

“She’s My Best Reader; She Just Can’t Comprehend”: Studying the Relationship Between Fluency and Comprehension

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If reading fluency contributes to reading comprehension, then highly fluent readers should be expected to perform well in comprehension when reading materials at their current grade level. The authors of this study, however, found that this assumption is not always the case.

Our graduate students are for the most part reading specialist candidates, and in the course designed to sharpen their assessment skills, we require them to administer an informal reading inventory to several students. To broaden the scope of their experience, we ask that they not limit themselves to struggling readers but test at least one student who has been identified by teachers or parents as a strong reader. Last year, one of our students waited until class was over to share with us how distraught she was about the poor overall performance of her “strong reader.” Unfortunately, we were quite familiar with the scenario she was describing. We encouraged her to speak with the child’s teacher to gain more insight into the child’s day-to-day performance in reading. The following week she came back equally distressed. It seems that the teacher had told her, “Oh, she’s my best reader, for sure. She’s just not a good comprehender.”

As disconcerting as this story may be, even more disconcerting were the responses to the tale that we encountered from nearly a dozen practicing

professionals: They were not surprised at all. A large proportion of both our students and our professional colleagues had an opinion as to the reason behind this incident and others like it. They cited as the chief cause an overemphasis in their schools on the development of oral reading indicators such as rate and accuracy without an accompanying emphasis on comprehension. Our curiosity about how widespread the problem might be led to this formal investigation into the relationship between fluency and reading comprehension.

Fluency and Comprehension

Fluency was once famously described as a “neglected goal” of American reading education (Allington, 1983), but that is clearly no longer the case. The origins of the resurgence of interest in reading fluency can be traced earlier than the report of the National Reading Panel (NRP; National Institute of Child Health and Human Development [NICHD], 2000), but there is little doubt that the report’s recognition of fluency as one of its five pillars of reading served as a flashpoint for an explosive increase of interest in fluency and its instructional corollaries.

The fact remains that variations in the definition of reading fluency still abound in the literature (Keehn, 2003), but there seems to be a sizeable consensus on two of its key components: (1) accurate and automatic word recognition and (2) reading at an appropriate rate of speed. Reading with appropriate prosody or expression has been regularly added to the definition of fluency by many theorists, but it should be

noted that there is some conflict in the findings of researchers who have investigated links between prosody and comprehension. Some researchers have reported links between the two (Meyer & Felton, 1999; Miller & Schwanenflugel, 2006), while others have failed to verify a relationship (Schatschneider et al., 2004).

Still other theorists add to these components the essential elements of comprehension and the construction of meaning (Eldredge, 2005; LaBerge & Samuels, 1974; Pikulski & Chard, 2005; Rasinski, 2003, Samuels, 2007). However, in most of the studies that we reviewed, the most common definition of fluency did not specifically include the concept of comprehension; instead, researchers seemed to be attempting to determine if links between fluency and comprehension could be established. Consequently, we will use *fluency* in this paper in the same way that we found it most frequently used in the literature, as an indicator of the speed, accuracy, and prosody of oral reading.

Fluency as a Predecessor of Comprehension

LaBerge and Samuels (1974) proposed the idea that reading requires two central tasks of our inherently limited cognitive resources: word recognition and comprehension. If readers have not developed automaticity in word recognition, then the efforts they must expend in decoding will almost necessarily limit the efforts they can direct to comprehension. Conversely, the more automatic the decoding, the more attentional resources they will have available to direct toward comprehension.

Based on the ideas of LaBerge and Samuels, some researchers have suggested that once they are freed up, attentional resources depleted by basic word recognition can then be directed toward comprehension (Hudson, Lane & Pullen, 2005; NICHD, 2000). Consequently, they concluded that increases in student fluency should result in increases in reading achievement, particularly comprehension.

Fluency and Comprehension Intertwined

Other researchers and theorists argue that the relationship between fluency and comprehension is much more complex than meets the eye (Dowhower,

1991; Rasinski, 1984; Strecker, Roser, & Martinez, 1998). Some, for example, have called attention to the fact that readers' comprehension and fluency strategies are affected by the extent to which they find the material interesting (Walczyk & Griffith-Ross, 2007). Others have insisted that the fluency instruction given to struggling readers must be multidimensional if they are to achieve the ultimate goal of reading: the ability to respond to text reflectively and intelligently (Gaskins, 1999; Pikulski & Chard, 2005; Pressley, Gaskins, & Fingeret, 2006). Still others have suggested that the development of fluency requires opportunities to engage in critical and meaningful discussions of text (Griffith & Rasinski, 2004). Such interactive conceptualizations insist that skills such as fluency and comprehension be developed simultaneously (Schwanenflugel et al., 2006) so that the reciprocal relationship between them becomes obvious and conscious to readers and can be incorporated into their internal monitoring system.

