Cognitive style and auditory discrimination of the disadvantaged child

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COGNITIVE STYLE

AND

AUDITORY DISCRIMINATION

OF THE

DISADVANTAGED CHILD

by

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CHAPTER I

INTRODUCTION

Educating the "culturally disadvantaged" child is a problem of paramount concern, particularly for teachers who work in urban centers. In 1950, approximately one child out of every ten in the fourteen largest cities of the United States was culturally deprived. By 1960, this figure had risen to one in three. By 1970, there was one deprived child for every two enrolled in schools in these cities.¹

To affect an adequate adaptation to a school setting for these children, teachers must understand the learning processes involved for this special group. Frost and Hawkes define the disadvantaged child in an educational context:

...disadvantaged refers to children with a particular set of educationally associated problems arising from and residing extensively within the culture of the poor. Other cultural groups within society do not escape similar problems, but the ills restricting the intellectual, social, and physical growth of children tend to be concentrated here. Upon entry to school the disadvantaged child is retarded in the skills prerequisite for successful school achievement. The ordinary school environment fails to compensate for this initial retardation, resulting in cumulative deficiencies through time.²

A study comparing the effects of an enriched elementary school environment, individualized instruction, child study by teachers, special services,

¹The terms "culturally deprived," "educationally deprived," "deprived," "underprivileged," "disadvantaged," "lower class," "lower socio-economic group," are used interchangeably throughout this paper.


provision for food and health, and home involvement resulted in significant differences in achievement (reading, language, and arithmetic), personality test scores, and mental maturity in favor of the enriched program. Although the direction of growth in these areas showed positive acceleration across grade levels, none of the disadvantaged children reached the national norm in any measured area.4

Bruner writes that "exposure to normally enriched environments makes the development of (cognitive) strategies possible by providing intervening opportunities for trial and error...that there is impairment under a deprived regimen seems...to be fairly evident." Although he does not refer specifically to the environment of the lower-class child, Bruner's remarks seem especially relevant. The obvious implication is that disadvantaged children, who have a meager environmental basis for developing cognitive skills, are often unprepared to cope with the formal intellectual and learning demands of school.6

If there is a causal relationship between environmental conditions and cognitive development, then variation in such development could partially reflect variations within the environment. It is time for educators to consider the hereditary and environmental differences of the disadvantaged student. When these differences are recognized the school will then be able to alter its environment to fit the needs of its disadvantaged students. Even if compensatory education programs can not be immediately initiated for these


children, teachers should be aware of the learning processes and learning problems of the disadvantaged child.

Statement of Purpose

The primary purpose of this paper was to present an overview of some of the most significant research on the cognitive-learning style of the disadvantaged child and a related cognitive-learning deficit, auditory discrimination.

A secondary purpose of this study was to show that schools are often geared to the values and apparent needs of middle class life and are unresponsive to the different needs of disadvantaged children.

Overview of the Problem

Studies addressed to needed changes for disadvantaged children can be grouped into two broad, interrelated categories. One relates to special cognitive learning problems of such youth, and the other to their special problems of emotional-personality development.

Studies in the cognitive-learning group are mainly concerned with assessing the intellectual ability of disadvantaged children, especially Negroes. Relatively few studies investigate the specific cognitive-learning deficits, or handicaps, of disadvantaged children. Those that do relate mainly to language-development, especially reading. Research on specific learning problems, the process of intellectual growth, and how certain learning processes operate to influence child development, is lacking.
Studying the disadvantaged presents a problem of definition. Any individual may be disadvantaged socially, economically, or psychologically depending upon the particular environment in which he is attempting to function at a given time. In describing disadvantaged children there has been a tendency to consider middle class values as positive and lower class values as negative. Therefore, if the poor could only become middle class, they would no longer be deprived. But poverty and social class, the usual criteria for disadvantage, now seem to include all those who are blocked in any way from fulfilling their human potential.

