by Donald R. Bear

Why Beginning Reading Must Be Word-By-Word:

Disfluent Oral Reading and Orthographic Development

The development of reading fluency is a gradual process which often entails strategies that make for a disfluent oral presentation. Disfluent oral reading, fingerpointing and reading aloud to oneself are the most characteristic behaviors of beginning readers. In this paper, research related to these reading behaviors and the corresponding spelling behaviors is presented. Based on an integrated theory of literacy proficiency, the synchrony between stages of reading and spelling development and the reasons why these stages are related are discussed.

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It is an observable fact that beginning readers are disfluent in their first excursions. Their reading is almost invariably word-by-word: they usually read aloud to themselves, and they often fingerpoint to each word. While acknowledging this phenomenon, teachers are often anxious to help beginners discard these behaviors and become more efficient readers. Recent theory and research suggest, however, that the disfluency, fingerpointing and reading aloud of beginning readers are natural phenomena along a developmental continuum and are part of a necessary stage of reading development.

To account for these behaviors, an integrated theory of literacy development proposes a synchrony between developmental stages of reading and word knowledge as reflected in spelling. After establishing the context of this integrated theory, this paper explores the reasons why beginning readers read disfluently, fingerpoint and read aloud and discusses supporting research which has found orthographic correlates to these behaviors of beginning readers. This research suggests that fluent reading must wait until a certain power in word knowledge is achieved. The pedagogical implications which follow from this integrated theory of literacy development are presented in the final section.

An Integrated Theory of Literacy Development

The intergrated theory discussed here draws on a theory of reading proposed by Brown, which is based on real time and acknowledges a 'biological-neurological matrix" (Brown 1981, 443). Brown proposes that the act of reading is differentiated from concious reflection on the meaning of the text. According to Brown, once the icon or visual image is obtained, attention is directed to dividing the visual stream into words. The more efficiently the reader can divide the icon into words, the more rapidly the reader can monitor higher levels of linguistic organization (Perfetti 1985). The ability to divide the icon into words is related to word knowledge and orthographic awareness. If word recognition is not relatively automatic, the reader can hold the information and gain more processing time (up to 20 seconds) through subvocalization or, in the case of the beginning reader, reading aloud. Conversely, the quicker the reader taps word knowledge, the more easily higher levels of analysis are obtained (Cutler et al. 1987) and the student can plan the reading in larger units (Huey 1968, 116). A bottleneck occurs in rapid processing, however, when word recognition is slow or inaccurate.

The question then becomes: What type of word knowledge is necessary to prevent this bottleneck? A variety of research has described developmental patterns in orthographic awareness which underlie reading, word identification and spelling. A clear relationship has been found between word knowledge in reading and specific stages of spelling development (Ehri 1987; Henderson and Beers 1980; Henderson 1981,1985; Invernizzi 1985; Morris and Perney 1984). Spelling errors or invented spellings reflect underlying orthographic awareness, and based on an analysis of correct and incorrect spellings, a stage of orthographic development can be determined. Thus, a time schedule to gauge progress and plan reading, writing and spelling instruction is created (Henderson 1985).

The research discussed briefly in this paper aims to advance this integrated theory of literacy development by relating the stages of spelling to three reading behaviors characteristic of the beginning

reader. The specific parallels between reading and spelling development are presented in figure 1.

It can be seen that the developmental model begins with prereading and the preliterate stage of spelling (A) and that point B represents the onset of beginning reading. The key difference between A and B is that at B the student has acquired a concept of word in print; the student is most likely in the prephonetic stage of spell-

Figure 1.

Stages of Reading and Spelling

Reading			
A →	B →	C →	D →
Prereading	Beginning Reading		Functional Reading
No Concept of Word	Disfluent Oral Reading		Approaching Fluency and Expression
Pretend Reading	Oral Reading		Silent Reading

Spelling			
A →	B →	C →	D →
Preliterate	Prephonetic	Letter Name	Within-Word Pattern
sq4R (bed)	bd	bad	bed
mdam (time)	tm	tim	tiem, time
//)0 (lake)	lk	lak	laik, laek, lake

ing. In the prephonetic stage of spelling, the beginning and often the ending sounds of words are represented: i.e., BD for "bed." (The transition from A to B, and the synchrony between reading and spelling at these points, is based on research by Ehri [1987], Morris [1981], and Morris and Perney [1984].) In the next section, concept of word in print is discussed as the hallmark of beginning reading.

