
AUDITORY PERCEPTUAL SKILLS OF CULTURALLY DISADVANTAGED CHILDREN

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In the pre-verbal stages of language learning, receptive language results from the process of relating incoming auditory symbols with appropriate visual, kinesthetic and other sensory images. The internalization of such symbols only becomes possible when meaningfulness is linked with them. This process of association presupposes that the child has perceptual abilities which make him capable of attending to, discriminating, recognizing and retaining sensory input.

Recent investigations (Deutsch, M., 1963; Weaver, 1963; Deutsch, C., 1964; Clark and Richards, 1966; and McConnell and Horton, 1966) have suggested that culturally deprived children have difficulty in auditory perceptual skills and are below age level in comprehending auditorially. The hypothesis seems tenable that environmental conditions could preclude the acquisition of meaningful auditory experience in the preschool years, thereby altering the development of basic listening skills. 'Tuned out' auditorially, such a child might demonstrate insensitivity to verbal input, and hence encounter much difficulty in auditory symbolic learning when placed in a school environment where auditory experience is crucial. The fact that the study of auditory-perceptual functioning in such children in the United States has been mainly limited to the investigation of speech sound discrimination suggested a need for further study involving other types of auditory skills. The present study was, therefore, planned to compare a group of culturally disadvantaged preschool children with two groups of culturally advantaged, or middle-class, children on tasks of auditory word memory and phonemic synthesis, as well as speech discrimination. In addition to delineating differences between middle class and lower class children on these specific types of auditory-perceptual skills, it was planned to determine if any differences observed might be related primarily to social class factors or to ethnic differences involved.

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PROCEDURE

Three groups of 15 children each served as subjects for the study. The experimental group was composed of 15 culturally disadvantaged Negro children, so classified on the basis of the particular day care center in which they were enrolled and the neighborhood in which they lived. These subjects resided in two of the most economically depressed areas of the city, characterized by high rates of family mobility, juvenile delinquency, and school dropouts.

The two middle class groups, one Negro and one Caucasian, came from two private church-sponsored kindergarten programs and a state university demonstration-type kindergarten. Each of these children had at least one parent who was a college graduate, and parental occupations were mainly professional and business.

Each child was between four and six years of age. Hearing levels, screened in the speech frequency range (500—2000 cps) by pure tone audiometry, were required to be 20 dB or better (1964 ISO). Speech behavior and emotional and intellectual development were within the normal range on the basis of either psychological evaluations available or teacher evaluation.

A battery of three tests was given to assess auditory-perceptual abilities. The first of these was the Auditory Word Memory Test, modeled after the Visual Memory Test included at the four-year level in the Stanford-Binet Intelligence Scale, Form L-M. The subject was required to listen and retain a series of words in sequence, then repeated with one of the words omitted. The child had then to recall the auditory image of the missing word from the first set and repeat it to the examiner. The items were arranged in terms of increasing difficulty, ranging from two to five words per sequence from beginning to end.

The second test, Auditory Blending, was a subtest from the Marion Monroe Reading Aptitude Tests (1935). This 12-item test required the synthesis of a word when its individual phonemes were presented in correct order but with a time delay between each phoneme, as for example, *c-a-t*. The child was required to designate from a possible choice of three pictures the one representing the word the examiner had presented orally in a phonemically disconnected manner.

The third test administered was a speech sound discrimination test in four subtests, each of which contained 28 paired word stimuli which were either identical, or different in only one phoneme unit. The first word of the pair was presented to the left ear, while the second half of the pair was received in the right ear. The listening task was made increasingly difficult by shortening the time span between words until the two words of the pair were completely overlapping, and thus heard simultaneously in the two ears. The child's task was to point to the illustration representing the stimulus pair he had just heard. The test material was recorded on tape at a standard recording level and presented through an Ampex stereophonic tape recorder from the control room of a two-room sound isolated test suite. The output of each of the two channels was fed into an amplifying system, calibrated to deliver the recorded message at 70 dB SPL at the earphones.