Rationale

We were mindful of a sizeable number of studies in which children trained in the acquisition of reading fluency also demonstrated growth in comprehension (Breznitz, 1987; Flood, Lapp, & Fisher, 2005; Greenwood, Tapia, Abbott, & Walton, 2003; Griffith & Rasinski, 2004; Keehn, 2003; O'Connor et al., 2002; O'Connor, White, & Swanson, 2007; Reutzel, Hollingworth, & Eldredge, 1994; Schwanenflugel et al., 2006; Young, Bowers, & MacKinnon, 1996). In our study, however, the children had already acquired a high level of fluency as evidenced by their rate, accuracy, and prosody. In addition, they had been identified by their classroom teachers or parents as strong readers, and all were members of the top reading group in their classroom. We reasoned that if fluency promotes reading comprehension, then these students should be expected to demonstrate reasonably high performance levels when comprehension was assessed at their current grade level.

We were also mindful of the fact that most studies that reported gains in comprehension as a function of fluency improvement assessed comprehension by means of either standardized multiple-choice tests (Breznitz, 1987; Jenkins, Fuchs, van den Broek, Espin, & Deno, 2003; Keehn, 2003; O'Connor et al., 2007; Schwanenflugel et al., 2006) or on the basis of literal retellings (Keehn, 2003; Young et al., 1996). Some of

these same researchers called for replication of their findings using a broader range of comprehension measures (Schwanenflugel et al., 2006). We set out to assess reading comprehension as complex, higher-level, thoughtful response to text.

To investigate the nature of the relationship between fluency and comprehension, we identified a sizeable number of children who had been identified as strong and fluent readers. We reasoned that if these students performed well at their current grade level in a measure of reading comprehension, such a result would lend support to the idea that fluency contributes to comprehension. If, however, a significant proportion of highly fluent and highly regarded readers should experience difficulties with comprehension, we may need to take a closer look at the relationship between fluency and comprehension.

Our study examined two issues:

1. Is there support in our findings for the idea that the development of a high level of fluency will be accompanied by a high degree of reading comprehension?
2. Will a high degree of fluency be accompanied by a high degree of reading comprehension when that comprehension is assessed as thoughtful response to text?

Assessing Reading Comprehension

We selected the Critical Reading Inventory-2 (CRI-2; Applegate, Quinn, & Applegate, 2008) as our measure of reading comprehension for several reasons. First, we needed a tool that could be used to assess a wide range of specific grade levels since our study included students from grades 2 through 10. The CRI-2 includes passages at grade levels preprimer through 12th grade. We also sought a measure of a reader's ability to not only recall text but to also respond thoughtfully to it. The CRI-2 is rooted in widely accepted definitions of reading that we found in the professional literature, definitions that reflect a remarkable level of agreement on the thoughtful, interactive nature of comprehension (Flippo, 2001). Much of this agreement is reflected in the NRP's definition of reading: "an active process that requires an intentional and thoughtful interaction between the reader and the text" (NICHD, 2000). In addition, Applegate, Applegate, McGeehan, Pinto, and Kong (2009)

conducted an examination of the fourth-grade instructional and assessment frameworks from all 50 states and found that no state defines the ability to read as the simple ability to extract meaning from text. All state assessments expect at least some level of thoughtful response on the part of the reader.

The CRI-2 includes narrative and informational text selections that were leveled on the basis of the Flesch-Kincaid readability formula and followed by an extensive analysis of actual test data, aimed at validating these grade levels. The CRI-2 incorporates a retelling rubric structured to resemble a typical story grammar and includes credit for a reader's well-supported personal response to the text. Analysis of retelling data was aimed toward maximizing the relationship between retelling scores and comprehension and distinguishing between and among scoring categories. A computerized automated scoring and interpretation interview includes a program that accurately calculates retelling scores and requires only that the user indicate those story elements that were present or absent in the retelling. In the standardization study for the CRI-2, narrative retellings were found to correlate at 0.51 with total comprehension item score for narrative text. Descriptions of narrative retelling scores are included in Table 1.

