reading fluency. The following interventions have come from studies that demonstrated a positive effect when used with students with learning disabilities.

*Repeated reading.* As a skills-based procedure, repeated reading represents the most widely studied method for developing reading fluency. Repeated reading's main steps derive from its name; the repetitious reading of a selected passage. Originally described by Samuels (1979), repeated reading (RR) requires the student to read a selected passage until meeting a fluency criterion. Samuels observed that the continued practice of decoding new passages resulted in progressively higher decoding frequencies during subsequent readings of text.

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Additionally, the number of repetitions required to meet the fluency criterion decreased when reading new passages.

Taken from the research literature, typical steps or procedures for conducting an RR 'session' include: (1) the teacher determines if a student has the required prerequisite skills, namely they can read text, (2) the teacher gathers needed materials including the reading passage—teacher and student copy, forms for recording performance and a timing device, (3) the teacher then prompts the student to read the passage, (4) as the student reads, the teacher records errors, and (5), the student re-reads the passage a specified number of times or to a preset fluency criterion (Therrien & Kubina, 2006).

*Variations of repeated reading.* Researchers have examined a number of variations of the RR method for students with learning disabilities. For example, students have engaged in repeated reading with a model and without a model. Reading with a model requires the adult or more proficient peer to read the passage out loud while the student listens. After listening to the model, the student repeatedly reads the passage. Additionally, modeling may also involve providing feedback for the incorrect words (e.g., omissions, substitutions, insertions, mispronunciations). The source of the model has also been varied and include the use of an audio taped model or computer-generated model.

Still other variations include use of peers, providing cues or prompts to the student to read for fluency and/or comprehension, and providing corrective feedback when the student makes errors. Other studies have added comprehension strategies to RR. For example, Therrien, Wickstrom, and Jones (2006) combined repeated reading with a question generation intervention (e.g., students are prompted to ask themselves questions about the structure of the story they are reading).

*Contingent reinforcement.* Contingent reinforcement requires a teacher to determine what functions as a reinforcer for a student and then set a criterion the student must meet in order to earn the reinforcer. For example, the teacher may set a reading criterion for 250 words read correctly with 3 errors or less in 2 minutes. If the student reaches this goal the reinforcer is provided.

*Goal setting plus feedback.* Goal setting plus feedback has two parts. The first part, goal setting, requires the student to set a performance goal or criterion for herself.

The performance goal typically involves reading a passage within a certain time period. The self-selected goal often includes the number of acceptable errors along with words read correctly.

The second part of the intervention, feedback, requires the teacher to provide information on the student's performance. Feedback can take the form of telling the student how many words she read correctly, how many errors she made, and how fast she read the passage. This information is often graphed and becomes part of the feedback process.

*Goal setting plus feedback and contingent reinforcement.* Similar to the contingent reinforcement procedure described above, goal setting plus feedback and contingent reinforcement has the additional component of delivering contingent reinforcement based on teacher-determined criteria. Thus, in addition to the student setting her goal for correct and incorrect words, providing feedback (both verbal and visual) about the student's performance, the student has the opportunity to receive contingent reinforcement for meeting or exceeding the goal

*Previewing.* When previewing text, a student listens to a story before he reads it. The listening condition can take the form of a student to listening to an audiotape with a selected passage or another person reading the passage. Sometimes, words from the passage are presented in a word list and then previewed. As an example of previewing, a student will read a 155 word passage. Before he reads the passage he plays an audiotape that has a recording of teacher reading the passage in a normal speaking rate. After the student finishes listening to the audiotape he then reads the passage.

## **How Effective Are Fluency Interventions?**

Several systematic literature reviews examining the effectiveness of fluency interventions with students with learning disabilities have been conducted (Chard, Vaughn, & Tyler, 2002; Mastropieri & Scruggs, 1997; Morgan & Sideridis, 2006; Therrien, 2004) and form the basis of this discussion.

*Repeated reading.* Overall, research has shown repeated readings increase fluency, accuracy and, to a lesser degree, improves comprehension. A closer analysis of this literature base indicates that certain aspects of the RR

process can enhance outcomes and that some variations appear to be more effective than others. For example, Chard et al. looked at studies that used repeated reading with and without models and concluded that having the passage read out loud while the student listened prior to RR was more effective for both fluency *and* comprehension than not using a model. The authors also mentioned that this increased effect was more pronounced for students with low reading fluency. Additionally, they note that having an adult provide the model is more effective than other sources such as peers, computer generated or audiotape. There is also some evidence that using peers may be the least effective of all sources of models. Relatedly, Therrien notes that reading to an adult during the RR process appears to be up to three times more effective than reading to a peer.

Both Chard et al. and Therrien's (2004) reviews considered the effects of the *number* of repeated readings. It appears that 3 to 4 readings are optimal: more than that does not result in appreciable gains in fluency. However, Therrien's analysis showed that reading to a preset performance criterion (reading until a preset number of correct words per minute is reached or until the passage is read within a predetermined time period) is more effective than reading the passage a preset number of times. Corrective feedback in the form of telling the student the correct pronunciation of a word also appears to be a critical component of RR as does cuing the student to read for fluency (telling them to read faster) and/or comprehension.

One question often asked about RR is whether fluency gains on one passage translate into better fluency on other passages. While still tentative, the answer appears to be yes. Therrien found that some RR studies looked at whether results transferred to new reading material. He found that transfer results, while lower than results for the originally read passage, still had significant effect sizes for both fluency and comprehension, especially if adults were involved in the RR procedure and if there were shared words between the passages.

*Contingent reinforcement.* Contingent reinforcement appears to be a more powerful methods for boys when compared to girls (Morgan & Sideridis, 2006). When comparing a number of interventions that effected reading fluency, contingent reinforcement was the third most powerful result for girls.

*Goal setting, Feedback, and Contingent Reinforcement.* Morgan and Sideridis looked at a variety of fluency building

interventions (using different analysis procedures than the two previously mentioned literature reviews) and concluded that goal setting appears to hold much promise as a means for increasing reading fluency. The results of their meta-analysis show that goal setting had very positive effects for both boys and girls especially when combined with feedback and/or contingent reinforcement. The authors suggested that goal setting interventions function well because they involve well-conceived plans geared towards a specific skill deficit. Also, the act of setting a goal and the subsequent reinforcement of achieving that goal bolsters active student responding and participation. The feedback and error correction also serve as a means to shape correct responding.

*Previewing.* Previewing studies looked at the effects of exposing the student to selected words in a passage or hearing the entire passage read before asking the student to read it once. While preliminary, results indicate improved accuracy with little effect on fluency.

## What questions remain?

While teachers should feel confident about using most of the above interventions to improve the reading fluency and to some extent, comprehension, questions remain. Some of these questions involve how the severity of a reading problem or the difficulty level of reading material used may impact effectiveness of the interventions. More investigation into how to establish optimal goals and fluency aims also needs to be addressed. Too, how can we structure these or some new interventions to assist in the transfer of fluency to novel text? Possibly more research on making RR more effective when peers are involved would be useful in terms of freeing up teacher time. And what types of comprehension strategies might be used in conjunction with fluency interventions to increase comprehension, the ultimate reading intervention goal.

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