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RETENTION IN READING OF DISADVANTAGED MEXICAN-AMERICAN CHILDREN DURING THE SUMMER MONTHS.

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THREE GROUPS OF DISADVANTAGED MEXICAN-AMERICAN CHILDREN WERE TESTED TO DETERMINE CHANGES IN READING ACHIEVEMENT BETWEEN SECOND AND THIRD GRADE. DURING THE SCHOOL YEAR, AN ORAL-AURAL ENGLISH GROUP OF 102 CHILDREN WERE GIVEN INTENSIVE ENGLISH LANGUAGE INSTRUCTION WHILE AN ORAL-AURAL SPANISH GROUP OF 67 CHILDREN WERE GIVEN INTENSIVE SPANISH LANGUAGE INSTRUCTION. A CONTROL GROUP OF 115 CHILDREN DID NOT RECEIVE INTENSIVE LANGUAGE INSTRUCTION. IN THE SPRING AND AGAIN IN THE FALL THE THREE GROUPS WERE TESTED WITH (1) THE METROPOLITAN ACHIEVEMENT TESTS, (2) TESTS OF READING, INTER-AMERICAN SERIES, AND (3) PRUEBA DE LECTURA, SERIE INTERAMERICANA. MEAN DIFFERENCE SCORES WERE DETERMINED FOR EACH GROUP. THE ORAL-AURAL SPANISH GROUP SHOWED SIGNIFICANT GAINS ON THE VOCABULARY SUBTEST AND ON TOTAL SCORE ON THE TEST OF READING. THEY SHOWED A SIGNIFICANT LOSS ON THE SPEED SUBTEST OF THE PRUEBA DE LECTURA. THE ORAL-AURAL ENGLISH GROUP SHOWED NO SIGNIFICANT CHANGES, WHILE THE CONTROL GROUP SHOWED MANY SIGNIFICANT LOSSES OVER THE SUMMER VACATION PERIOD. A COMPARISON OF THE MEAN DIFFERENCE SCORES OF THE ENGLISH AND SPANISH EXPERIMENTAL GROUPS SHOWED SIGNIFICANT DIFFERENCES FAVORING THE SPANISH GROUP ON THE VOCABULARY SUBTESTS AND ON TOTAL SCORE ON THE TEST OF READING. FOURTEEN REFERENCES ARE INCLUDED. THIS PAPER WAS PRESENTED AT THE INTERNATIONAL READING ASSOCIATION CONFERENCE (BOSTON, APRIL 24-27, 1968). (RJ)

Level I

RETENTION IN READING OF DISADVANTAGED MEXICAN-AMERICAN CHILDREN DURING THE SUMMER MONTHS

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Problem

The general objectives of the San Antonio Language Research Project are to assess the effects of an experimental curriculum on oral language and reading development of disadvantaged Mexican-American children learning English as a second language. The research project, currently in its fourth year, has answered some questions. Specifically, the growth of Expressive Oral English has been rather vividly demonstrated by Ott (14) as a major positive outcome of the San Antonio experimental curriculum.

Findings of Horn (8) (9) and Arnold (1) have been less encouraging. Both writers describe frustrations resulting from the use of standardized assessment instruments in first and second grades. However, Arnold found (2) that the use of instruments standardized for second grade children were appropriate, in terms of reliability, for the third grade disadvantaged children, even though the scores on the average were considerably below the normative group. Second year findings (1) did reveal some tentative positive outcomes in reading achievement for first grade children when the criterion for

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success was reading achievement rather than reading readiness. The assessment of reading achievement continues to be a major concern of the project and further findings should be available soon for the third year.