A Prerequisite to Beginning Reading—Concept of Word

While it may appear that a miracle has taken place when a student moves from prereading to beginning reading (Henderson 1981), it is possible to follow this progress by assessing students'

tacit knowledge of concept of word. Concept of word may be defined as the ability to make the spatial-temporal match between what is seen and what is said in a line of text. This ability to track has been defined operationally as the ability to point to the words of a memorized text (Morris 1981). Even with teacher modeling immediately prior to pointing, the student without a concept of word will not be able to point accurately. Concept of word may be thought of as a type of metalinguistic awareness which is learned tacitly, implicitly or without conscious reflection through numerous interactions with familiar texts. In terms of providing opportunities to practice tracking, there is little difference between the Puritans' use of the familiar prayers on the horn books and the modern use of dictations as part of the language-experience approach (Henderson 1981; Stauffer 1980).

This ability to track a line of text is related to phonemic segmentation and beginning spelling (Morris 1980). The student who has attained a concept of word is a beginning reader who can learn a great deal about the orthography by reading. According to Morris (1981), the student at point B has a rudimentary concept of word and will develop a modest sight vocabulary.

Once this stage of beginning reading is achieved, the child becomes a word-by-word reader, tends to point to the words as he reads and will tend to read aloud to himself. In figure 1, it can be seen that the reader at point C is in a more advanced stage of beginning reading. A difference between points C and B is that the reader at point C has a more stable concept of word. In addition, the reader at point C enters into the letter name stage of spelling. In letter name spelling,[1] the vowels in stressed syllables are represented. At both points B and C, beginning reading and disfluent oral reading run parallel to specific stages of spelling.

Now that it is clear when beginning reading begins, the reading behaviors of beginning readers can be discussed. Then, in the following section, the synchrony between these behaviors and stages of spelling will be described in fuller detail.

Why would a student choose to read aloud, fingerpoint and read in a word-by-word fashion? It can be argued that methods of instruction may cause, or at least encourage, these behaviors; yet it can also be argued that developmental readers would not uniformly adopt inefficient behaviors. While the effects of instructional techniques make it difficult to know whether or not these behaviors are inherent to beginning reading (Allington 1984), recent research suggests that levels of efficiency are tempered by development.

To determine that these behaviors are, indeed, related to development, Bear (1982, 1985) examined the reading and orthographic awareness of first through third graders. In two separate studies, the reading fluency, reading achievement, teacher ratings and observations, and spelling development were analyzed. It was found that first-grade beginning readers from a variety of instructional orientations tended to read aloud to themselves during quiet reading time. Teachers observed that when students began to read fluently, they tended to stop reading aloud to themselves. In these studies, fluency and expression were evaluated broadly and also narrowly in terms of reading rate, the frequency of pauses and specific emphases for expression. These fluency measures, measures of reading achievement, fingerpointing and reading aloud were related. For example, the raters' general evaluation of expression of 40 first graders who read familiar materials was significantly related to reading rate and pause frequency (Bear 1982). And among 60 second and third graders, reading achievement scores were related to teacher ratings of fluency (Bear 1985). It was also found that reading aloud, fingerpointing and word-by-word reading were both interrelated and related to standardized measures of reading achievement and teachers' ratings of fluency and achievement.

Reading Aloud To Oneself Why do beginners read aloud to themselves? Danks and Fear (1979) suggest that oral reading promotes the conjoining of syntactic junctures. Schrieber (1980) and Chomsky (1970) have described the development of reading fluency as a move away from a linear graphic read-out to a greater

dependence on morphological and syntactic information. Reading aloud may buy the beginning reader more processing time, promoting an easier passage throught the text. The time that reading aloud provides may be enough to hold text together syntactically and semantically. Oral reading is an aid to the beginning reader. When difficulties arise, the mature reader buys time in a similar fashion by running through the subvocalization more slowly than usual (Brown 1981).

