DOCUMENT RESUME

ED 034 672 RE 002 342

AUTHOR Harris, Albert J.
TITLE Research on Some Aspects of Comprehension: Rate, Flexibility, and Study Skills.
INSTITUTION City Univ. of New York, N.Y. Div. of Teacher Education.
REPORT NO RR-68-10
PUB DATE 2 Aug 68
NOTE 9p.; Prepared for the International Reading Association Second World Congress on Reading, Copenhagen, Denmark, Aug. 2, 1968

EDRS PRICE EDRS Price MF-$0.25 HC-$0.55
DESCRIPTORS Content Reading, Factual Reading, *Reading Comprehension, Reading Habits, Reading Materials, *Reading Research, *Reading Skills, *Reading Speed, Study Skills

ABSTRACT

An overall survey is made of the relationship between reading comprehension and rate, flexibility, and study skills as shown by research studies, and the following conclusions are drawn. (1) There are mostly positive correlations between rate and comprehension, but the amount depends on the test groups, reading materials, measuring instruments, and reading purposes. (2) Although reading flexibility is desirable, it is not common; however, it can be improved with instruction. (3) Conventional reading programs which stress rate improvement generally produce moderate rate gains with no significant comprehension loss; some new techniques which produce large rate gains result in a significant comprehension loss. (4) Study-type reading skills have been divided into two main kinds: (1) assimilative reading for absorption and memorization and (2) research reading. (5) Exclusive attention to study skills and none to rate often improves scholarship. (6) Specific skills of research reading can be and should be taught to students, because good basic reading skills do not guarantee effective research-type reading. References are included. (NH)

DIVISION OF TEACHER EDUCATION OF THE CITY UNIVERSITY OF NEW YORK
535 EAST 80TH STREET, NEW YORK, N. Y. 10021

Office of Research and Evaluation

RESEARCH REPORT

68-10

RESEARCH ON SOME ASPECTS OF COMPREHENSION:

RATE, FLEXIBILITY, AND STUDY SKILLS

by

Albert J. Harris

Prepared for I.R.A. Second World Congress on Reading,
Copenhagen, August 2, 1968

RESEARCH ON SOME ASPECTS OF COMPREHENSION:

RATE, FLEXIBILITY, AND STUDY SKILLS

Albert J. Harris

Prepared for I.R.A. Second World Congress on Reading,
Copenhagen, August 2, 1968

There is a voluminous literature on the relation between rate of reading and comprehension, much of which was completed before 1940. The degree of correlation was found to range all the way from low negative to high positive. The results varied with the age of the readers, with the kinds of materials employed, with the methods used in measuring the two characteristics, and with the purpose for reading. At the secondary and college level most of the correlations tended to be positive but quite low, around .30 (Tinker, 1939). For bright pupils fast readers tended to comprehend better than slow readers, while at lower intelligence levels there was some evidence that the slower readers tended to comprehend better (Shores & Husbands, 1950). In mathematics and science the correlations tended to be low and negative; with many exceptions, the faster the pupil read, the less he tended to understand (Blommers & Lindquist, 1944).

Flexibility in Reading

Out of early recognition of the complexity of the relationship between rate and comprehension grew the point of view that pupils should learn to vary their rates of reading according to their purposes for reading and the nature of the reading material. In 1928, Yoakam distinguished four main rates of reading: skimming, for a quick survey or for locating a specific item; rapid reading, for very easy material, for reading superficially just to get the main ideas, and for rereading; normal reading, for getting both main ideas and some supporting details; and slow, careful reading, for difficult material, for grasping nearly all of the content, for high accuracy, or for critical evaluation. Since then, hardly anyone has questioned the idea that an efficient reader should vary his rate of reading according to his purposes, and the kinds of material he reads.

Research findings indicate, however, that most readers are rigid rather than flexible in their rate of reading. McDonald (1960), for example, studied over 6,000 readers at elementary, secondary, college and adult levels, and found that more than 90 per cent of them tended to maintain a characteristic approach and a relatively invariant rate with all of the types of reading tested, despite instructions for differentiation of purpose and in spite of variations in difficulty, style, and content of the materials.

To some extent this individually characteristic and relatively invariant rate of reading may be constitutional; Buswell (1951) found that there is a substantial correlation between rate of reading and rate of thinking on non-reading tasks. To some extent this inflexibility is learned; many professional men complain that the habit of slow, careful reading that they employ in their occupational reading carries over into their

recreational reading. Lack of flexibility in rate may simply be the result of lack of appropriate training. Although lip service in favor of flexibility has been given for many years, not much effective teaching to develop flexibility has taken place.

