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ABSTRACT

Differentiation of the effects of cultural deprivation and achievement characteristics as they relate to auditory comprehension and by implication to potential reading ability was investigated. A total of 80 eighth-grade students were classified into four experimental groups: deprived-achievers, deprived-nonachievers, nondeprived-achievers, and nondeprived-nonachievers. They were individually exposed to a 500-word auditorally presented passage which was broken up into shorter passages of 40 to 60 words each. The passages were language samples given by representatives of each of the experimental groups and were obtained by having the subjects respond to six stimulus picture cards. Subsequent to the presentation of the auditory information, an auditory cloze test was administered. This test was composed of the same material presented in the initial exposure. The deletion schedule was an every fifth lexical word deletion. Analysis of the data revealed a significant difference on scores of auditory comprehension between groups of achievers and nonachievers and significant differences in scores of auditory comprehension as a function of the source of the auditory material. No significant difference between groups of deprived and nondeprived subjects on scores of auditory comprehension were found. Tables and references are included. (Author/DH)

Abstract

Deprivation and Achievement As Factors In Auditory Comprehension

By

David Sherman Bailey, Ed.D.

A total of 80 subjects were classified into four experimental groups -- deprived-achievers, deprived-nonachiever, nondeprived-achiever and nondeprived-nonachiever. After the 80 subjects were classified, they were individually exposed to a 500 word passage which was broken up into shorter passages of 40 to 60 words each. The passages were language samples given by representatives of each of the four experimental groups. The passages were presented auditorally by means of a tape recorder.

Subsequent to the presentation of the auditory information, an auditory cloze test was administered. The auditory cloze test was composed of the same material presented in the initial exposure. The deletion schedule was an every fifth lexical word deletion.

Three hypothesis were tested. The results were such that Hypothesis I was rejected, Hypothesis II was confirmed, and Hypothesis III was rejected.

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Introduction

Several studies have pointed out the relevance of cultural deprivation to the development of certain cognitive abilities [Whiteman, Brown, Deutsch (2), Massad (11), Fowler (7), Barritt, Semmel and Weener (2), and others]. Likewise, several studies have indicated that achievement characteristics among deprived and nondeprived children varies greatly. [Gray (9), Humphrey (10), Crosby (4), and others].

A question then arises regarding the possible differentiation of the contribution made by cultural deprivation to certain cognitive skills and the contribution of achievement characteristics to those same cognitive skills. Since a particular

skill, reading, was of paramount concern to the investigator and since potential reading ability could obviously not be measured by traditional reading measurement techniques (requiring that the examinee be able to read), related skills needed to be identified. In order for the differentiation of the effects of cultural deprivation and achievement to be meaningful in terms of reading, two criteria should be met. The related skill should (1) be highly correlated with actual reading ability and (2) be measurable in instances where reading skill could not be directly measured. A review of the related research indicates that auditory comprehension meets these criteria [Stroud (15), Furness (8), Austin (1), Vineyard and Bailey (17), and others].

The intent of this investigation then was to try to differentiate the effects of cultural deprivation and achievement characteristics as they relate to the cognitive skill of auditory comprehension and perhaps by implication to potential reading ability.

The specific null hypotheses tested were as follows:

(1) There is no significant difference on scores of auditory comprehension between groups of achievers and non-achievers.

(2) There is no significant differences on scores of auditory comprehension between groups of deprived and non-deprived subjects.

(3) There are no significant differences on scores of

auditory comprehension among sources of auditory materials (i.e., materials produced by deprived achievers, deprived nonachievers, nondeprived achievers, nondeprived nonachievers).

Method

Sample Selection

The subjects used in this study were all eighth grade students. Three-hundred and eight subjects were screened on the Wide Range Achievement Test (WRAT) (21) in order to determine their achievement status.

After screening, utilizing the WRAT, was accomplished the criteria for achievement-nonachievement was applied. A subject was considered to be an achiever if the average of his WRAT scores fell within six months of his expected grade level. Twenty-one students were not available for further testing due either to dropping out of school or to being absent on subsequent testing days. The remaining two hundred and eighty-seven students were then categorized, according to the McGuire-White adaptation (12) of the Warner Socio-Economic Index, into deprived and nondeprived groups. A composite score of fifty-two or higher was considered to be deprived. Deprivation status and achievement status were then used to classify the subjects into experimental groups. This classification ultimately resulted in four categories: the deprived-achiever group, the deprived-nonachiever group, the nondeprived-achiever group, and the nondeprived-nonachiever group.

Since this screening procedure resulted in an unequal distribution for subjects by category, a random selection

procedure was employed to meet the cell requirements of the design and to equalize the N factor. An N of 20 Ss per cell was selected, resulting in a total N of 80.

The auditory materials were obtained by asking subjects who had been classified (according to the previously established criteria) into groups of deprived-achievers, deprived-nonachievers, nondeprived-achievers, and nondeprived-nonachievers, to respond to the six stimulus picture cards of level three of the Peabody Language Development Kit (14).

