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# THE MNEMONIC VALUE OF THE PICTO-ORGANIZER FOR WORD IDENTIFICATION AMONG DISABLED READERS

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Research on the role of memory in reading, particularly as it relates to the disabled reader, has increased substantially in the last five years. In fact, evidence has accumulated which indicates that reading disabled youngsters, as a group, perform more poorly than normal children on tasks involving memory skills (Berger & Perfetti, 1977; Pelham & Ross, 1977; Wong, Wong, & Foth, 1977). Some researchers have even suggested that reading disabilities may result from deficiencies in memory skills rather than in perception (Morrison, Giordani, & Nagy, 1977). Torgesen (1977, 1978-79), too, found general support in the literature for his observations that disabled readers rarely use verbal labeling, cumulative rehearsal strategies, or structuring as memory aids. Nevertheless, the results of some of the research Torgesen reported did suggest that certain memory deficits in disabled readers may be overcome by instruction in the use of mnemonic strategies. (Meaning "aiding the memory," mnemonic can refer to unusual, artificial techniques, and as in the case of this report, to visual imagery.)

The present study was designed to compare the effects of a mnemonic strategy which utilized context to facilitate word recognition and identification with a context-free strategy. Specifically, disabled readers were taught to recognize and identify meanings for abstract words either through the mediation of a picto-organizer or through flashcard presentation. The idea of a picto-organizer evolved from an earlier study (Alvermann, 1980) in which students recalled a story using key vocabulary terms schematically arranged to show hierarchical and parallel relationships among words (see Barron, 1969). The picto-organizer provides pictorial clues to word meanings as they are used in the context of a story. This direct meaning-bearing property of the picto-organizer makes it particularly appealing, since much of the criticism leveled again mnemonic strategies in the past has been that they help only with meaningless, rote learning (Bellezza, 1981; Higbee, 1979).

## METHOD

### Subjects and Design

The 34 disabled readers (23 boys and 11 girls) who participated in the study were enrolled in a university tutoring program. Their ages ranged from 8 years, 4 months, to 13 years and 10 months (M = 10 years, 3 mos.). The mean grade-equivalent score for instructional reading level as measured by the Classroom Reading



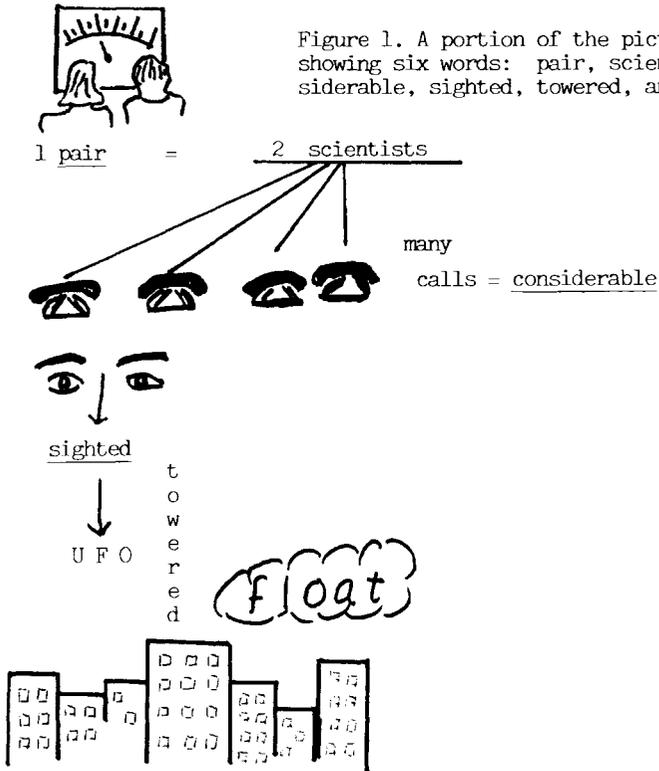


Figure 1. A portion of the picto-organizer showing six words: pair, scientists, considerable, sighted, towered, and float.