Fingerpointing The finger is used by beginning readers to hold a place in the text. Some beginning readers point to each word as they read; others mark the general spot, with the finger pointed a few words ahead or behind focused vision. As a general policy, many teachers have discouraged fingerpointing; however, it may be considered an appropriate behavior for the disfluent beginning reader. Gradually, as oral reading becomes more fluent, finger-pointing subsides, and the reader may place a finger in the left margin on the next line in order to mark a place for return sweeps.

Even the mature reader may resort to fingerpointing when there are special demands placed on verbal planning during oral reading, demands in terms of the difficulty of the text or in terms of sociolinguistic factors. For example, using the eye-voice span,[2] performers may mark their place with a finger before making eye contact with the audience.

Word-by-Word Reading Clay (1979) has said that in word-by-word reading there are slight breaks between each word. What seems more accurate to say is that the oral reading of beginning readers is often disfluent and unexpressive. Although there may be many phrases read in a word-by-word fashion with one-second pauses between words, there are times when the relative length and placement of pauses follow syntactic structures, with pauses at the end of sentences or at the end of introductory clauses, and there are times when phrases are read as a group. Disfluent oral reading may sound monotonic, "staccatoish" and lacking in expression or emphasis. The rate for this type of disfluent oral reading is well below 100 words per minute, even in

familiar materials. The most disfluent, frustration-type reading may be no faster than 35 words per minute.

Eye movement research has shown that the beginning reader's eye-voice span is shorter than the mature reader's and that movement through text is haltingly slow (Levin and Addis 1979). The beginning reader is generally unable to hold phrase or sentence units together; without this broader picture, it is difficult to read fluently and with good expression. Some beginning readers try to read expressively but are unable to do so. It may sound as if they are emphasizing particular words without a cohesive phrasal structure to support the expression.

In most cases, the problem with the disfluent oral reading of the beginner is not one of comprehension but rather one of verbal planning and efficiency (Deese 1984; Perfetti 1985). To be efficient in word recognition, the beginning reader is distracted more than momentarily from the verbal task of planning and predicting text structures. Like the child who tunes out the rest of the world while struggling to put on an overcoat, the disfluent beginning reader is too busy reading words to plan for an oral presentation of phrases and sentences.

Letter Name Spelling and Reading Disfluency

The verbal planning and linear read-out of the disfluent beginning reader appear to be similar to the spelling strategy of the letter name speller. In letter name spelling, each letter represents a distinct sound, and there are no abstract markers for long vowels: e.g., "time" will be spelled TIM. In both cases, the student's word knowledge and orthographic awareness preclude chunking at higher levels both in terms of accuracy and fluency.

This synchrony between reading and spelling is based on the finding that spelling predicted a variety of reading measures, including reading rate and expression (Bear 1982, 1985). In one study, the reading rate among 40 first graders was inversely related to letter name spelling, and letter name spelling predicted a number of measures of reading fluency (Bear 1982). In a second study, with 96 first-through-third graders, spelling by stage predicted reading achievement (Bear 1985). For the 60 second and

third graders, spelling by stage assessments accounted for 77 percent of the variance of standardized test scores and was related to fingerpointing and fluency.

The relationships found between letter name spelling and reading disfluency suggest that until a qualitative change in word knowledge occurs, the beginning reader will not forge a visual perceptual span and will not be able to make a steady and fluent movement through text which would permit an acceptable oral rendering. In the following section, the qualitative changes in word knowledge are discussed as they relate to reading fluency.

The Onset of Fluency and Within-Word Pattern Spelling

When a student reads relatively easy texts with good fluency (90-100 words per minute) and with moderate expression (sentential pauses and occasional falling, end-phrase intonation contours), the fingerpointing and reading aloud largely disappear. (See figure 1, point D.) During the corresponding stage of spelling, the within-word pattern stage, the student is approaching reading fluency (Bear 1987). In the studies with first graders, this stage of spelling was never related to reading disfluency and was weakly related to fluency and expression. In the study with the first-through-third graders, students in the within-word pattern stage were apt to be more fluent and expressive oral readers. They tended not to fingerpoint, and they had adopted silent reading as the mode of choice during independent reading (point D).