The focus of this paper is on retention in reading over the summer vacation period of project children entering third grade. A review of the literature suggests that two types of research studies emerge on the topic of retention. The first is the laboratory type of research which tends to study retention of pairs of words or syllables over a relatively short period of time. These studies are not too helpful to those who are concerned with how much of the curriculum children retain over the summer months. Studies of the second type, focusing on the specific question posed, have not been common in recent literature. These studies, though helpful, are not as well designed as one might desire. Based on the findings of these studies one might tentatively conclude that studies of retention in reading of children in the intermediate grades point to a positive growth factor from May to September (4) (6) (10) (13). In the primary grades, however, two studies were found which suggested a loss in retention in reading over the summer months (3) (5), and one study, though reporting a small loss between kindergarten and first grade, considered the amount retained to be quite satisfactory (7). Further research in

the area of retention in reading in the primary grades was deemed appropriate for the following reasons: (a) the literature on the subject is neither conclusive nor consistent; (b) virtually no attention has been given the topic specifically with respect to disadvantaged children; and (c) no investigation of retention within the San Antonio Language Research Project had been accomplished.

The central problem with which this study was concerned is the following: do any of the three experimental treatments (described below) differ in the degree to which children are able to retain or to build upon their knowledge and skills in reading during the summer months?

Procedures

Project children in this study were taught in one of the following three treatments: (1) Oral-Aural English (OAE). Children were given intensive English language instruction using AAAS Science as the content vehicle. (2) Oral-Aural Spanish (OAS). Children were given intensive Spanish language instruction using AAAS Science as the content vehicle. This treatment group differed from the OAE group in only one respect, the language of instruction. (3) No Oral-Aural (NOA). Children were given instruction in the AAAS Science material in accordance with the procedures described in the teaching manual. No intensive language instruction was involved.

Children in all three experimental groups received instruction in reading in English from a basal reading program as prescribed by the district curriculum guide. Instruction for the OAE and OAS groups was delayed until after Christmas, but the NOA group was not delayed.

Two hundred eighty-seven children were randomly selected from the larger sample studied in the San Antonio Project. These Mexican-American children met the criteria (11) typically established to define the disadvantaged. During the period of study, most of the pupils advanced from the second grade to the third. The majority had received the experimental treatment for two consecutive years.

Pretest data were collected in early May, 1966, and posttest scores were obtained in early September, 1966, approximately four months later. Tests used for both testing periods were as follows: (1) Metropolitan Achievement Tests (MAT), Primary Level II; (2) Test of Reading, Inter-American Series (IAE) Level 2; and (3) Prueba de Lectura, Serie Interamericana (IAS), Nivel 2 (The Spanish equivalent of the IAE). Every test contained three subtests and a total score, all of which were used for comparative purposes.

Design of the Study

Two interrelated questions were asked of the data: first, had any significant change occurred during the summer months, and

second, did the three treatments differ with respect to the magnitude or direction of any such change. The statistical procedure employed in dealing with the first question was the standard t test for difference between correlated means (12). Significance tests were conducted for differences between the spring and fall means of each of the dependent variables used in the study. Since there was the possibility that the degree of retention would not be the same for all treatments, separate tests of significance were made for each combination of test and treatment.

The second question--that concerning the effect of the treatment variable upon the amount of change--required a somewhat more complicated statistical approach. For each pupil the amount of change was expressed as the difference between his spring and fall scores on each of the tests. In each case the fall score was subtracted from the spring score, thus improvement during the summer would be indicated by a negative difference score. For each pair of treatments, the means of the difference scores were compared through an ordinary t test for difference between independent means (12).

Findings

Table I presents the differences between the spring and fall means for each combination of test and treatment.

Insert TABLE I about here

NOA. The performance of the NOA group, as measured by the total score on any of the three tests, declined significantly during the period of interest. The general loss in total score was accompanied by decline on the Level and Speed subtests of the IAE, the Level subtest of the IAS, and the Reading subtest of the MAT. In no instance did the NOA group exhibit statistically significant improvement.

OAS. The children in the Spanish treatment were found to have improved their English vocabulary (as measured by the IAE Vocabulary subtest) during the summer. General improvement on all the IAE subtests was reflected by a statistically significant increase in the mean of the IAE total score. On the Speed subtest of the IAS, however, there was a significant decline in the performance of the OAS group.