That flexibility in rate can be developed has been shown by Braam (1963). High school seniors starting a six-week summer reading program intended to improve their chances for success in college were tested on five different kinds of content, and showed an average difference of only 19 words per minute between highest rate and lowest rate. By the end of the program, not only was their average rate higher on all five kinds of material, but also the difference between highest and lowest average rate had increased to 159 words per minute. It seems safe to conclude, therefore, that flexibility in rate can be substantially improved with appropriate instruction.

Recent writers on flexibility or versatility in reading have emphasized that rate is only one of the characteristics of reading which expert readers should vary according to circumstances. McDonald (1963) has expressed this very well:

> "Continued research has led us to conclude that reading flexibility consists of the ability to utilize those reading processes and techniques which are particularly appropriate for the style, difficulty level and theme of the reading material while, at the same time, being consonant with achieving the reader's purpose at the optimum level of performance. Thus, the flexible reader possesses those reading skills, techniques, and methods of attack which enable him to achieve as complete an understanding of the author's meaning as is dictated by the reader's purpose. The flexible reader also has a psychological set toward the reading process which leads him to differentiate his reading approach to suit the difficulty of the article's content and style, the amount of background knowledge he possesses as well as the urgency of his need to satisfy his purpose through reading the article. The flexible reader, as the result of his attention to purpose, difficulty of material, complexity of theme, and background knowledge, makes many adjustments of reading approaches and specific techniques. These adjustments may be made within a single section or even a single paragraph of an article. Such adjustments are, of course, reflected in measurement of rate. Variability in rate, however, is not the cause of flexible reading. Rather, rate variability is the result of flexible reading approaches."

Effect of Rate Improvement on Comprehension

Since World War II there has been a tendency in the United States to place a great deal of stress on training to increase rate of reading in reading improvement programs at the secondary school and college levels and in reading programs for adults, such as those sponsored by industrial concerns and the armed services. The manufacturers of instruments that are usable

in speed-reading programs, and some private businesses that offer training in rapid reading, have maintained advertising campaigns that make fast reading seem to be a very important objective. For example, in the New York Times, Sunday, June 23, 1968 (Section E, pages 7 and 8), there are large display advertisements by two organizations, each of which guarantees to triple reading efficiency without loss in comprehension, or refund the student's money. The tremendous volume of reading material which a typical student or business executive needs to cover has made such training seem very attractive. We may well ask, what effect does speeding up reading have on comprehension?

Reports of fairly conventional programs to increase rate of reading generally state that comprehension averaged near 70 per cent at the beginning of the program. Gains of 20 to 40 per cent in average rate are usual, with no significant change up or down in comprehension.

At the elementary school level there is some evidence that practices designed primarily to stress rate do not produce as much growth in comprehension as developmental reading programs in which rate is not stressed. For example, Skarbeck (1965), in a doctoral thesis, compared the effects of an experimental program designed to improve rate of comprehension with a control conventional developmental reading program, using pupils in the sixth grade. The experimental group made greater gains in rate, but the control group made greater gains in the comprehension of study-type exercises. Witham (1966) compared the gains made by eighth grade students in three programs: a controlled reader group using a machine which required them to read at a given rate; a materials group using the same content as the controlled reader group, but in normal printed format without the machine presentation; and a control group following the regular curriculum in English language arts, with little or no attention to reading skills. In this doctoral study both experimental groups gained more in reading than the control group. The machine group made slightly greater gains in rate than the materials group, while the materials group made slightly greater gains in comprehension. One is tempted to repeat the old generalization that we learn what we practice; when greater stress is on rate, that is the area of greater gain, and when greater stress is on comprehension, greater gains are made in comprehension.

The commercial organizations which guarantee to produce tremendous gains in rate without harm to comprehension do not publish research results, and as yet there is little evidence of a research nature concerning the real outcomes of such programs. Spache (1962) has pointed out that while rates of several thousand words per minute can be attained by rapid skimming or scanning in which large portions of the printed matter are not perceived, genuine reading in which most of the printed words are perceived cannot proceed faster than 800 to 900 words per minute. Tinker (1958) has also concluded that 800 words per minute is about the fastest rate possible for genuine reading, and that rates faster than that are based on skimming. These calculations are based on the assumption that ten-word lines are read with an average of three fixations per line, of approximately one-quarter of a second each, plus the very brief times required for moving the eyes from one fixation to the next, and from the end of one line to the beginning of the next line. This

would be truly superior reading, for average college students read at 280 words per minute with nine fixations for a ten-word line (Taylor, 1960). Thus, genuine reading is possible at a rate about three times the rate used by average college students. It is open to serious question whether turning pages at rates of over a thousand words per minute is really reading, or a form of skimming.