Their stories were then externally edited to provide a 500-word passage. No internal editing was done so that the original structure and grammatical usage continuity was maintained within groups. Their stories were recorded as they were told and then typed. The editing was then done and the resulting 500-word passage was recorded using a male narrator. This male-narrated, 500-word passage constituted the auditory input information.

The auditory cloze test was used to measure the independent variable of auditory comprehension. Other studies which have used the same technique are Taylor (16), Weaver (18), Weaver, Holmes and Reynolds (19).

Procedure

After the 80 subjects were selected, categorized (according to the previously established criteria), and randomly assigned within category to the appropriate cells in the design matrix, they were individually exposed to a 500-word passage which was

broken up into shorter passages of 40 to 60 words each. The passages were presented auditorally by means of a tape recorder.

In compliance with the requirements of the fully balanced, fully crossed, repeated measures design used in this study, representatives of all four experimental groups were exposed to auditory materials from each of the four producer groups.

Immediately subsequent to the presentation of the auditory information, the auditory cloze test was administered. The auditory cloze test was composed of the same material presented in the initial exposure. The deletion schedule was an every fifth lexical word deletion. The lexical deletion was chosen over other deletion schedules due to the expressed purpose of the test, which was to measure auditory comprehension. This choice is based on a finding by Ohnmacht, Weaver, and Kohler (13) in which they stated that "A lexical deletion is considered to sample ... 'comprehension' because nouns, verbs and adjectives seem to have a good deal to do with such 'comprehension' components as vocabulary (p. 206)."

The auditory cloze test was presented on tape and was narrated by the same narrator who read the original stories. The procedure for responding was explained to the subjects individually and sample passages were given to insure understanding of the response procedure.

The subjects' answers were recorded by the examiner on a prepared answer sheet beside the appropriate deletion blank number. The number of correct exact word responses were then counted and this number constituted that individual's raw score.

Results and Discussion

The means and standard deviations obtained by all subjects across selected variables are reported in Table I and II. Table I reports this information for the deprived-achievers (DA) and the deprived-nonachievers (DNA). Table II reports it for the nondeprived-achievers (NDA) and nondeprived-nonachievers (NDNA).

Insert Table I and II about here

The similarities in the performance of subjects within achievement groups is striking. The differences in scores among nonachievers, regardless of deprivation status, was minimal. For example, on total WRAT achievement scores the difference was only 0.3 grade levels. Differences in error scores on the deprived-nonachievers cloze test was only 1.4 errors, on the nondeprived-achievers cloze test 0.2 errors, on the nondeprived-nonachievers cloze test 0.6 errors and on the deprived-achievers cloze test 1.0 errors.

Basically, the same holds true for the achiever categories. The differences are slightly larger on some variables but performances are still highly similar.

Table III shows the results of the analysis of variance. Of three main effects, two were significant. Of the four possible interactions none were significant. The two significant

Table I

COMPARISONS OF MEANS AND STANDARD DEVIATIONS
ACROSS SELECTED VARIABLES FOR
DEPRIVED-ACHIEVERS AND DEPRIVED-NONACHIEVERS

Variable	DA		DNA	
	M	SD	M	SD
WRAT Total	9.1	1.2	5.8	1.4
WRAT Difference	1.1	1.2	-2.4	1.2
WRAT Reading	8.7	1.6	5.9	1.7
WRAT Spelling	8.8	1.6	5.7	1.6
WRAT Arithmetic	9.6	2.2	5.5	1.4
D-NA Materials	27.3	4.7	23.7	5.7
ND-A Materials	32.3	4.0	28.4	5.8
ND-NA Materials	36.1	6.5	31.8	6.4
D-A Materials	29.3	5.7	23.7	6.8
Total Cloze Correct	125.7	18.4	107.4	21.9

TABLE II

COMPARISONS OF MEANS AND STANDARD DEVIATIONS
ACROSS SELECTED VARIABLES FOR
NONDEPRIVED-ACHIEVERS AND NONDEPRIVED-NONACHIEVERS

Variable	NDA		NDNA	
	M	SD	M	SD
WRAT Total	9.7	1.6	5.5	1.3
WRAT Difference	1.7	1.6	-2.5	1.3
WRAT Reading	9.6	2.1	5.8	1.6
WRAT Spelling	9.6	1.4	5.6	1.5
WRAT Arithmetic	9.9	2.2	5.2	1.5
D-NA Materials	27.5	4.2	22.3	6.3
ND-A Materials	33.6	5.0	28.6	5.8
ND-NA Materials	37.7	4.4	31.2	7.3
D-A Materials	32.0	4.9	24.7	7.7
Total Cloze Correct	130.8	15.2	106.7	25.0

main effects were achievement and auditory input materials. The main effect of deprivation status was not significant. Main effect means are reported in Table IV.

Insert Table III and IV about here

Hypothesis I stated that there would be no significant difference on scores of auditory comprehension between groups of achievers and nonachievers. The hypothesis was rejected.