RESULTS

Analysis of the data from the foregoing tests, which is summarized in Table 1, showed that the culturally deprived group were markedly poorer on the three auditory tasks compared to each of the two middle class groups. Although the two middle class groups did not differ significantly from one another on two of the tests, the Negro group fell below the Caucasian group on the Auditory Blending Test, for which

Table 1. Comparison of a culturally disadvantaged group of preschool children with two culturally advantaged groups on three tests of auditory abilities

	Word Mem. Mn (and S. D.)	Aud. Blend. Mn (and S. D.)	Sp. Snd. Discrim. Mn (and S. D.)
Culturally Disadvantaged—Negro (N-15)	4.8 (3.7)	4.6 (1.7)	65.5 (11.9)
Culturally Advantaged—White (N-15)	8.7* (2.4)	7.4 (1.8)	78.7* (10.2)
Culturally Advantaged—Negro (N-15)	8.0* (2.4)	6.0 (1.8)	75.7* (13.7)

* All observed differences between groups with the exception of cult. adv. white and cult. adv. Negro on Word Mem. and Sp. Snd. Discrim. were statistically significant at .05.

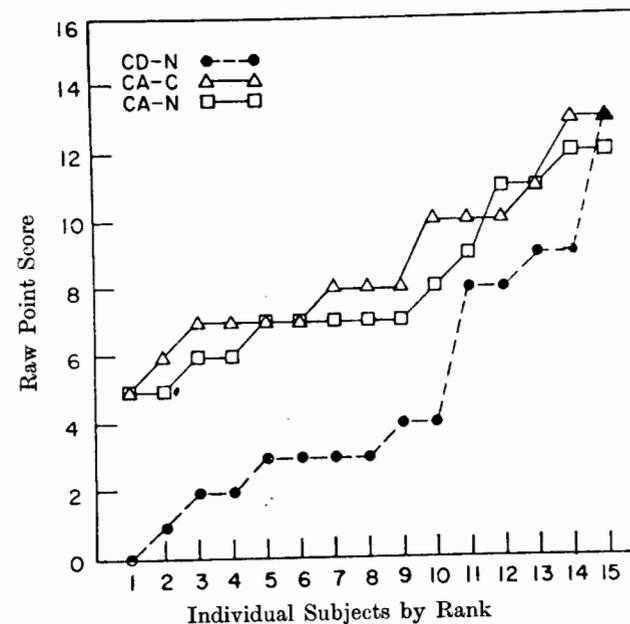


Fig. 1. Point scores obtained by each of the individual subjects on the test of Auditory Word Memory and plotted by rank from lowest to highest scores in each group.

their mean score was exactly halfway between the disadvantaged Negro group and the advantaged Caucasian group. Figures 1, 2, and 3 show the performance curves for the 15 subjects in each group, progressing from the lowest score plotted at the left to the highest score at the far right. The superiority of the two culturally advantaged groups compared to the one culturally disadvantaged group is quite apparent. The reason for the difference between the Negro and Caucasian advantaged groups on

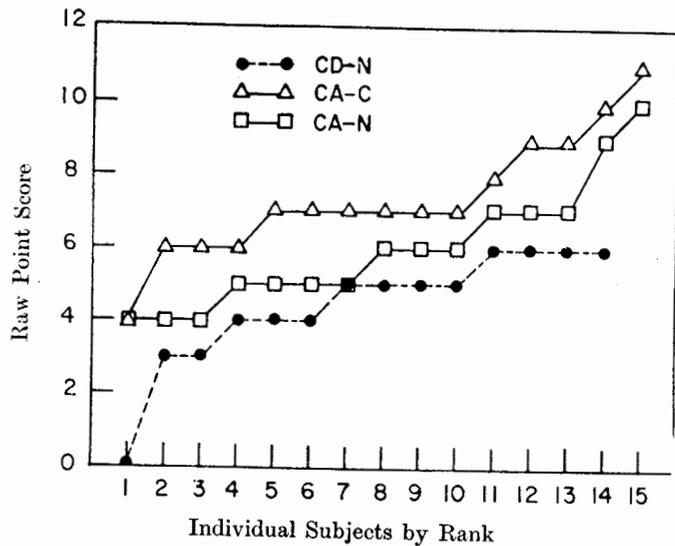


Fig. 2. Point scores obtained by each of the individual subjects on the test of Auditory Blending and plotted by rank from lowest to highest scores in each group.

