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ABSTRACT
The objective of this project was to increase the quantity and quality of research and available information on the education of disadvantaged youth, through conferences and seminars, consultation services, and the development of the Information Retrieval Center on the Disadvantaged (later ERIC-IRCD). Proceedings of conferences in the following areas have been published: biosocial factors in the development and learning of disadvantaged youth; community and family services (ED 026 436); experimental analysis of behavior (ED 026 435); educational remediation and rehabilitation (ED 026 437); the role of the speech pathologist in the management of language difficulties; social change and the role of the behavioral scientist (ED 021 908); school desegregation and integration (ED 015 989); language development (ED 027 346) and an annotated language bibliography (ED 026 414); and research dissemination and training (ED 026 440). (NH)

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FINAL REPORT

# Stimulation and Development of Research Related to the Education of the Disadvantaged and/or Segregated

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June 27, 1969

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U.S. DEPARTMENT OF HEALTH,
EDUCATION, AND WELFARE

Office of Education
Bureau of Research

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VOLUME II

# FINAL REPORT

## INTRODUCTION

### Stimulation and Development of Research Related to the Education of the Disadvantaged and/or Segregated

**Objective:**

The major objective of this Project was to increase the quantity and quality of research and available knowledge relevant to the education and development of disadvantaged and/or segregated children and youth. Such research and knowledge are seen as prime prerequisites to improved effort in the habilitation and rehabilitation of large numbers of young people who are handicapped by cultural, economic, ethnic or social conditions of life and status. These populations have been chosen as targets because it is in these groups that our population suffers its greatest waste and loss of potential intellectual resources through lack of appropriate educational intervention.

**Procedures:**

In pursuit of this objective this Project included:

1. The analysis and synthesis of practices, theory, and research relevant to this population;

2. The stimulation, encouragement, and assistance to junior and senior investigators to conduct research relevant to the education and development of these youth;

3. The bringing together of active research workers and scholars for the interchange of ideas, experiences and problems related to the education of the disadvantaged and/or segregated;

4. The encouragement of programmatic research which contributes to a systematic attack on the basic problems in the education of the disadvantaged and/or segregated;

5. The encouragement and orientation training of junior research investigators to undertake problems in this area;

6. The dissemination of information to the Office of Education, to institutions, to agencies, and to individuals pursuing related research, demonstrations or training by means of conferences, workshops, publications, and consultations.

Activities:

This contract was designed to free the Director from some of his regular activities in order that he might provide conceptual leadership in the identification of significant research problems related to the education of the disadvantaged and/or segregated. In addition, the project provides a vehicle through which research activities in this area can be stimulated and new investigators attracted to this field. In connection with this, ten types of activities have been undertaken:

Item 1

Small and intensive work conferences were held in which a few people were brought together to "brainstorm" with no formal papers presented. Included among these are:

(a) September 30 - October 1, 1965
Research Conference on Racial Desegregation and Integration in Public Education;

(b) October 20 - 22, 1965
Research Conference on Language Development in Disadvantaged Children;

(c) November 30 - December 2, 1966
Research Conference on the Experimental Analysis of Behavior in the Education of Socially Disadvantaged Children and Youth;

(d) October 17 - 18, 1967
Research Conference on the Role of the Speech Pathologist in the Management of Language Difficulties in Children.

Item 2

The second form of activity has been the larger open conference to which both junior and senior investigators were invited to participate in colloquia organized around formal papers and specific problems. Included among these are:

(a) May 4 - 6, 1966
Invitational Conference on Social Change and the Role of Behavioral Scientists;

(b) June 7 - 8, 1966
Research Planning Conference on Language Development in Disadvantaged Children;

(c) February 6 - 7, 1967
Research Conference on Remediation and Rehabilitation in the Education of Disadvantaged Children;

(d) April 19 - 21, 1967
Research Conference on Bio-Social Factors in the Development and Learning of Disadvantaged Children;

(e) June 15 - 16, 1967
Research Conference on Community and Family Services for the Educational Rehabilitation of Disadvantaged Youth

Item 3

The third form of activity was the Dissemination and Training Conference where several junior and senior investigators were invited to participate in a week long series of colloquia and seminars designed to report in summary fashion the work of the Project, and to provide intensive orientation training in research methodology for junior members in attendance. Participants were invited from the major research institutes and programs across the country, and several of the universities where work in related areas was under way.

June 26 - 27, 1967
Research Dissemination and Training Conference.

