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CHILDREN'S PERCEPTION OF DIFFICULTY IN READING MATERIALS.

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DESCRIPTORS- *READING RESEARCH, *READING MATERIAL SELECTION, *READING COMPREHENSION, *GRADE 5, READABILITY, READING LEVEL,

THE CHILD'S ABILITY TO PERCEIVE THE DIFFICULTY OF READING MATERIALS WAS ASSESSED. A STRATIFIED RANDOM SAMPLE OF 60 FIFTH GRADERS IN MASSACHUSETTS WITH A MEAN IQ OF 115 SERVED AS SUBJECTS. MATERIALS WERE 32 SHORT, GRADED READING SELECTIONS IN 8 INTEREST CATEGORIES AND A COMPREHENSION TEST. SELECTIONS WERE AT VARIOUS LEVELS OF READABILITY. SPEARMAN'S COEFFICIENT OF RANK CORRELATION AND ANALYSIS OF VARIANCE WERE USED TO ANALYZE THE DATA. THERE WAS LITTLE CONSISTENCY IN THE SUBJECTS' CHOICE OF EASIEST AND HARDEST MATERIAL. SUBJECTS WITH LOW COMPREHENSION SCORES RECEIVED HIGH MEAN SCORES ON THE EASY-CHOICE TASK. EVIDENCE FROM THE CORRELATION ANALYSIS INDICATED THAT THERE WAS A POSITIVE RELATIONSHIP BETWEEN LEVEL OF COMPREHENSION AND LEVEL OF MATERIALS CHOSEN. THIS PAPER WAS PRESENTED AT THE AMERICAN EDUCATIONAL RESEARCH ASSOCIATION CONFERENCE (NEW YORK, FEBRUARY 1967). (BK)

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CHILDREN'S PERCEPTION OF DIFFICULTY IN READING MATERIALS*

The study reported in this paper is an investigation of the claim that children manifest the ability to select for themselves reading materials that are within a range of their reading comprehension. This claim for the child's self-selection abilities has increasingly been stressed especially by those who advocate an individualized reading program--a program in which children select from materials having a wide range of difficulty.

Reports of such programs in the relevant literature have rarely, if at all, questioned this ability. The principle of self-selection has been assumed to be an operative principle for all children.

As an exploratory attempt to measure children's perception of difficulty in reading materials, an experiment was designed to answer the following questions.

1. Are children able to choose consistently the easiest and the hardest reading materials?
2. Is there a systematic relationship between children's levels of reading comprehension and their perception of easy reading materials?
3. Is there a systematic relationship between children's levels of reading comprehension and their perception of difficult reading materials?
4. Is there a systematic relationship between children's levels of reading comprehension and the level of reading materials they select as best for themselves to read?

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*Based on the writer's unpublished doctoral dissertation, "The Measurement of Children's Perception of Difficulty in Reading Materials," Graduate School of Education of Harvard University, 1966. The writer is especially indebted to Professors Robert Anderson, Jeanne Chall, Kenneth Jones, Helen Popp and Douglas Porter.

5. Is the variance found in scores obtained from comprehension tests significantly affected by children's sex, level of intelligence, the level of graded materials which they choose as the best for themselves to read, or by any interacting combination of these effects?

These five questions were rephrased in terms of null hypotheses.

Children exhibiting as broad a range in intellectual capacity and reading ability as normally would be found within the limits of an average middle-class school situation were used as subjects. Generalizations of the outcomes, then, normally would be extended to that middle-class population most likely to use an individualized reading program.

Using a stratified, random sampling technique, sixty subjects were chosen from the fifth-grade population of an elementary school located eighteen miles from Cambridge, Massachusetts. The sample consisted of thirty-four boys and twenty-six girls whose mean age was eleven years and mean IQ was 115. Because of the many claims for the self-selection abilities of even very young children, the experimenter purposely chose older elementary school children as subjects in order to effect a more rigorous test of the major hypotheses.

The materials for this experiment consisted of thirty-two, short, graded reading selections and a comprehension test.

The thirty-two reading selections represented eight interest categories, each of which contained four selections of similar topical content, and of approximately equal length, but which also had been appraised by two readability formulas so as to assure that one selection was a third-grade selection, one was a fifth-grade selection, one a seventh-grade selection, and one a ninth-grade selection. The rationale for choosing the eight interest categories was to attempt to provide for a controlled situation and yet approximate as natural a free-choice situation as would prevail in a classroom where an individualized reading program was ongoing.

In individual sessions, the subjects were given, in a predetermined order, each subset of four selections and asked to choose the "best" one for themselves to read. They were then asked to go through each subset again, this time choosing the "easiest" and the "hardest" selection from the four selections of each subset.

The time was recorded for each individual testing session, and the results showed a wide range in the amount of time the subjects spent on their tasks.

In order to measure the subjects' comprehension of some of the selections from which they were making their choices, a series of multiple-choice test items requiring factual answers as correct responses was constructed for two of the eight subsets. One subset contained four selections of definitely masculine-oriented material; the other subtest contained four selections that dealt with the lives of women and therefore constituted female-oriented material. The comprehension test of forty-eight items--six for each of the eight subtests--was given in one sitting to all sixty subjects, none of whom knew in advance that they were to be tested.

