A REVIEW OF "THE SKILLS OF THE PLODDER"

Toward a Psychology of Reading
The Proceedings of the CUNY Conferences
Arthur S. Reber and Don L. Scarborough (Eds.)

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A philosopher of science might complain that there cannot be a psychology of reading, any more than there can be a psychology of dish-washing or of bill-paying, but only intrinsically unrelated psychologies of eye-movement, of character recognition, of language, and so on, underlying the activity of reading. His argument could be corroborated by the diversity of subject matter in the eight papers collected here. Yet, as R. C. Calfee insists in his contribution, a shrewd analysis of the pitfalls of testing, it is no simple matter to study reading skills in isolation. Moreover, certain common themes recur often enough in this book to justify its title. Many of them are introduced in two long papers (L. R. Gleitman and P. Rozin; Rozin and Gleitman) really forming a comprehensive and insightful psycholinguistic treatise on "the structure and acquisition of reading" that could well have been published separately.

One such theme is the effect of orthographic structure on reading. Rozin and Gleitman make the usual point that while the principle of a logographic system is easier to grasp, a phonographic (syllabary or alphabetic) system, once understood, facilitates analysis of unfamiliar words. But a logographic system and a phonographic system each have a further distinct advantage lacking in the other, as L. Brooks shows, in what is certainly the most original paper in the book. In experiments with artificial character sets, he finds that, even if only six different words are to be remembered, an alphabetic four-character representation of a word, once learned, is read faster than an arbitrary four-character representation. Even if as many as 120 different words are to be remembered, a "glyphic" representation, in which the four characters are stacked and superimposed to form a complex, visually distinct symbol, whether alphabetic or arbitrary, is read faster than a representation in which the four characters appear in horizontal sequence. Brooks' results support J. Williams' observation, in her perceptive account of her work with the learning-disabled, that the "whole word" method is not a desirable strategy for teaching children to read an alphabetic orthography. They also imply that, in principle, the advantages of phonological correspondence and visual distinctiveness could be combined in an orthography that was

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*A revised version of this review appeared in Contemporary Psychology, 1978, 23, 731-732.

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Acknowledgment: This review was written with support from NICHD Grant HD-01994.

[HASKINS LABORATORIES: Status Report on Speech Research SR-58 (1979)]

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both phonographic and glyphic. It is interesting that before the advent of
printing, alphabetic scripts made more common use of devices that are moves in
the glyphic direction, like the tilde over a letter to represent following n;
and that there are no actual writing systems that are neither phonographic nor
glyphic.

A familiar controversy provides another theme: Is the reader a "plodder"
(to borrow Rozin and Gleitman's terms, p. 59) who proceeds letter by letter,
or an "explorer," who samples the printed page selectively to confirm his
educated guesses? Rozin and Gleitman themselves believe that the truth lies
somewhere in between. These two hypotheses, however, are usually formulated
by their proponents so vaguely as to raise a doubt whether they can serve as
endpoints of a meaningful continuum. But for what it is worth, the evidence
in other studies reported here is all on the side of the plodder. K. Rayner
and G. W. McConkie have ingeniously experimented with a computer-controlled
system that can track a reader's eye movements and modify the text on a CRT
display as he reads it. Their subjects (reading textbook material, to be
sure, and anticipating a comprehension test) progress quite methodically from
left to right, have a surprisingly narrow "perceptual span" within which they
can identify words during a fixation, and tend to fixate longer on more
difficult words. And W. Kintsch, studying the semantic structure of texts,
finds that reading time for a text is quite sensitive to the number of
elementary propositions and the number of distinct propositional arguments in
the text base. Neither of these findings offers much encouragement for the
"explorer" hypothesis.

The special kind of awareness that a child must develop in order to read
an alphabetic orthography is stressed by several contributors. But there seem
to be various misunderstandings about what the child can be and must become
aware of. Exercises in blending and segmentation serve to awaken the child's
linguistic institutions, but Williams (along with many other students of
reading) calls these skills "auditory," (pp. 283-285). I. Y. Liberman,
D. Shankweiler, A. M. Liberman, C. Fowler, and F. W. Fischer, who give an
illuminating account of the performance on certain linguistic tasks of good
and poor readers, understand about linguistic awareness very well, yet they
suggest that the relative inaccessibility of linguistic units depends on the
degree to which they are encoded in the speech signal: Their subjects are
said to count syllables more accurately than phonemes because the former are
less encoded than the latter (p. 210). But if a child counts syllables
accurately, it is because he has access, not to encoded acoustic information,
but to representations of phonological syllables in his mental lexicon (e.g.,
for an utterance such as [skul], speakers of English and of Japanese would give
different, but equally, correct responses). Such access is probably facili-
tated by the phonological (not phonetic or acoustic) identity between one-
syllable words and the component syllables of longer words. Rozin and
Gleitman, going a bit further, argue that learning to read "requires...gaining
access to the machinery in the head which analyzes and produces sound
segments" (p. 56). But gaining access to highly encoded segments through the
machinery of speech perception is probably impossible and surely unnecessary.
The child's task is rather to relate orthographic representations just to the
output of the perceptual and linguistic machinery: phonological representa-
tions. Access to phonological segments has to be achieved by analysis of the
larger phonological units of which the child is already aware: syllables and
words. The encodedness of speech is relevant to linguistic awareness only in that it underlies a pedagogical difficulty: Since encoded sounds cannot readily be uttered in isolation, the teacher cannot refer to the phoneme /b/ by saying "[b]," but if he says, "[b ]," he may mislead the student.

Much more might be said about these papers, every one of which is lucid, thoughtful and in one way or another provocative. The editors have done a service in making them available.