Finally the fluency rubric that accompanies the CRI-2 is designed to assess pacing, accuracy, and prosody of oral reading (see Figure 1).

The CRI-2 was developed to measure reading along three dimensions:

1. Text-based—These items include both literal questions whose answers are stated explicitly (verbatim) in the text and low-level inferences whose answers are not stated verbatim in the text but may be so close to literal as to be obvious. One such example (Leslie & Caldwell, 2006, p. 314) occurred when the text read "Pele had a dream. He wanted to become a professional soccer player." The question was "What was Pele's main goal?" Despite the fact that this item was labeled as assessing implicit comprehension (interaction of text information and prior knowledge), we categorized such items as text-based because they required only that the reader translate a response from one linguistic form to another.
2. Inference—These items call for the reader to link experiences with the text and to draw a

Table 1
Descriptions of Narrative Retelling Scores

Score	Description
4.0	A virtually perfect retelling that includes all story elements and a well-supported personal response
3.5	An exceptionally strong retelling that omits a small but significant part of the problem-solving process but still includes a well-supported personal response
3.0	A very strong retelling that includes all story elements, including all five steps in the problem-solving process, but does not include a personal response
2.5	A strong retelling that includes many story elements in a variety of combinations and may include a personal response; a reader who achieves this score has clearly comprehended the primary gist of the story
2.0	A solid retelling that includes most key story elements but that is also characterized by some key omissions and that may include a personal response
1.5	A fairly weak retelling that includes some story elements but also omits a good deal of key information and may contain some factual distortions and that may include a personal response
1.0	A weak retelling that includes a few story elements but is also characterized by some glaring omissions and factual distortions and that does not include a personal response
.5	A very weak retelling that includes little more than a few disjointed story elements and factual distortion and that does not include a personal response
.0	A retelling that may include nothing more than a vague idea of the topic of the story or a character in the story and that does not include a personal response

Note. From Applegate, Quinn, and Applegate, 2008, p. 80. Reprinted by permission of Pearson Education, Upper Saddle River, New Jersey, USA.

logical conclusion. Answers to these items require significantly more complex thinking than low-level inferences. For example, a story describes a father’s effort to teach his children to fish. His daughter is very successful, but his frustrated son will not listen to his father’s advice. The inference question is “Why would Pat’s sister be better at fishing than Pat?” To answer the question successfully, the reader must note that Pat’s sister is listening to the advice she is given and avoiding the kind of behavior that might lead to failure (Applegate, Quinn, & Applegate, 2008, p 111).

3. Critical response—These items call for a reader to link text and experience and to express and defend an idea related to the actions of characters or the outcome of events. Critical response items differ from high-level inference items in that they are directed toward broader ideas or underlying themes that relate to the significance of the passage. They require analysis,

reaction, and response to text, based on personal experience and values (Nilsson, 2008), and demand that the reader react to the underlying meaning of the passage as a whole. For the passage described above, a critical response item asks, “How well do you think Dad taught the children to fish?” The reader can respond either positively or negatively but must support the response with information from the text and demonstrate a solid understanding of the essence of the story (Applegate, Quinn, & Applegate, 2008, p. 111).

We designed this type of assessment to enable users to distinguish between readers who can recall information from the text and those who can think about it. No less than 60% of the comprehension questions in the CRI-2 assess the higher-level thinking included in inference and critical response items. Our intent in this regard was to emulate national and international assessments that are heavily weighted

Figure 1
Oral Reading Fluency Rubric From the *Critical Reading Inventory*

Rate the reader's fluency in each of the four categories below. Check only one box in each category.

Oral reading

- _____ (5 pts.) Reading is fluent, confident, and accurate.
- _____ (4 pts.) Reading is fluent and accurate for the most part, but reader occasionally falters or hesitates.
- _____ (3 pts.) Reader lacks confidence at times, and reading is characterized by frequent pauses, miscues, and hesitations.
- _____ (2 pts.) Reader consistently lacks confidence and occasionally lapses into word-by-word reading with frequent meaning-violating miscues.
- _____ (1 pt.) Reader demonstrates largely word-by-word reading with little or no inflection and numerous meaning-violating miscues, some of which may be nonwords.

Intonation

- _____ (5 pts.) Intonations consistently support meaning of the text.
- _____ (4 pts.) Intonations are largely meaningful but may include exaggerations or inflections inappropriate for the text.
- _____ (3 pts.) Intonation is characterized by some joining of words into meaningful phrases, but this element often breaks down when the reader encounters difficulties.
- _____ (2 pts.) Intonation is largely flat with lack of enthusiasm.
- _____ (1 pt.) Intonation is almost completely absent.