Item 4

The fourth form of activity is a consultation service to educational practitioners and researchers around problems of research related to the target populations. This has involved very active telephonic and mail contacts with people across the country from both public and private agencies resulting in research and demonstration proposals submitted to the Office of Education and the Office of Economic Opportunity, the establishment or refinement of services to the disadvantaged, the organization of orientation and training programs, and has led to a variety of publications which were not directly funded by or sponsored under the contract, notably the December 1965 Issue of the Review of Educational Research and several issues of the Bulletin from the Information Retrieval Center on the Disadvantaged.

Item 5

In support of the four classes of activities listed above, the director of the Project, along with staff members and consultants, have actively monitored research, programmatic and literary developments in the field. Much of this effort paralleled the development of another Office of Education supported project, the Information Retrieval Center on the Disadvantaged. It is clear that the operation of this project contributed heavily to the early development of this unit of the ERIC program. In addition, these efforts which paralleled the Information Center, summary papers, position papers, and conference proceedings, have been prepared and disseminated to conference participants, appropriate Office of Education staff members, and entered into the ERIC system.

Item 6

As provided in the original negotiations around this project, the project director has maintained a close and active consultative relationship to theBureau of Educational Research and the Office of Economic Opportunity through their respective units concerned with the education of the disadvantaged and equality of educational opportunity. These contacts have included in addition to numerous contacts with staff persons, provision by theDirector of two formal briefings for the Commissioner of Education and six formal briefings for the Director of Research/ Associate Commissioner.

In addition, the Project Director has been active in the development of the research and evaluation programs of project Head Start in the Office of Economic Opportunity. So active was this involvement that the Project Director served for a time as Research Director for Head Start.

Item 7

The Project has produced several documents. The list includes:

A. Proceedings of the Conference on Bio-Social Factors in the Development and Learning of Disadvantaged Children.
ED 013 283

B. Proceedings of the Conference on Community and Family Services for the Educational Rehabilitation of Disadvantaged Youth.
ED 026 436

C. Proceedings of the Conference on the Experimental Analysis of Behavior in the Education of Socially Disadvantaged Children and Youth.
ED 026 435

D. Proceedings of the Conference on Remediation and Rehabilitation in the Education of Disadvantaged Children.
ED 026 437

E. Proceedings of the Conference on the Role of the Speech Pathologist in the Management of Language Difficulties in Children.
ERIC-IRCD Accession Number: UD002452

F. Proceedings of the Invitational Conference on Social Change and the Role of Behavioral Scientists.
ED 021 908

G. Proceedings of the Research Conference on Racial Desegregation and Integration in Public Education.
ED 015 989

H. Proceedings of the Research Planning Conference on Language Development in Disadvantaged Children.
ERIC-IRCD Accession Number: UD004912

I. Proceedings of the Research Dissemination and Training Conference on the Education of the Disadvantaged. ED 026 440

J. Language Development in Disadvantaged Children: An Annotated Bibliography. ERIC-IRCD Accession Number: UD 006840.

Item 8

In the course of this Project, more than 200 students, faculty, research investigators, and educational practitioners have been involved in discussions, work conferences, seminars, and training sessions. About 150 such persons have been involved in consultations with the Project Director in connection with the development of their own research or demonstration projects. These two categories of persons are broadly representative of the educational institutions and geographic areas of this country. In a few instances they include persons or institutions from other countries. No actual count has been made of the research, training, and demonstration projects funded by the Office of Education, which have been influenced by this Project, but casual review of project titles and investigators indicates a high incidence of contact between such investigators and the staff of this Project.

Item 9

In the terminal stages of this Project, support was provided for the introduction into the ERIC Information Retrieval Center on the Disadvantaged all of the documents which had been accumulated or developed under the Project. This also involved the cataloging and indexing of these documents. They are now a part of the IRCD collection, and much of this material has been included in the Central ERIC Collection. All of the documents developed especially for the Project have been added to the ERIC Collection.

Item 10

There has been a considerable amount of interaction and overlap between this Project and the development of the ERIC Information Retrieval Center on the Disadvantaged. In the early stages of the development of the Central ERIC Program in the Office of Education, the resources of this Project in its earliest form (then supported by the Office of Economic Opportunity) became a part of the initial set of documents available . In fact, the model included in the original

proposal for this Project was subsequently used for the development of the ERIC Information Retrieval Center on the Disadvantaged. Aside from the several documents produced and the general influence the Project had on the development of programs and research related to the disadvantaged, the Project's contribution to the development and strengthening of the Information Retrieval Center is its most significant achievement.

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## SUBSTANTIVE SUMMARY

### Problems in Educational Planning for the Disadvantaged

(The several conferences, consultations, and documents developed in connection with this Project include a rich resource of ideas and problems important to this field. The task of analyzing and synthesizing these resources has not yet been completed. However, it is possible to identify some important research information and some problems demanding investigation. The statement which follows speak to some of these issues.)