A common misconception among the public is that disadvantaged groups are deprived of what is thought of as culture. While lower socio-economic groups lack many of the advantages of middle class culture, it is not appropriate to describe them as "culturally deprived." Groups such as Mexicans, Puerto Ricans, Negroes or Indians may have a rich and complex culture of their own, which only serves to set them further apart from middle class culture - such as education, books, formal language - from which these groups have not benefited. Reissman states, "Culture is neither good nor bad. Along with customs and traditions, culture consists of the institutions, the structures, and the methods of or organization of the people involved."

When one subculture becomes dominant, it sets up the standards for everybody. The dominant culture is then viewed as positive and other cultures are viewed as negative. The disadvantaged is not just the rather negative and restricted population labeled as the lower socio-economic group. The child

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8Riessman, op cit., p.3.
whose major experience is ignored or undermined by his school and the dominant culture is disadvantaged. The child who does not fit the middle class method and standards is disadvantaged.

Thus, disadvantage applies in some way to most children. Traditional definitions, restricted to people from low socio-economic groups should encompass much more of the school population. J.M. Hunt states, "Cultural deprivation may be seen as a failure to provide an opportunity for infants and young children to have the experience required for adequate development of those semi-autonomous central processes demanded for acquiring skill in the use of linguistic and mathematical symbols and for analysis of causal relationships." Failure to provide the infant with proper sensory stimulation is more visible in lower class families and more camouflaged in middle class families. Frost concludes:

Work with disadvantaged children indicates that a restrictive environment leads to the learning of responses that are foreign to the expectations of the school. The disadvantaged are frequently lagging behind their peers in the attainment of tasks characteristic of a particular age-range and seem too bound to immediate perceptions and needs to deal effectively with complex relationships and long-range goals. The additional factors of fear and anxiety, rooted in the culture of the home and then reinforced by inappropriate school expectations, prevent cognitive development. 10

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10 Frost and Hawkes, eds., op. cit., p. 7.
Summary

The disadvantaged child has been recognized as a target for change. Research in this area has been concerned with modifying the characteristics and developmental patterns of young people who do not succeed at school tasks and whose general behavior is often at odds with the normative demands of the larger society. Overwhelmingly they are lower-class youth who live in urban slums. Very large proportions of them are also minority-group youth, mainly Negroes, Puerto Ricans, and Mexican-Americans. Their disadvantages are socially induced, functions of the life experience generally associated with lower-class status in the society.

Positive changes in the cognitive learning ability, emotional-personality development and general behavior of disadvantaged children are very much in order. There is a need for many more studies about the specific deficits and assets of these children. Educational investigators need to place greater emphasis on the process of development of the disadvantaged child. The differences of disadvantaged students need to be recognized before society and schools can alter their environment to fit the needs of the disadvantaged child.
CHAPTER II

RESEARCH

The cognitive process, or thought, has been divided into two major types by Kagan. In undirected thought the mind wanders and is free of the burden of solving any problem. Directed thought involves all the cognitive processes that come into play when one attempts to solve a problem:

The problem-solving process typically follows the following sequence. First, the child must comprehend the problem, whether it is presented orally or is in written form. Next, he must hold the elements of the problem in his memory while he generates possible solutions. The child must then evaluate his understanding of the problem and the adequacy of his hypotheses. Finally, he must choose the best hypothesis and implement it.

Cognitive Style of the Disadvantaged Child

The results of some studies of those cognitive abilities related to school achievement which seem to foster school failure indicate that a large percentage of lower socio-economic class children may be characterized by such deficits as 1) poor verbal orientation, causing problems in auditory discrimination, 2) lack of visual stimuli, creating difficulties in form discrimination and visual and spatial organization, 3) deficiencies in memory training, 4) a more limited vocabulary, 5) poor articulation, conceptualization that is limited to associational 6) and functional relationships and 7) a lack of


2Ibid., p. 102.
expectation of reward for performance. Additional factors such as inability to delay gratification and reliance on tangible rewards have also been discovered in studies of lower class children by other investigators.

Kagan, looking beyond motivational variables and adequacy of conceptual skills, hypothesized that one process that is intimately involved with problem solving ability may be "the degree to which the child reflects over the adequacy of a solution hypothesis." Some children select and report solution hypothesis quickly with minimal consideration while others, of equal intelligence take more time in selecting the best solution. Kagan called the former group "impulsive" and the latter group "reflective."