The significant difference between the groups of achievers and nonachievers indicates that factors contributing to the ability to achieve also exercise considerable influence upon the subjects' ability to perform on the auditory cloze test. This difference was anticipated since achieving students would be expected to yield a superior performance on tests requiring academic ability. After all, that is the means by which they are able to be classified as achievers. The nonachievers, for whatever reason, are not as capable of manipulating cognitive abilities concomitant with scholastic success and thus are not members of the "elite" achiever group.

Hypothesis II stated that there would be no significant difference between groups of deprived and nondeprived subjects and scores of auditory comprehension. The hypothesis was confirmed.

The finding of nonsignificance with regard to deprivation could possibly be due to poor differentiation by the instrument

TABLE III

ANALYSIS OF VARIANCE

Source	df	ms	F
Between Subjects	79		
Achievement (B)	1	2,231	10.38*
Deprivation (A)	1	26	1.00
BxC	1	39	1.00
Error	76	215	
Within Subjects	240		
Auditory Materials (A)	3	1,190	18.30*
AxB	3	60	1.00
AxC	3	49	1.00
AxBxC	3	3	1.00
Error	228	63	

*significant beyond .01 level

TABLE IV

COMBINED CLOZE TEST MEANS FOR

ACHIEVERS, NONACHIEVERS, DEPRIVED, AND NONDEPRIVED SUBJECTS

Cloze Test	Achievers	Nonachievers	Deprived	Nondeprived
D-NA	54.8	46.0	51.0	49.8
ND-A	65.9	57.0	60.7	62.2
ND-NA	73.8	63.0	67.9	68.9
D-A	61.3	48.4	53.0	56.7

used to measure that variable. However, in view of the nonsignificant findings by Entwisle (6), Barritt, Semmel and Weener (2), and others, this finding is not particularly surprising. This is especially true since Entwisle dealt with the major lexical categories of nouns, adjectives, and verbs, the same lexical categories with which the current study was concerned. Further, Barritt, Semmel and Weener (2) reported that tasks which required memory for unstructured sequential materials did not differentiate between lower and middle class socioeconomic groups. Linguistically structured materials did produce differences in favor of the middle class group. However, they report that immediate memory span is relatively unaffected, for both structured and unstructured tasks, by experiences which are commonly assigned to social class differences. The findings of the current study offer partial support for this finding.

Thus, the findings of Entwisle and Barritt et al., are congruent with both the methodology and results of the present study. When these points on short-term memory and the unaffected performance of deprived subjects on lexical category language development are considered along with the findings of the current study, as well as the large number of studies which have found differences, Deutsch's (5) "cumulative deficit" hypothesis begins to make sense. The "cumulative deficit" hypothesis as espoused by Deutsch is that certain factors associated with deprivation exert a differential effect on cognitive processes and that some processes are more affected than others.

Another factor of some importance should be mentioned in regard to the achiever-nonachiever performance comparison. It was noted serendipitiously that often the achievers, both deprived and nondeprived, would repeat the passage as it was given to them on the tape. In other words, they appeared to try to memorize the word passages and then compare the entire product which they memorized with the subsequent cloze test over that material. This one trial memorization strategy appeared to be very successful most of the time, but occasionally the subjects would get the entire passage scrambled and miss every cloze item. Nonetheless, this spontaneous, self-structured redundancy is indicative of a specific adaptional problem solving learning set and it would obstensibly be helpful in lowering the cloze error scores of the subjects employing the strategy. Redundancy has been shown to act as an information reducing device, Carterette and Jones (3), and to be helpful in organizational and retrivability memory functions. The failure of the nonachievers to adopt a similar strategy may account for some of the observed differences. It should be noted that no specific measure of redundancy was employed in this experiment and that the above comments are based on observations rather than instrumentation. Further investigations into this areas are planned.

Hypothesis III stated that there would be no significant differences in scores of auditory comprehension for the experimental groups used in this study as a function of the source of auditory material. This hypothesis was rejected.

A predominate difficulty hierarchy emerged which was deviated from only slightly by the nondeprived-nonachieving group. All other groups followed the hierarchy in a highly similar manner. The most difficult materials source was the deprived nonachiever. The second most difficult source was the deprived-achiever while the third most difficult source was the nondeprived-achiever. Surprisingly, the easiest test was that from the nondeprived-nonachiever source. This finding may simply be the result of the predominate language pattern of the area.

The educational implications of this finding would appear to be that, since deprived and nondeprived children are essentially equivalent with regard to performance on tests of auditory comprehension, this ability should be exploited as much as possible. That is to say, if cultural deprivation exercises only minimal or no influence on auditory comprehension abilities while inhibiting other sensory related skills, then perhaps the other sensory deficits might be remediated through the unaffected ability or the auditory input modality.

A further implication of the findings of this study concerns the previously stated assumption about the positive relationship between auditory comprehension and reading ability. Provided that the assumption is valid it seems reasonable to generalize a bit from the findings of this study and consider the possibility that achievement characteristics are more important in cases of reading difficulty than whether or not the student comes from a deprived background.

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