Punctuation

- _____ (5 pts.) Reader demonstrates a natural use of and appreciation for punctuation.
- _____ (4 pts.) Reader demonstrates a solid use of punctuation as an aid to intonation.
- _____ (3 pts.) Reaction to punctuation marks results in pauses that are inappropriately long or short.
- _____ (2 pts.) Punctuation is occasionally ignored and meaning may be distorted.
- _____ (1 pt.) Reader demonstrates frequent ignoring of punctuation.

Pacing

- _____ (5 pts.) Pacing is rapid but smooth and unexaggerated.
 - _____ (4 pts.) Reading is well paced with only occasional weakness in response to difficulties with the text.
 - _____ (3 pts.) Pacing relatively slow and markedly slower (or markedly faster) when reader encounters difficult text.
 - _____ (2 pts.) Pacing is either very slow or inappropriately fast.
 - _____ (1 pt.) Pacing is painfully slow and halting.
- _____ Total score

Note. From Applegate, Quinn, and Applegate, 2008, p. 76. Reprinted by permission of Pearson Education, Upper Saddle River, New Jersey, USA.

with such items. Most prominent among these is the National Assessment of Educational Progress, often referred to as “the nation’s report card.” Included in its 2007 framework for test development (National Assessment Governing Board, 2006) are four aspects of reading: (1) forming a general understanding, (2) developing interpretation, (3) making reader–text connections, and (4) examining content and structure. Only the first of these focuses on text-based comprehension.

Sample and Methodology

The sample for this study consisted of 171 children, ranging from grade 2 through grade 10 and residing in Pennsylvania, New Jersey, and Delaware. The sample included 60 males and 111 females, a rather heavy weighting in favor of females. Eighty-six percent of the children in the sample were Caucasian while 14% were members of minority groups. One hundred and nine attended public schools, 45 attended parochial

schools, 17 attended private schools, and two were home-schooled. Table 2 includes a breakdown of the sample in light of grade-level categories.

All subjects were tested by graduate or undergraduate examiners as part of the course work in the diagnosis and correction of reading difficulties. All examiners were trained in the administration and scoring of the CRI-2 via classroom demonstrations and web-based tutorials for the scoring of comprehension items, miscues, and retellings. Examiners were instructed to audiotape oral readings of passages as well as retellings. All retellings were scored by comparing the child's retelling to a retelling rubric unique to each passage and based largely on the recall of key elements drawn from a modified story grammar structure. Retelling scores were calculated by a computer program available to CRI-2 users. The use of the program has been shown to significantly increase the reliability of the scoring of retellings (Applegate, Quinn, & Applegate, 2008).

As indicated earlier, we asked examiners to test a reader who had been identified by a parent or teacher as a strong reader. We reasoned that parents would be most likely to identify their children as strong readers if their teachers had done so. The results of the parent interview of the CRI-2 confirmed those assumptions. A large number of parents cited teacher feedback and grades as the source of their characterization of the reading skills of their children. In addition, only children placed by their teachers in the high reading group in their classrooms were included in the study. From among the strong readers identified, we selected for this study only those who earned a score of 16 or higher on the CRI-2 Reading Fluency Rubric, indicating strong fluency performance in terms of accuracy, pace, and prosody.

All examiner scores for retellings and comprehension items were cross-checked independently by two experienced CRI-2 users and any discrepancies were resolved by discussion. In the case of fluency scores, the experts cross-checked a random sample of 30 audiotapes to ensure the accuracy of assigned scores. In 97% of the cases sampled, the experts agreed that subjects met the minimum criteria in speed, accuracy, and prosody of oral reading for inclusion in the study.

Results

Each subject was tested at his or her current grade level on two narrative passages from the CRI-2, with

Table 2
Number of Subjects in Grade-Level Categories

Primary grades (2–3)	Intermediate grades (4–5)	Middle and high school grades (6–10)	Total
<i>n</i> = 60	<i>n</i> = 57	<i>n</i> = 54	<i>N</i> = 171

Table 3
Mean Scores in Text-Based and Higher Order Items

Mean score text-based	Mean score higher order	Mean score all items
80.70	66.12	70.07

one read orally and the other read silently. Each passage was followed by a retelling and a series of 10 open-ended comprehension questions. Text-based comprehension at each child's current grade level was assessed by a total of eight comprehension items and higher order comprehension was assessed by a total of 12 comprehension items. We combined inference and critical response items because both item types assess the ability to link text and experience and because such a combination of items would enable us to measure higher order thinking with a higher degree of reliability. The mean scores for all subjects are presented in Table 3.