The verbal planning which is so necessary to a fluent and expressive oral presentation is similar to the spelling strategy used by the student in the within-word pattern stage. The base, CVC,[3] short-vowel patterns have been mastered, and the student has moved away from a strict, linear match between graphemes and phonemes. For example, "time" may be spelled correctly or as TIEM; in either case there are more letters than sounds. The ability to use multiple graphemes to represent one sound signifies a more complex, cognitive manipulation of the orthography. While further research is needed, there does seem to be a relationship between these qualitative changes in word knowledge and reading fluency.

A steady hum of voices can be heard during sustained silent reading in the first-grade classroom, and it appears that silent reading, free of head movement and lip movement, is impossible for beginning readers. The type of reading instruction one chooses to offer is tempered by the student's development, and in this paper, a frame for thinking about the development of reading fluency has been presented. A number of implications for instruction follow from this view of development.

1. Disfluent oral readers may point as they read; silent readers (excluding heavy subvocalizers) do not need to point. Teachers can now look at both reading and spelling behaviors to predict when it is likely that a student will read disfluently, read aloud and fingerpoint. It is inappropriate to ask students to stop these behaviors during the letter name stage of spelling.

2. The reading in groups should be oral for beginning readers. The intermittent oral reading in round-robin reading is unsatisfactory as it disrupts fluency and does not allow the same dynamic feedback as when children are engaged in support reading activities. Support reading techniques—like choral, echo and partner reading of small group and individual dictations, rhymes, pattern stories and the increasingly popular big books—provide rich support in promoting fluency (Head-Taylor 1988; Henderson 1981; Holdaway 1983; Stauffer 1980). When students begin to read silently on their own and when they are no longer in the letter name stage of spelling, the reading in reading groups can be done silently. Reading aloud is then reserved for occasions when there is a clear purpose; i.e., reading aloud to confirm a prediction or reading a piece which has been practiced.

3. While it is important to analyze oral reading errors for insights into syntactic and semantic processing, the oral reading rate provides a global look at the efficiency of a student's verbal planning. It was for good reason that

Gray (1967) included a measure of rate in his tests. Now that the role of automaticity in word recognition has been established (Perfetti 1985), more emphasis should be given to the roles of reading fluency and expression in reading research and instruction.

4. Diagnostic teaching should include a sampling of invented spellings and an analysis of the synchrony between stages of reading and spelling. In most cases, there is a match between reading and spelling development, and it is unnecessary to take direct steps to extinguish reading aloud and fingerpointing. When a teacher observes reading development falling behind spelling development, the relative difficulty of the reading material needs to be considered. For example, if a student is solidly in the within-word pattern stage of spelling and still reads disfluently, the student is probably not reading enough material in which word recognition is highly accurate and conceptual difficulty is appropriate. This student is no longer a beginning reader and is in danger of becoming a word caller. In difficult materials, reading fluency is lost in the mire of miscalled words. Fluency and expression can be promoted by using relatively easy materials. The movement across stages of reading and orthographic development is gradual, and therefore, support materials and techniques (dictations, pattern books and choral reading) should be phased out gradually. On the other hand, in the less frequent cases where spelling falls behind reading development, word study activities should be pursued (Henderson 1985).

In this paper, the synchrony between beginning stages of reading and spelling has been described. It has been proposed that beginning readers and spellers are likely to invoke the articulatory loop[4] for extra support in holding the text together at a phrasal level as they work through a text. Oral reading taps the prosodic system, which provides cues for pauses and intonation contours.

These prosodic cues assist the reader in making syntactic transformations and help the reader hold the sense of the text together when word recognition is relatively slow. (Here, the prosodic system may be considered linguistic [Deese 1984].) On the other hand, the student no longer in the letter name stage of spelling has acquired a knowledge of English orthography which disambiguates words sufficiently to allow for a visual perceptual span which promotes verbal planning at a phrasal level.

Notes

1 Letter Name spelling represents a distinct stage of spelling as described by Henderson (1981). Students in this stage spell in a linear fashion, and they work off of the actual names of the letters; e.g., *lake* would be spelled LAK.

2 Eye-voice span is the distance between the visual scan and the voice in oral reading.

3 CVC = consonant-vowel-consonant patterns; e.g., *bed.*

4 The articulatory loop is described in detail by Brown (1981). A reader goes through an articulatory loop when the short term recognition buffer is overloaded. In the articulatory loop vocal and subvocal routines which tap auditory and motor plans in long term memory are engaged.

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