Kagan developed the Matching Familiar Figures Test (MFF) where the child is shown a single picture of a familiar object (the standard) and six similar variants, only one of which is identical to the standard. The child is asked to select the one variant that is identical to the standard. Using this method he computed both latency scores (time taken to report a solution) and accuracy scores to determine reflective or impulsive conceptual tempos. A more reflective cognitive approach is associated with greater accuracy. Kagan found that

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reflectivity increased with age, as did a decrease in number of errors. In a serial learning task, he found that impulsive children made more errors of intrusion than reflective children. When impulsive and reflective children were compared in reading ability, impulsive children made more recognition errors in reading English words, whether presented out of context or in context. Considering verbal I.Q., Kagan found that the latency measure was independent of verbal skills while the error measure correlated with WISC verbal scores between -.02 and -.36, with a median coefficient of -.28.8

From this information Zucker and Stricker hypothesized that accuracy and verbal skills may both be related to the conceptual tempo of a child. They then did a study to determine differences between lower class Negro and middle class white children in perceptual tempo. Zucker and Stricker specifically hypothesized that a group of pre-school lower class Negro children would have shorter latencies and more errors on the MFF test than a similar group of middle class white children.

The MFF was presented to 30 children from both groups. The results showed that the middle class children were more reflective than lower class children. Lower class children made problem-solving decisions significantly faster than middle class children (p<.05), and also made significantly more errors than middle class children (p<.02). Zucker and Stricker then hypothesized that the brighter child has had more success experience in problem-solving situations, while the less bright child has had more frequent failure experiences. Thus, if the less bright child has had more experience he may develop a cognitive style that minimizes the effects of failure by either becoming less concerned with getting a problem right or concomitantly leaving the situation as quickly as possible. The bright child, expecting success, will

8 Ibid., p.142.
maximize his chances by staying with the problem (reflective style) while
the less bright child will try to minimize his expected failure by acting
impulsively with little concern for possible errors.

For lower class children this hypothesis was supported by intelligence data,
as measured by the Caldwell Pre-School Inventory\(^9\), which became available for
23 of the middle class and 19 of the lower class children. Intelligence had
a considerable relationship to both latency (r = .52) and accuracy (r = .52)
for the lower class sub-sample. The authors concluded that intelligence goes
along with greater accuracy and a more reflective cognitive style in lower
class children.\(^10\)

Schwebel, in a study of 15 lower and 15 middle socio-economic boys, ex-
plored social-class differences in language ability in four standard verbal
tasks in an attempt to demonstrate that, in part, the differences were due
to the greater tendency towards impulsivity in lower-class subjects. The re-
results indicated that the lower class boys performed significantly poorer on
the verbal tasks than the middle class boys. It was also shown that the lower
class boys responded significantly faster, or more impulsively, on most of the
tasks. In addition, under a forced-latency condition, where the child was
obliged to wait a certain amount of time before responding, the lower class
children improved their performance significantly (p < .01) on all tasks.\(^11\)

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\(^9\)M. Caldwell, The Preschool Inventory (Princeton, N.J.: Educational

\(^10\)Joseph S. Zucker and George Stricker, "Impulsivity-Reflectivity
in Preschool Headstart and Middle Class Children," Journal of Learning Dis-
abilities, I (October, 1968), 24-30.

\(^11\)Andrew I. Schwebel, "Effects of Impulsivity on Performance of Verbal
Tasks in Middle and Lower Class Children," American Journal of Orthopsychiatry,
Kohlberg studied three Head Start classrooms, two of which were composed of half Head Start children and half middle class children. The third classroom was entirely Head Start. One integrated classroom was a Montessori classroom, the other was run by an elementary schoolteacher stressing readiness for public school, while the non-integrated classroom was run by a teacher who had previously worked in a permissive child-development oriented pre-school. Alternate forms of the Stanford-Binet were given at the beginning and end of the summer program. There was little overall change in I.Q., but there was a small but significant decrease of 5 points in the I.Q.'s of the children in the non-integrated permissive classroom. Ratings made by the testers suggested the basic reason for the I.Q. decrease was distractability.