Of more interest than raw mean scores is the proportion of the sample that was judged to be functioning as advanced, proficient, or struggling comprehenders in their current grade-level placement. For the purpose of this study, we defined advanced comprehenders as those achieving a total comprehension score of 85% or higher. Proficient comprehenders achieved a total score ranging between 63% and 80%. Struggling comprehenders received a total score of 58% or lower. Table 4 includes the number of readers in the sample classified at each level and the mean comprehension, retelling, and fluency scores they achieved at their current grade level.

Table 4
Comprehension, Retelling, and Fluency Scores for Advanced, Proficient, and Struggling Readers

	Total comprehension	Text-based	Higher order	Average retelling	Average fluency
Advanced comprehenders <i>n</i> = 52	91.64	96.74	88.23	2.45	17.87
Proficient comprehenders <i>n</i> = 62	71.28	82.42	63.85	1.73	18.03
Struggling comprehenders <i>n</i> = 57	49.46	70.75	35.31	1.00	17.40

As might be expected, a significant number (30%) of our fluent and strong readers achieved a high level of reading comprehension, both literal and higher order, at their current grade levels. An even larger number (36%) of these readers scored at a level that suggested that they are proficient readers but still have some instructional needs in comprehension. The most startling finding, however, was the fact that fully one third of our fluent and “strong” readers struggled mightily with comprehension at their current grade level. It is difficult to escape the conclusion that many of these children had been judged strong readers on the basis of their pacing, accuracy, and prosody alone.

Our experiences with comprehension questioning following reading led us to investigate another possible explanation for these results. The data in Table 4 suggest that the average text-based comprehension of struggling comprehenders reached an instructional level, suggesting that much of the problem lies with higher order comprehension. From among the 57 struggling comprehenders in this sample, we identified those whose percentage score on text-based comprehension exceeded their score on higher order comprehension by a margin of 30 percentage points or more. We found that 29 of the 57 struggling comprehenders we identified fit this pattern of differential scores. This finding sheds some light on the overall results and may reveal a problem that is more widespread than is apparent. In his discussion of thoughtful literacy, Allington (2001) identified numerous studies of classrooms where researchers found an overwhelming proportion of tasks that emphasize remembering and reciting with very few tasks that engage children in thinking about what they read. If our subset of struggling readers were to be placed in

such classrooms, their high levels of speed, accuracy, and prosody, coupled as they were with the ability to answer factual questions, would make them reading stars. And if the assessment of reading comprehension remained largely literal, it may be years before their struggles with comprehension are discovered.

An examination of the pattern of scores included in Table 4 suggests that the differences in performance between text-based and higher order comprehension cannot be ascribed simply to the fact that one type of item is easier than another (Jennings, Caldwell, & Lerner, 2006). It is clear that nearly a third of all the readers in our sample were able to perform very well on challenging, open-ended items.

Disaggregation of our results into grade-level groups revealed some inconsistency in results for text-based comprehension but very little with respect to higher order or total comprehension (see Table 5). Thus it appears that in this study, grade level of subjects was not a factor in the relationship between fluency and comprehension.

Discussion

The most obvious and disturbing element of these findings is that there may be a considerable number of teachers who are judging the reading proficiency of their students based solely on speed, accuracy, and prosody, divorced from thoughtful comprehension. In retrospect, this should not come as a surprise to savvy observers of reading education. Much of the recent literature in the field emphasizes the sizeable correlation that exists between fluency and reading achievement. Many of the articles that we reviewed encouraged teachers to work on the speed, phrasing, or prosody

Table 5
Comprehension, Retelling, and Fluency Scores for Advanced, Proficient, and Struggling Readers by Grade Level

