


Research in Brief: Shapes as Cues to Word Recognition


Patrick Groff

The theory that “shape” provides a useful learning cue for a child’s early recognition of a word has been maintained by various writers, but it has not been verified by research. An analysis of similar shapes for high-frequency words also argues against using shape as a cue for word recognition. The broader concept of word shape (or contours) is considered and deeper research suggested.

It has long been held by most experts of beginning reading instruction that the “shape” of a word constitutes a useful cue to its recognition by the young child. Miller’s comments exemplify this belief. “At the beginning stages of reading instruction,” she advises teachers, “word recognition can be taught either by picture-word association or word form clues such as configuration: ”¹ At the beginning stage of reading instruction teachers are told to stress how a word “looks.” According to Jones, “in the beginning reading when the child is merely told that this word is *cat* and that one is *elephant*, he can tell them apart simply because they do not look alike.”² While most current experts in beginning reading disagree with Veatch’s individualized approach to this instruction, they do support her contention that the *first* step in a “sequence of phonics” for the beginning reader should be “learning words by their shapes as they appear.”³ In the writings on beginning reading instruction there can be found many disagreements as to how several of the details of this instruction should be carried out. Only rarely, however, does one find a comment negatively critical of the belief in ‘shapes’ of words as vital cues to their recognition.

Moreover, the notion that the shapes of words do serve this

function is maintained by today's experts in reading instruction as a direct contraposition to what the published research says of the perceptual processes used by beginning readers. A recent review of such research findings which points out this evidence concludes that "the shape of a word is the least-used cue to its recognition by beginning readers."⁴ Thus, the assumption that beginners in reading find the shape of a word a reliable aid to its recognition can be easily dismissed as "lore," as one group of researchers into the matter put it.⁵ Why the current experts in reading generally choose to ignore or dismiss these empirical findings, and persist in their contention that word "shape," as they call it, is the cue to word recognition most easily taught to young children, remains a mystery. In no case have they given the reasons why they maintain such a contrary position about this issue.

The advocates of the shape of words as valid cues to their recognition, as noted, say that words can be recognized instantly by the beginning reader with this cue without his having to go through any further analyses of the graphic form the word presents. What such writers intend to signify there by shape is never fully explained, unfortunately. When they do mention shape they refer to the length of a word in number of letters, and to the descending-ascending nature of its letters. This is the definition of shape given by Miller, above. as she says, the "shape" of *elephant* is 

For the sake of argument let's conditionally accept this definition of shape (the actual contour of a word would involve more graphic features than this obviously). To what extent, then, do the words the beginning reader usually is given to learn to recognize have shapes unique to each of them, and therefore different from all the other basic or beginning words? How many such different shapes are there among the most commonly used, highest-frequency words that form the core of reading ability of the beginner? How many different shapes represent one word, as versus two, three or more words?⁶

To answer these questions I examined a recent composite list of highest-frequency words, taken from several different studies of common words from school book sources. The 238


words on this composite list⁶ (*I* and *a* were excluded) were found to have a total of 87 different “shapes” (as defined by Miller). About half of this total number of shapes, 47, represent one word each, and no other word. This means that only about 20 percent of the words here have a shape unique to each of them, but to no other word on the list. It was found the remainder of the words on this list have this distribution:

- 10 different shapes represent 2 words each.
- 10 different shapes represent 3 words each.
- 8 different shapes represent 4 words each.
- 3 different shapes represent 5 words each.
- 3 different shapes represent 15 words each.
- 2 different shapes represent 12 words each.
- 4 different shapes represent, respectively 6, 9 and 10 words each

Then, I made a similar analysis of the shapes of the 200 highest-frequency words on a second list of words taken from writings in general.⁷ This second study revealed there were 33 different shapes not common to these two word lists studied.

The evidence from these two analyses forms a strong reminder that the shapes of high-frequency words have little utility as cues the beginning reader can use to distinguish one of these words from any other one. This supports the general research on this matter. It speaks out in yet another way against the notion of teaching beginning readers to use the shapes of words, as defined by leading experts, as cues to their recognition.

As has been said in passing, the contour of a word represents a more complicated graphic pattern than does

elephant reduced to . There obviously are more graphic features in the contour of *elephant* than in this shape. We know of the graphic features that act as cues to the recognition of letters (e.g., the characteristics *open* or *closed*, *horizontal* or *vertical*, *straight* or *curved*).⁸ There also are features of words that when used by mature readers allow them to recognize words as quickly as they can letters.⁹ Whether the actual contours of words (as versus the shapes of words, as defined here) might be included among such features used as cues by

beginning readers is problematic. At present there is no available empirical information from which to determine this.

Smith apparently would maintain "contours" are as unreliable cues as are shapes. He believes more mature readers, who use "immediate word identification" recognize words "on the basis of visual feature relationships in the configuration as a whole and not by a synthesis of information about individual letters or letter groups."¹⁰ Smith means by this, however, that information from all parts of a word is used as an aid to its identification. And, that words "are by no means identified on the basis of the familiarity of their shape or contour."⁹ His own research contradicts this, however. Smith and others¹¹ found that when college students read words in which both size and case were altered (e.g., *ArE*) there was a significant reduction of these students' ability to identify these words as versus those in normal print. The same was found when the relative size of elements of lower-case print were altered (e.g., *elEn*). Whether this would hold for beginning readers, again, is unknown.

With the evidence available it is doubtful, however, that the shape of a word, as currently defined by reading experts, presents features useful as cues to its recognition by beginning readers. As the evidence presented in this discussion illustrates, the number of words that can be represented by a unique shape is too small to provide enough categories of visual information needed for accurate word recognition. This is so even on relatively short lists of words, as has been demonstrated here. Research as to the effects of the true contours of words as cues for word recognition by beginning readers is needed.

- ¹Wilma H. Miller. *The First R: Elementary Reading Today*. New York: Holt, Rinehart and Winston, 1972, p. 64.
- ²Daisy Marvel Jones. *Teaching Children to Read*. New York: Harper and Row, 1971. p. 155.
- ³Jeannette Veatch. *Reading in the Elementary School*. New York: Ronald 1966. p. 403.
- ⁴Patrick Groff. "The Topsy-Turvy World of 'Sight' Words." *Reading Teacher*, 27 (March 1974) 572-578.
- ⁵Joanna P. Williams, Ellen L. Blumberg and David V. Williams. "Clues Used in Visual Word Recognition." *Journal of Educational Psychology*, 61 (August 1970) 310-315.
- ⁶Robert L. Hillerich. "Words Lists—Getting It All Together." *Reading Teacher*, 27 (January 1974) 353-360.
- ⁷Henry Kucera and W. Nelson Francis. *Computational Analysis of Present-Day American English*. Providence: Brown University, 1967.
- ⁸Eleanor J. Gibson. *Principles of Perceptual Learning and Development*. New York: Appleton-Century-Crofts, 1969.
- ⁹Frank Smith. *Understanding Reading*. New York: Holt, Rinehart and Winston, 1971.
- ¹⁰Frank Smith. *Psycholinguistics and Reading*. New York: Holt, Rinehart and Winston, 1973. p. 121.
- ¹¹Frank Smith, Deborah Lott and Bruce Cronnell. "The Effect of Type Size and Case Alteration on Word Identification." *American Journal of Psychology*, 82 (June 1969) 248-253.