A reliability coefficient of .78 was obtained for the comprehension test by applying the Kuder-Richardson Formula 20. Moreover, there was a significant positive correlation between the subjects' scores on the comprehension test and the subjects' scores on the reading subtest of the Metropolitan Achievement Test ($\gamma = .43$; $P < .01$).

The final phase of the experiment yielded another measure for each subject by having him rank himself--one to six--on his reading ability. This self-estimate of reading ability hereafter will be denoted by SSE.

The median of the readability levels of the selections chosen as the best selection was assigned as the subjects' level of self-selection, and hereafter will be denoted as LSS. For the easy-choice task, and for the hardest-choice task, a mean score over the eight sets of selections was also assigned.

Inspection of the wide array of responses to these tasks showed that there was little consistency in the subjects' choice of the easiest and the hardest materials. The first null hypothesis failed to be rejected.

To test the second and the third null hypotheses, Spearman's coefficient of rank correlation with tied ranks was twice calculated. In the first instance, there was a significant negative correlation between the subjects' mean scores on the easy-choice task and their comprehension scores ($\rho = -.26$; $P < .05$). Children with low comprehension scores received high mean scores on the easy-choice task. The second null hypothesis was rejected.

The second calculation showed that there was no systematic relationship between the subjects' mean scores on the hard-choice task and their comprehension scores ($\rho = -.004$; $P > .05$). Children with low comprehension scores were just as likely to appropriately choose the hardest selections as children with high comprehension scores, and conversely, children with high comprehension scores were just as likely to appropriately choose the hardest selections as children with low comprehension scores. The third null hypothesis failed to be rejected.

To test the fourth null hypothesis, the DATASEARCHER program was used to compute a series of Pearson product-moment correlations between thirteen variables. Of most interest here, the subjects' comprehension scores and their LSS scores did vary systematically. The correlation between LSS and their comprehension scores was .26 ($P < .05$), and the correlation between LSS and their scores on the reading subtest of the Metropolitan Achievement Test was .32 ($P < .01$). Children who received high comprehension scores tended to choose as the best selection those selections with a correspondingly high degree of difficulty. Children with low comprehension scores tended to choose as the best selections those of a correspondingly low degree of difficulty. The fourth null hypothesis was rejected.

Two analyses of variance were computed to determine whether IQ, Sex or LSS would be powerful enough as separate effects--or as interacting effects--to explain

in a statistically significant way the variance in the scores of both of the subtests. Both IQ and LSS were varied at three levels, thus yielding a 2 x 3 x 3 experimental design. The MANOVA program was used because it took into account the resultant disproportionality among cell frequencies.

In the main, both analyses of variance failed to produce any demonstrable significant effects. IQ significantly affected the variance of only the scores on the first subtest consisting of the male-oriented selections ($F = 3.4241$; $P < .05$). For this test, a high IQ influenced for the better the scores of male and female subjects with varied levels of self-selection. In general, the fifth null hypothesis failed to be rejected.

The possibility that the experimental materials may have been biased in favor of the subjects with the low comprehension scores may account for the rather unexpected finding that these subjects performed better in appropriately choosing the easiest selections. It is plausible that these subjects may have had the advantage of having to choose only the easier of two selections rather than the easiest of four selections. Because of their low level of comprehension, the seventh-grade and ninth-grade selections might have been ruled out as possible choices. Had lower-graded materials been included in this study, the subjects with low comprehension scores may not have performed any better--or any worse--than the subjects with high comprehension scores.

As an explanation for the demonstrated absence of a systematic relationship between comprehension and the ability to choose appropriately the difficult selections, it is quite conceivable that most of the subjects have had considerably more experience with easy reading materials than with difficult reading materials, and hence found the discrimination of easy selections to be a more familiar task. The differential thematic content, too, may have influenced the subjects' choices, but this factor seemed to be more important in choosing the easiest selections than in choosing the hardest selections. Although there were many more inappropriate

responses to the hard-choice task, the range in the number of such responses was much greater for the easy-choice task.

There was a significant positive relationship between LSS and SSE ($r = .34$; $P < .01$), but other uneven relationships suggested a cautious interpretation of this finding. While SSE was highly correlated with most measurements (except age and sex), the lowest correlation was between LSS and SSE. A correlation of .34 is of course not a chance correlation, but explains only about 12% of the variance, indicating that children know how well they read and admitted their status, but that this informed acknowledgment was not that strongly related to their ability to discriminate among even grossly different materials.

In sum, the correlational evidence of this study demonstrated that there was a statistically significant positive relationship between the level of children's comprehension and the level of the materials they chose as best for themselves to read. The most direct indication of this relationship, however, was provided by two correlations that could account for only 7% and 10% of the variance. This explains very little, and as a point of practical importance, hardly constitutes strong verification for the claim that children do select materials within an appropriate range of their reading ability.

Moreover, the amount of the variance that could not be explained by LSS, as determined by two analyses of variance, indicates that any significant change in classroom practice, as suggested by the correlational evidence of this study, should be viewed with caution.

Suggestions for further research include presenting the same type of tasks described in this report to both younger and older subjects than were included in this investigation. Although the testing is time-consuming, it would be beneficial to involve more subjects than were used here. It would also be worthwhile to investigate the degree to which a subject's choice changes, and to determine whether training and practice in discriminating between easy and difficult selections might improve children's perception of difficulty in reading materials.