which consisted of two parts: word recognition and word identification. Students were instructed to pronounce the first word in the column of 15 target words and then to use it in a sentence. If a word was mispronounced, refused, or used incorrectly in a sentence, a zero was recorded and the child was encouraged to try the next word in the list. Pronouncing a word correctly and using it in an appropriate sentence earned one point each. On day 2, subjects assigned to the picto-organizer condition listened as the experimenter read the story. A discussion followed in which the child used the clues from the picto-organizer to retell the story twice. If a word was mispronounced or omitted, the experimenter supplied the correct one. Subjects assigned to the flashcard condition were shown a word and were asked to pronounce it. The experimenter supplied the correct pronunciation whenever necessary and gave a brief dictionary definition of each word. Following that, each of the 15 words were flashed twice. On day 3, students in the context-free condition listened as the story was read to them two more times but with one important change. This time the experimenter stopped when she came to a target word and waited for the child to identify and read the appropriate word from the picto-organizer. Students in the context-free condition were given practice in recognizing the 15 words by playing a game of Concentration with the experimenter. In this game two sets of the 15 word cards were turned face down. A player turned over two cards at a time to see if a match occurred. In order to keep a matched pair, a player

had to correctly pronounce and define the word. If a match did not occur, both cards were turned face down as before and the next player took a turn. Day 4 was a repeat of day 3. On day 5, the posttest was administered and scored in the same way as the pretest.

### Results and Discussion

To verify that students in both conditions were comparable on IQ and familiarity with the 15 target words, their performance on both the Slosson Intelligence Test and the pretest were subjected to *t* tests of dependent means (two-tailed). As indicated in Table 1, the two groups did not differ significantly on either measure.

Table I  
Mean Scores on the SIT, Pretest, and Posttest for  
the Picto-Organizer and Flashcard Conditions

	<u>Picto-Organizer</u>		<u>Flashcard</u>	
	M	SD	M	SD
Slosson Intelligence Test(SIT)	106.00	10.49	103.18	11.95
Pretest				
Word Recognition(Pronunciation)	1.06	1.14	1.24	1.35
Word Identification(Meaning)	.89	1.17	.77	.91
Posttest (Gain Scores)				
Word Recognition(Pronunciation)	6.29	3.02	5.41	2.50
Word Identification(Meaning)	5.35*	2.18	3.47*	1.74

\* Difference between means was significant at  $p < .05$ ; all other means were not significantly different.

The question this study was designed to answer was whether or not a mnemonic strategy that required disabled readers to use context in recognizing and identifying abstract words would be more effective than a context-free strategy. Table I shows the results of matched-pair *t* tests of posttest gain scores. Mean values for the two conditions (picto-organizer and flashcard) indicated that students who were required to use context did not recognize significantly more words than their context-free counterparts,  $t(16) = .98 > .05$ . However, subjects in the two groups did differ significantly,  $t(16) = 2.76$ ,  $p < .05$ , in their ability to attach meaning to the words that they were able to pronounce. This finding has educational as well as statistical significance in that word-calling without word meaning does not contribute to concept development, a prerequisite for any successful reading experience.

The fact that 71% of the total sample failed to show recognition gain scores higher than 7 by the end of the training period could be attributed to several factors. Aside from methodological ones, it could be that poor readers simply find abstract words particularly difficult to recognize. There is some support for this interpretation in Jorm's (1977) work.

Intuitively, one would expect that word meanings would be acquired more readily from contextually rich information than from explicitly stated definitions. Such was the case in the present study. Although subjects in the flashcard condition either gave or were given brief definitions for each of the 15 words during each training session, they were generally unsuccessful in using the words in sentences on the identification part of the posttest. Clearly, this has implications for teachers, reading tutors, and others who use a flashcard approach to teach accuracy and speed in decoding. Goodman (1973), who is highly critical of teaching words in isolation, likens such an approach to teaching children to "bark at print." It may be more efficient to help children develop a mnemonic strategy that will aid their memories as they learn to recognize words and identify meanings for those words.

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