For the permissive classroom, there was a 3 point mean increase in ratings of distractability on a 9 point scale. Furthermore, drop in I.Q. was correlated with increased distractability; the rank order correlation between the two change measures was .63.12

In a year-long Montessori program following the summer Head-Start program, 10 lower class children involved in the summer program showed a mean I.Q. increase of 17 points between October and January. A comparison group of middle class children in the same classroom showed a mean increase of 10 I.Q. points. The increase of the lower class children was matched by an increase in attention as reflected by a mean 2 point decrease in distractability ratings. A correlation of .65 was found between I.Q. increase and attention increase.13

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13 Ibid., p.106.
Kohlberg notes:

With regard to the cognitive values of individual activities, it is evident that some of the striking and obvious cognitive defects of culturally disadvantaged children are defects in attention. This obvious fact was shown in our research project by the lower scores of the culturally disadvantaged compared to their middle class classmates on both rating and experimental measures of attention. It is equally obvious that one of the major reasons for these defects in attention is the disadvantaged is due to an environment of constant distraction by peers and siblings. Culturally disadvantaged children in large families and crowded surroundings are never alone with any engrossing task or toys. Our research suggests that a conventional permissive peer-oriented preschool classroom for the disadvantaged exacerbates these tendencies... While the child must learn to attend to cognitive activities in a group, it may be easiest to promote such learning first in a less group-like context.14

Klaus and Gray made even more explicit the distracting nature of the disadvantaged child's disordered environment. A group of 61 Negro children, selected from families well below the usual cutting line for poverty and living conditions, were randomly placed in three groups. The first group, over a period of three 10-week summer sessions, attended a preschool particularly designed to attempt to offset the deficit usually observed in children from culturally deprived homes when they enter public school. In addition, the group had three years of weekly meetings with a home visitor during the parts of the year in which the school was not in session. The second group received two summers of special experiences plus two years of meetings with the home visitor. The third group, located in a similar city 60 miles away, became a second control group.15

Since an implicit aim of Klaus and Gray's program was to encourage a cognitive style that was reflective and analytical rather than impulsive, the Matching Familiar Figures Test of Kagan was used across the four groups

14Ibid., p.109.

after the last summer preschool. The experimental groups showed themselves to be significantly more reflective than the controls and, also displayed significantly fewer errors.16

The low-income environment was also found to disrupt the child's spatial and temporal organization. Klaus and Gray hold the opposite point of view from the one that sees the lower class home as one devoid of stimuli. They maintain that, while there may be a lack of a range of stimuli, there is probably a great deal of stimulation per se. This stimulation bombards the child in such a way, however, that it does not permit him to form proper figure-ground relations. Thus, potential stimulation becomes indistinguishable from the noise. The child learns to ignore the stimuli and does not learn to selectively respond to them.17

Hess and Shipman studied the specific cognitive components of mother-child interaction in different social classes. They hypothesized that norms as to status tend to induce cognitive styles in their children which are passive, that is, waiting to be told, and impulsive, that is, moving to a solution without reflective thought and comparison of a range of possibilities.18

Their project included four groups of Negro mothers and their four year-old children - Group A from upper-middle class, professional, and managerial family backgrounds; Group B from skilled-work occupational levels; Group C from unskilled occupational origins. Each group had approximately forty mother-child pairs; all subjects came from intact homes, were economically

16 Ibid., p.45.
17 Ibid., p.8.
self-supporting, with equal numbers of boys and girls within each subgroup. A fourth group (D) of similar size was composed of mothers on public assistance who were not living with their husbands or other adult males. The mothers were interviewed in their homes, tested, and observed while teaching in a semi-structured situation with their children.10

As a result of the study, the authors concluded that the lower class mother uses an "imperative-normative" system of control in interaction with her child. This type of maternal control is based on social norms and the power and authority of the participants - for example, "You'll do it because I told you to." On the other hand, the middle class mother uses a "cognitive-rational" type of control which encourages the child to think through a situation in terms of the consequences of his behavior - for example, "Don't you think you should go to bed now so that you'll be well rested for tomorrow's baseball game?" From the results of their study, Mass and Shipman concluded that the type of control used by the mother determines the type of cognitive strategy the child uses; that is, the lower class child uses less reflective information-processing strategies than the middle class child.20