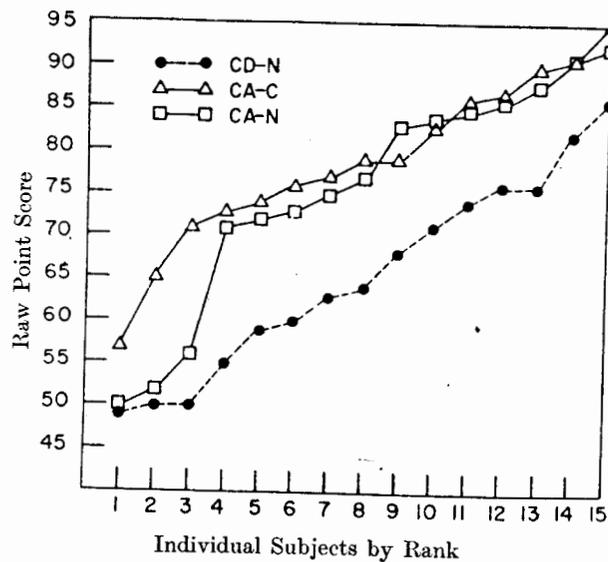


Fig. 3. Point scores obtained by each of the individual subjects on the test of Total Speech Sound Discrimination and plotted by rank from lowest to highest scores in each group.

Auditory Blending is not clear. It could be related either to Negro dialect factors or to other variables not controlled in this particular study. The study has suggested, however, that the environmental factor is of major significance in the development of auditory listening skills in the culturally deprived child.

SUMMARY AND DISCUSSION

In summary, the present study has confirmed findings reported by others that an early environment which is meager in much of the stimulus content surrounding the average middle-class American child may indeed result in poorly developed auditory skills. One may conjecture that language and vocabulary functioning will be reduced when auditory functioning is reduced, but what factors might be operating to produce such an auditory lag when hearing itself is normal? It is quite probable that most of these children come from homes in which the sound environment is extremely random and unstructured. For example, if a youngster has been living in a three-room home in a family of seven or eight people, the noise level in the home would very likely be quite high, and would consist of a barrage of extraneous sounds which the child would gradually learn to ignore. He thus blocks out auditory patterns from a very early age because they are so profuse he cannot handle them selectively at this stage in his auditory development. This blocking of auditory stimulation is thence a protection device for the young organism, and if persisting, may directly affect the child's capacity to transmit sensory stimuli by ear — the chief method by which every child learns language.

A problem yet unsolved is whether the basic auditory perceptual skills learned by most children in the first years of life, if unlearned because of the particular environmental milieu, would directly contribute to the child's lack of facility in language and poor educational achievement. The relation is indeed a logical one; at the present moment, we can only observe that the two deficiencies do exist in the same children.

REFERENCES

- Clark, Ann and Richards, Charlotte, Auditory discrimination among economically disadvantaged and nondisadvantaged preschool children. *Exceptional Children*, 33 (1966), 259—262.
- Deutsch, C., Auditory discrimination and learning: social factors. *Merrill-Palmer Quarterly*, 4 (1964), 277—296.
- Deutsch, M., The disadvantaged child and the learning process. In Passow, A. H. (editor), *Education in Depressed Areas*, New York: Teachers College, Columbia University (1963).
- McConnell, F., and Horton, Kathryn, Language characteristics of the culturally deprived child. In *Actas del 1er Congreso Americano de Hipoacusia y Lenguaaje*. Buenos Aires, Argentina: Foundation for the Help of the Deaf Child (1966), 584—589.
- Weaver, S., Interim Report: Psycholinguistic abilities of culturally deprived children. Mental Health Project grant 5-R11 MH 00765-04. Unpublished paper (1964).