Spache (1962) also reported eye-movement studies of some graduates of one of the commercial speed reading organizations. In reading test selections for the eye-movement camera their rates tended to fall between 400 and 600 words per minute, with about 70 per cent comprehension; these are representative results for superior readers at the college level. In reading a book in the way they had been taught, group average rates ranged from 1800 to 2400 words per minute, with about 50 per cent comprehension. While there are some reading situations in which 50 per cent comprehension may satisfy the reader's purpose, such a low comprehension score can hardly be recommended as satisfactory in typical reading situations.

Liddle (1965) in a doctoral thesis compared 25 college students taught by the Wood Reading Dynamics Method with a control group. The experimental group increased their rates of reading tremendously, 6.1 times in fiction and 5.6 times in non-fiction. However, the experimental group after training did not do as well on comprehension tests either as they themselves had done before training, or as the control group did. This study reinforces the conclusion that present techniques for achieving extremely high reading rates are somewhat injurious to comprehension.

Development of Study Type Reading Skills

For students, and for professional, scientific, and occupational reading, the most important applications of reading skills are in those activities we call studying. Study type reading may be divided into two main kinds. The first, and most common, is assimilative reading, in which the purpose is to absorb and remember the content of a reference work such as a textbook. The second kind is research reading, in which one starts with a problem, locates sources of information, selects what is relevant to the problem, analyzes and compares information from different sources, and organizes one's findings into an oral or written report. This paper, for example, is based on research type reading.

Assimilative Study. A systematic study procedure first published by Francis P. Robinson (1946), called the SQ3R system, has been very widely used. This system involves five steps: (1) survey -- make a quick overview of the material; (2) question -- turn each heading and sub-heading into a question; (3) read -- to find answers to the questions; (4) recite -- state the answers and evidence found to yourself, subvocally, orally, or in the form of written notes; and (5) review -- at appropriate intervals for permanent retention. This system seems to be well grounded in the experimental psychology of learning, but has not been subjected to much experimentation.

One recent report (Sister Mary Donald, 1967) indicates that the SQ3R system can be successfully taught to pupils in the seventh grade. Two comparable classes were taught social studies with the same materials; one class was taught the SQ3R plan and guided in applying it in studying

the textbook, while the other class was given no special guidance in how to study their assignments. The experimental class finished the year significantly ahead on teacher-made tests, although there were no significant differences on standardized social studies tests. Although this was a small-scale study and lacked some desirable experimental controls, it does show that the SQ3R plan can be successfully taught as early as the seventh grade.

The most stimulating paper on study skills in higher education to come to my attention in recent years was written by Walter Pauk (1965), who is director of the Reading-Study Center at Cornell University. Pauk believes that combining training for increasing rate with training in study skills within one program sets up a conflict which diminishes the value of the training in study procedures, and he recommends that effort should be concentrated on training in various forms of careful, close reading. As evidence, he cites results from two different kinds of college reading programs. One was a six-session study skills course in which the students were advised to ignore rate and to concentrate on developing study skills. The other was a fourteen-session course in which the first two sessions were on speed reading, then six sessions on study skills similar to those in the six-session course, and finally six sessions on various aspects of comprehension. During the fourteen-session course the students were given the opportunity to practice rate improvement individually. Both programs were followed by some improvement in average grades the next semester, but the six session program was followed by a gain in grade point average which was three times the gain made in the fourteen-session course. Pauk attributes the lesser gain in the fourteen-session course to the preoccupation of some of the students with rate rather than with careful study. Thus he challenges the widely prevalent idea that improving rate of reading, without loss in comprehension, should be a major objective in reading programs for students. Instead he advocates full commitment to the teaching of a study pattern, the taking of lecture notes and reading notes, and other study skills.

The rather startling results reported by Pauk should be checked by repeating the essentials of his study in other institutions. If it can be verified that a six-session course concentrating on study skills can produce more improvement in students' grades than most current college reading improvement programs, a major change in the nature of such programs may be desirable. There would naturally follow a corresponding change of emphasis from rate improvement to study techniques in secondary school and adult reading programs. Training in rate might then be reserved for the minority whose rate is unusually and unnecessarily slow, and for those whose reading needs require the rather sketchy coverage of large amounts of reading material. The newer programs would concentrate on teaching the student how to study, how to extract what he needs from what he reads, how to organize this knowledge, and how to remember what he has read.

Research Reading. Although problem-centered or project-centered reading has been employed in schools to some extent since the beginning of the Progressive Education movement (Harris, 1964), very little research has been done on this important kind of reading. Nearly thirty years ago Gans (1940) studied the ability of superior readers in grades four through

six to distinguish between paragraphs that are helpful in providing information on a specific question, and paragraphs that are somewhat related but provide no information on that question. Although these children scored well on standardized tests, they had considerable difficulty in selecting the relevant paragraphs. It seems probable that unless specific skills of research reading are taught, many children will not develop them.