Thus, whether because of a disorganized environment, as Kohlberg and Klaus and Gray would maintain, or because of the predominant use of the imperative-normative control technique used by the lower class mother, or because of some combination of both and other yet unknown reasons, the disadvantaged child is likely to possess an impulsive style of cognitive strategy.21

Closely related to this impulsivity, short attention span, and dis-

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10 Ibid., p.96.
20 Ibid., p.93.
tractibility, is the disadvantaged child's hyperactivity, motor disinhibition, and figure-ground problems. These same characteristics are often found in the "learning disabled" child. Research indicates a further need for studies which zero in on the related learning problems of these children.

**Auditory Discrimination of the Disadvantaged Child**

Auditory discrimination is the ability to distinguish phonemes. It has been defined as: "...a judgment calling for a distinction or comparison among sounds," by Kronvall and Diehl. They considered this discrimination of phonemic differences as an acquired skill in recognizing the sound structure of one's own native language.

In discussing auditory discrimination, Wepman states that the auditory perceptual function is the ability to differentiate each sound of the language from every other sound of the language, from separating vowels from consonants to separating vowels from vowels. As the child develops the ability to discriminate sounds in English, he also must develop the ability to get the same meaning from the words, either spoken or written, as the person speaking intended. If the child cannot hear differences in speech sounds, he cannot repeat those differences.

Wepman considered adequate auditory discrimination to be essential for the acquisition of language and for learning to read. He summarizes some of the facts about auditory discrimination:

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1. There is evidence that the more nearly alike two phonemes are in phonetic structure, the more likely they are to be misinterpreted.
2. Individuals differ in their ability to discriminate among sounds.
3. The ability to discriminate frequently matures as late as the end of the child's eighth year. A few individuals never develop the capacity to any great degree.
4. There is a strong positive relationship between slow development of auditory discrimination and inaccurate pronunciation.
5. There is a positive relation between poor discrimination and poor reading.
6. While poor discrimination may be at the root of both speech and reading difficulties, it often affects only one of the two.
7. There is little if any relationship between the development of auditory discrimination and intelligence as measured by most intelligence tests.²⁴

Children should be studied as they reach school age to determine whether their auditory abilities have reached the level of maturational where they can benefit from phonics instruction in reading or from auditory training in speech. Unless this is done, we will continue to make the error of approaching all children as though they can do equally well through the same modality. Children who are poor in discrimination will be given the same instruction as others with good discrimination, etc. The need to individualize instruction, at least to the point of grouping visual learners and auditory learners separately at the onset of reading instruction seems an obvious way to minimize the problem.²⁵

Research has documented that the economically disadvantaged are deficient in language development.²⁶ Investigators are currently attempting to determine more specifically the interactive effect of the specific factors of language development in relation to low socio-economic status. Among these is the factor of auditory discrimination.²⁷

²⁵Ibid., p.332.
Schonell rated weakness in auditory discrimination of speech sounds as one of the most important and most frequently occurring causal factors in poor reading. He found that, in most cases of retarded readers with deficiency in speech, the difficulty was due to lowered power of auditory discrimination, rather than to organic conditions.\textsuperscript{28}

The problem of reading retardation among disadvantaged children is particularly acute; reading failure among children of lower socio-economic status is about four to ten times the rate reported for the rest of the school population.\textsuperscript{29}

Among the more persistently mentioned causes of reading problems are deficiencies in auditory and visual perceptual skills. Many studies report significant correlations between these skills and measures of reading in the primary grades.\textsuperscript{30}

Recent research points out that the development of visual perception and auditory discrimination are areas of vital concern in teaching beginning reading skills. The generalization that auditory and visual perception are related to success in beginning reading is almost universally accepted and most beginning reading and kindergarten programs are concerned with assessing and developing auditory and visual perception.\textsuperscript{31}

\begin{itemize}
\item \textsuperscript{28} T.J. Schonell, \textit{Backwardness in the Basic Subjects} (Toronto: Clark, Irwin and Co., Ltd., 1942).
\item \textsuperscript{29} T.A. Chandler, "Reading Disability and Socio-economic Status," \textit{Journal of Reading}, X (1966), 5-21.
\end{itemize}
In comparison to more advantaged peers, children of low socio-economic status are inferior in a variety of auditory and visual perceptual skills.