OAE. The conclusion which seems most defensible in view of the data is that the performance of the OAE group remained stable during the summer months. Almost none of the minute differences detected in the OAE data even come close to attaining statistical significance.

Comparison of NOA and OAS. The contrasting decline by NOA and improvement by OAS on the IAE resulted in significant difference between the two groups on each of the IAE subtests and on the total score.

Insert TABLE II about here

Even on the Vocabulary subtest--the only IAE subtest on which the NOA group did not show a significant loss--the OAS improvement was sufficient to guarantee significant difference between the change scores. As a group the OAS pupils remained stable over the summer with respect to their performance on the IAS total. Again, however, NOA losses resulted in a significant difference between the groups. The remaining NOA-OAS comparisons failed to attain statistical significance, although the results were almost exclusively in the same direction (i.e., favoring OAS).

Comparison of NOA and OAE. The comparison of NOA and OAE (Table III) produced results very similar to those obtained from the NOA-OAS analyses described above, at least when the IAE served as the basis for comparison.

Insert TABLE III about here

The two significant comparisons based upon the IAE--the Level subtest and the total score--both yielded differences in favor of OAE. On the IAS also the Level subtest and the total score produced significant differences favoring OAE. The greatest difference (in terms of statistical significance) between the groups, however, was found on the Reading subtest of the MAT. Since the improvement within the OAE group was not significant for any of the tests, the NOA-OAE differences may be largely attributed to the decline in the per-

formance of the NOA group.

Comparison of OAS and OAE. As is indicated in TABLE IV, the improvement of the OAS group on the IAE Vocabulary subtest and total score produced significant OAS-OAE differences in the means of the change scores on these two variables. The differences

Insert TABLE IV about here

between the two groups on the other dependent variables, however, were inconsistent in direction and nonsignificant in degree. On most of the measures used in the study, the mean performance of both groups remained at the same level during the summer.

Summary of Findings. The NOA group showed consistent and in many cases significant losses, indicating failure to match their spring performances when retested in the fall. The OAS pupils, on the other hand, registered significant gains on the IAE, although a loss was noted on the Speed subtest of the IAS. The OAE scores were, on the average, roughly equal at both testings. Retention thus appears to have been poorest in the NOA group. The OAE and OAS groups did not differ significantly in retention except on the IAE, where the differences favored OAS.

Conclusions

When difference scores are used as criteria for comparing groups there is always a danger of finding spurious differences

arising from errors of measurement. In the present study, however, the high level of significance attained in so many of the statistical tests tends to cast doubt upon this interpretation. Nevertheless, it should be noted in this context that the NOA group did indeed have the highest mean score on most of the tests at the Spring, 1966, testing. There is no absolute assurance that this "error hypothesis" is not the proper explanation of the results.

However, the consistency of the comparisons, above and beyond their significance, certainly appears to indicate that the oral-aural methods of instruction facilitate retention in reading during the summer months. With but two exceptions, all the NOA-OAE and NOA-OAS comparisons favored the oral-aural treatments (although not always significantly). In the two cases where the NOA group was not found deficient, the differences were trivial--less than one-tenth of a point.

Of course these results do not indicate the reason for the superiority of the oral-aural treatments. It does seem likely, however, that experimental language patterns and vocabulary learned orally might very well continue to be used in conversation during the summer. Material learned in written form and not reinforced by oral language, on the other hand, would seem subject to deterioration from disuse.

One of the more interesting features of the results is the apparent transfer of the oral-aural learning from one language

to another. The evidence for this characteristic is to be found in the fact that the oral-aural treatments tended to excel the NOA in retention on both Spanish and English tests, regardless of the language used in instruction. This interpretation would also tend to explain the relatively infrequent occurrence of significant difference between the OAS and OAE treatments.

There is, however, one very puzzling aspect of the data which is left unexplained. The only significant differences found between the OAS and OAE groups were on the IAE--an English test. Why the group instructed in Spanish should show significantly greater retention on an English language test is a question for which the present data simply do not seem to provide an answer. Perhaps the research now in progress will ultimately yield some reasonable interpretation of this very perplexing result.