A necessary preliminary to the formulation of sound research in this area is a satisfactory classification of the behaviors involved in research reading. H. Alan Robinson has developed such a classification, based on the use of interviews, introspection, and written reports on the procedures used by bright fourth grade pupils. The resulting categories include seven types of location skills and eight types of comprehension skills, and closely resembles the classifications to be found in several textbooks on how to teach reading. The comprehension headings he used are: using experience and/or knowledge; defining the problem; grasping main ideas; reading for details; making inferences; drawing conclusions; comparing ideas; and understanding vocabulary.

This area of research type reading is one in which considerable new research is needed.

Summary

The relationship of rate to comprehension has been a subject of research interest for several decades. It became evident that correlations between the two varied according to the group tested, the kinds of reading matter used, the measuring instruments, and the purpose for reading; most correlations were positive but quite low. Although flexibility in reading has been stated as a desirable objective for many years, research shows that most people are relatively inflexible in their ways of reading. Flexibility can, however, be improved when reading practice is directed toward it. Conventional programs which aim at improving rate generally produce moderate gains in rate with no significant changes in comprehension. New techniques can produce extremely large gains in rate of reading or skimming, but do so at the expense of a significant loss in comprehension. A recent study suggests that exclusive attention to study skills with no attention to rate may produce greater gains in scholarship than combining some training in study skills with some rate improvement practice. Studies on research type reading have demonstrated that good basic reading skills do not guarantee effective research-type reading, and have provided confirmation of the categories usually employed in describing research reading skills, but have not progressed much beyond that.

References

Blommers, Paul J., & Lindquist, E. F., "Rate of Comprehension of Reading: Its Measurement and Its Relationship to Comprehension," Journal of Ed. Psychology, 35 (Nov. 1944), 449-473.

Braam, Leonard. "Developing and Measuring Flexibility in Reading," Reading Teacher 16 (Jan. 1963), 247-254.

Buswell, Guy T. "Relationship between rate of thinking and rate of reading." School Review, 49 (Sept., 1951), 339-346

Gans, Roma. A Study of Critical Reading Comprehension in the Intermediate Grades. Contribution to Education, No. 811. New York: Bureau of Publications, Teachers College, Columbia University, 1940.

Harris, Albert J. "Progressive Education and Reading Instruction," The Reading Teacher, Vol. 18, (Nov., 1964), 128-138

Liddle, William. An Initial Investigation of the Wood Reading Dynamics Method. Ed.D. University of Delaware, 1965.

McDonald, Arthur S. "Factors affecting reading test performance," Ninth Yearbook of the National Reading Conference, (1960), 29-35

McDonald, Arthur S. "Flexibility in Reading." Changing Concepts of Reading Instruction. (J. Allen Figurel, ed.), International Reading Association Conference Proceedings, (1963) 81-84.

McDonald, Arthur S. "Research for the Classroom: Rate and flexibility, Journal of Reading, 8 (Jan., 1965) 187-191.

Pauk, Walter. "Scholarly Skills as Gadgets," Journal of Reading, 8, (March, 1965) 234-239.

Robinson, H. Allan. Reading Skills employed in solving social studies problems. Reading Teacher, 18 (Jan., 1965), 263-9.

Robinson, Francis P. Effective Study. New York: Harper & Row, (1946)

Shores, J. Harlan. "Reading of science for two separate purposes as perceived by sixth grade students, and able adult readers," Elementary English, 37 (1960), 461-468.

Sister Mary Donald, "The SQ3R Method in Grade Seven," Journal of Reading, 11 (Oct., 1967), 33-35, 43.

Skarbeck, James F. The Effect of a Program Emphasizing Rate of Comprehension Open Rate of Reading and Comprehension at the Sixth-Grade Level. Ed.D., Univ. of Maryland, 1965.

Spache, George D. "Is this a breakthrough in reading?" Reading Teacher, 15, 258-263.

Taylor, Sanford, E. Eye Movements in reading: facts and fallacies. American Ed. Research Journal (1965) 2 (4), 187-202.

Taylor, Sanford E., Franckenpohl, Helen, and Pette, James L. Grade Level Norms for the Components of the Fundamental Reading Skill. Research Information Bulletin, No. 3. Huntington, New York: Educational Developmental Laboratories, 1960.

Tinker, Miles A. "Recent studies of eye movements in Reading." Psychological Bulletin, 55 (1958), 4.

Witham, Anthony P. An Investigation of a Controlled Reading Technique with Eighth Grade Students. Ed.D. Wayne St. U., 1966.

Yoakam, Gerald A. Reading and Study. New York: McMillan, (1928), 64-68.