Cohen notes:

Most Negro and Puerto Rican children tested in various projects over the past three years are sight readers. They have never learned the relationship between grapheme and phoneme. Over 50% of junior high school pupils in one slum school district tested by this author did not know the alphabet. Most elementary school disadvantaged cannot blend sounds.

Visual discrimination of letters is weak but better than scores on auditory discrimination of sounds in words tested or various levels of difficulty (matching, identification, reproduction). Beginning consonants are usually heard well enough, but ending consonants, beginning blends and medial vowel sounds are almost always missed by these children on our tests of auditory discrimination.32

Deutsch stated that, while discrimination may be impaired by inadequate receptor processes, it is quite possible to have intact and organs and still be unable to discriminate differences in the stimuli, especially when experience has been limited, as in the lower class home in which language is used in the most restricted and concrete sense. The slum child is confronted with a very poor situation for his learning: a very noisy environment and one with many distractors and low signal-to-noise ratio. "He is encouraged by the stimulus properties of his environment to become inattentive to the appropriate stimuli, and, in fact, perhaps to block out many of them altogether."33 Much communication is nonverbal; and verbal communication itself is likely to be terse, grammatically incorrect, and monotonous in structure and vocabulary.34

Clark and Richards, in viewing the home environment of the disadvantaged


34Martin Deutsch, op.cit., p.178.
child conclude:

Thus, attentiveness to discriminatory cues is less likely to develop, and the economically disadvantaged child may enter school ill prepared to face the foreign auditory demands of the classroom, especially the unfamiliar speech of the teachers and the need for attention to prolonged speech sequences.35

Clark and Richards conducted a study of 58 children in a summer Head-start program at the University of Wisconsin. The children were divided evenly into two categories: (a) economically disadvantaged children and (b) nondisadvantaged children enrolled in the same program, but paying tuition. The authors expected to find differences in the auditory discrimination ability of the two groups.

The instrument selected for measuring auditory discrimination was the Wepman Auditory Discrimination Test.36 The Wepman requires the subject to make "same" or "different" judgments in response to 100 word pairs. The test word stimuli are minimal pairs, that is, pairs of words differing only in a single phonemic element (e.g., put-pat).

The nondisadvantaged children obtained significantly fewer errors than the disadvantaged children (d=5.80, p<.001). Based on these findings, the authors concluded that preschool economically disadvantaged children exhibit significant deficiencies in auditory discrimination ability when compared to a nondisadvantaged group.37

It appears, however, as a measure of auditory discrimination, the Wepman could be dependent upon several variables in addition to the actual

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35Clark and Richards, op.cit., p.259.
37Clark and Richards, op.cit., p.262.
skill itself. One factor cited in the literature refers to the test construction which requires the subject to determine whether two words are the "same or different." The "same-different" concept may be too abstract for younger children; the test score may reflect their mental development.\(^{38,39}\) The factor of auditory memory and the role that dialect of some low socio-economic subjects plays may also be influencing variables.\(^{40,41}\)

A study by Elsbogen and Thompson considered the possibility that familiarity with word pairs on the Wepman test could influence results in favor of those children with more extensive language backgrounds. Each of 30 middle class and 15 lower class kindergarten children were individually administered two tests of auditory discrimination. One of the tests was the Wepman, and the other was similar to the Wepman except that phonemes were exchanged between word pairs to create nonsense syllables. Error scores were analyzed and it was shown that social class differences in error scores disappeared with the use of the distorted form of the Wepman. The higher performance of the middle class kindergartners on the Wepman than on the distorted Wepman seemed to indicate that the vocabulary factor (meaning is involved) was an aid in their performance on the Wepman. The authors therefore concluded, in screening for children with problems of auditory discrimination, it might be important to use a test which does not have a vocabulary bias.\(^{42}\)

\(^{38}\) Cynthia Deutsch, *op. cit.*, p.294.