The current study has provided some new questions as well as, hopefully, some answers. Although there seems to be no convenient explanation for the superiority of the OAS group over the OAE in retention on the IAE test, it does seem clear that the oral-aural treatments do indeed provide a more solid basis for retention in reading than does a comparable treatment without the oral-aural component.

TABLE I

Differences Between Spring and Fall Means by Treatment[a]

TEST	TREATMENT		
	EOA N=115[b]	OAS N=67[b]	OAZ N=102[b]
IAE			
Level	1.67**	-.43	.29
Speed	1.11**	-.58	.02
Vocabulary	-.14	-1.66**	-.06
Total	2.97**	-3.07**	.23
IAS			
Level	2.56**	.31	-.06
Speed	.69	.76*	-.11
Vocabulary	.50	-.76	-.15
Total	2.75**	.31	-.35
MAT			
Word Knowledge	-.05	-.68	-.65
Word Discrimination	.65	.00	.39
Reading	2.26**	.73	-.69
Total	2.40*	-.34	.30

[a]Differences were computed in such a way that a negative figure indicates improvement and a positive figure indicates loss.

[b]Due to missing data Ns differ from the above by as much as ± 2.

* Denotes significant change within the indicated group at the .05 level.

** Denotes significant change within the indicated group at the .01 level.

TABLE II

Comparison of ROA and CAS
Difference Scores[a]

TEST	ROA Mean	CAS Mean	df	t
KAS				
Level	1.67	-.43	169	-3.15**
Speed	1.11	-.56	177	-2.33*
Vocabulary	-.14	-1.64	179	-2.24*
Total	2.97	-3.07	180	-4.28**
IAS				
Level	1.36	.21	151	-1.89
Speed	.69	.76	100	.14
Vocabulary	.30	-.76	159	-1.54
Total	2.75	.31	162	-1.99*
MAT				
Word Knowledge	-.05	-.283	181	-1.16
Word Discrimination	.55	.03	181	-1.68
Reading	2.26	.73	181	-1.41
Total	2.40	-.34	181	-1.53

* Indicates difference between means of change scores significant at .05 level.

** Indicates difference between means of change scores significant at .01 level.

[a]Negative difference indicates improvement.

TABLE XII

Comparison of EOA and OAE Difference Scores[a]

TEST	EOA Mean	OAE Mean	df	t
TAS				
Level	1.67	.29	215	-2.15*
Speed	1.11	.02	213	-1.67
Vocabulary	-.14	-.06	213	.14
Total	2.97	.23	215	-2.34*
TAB				
Level	1.36	-.06	218	-2.64**
Speed	.69	-.11	216	-1.67
Vocabulary	.30	-.15	217	-.63
Total	2.75	-.35	219	-2.96**
MAT				
Word knowledge	-.05	-.66	216	-1.01
Word Discrimination	.63	.59	217	-.09
Reading	2.26	-.49	218	-3.29**
Total	2.40	.38	218	-1.03

[a] Indicates difference between means of change scores significant at .05 level.

** Indicates difference between means of change scores significant at .01 level.

*Negative difference indicates improvement.

TABLE IV

Comparison of OAS and OAE Difference Scores[a]

TEST	OAS Mean	OAE Mean	df	t
IAE				
Level	-.43	.29	167	1.16
Speed	-.58	.02	166	.94
Vocabulary	-1.64	-.06	164	2.32*
Total	-3.07	.23	167	2.53*
IAS				
Level	.31	-.06	169	-.97
Speed	.76	-.11	168	-1.75
Vocabulary	-.76	-.15	169	.99
Total	.31	-.33	169	-.61
MAT				
Word Knowledge	-.88	-.66	167	.34
Word Discrimination	.00	.39	168	.65
Reading	.73	-.49	167	-1.12
Total	-.34	.38	168	.47

* Indicates difference between means of change scores significant at .05 level.

** Indicates difference between means of change scores significant at .01 level.

[a]Negative difference indicates improvement

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