Grade level	Comprehension performance	Text-based	Higher order	Total comp.	Average retelling	Average fluency
Grades 2–3	Advanced (<i>n</i> = 15)	98.80	86.97	91.70	2.42	17.20
Grades 4–5	Advanced (<i>n</i> = 19)	97.36	88.37	91.97	2.43	18.21
Grades 6–10	Advanced (<i>n</i> = 18)	93.93	89.14	91.07	2.50	18.06
Grades 2–3	Proficient (<i>n</i> = 18)	74.14	66.63	69.63	1.81	18.16
Grades 4–5	Proficient (<i>n</i> = 21)	87.00	62.83	72.50	1.54	17.81
Grades 6–10	Proficient (<i>n</i> = 23)	85.25	62.41	71.55	1.91	18.14
Grades 2–3	Struggling (<i>n</i> = 27)	62.00	35.22	45.93	0.99	17.33
Grades 4–5	Struggling (<i>n</i> = 17)	67.33	36.56	48.87	1.12	17.47
Grades 6–10	Struggling (<i>n</i> = 13)	75.92	33.85	50.68	0.83	17.46

of their students' oral reading while giving little or no attention to comprehension (Devault & Joseph, 2004; Hudson et al., 2005; Richards, 2000; Speece & Ritchey, 2005). As we discussed earlier, even in many of those cases when comprehension was incorporated into fluency instruction, the type of comprehension assessed was purely text-based and, if these results are in any way representative, largely unable to detect their subjects' levels of thoughtful comprehension.

LaBerge and Samuels (1974), in their oft-cited description of attentional resources, suggest that automaticity in word recognition frees up an individual's attention for use in comprehension. Our data suggest that for many of the students in our sample, the freed-up resources that result from automaticity and fluency do not necessarily or automatically flow toward comprehension. The fact that we know little about the type of reading instruction these children received is both a limitation of the current study and a challenge to future research. However, it is clear that a significant number of these children have developed a distorted conceptualization of reading, focusing their energies on a high level of word recognition and fluency without also developing high levels of comprehension. A second challenge to future research is to investigate whether females are more likely to be overcategorized as strong readers based on their fluency alone.

Thus it seems that treating word recognition and fluency as skills that exist separate and distinct from comprehension may open the door for a great deal of confusion on the part of students and teachers alike. Even many researchers have "treated all reading skills as similar components compiled in expert reading" (Paris, 2005, p. 199), opening the door to conceptual misinterpretations of the nature of skill development. If, as it seems, the processes of automaticity and comprehension are interactive and intertwined in their effects upon each other, there is no rationale for partitioning them in our instructional schemata. To do so is to run the risk that some students and teachers will come to accept the notion that automaticity and fluency are ends in themselves and not means to the ultimate goal—a thoughtful response to text. Instead, we believe that fluency must take its rightful place among many other cognitive processes that affect the quality of comprehension, such as background knowledge, vocabulary, motivation, selective attention, and schemata organization.

Few of the authors we reviewed would go so far as to suggest that the correlation between fluency and comprehension is linear or causal. Indeed many writers specifically warn against this oversimplification of such a complex interrelationship (Pikulski & Chard, 2005; Strecker, Roser, & Martinez, 1998). Translating such complexity into simple instructional

prescriptions, no matter how good the intent, opens the door for what Rasinski (2004) calls “the corruption of the definition of fluency” (p.49).

In fact, the dangers of confusing curricular means and ends in the use of such assessments as the Dynamic Indicators of Basic Elementary Literacy Skills (DIBELS) have been discussed at length by Pearson (2006), Samuels (2007), and Allington (2009). Our data lend support to the notion that assessments of fluency without concurrent assessments of thoughtful comprehension are potentially misleading and damaging. What may ultimately be even more detrimental is the establishment of programs of instruction that divorce fluency and word recognition from comprehension.

It is clear that many theorists believe that fluency is a facilitator of comprehension and precedes its development. At the other end of the spectrum, some believe that fluency is an “outcome” of comprehension. Both positions are challenged by these data. In the former case, fluency did not produce in all of these students a high level of comprehension. Some may argue that since fluency has been achieved in these children it is now time to focus on comprehension. The problem is that nearly one quarter of our struggling comprehenders are attending middle school and high school. For those who view fluency as an outcome of comprehension, a high level of comprehension was clearly not necessary to produce fluency in all of these students. It seems to us that the answer to the relationship between fluency and comprehension lies elsewhere in a complex interaction that is not clearly understood and needs much more investigation and research.

It is our hope that these findings give us all reason to pause and consider the consequences of developing sets of reading skills in our children without an uncompromising diligence in assessing whether these skills are working together as they should. In the old nursery rhyme, Humpty Dumpty fell off the wall and broke into many pieces. In the cases of many of the children whom we assessed, it will be a daunting task to reassemble the pieces and help them to become the thoughtful and intelligent readers that we need them to be.

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