Another study which questioned the use of tests like the Weisman to define the auditory discrimination deficit among Negro children was carried out by Gohesman. The study explored the view that the Negro child's low scores on tests of auditory discrimination reflect primarily their unfamiliarity with standard English speech rather than any deficits in auditory discrimination ability.43

The author pointed out that there is a high relationship between speech pronunciation and auditory discrimination. Also, that auditory discrimination of speech sounds is related both to the kinds of sounds presented and the type of speaker who pronounces them and that it is easier to discriminate among sounds pronounced by a speaker of one's own language than by a speaker of a foreign language. Gohesman then concluded that a person's own auditory discrimination ability cannot be meaningfully evaluated without considering his own speech background.44

Noting that the Negro dialect is different from standard English,45 Gohesman's study sought to discover the extent to which a child's performance on a test of auditory discrimination is influenced by his own speaking and listening experience with the speech sounds used in the test. The author felt it would then be possible to determine if group differences in auditory discrimination performance were primarily related to dissimilarities in exposure to particular dialect and standard English features or to differences in general


44 Ibid., 95.

auditory discrimination ability.

Three groups of forty boys were tested individually in auditory discrimination, verbal ability and reading achievement. Group I was composed of Negro dialect-speaking children, Group II of Negro standard English-speaking children, and Group III of white standard English-speaking children. A test was composed of two kinds of word pairs: (1) those pairs pronounced as homonyms in Negro dialect but as contrasting words in standard English, and (2) those pairs pronounced as contrasting words by all subjects. The word pairs were presented on tape by both Negro dialect and standard English speakers.

The results showed significant group differences in verbal ability and auditory discrimination performance (p<.05) with Group III scoring significantly higher than either Group II or Group I. Although the data indicated that exposure to Negro dialect speakers did not improve the performance of the Negro-dialect speaking children, exposure to standard English speakers did significantly improve the performance of combined groups of standard English-speaking children.

The author concluded that the differences between the performance of Negro dialect-speaking and standard English-speaking children on an auditory discrimination test may not be due to poorer auditory discrimination ability on the part of the Negro dialect-speaking children but may, in part, be explained by the differences in their speech pronunciation.46

Lowry examined the differences in the development of visual perception and auditory discrimination between 20 Nez Perce Indian children and 21 white

47Gohsman, op.cit., p.100.
children in the second half of their first year in kindergarten. The Frostig Developmental Test of Visual Perception and the Wepman Auditory Discrimination Test was given to each child.

Of a possible 30 points on the Wepman, Indian children had a mean score of 18.25. White children had a mean score of 23.57. The standard deviation score for Indian children was 6.95 and for white children, 5.24. The probability level was $p < .05$. Indian children had a mean score of 89.80, putting them below a score of 90 which is the lowest quartile in the Frostig. White children had a mean score of 100.95 which put them at the 50th percentile on the Frostig.

From the test results and analysis of the data the author concluded:

In visual perception and auditory discrimination the Nez Perce Indian child was less developed at the kindergarten age than his white classmate. The Nez Perce Indian child was not as prepared as his white contemporary to succeed at the reading tasks set for him in the public school. No correlation was found between visual perception and auditory discrimination.

A study by Bruninks was designed to adequately assess whether the use of teaching approaches consistent with the auditory or visual perceptual strengths of boys considered economically disadvantaged would facilitate their ability to learn and retain a list of unknown words. The sample consisted of 105 Negro boys with a mean chronological age of eight years, seven months. Each subject was administered a comprehensive battery of six auditory and six visual perception tests. On the basis of research and theory in the

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area of early reading instruction, the tests selected were those which measured auditory and visual perceptual abilities considered to be essential to the development of early reading skills. On the Wapman Auditory Discrimination Test each subject received two alternate test forms on a tape recorder - one under a "signal only" condition, and the other under a "signal plus noise" condition.\footnote{M. Wapman, \textit{Auditory Discrimination Test}, (Chicago: Language Research Associates, 1958).}

The "signal plus noise" condition was administered to assess the subjects' ability to discriminate between speech sounds in the presence of distracting background noise which consisted of voices recorded in a college cafeteria. The test battery identified those subjects with auditory or visual perceptual strengths.

One group of 20 boys demonstrating visual strengths and auditory weaknesses and another group of 20 boys with the opposite perceptual pattern were chosen as subjects. The subjects were taught to recognize 15 words by a visual or sight-word approach, and another set of 15 words by an auditory or phonic teaching method. Subjects were taught to recognize each list in a 23-minute lesson, spending approximately one and a half minutes on each word. Following the teaching sessions, the amount of learning was assessed by an immediate recall test.

A second session took place one week later when a measure of delayed recall was secured by testing again the ability of each pupil to read aloud the same list of 15 study words. Following the recall test the second list of 15 words was then taught to the child using the second teaching procedure.

The results failed to support the predicted interaction between par-
cognitive aptitudes and teaching methods. Contrary to prediction, both groups demonstrated greater learning under the visual teaching method.51

Bruininks concluded that the matching of visual or auditorily oriented methods of teaching to the perceptual abilities of disadvantaged children in the upper primary grades has limited utility as an approach to corrective or remedial reading. He further states:

It appears that the weight of reported evidence suggests that the disadvantaged learn more efficiently when verbal material is presented visually. Excessive background noise of many lower class homes undoubtedly encourages an orientation toward developing structure and order through concentration upon visual experience.52

Research seems to indicate that disadvantaged children have a higher incidence of auditory discrimination dysfunction than non-disadvantaged children. While some researchers believe the problem can be attributed to language differences, the fact remains that disadvantaged children have poor auditory discrimination ability and may even learn more efficiently with visually oriented methods of teaching.

While no specific research indicates a relationship, many researchers feel that the noisy home environment of the slum child encourages inattention to appropriate auditory stimuli, limited experience with verbal communication and an inability to discriminate differences in auditory stimuli. Coupled with research indicating the correlation between auditory discrimination and language development and reading ability, this would underline the importance of training in auditory discrimination early in the school career.

Further, research concerning the interaction of social and developmental


52 Ibid p.36.
factors and their impact on the intellectual growth and school performance of disadvantaged children is needed. At present, the lower class child seems to be at a disadvantage at the point of entry into the formal learning process.
CHAPTER III

SUMMARY

Research into the problems of cognitive style in the disadvantaged child, and a related specific learning disability, auditory discrimination, is still in its early stages. The exact relationship between the disadvantaged child's social background, including his culture and environment, and school performance is also not completely known. A related problem is that of defining what aspects of the disadvantaged child's background is most influential in producing what kinds of deficits in skills. However, research which is accumulating points more and more to the influence of background variables on the patterns of perceptual, language, and cognitive development of these children.

Research indicates that the disadvantaged child has an "impulsive" style of problem solving. The disadvantaged child is apt to be less concerned, inattentive, and quick to answer a problem. This inability to stay with the stimulus problem differs from the middle class child's more "reflective" cognitive style. Similarly, the stimulus properties of the disadvantaged child's environment encourage the child to learn inattention. His environment is filled with non-meaningful background noise that the child tends to block out. There is a minimum of non-instructional conversation directed toward the child and he does not get practice in auditory discrimination or feedback from adults correcting his pronunciation, pronunciation, and grammar.

The disadvantaged child, particularly the Negro, has been found to have dialect and pronunciation differences which could hamper his ability to auditorily discriminate standard English sounds.

The pre-school child's learned inattention, particularly to auditory
stimuli, seems to carry over in learning through the auditory channel in school. Research in the auditory discrimination of disadvantaged children reveals significantly poorer auditory discrimination ability and greater learning under visual teaching methods for these children.

Future research should endeavor to determine the effects of differential environmental variables upon the perceptual, language and cognitive abilities in disadvantaged children. There is a great need in the cognitive learning area for more studies of the specific characteristics and processes of learning among disadvantaged children. Does poor auditory discrimination ability influence cognitive development in these children? Will the disadvantaged child learn better with visual teaching methods? These and many more important questions remain to be answered.
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