In the available research literature on the education of disadvantaged children and youth we find a virtual cafeteria, with a wide variety of offerings. But as is true of most cafeterias, one finds it difficult to get a gourmet type or even substantive meal. The quality of research and depth of research information in any one of these categories is simply not outstanding.

This may be due, in part,to the fact that the problems of underdevelopment and educational handicaps in the disadvantaged have not been appropriately conceptualized. The great majority of investigators who have worked in this field have viewed the disadvantaged as a great homogeneous mass. Insufficient attention has been given to the wide variety of persons, conditions, problems and potential assets which are represented by this all too popular euphemism "the disadvantaged."

The term socially disadvantaged refers to a group of populations which differ from each other in a number of ways but have in common such characteristics as low economic status, low social status, low educational achievement, tenuous or no employment, limited participation in community organizations and limited ready potential for upward mobility. Variously referred to as the "culturally deprived," the "socioeconomically deprived," the "socially and culturally disadvantaged," the "chronically poor," the "poverty stricken," the "culturally alienated," and so on, these are people who are handicapped by depressed social and economic status and, in too many instances, are further handicapped by ethnic and cultural caste status. For a number of interrelated reasons, more and more of these families are coming to be concentrated in the decaying hearts of our great metropolitan centers. Predominantly Negro, Puerto Rican, Mexican, American Indian, southern rural or mountain white, these people are the bearers of cultural attitudes alien to those dominant in the broader community, and their children come to the school disadvantaged to the degree that their culture has failed to provide them with the experiences "normal"

to the kinds of children the schools are used to teaching.

As a consequence, these children show in school disproportionately high rates of social maladjustment, behavioral disturbance, physical disability, academic retardation, and mental subnormality. Such problems are acute wherever they are found, but they have been exacerbated and brought to the focal point of public attention because of the recent increasing concentration of this population in the center city and because of increasing pressure on the school to maintain and insure the academic success of these children in the public school.

Approaching this population and the literature related to it as an educational challenge rather than as a political problem one is led to a three unit conceptual model for approaching the pedagogical tasks involved. The teaching-learning process for any learner involves:

1. The nature, quality, and functional patterning of basic cognitive processes (sensation, perception, cognition, association, generalization, memory, thinking, or problem solving, information processing).

2. The nature, quality, and functional patterning of affective mechanisms (attitude, aspiration, motivation, involvement, receptor readiness and preference, set, temperament).

3. The nature, quality, and functional patterning of achievement systems (skills mastery, content mastery, informational and behavioral repertoire).

Although the literature treats aspects of this model, what is missing is systematic attention to the three aspects or units in their dialectical relationship to each other.

--Some of these children have problems because their basic cognitive processes are defective or disordered.
--Some of these youngsters have major disturbances in affect or their affective behavior may be guided by the beat of another drummer.
--Some of these youngsters simply have deficiencies in the mastery of basic skills.
--Still others suffer from significant information gaps--certain content is not in their information pool.

But these developmental learning disturbances don't operate unilaterally. They interact, and interpenetrate and overlap. Additionally, temporal and sequential ordering and disordering combine to further complicate the picture. Thus, when we try to look at intelligence or personality or achievement factors--as is typical of much of the literature--we get findings that sound intelligent but are frequently unintelligible, or at least are close to being meaningless as guides to educational planning.

What does it mean when we say that we know a great deal about the intellectual status of disadvantaged children? It simply means that we know that children from socially disadvantaged backgrounds tend to make lower scores on standard tests of intelligence than do children from more privileged backgrounds. Since we know that these tests tend to correlate with success in school, these children with lower scores are likely to do poorly in school.

Much of the research in this area has been concerned with the determination of relationships between intelligence and socio-economic status or intelligence and ethnic status. (Clark and Clark, 1953; Deutsch and Brown, 1964; Dreger and Miller, 1960; Eells, 1953; Higgins and Sivers, 1958; Montague, 1964; Osborne, 1960.) Consistently these reports show higher income and higher social or ethnic status positively correlated with higher intellectual status. These relationships, however, are not viewed as permanent or irreversible as previously thought. Despite prominent stylistic differences in patterns of intellectual function observed in children of different ethnic and social groups(Lesser, 1967), Deutsch, 1963, noted that class differences in perceptual abilities decreased with age; Eells, 1953, writing in the context of his concern with the cultural bias of intelligence tests noted that children from deprived backgrounds often receive scores which are inaccurate reflections of their basic intelligence. The necessity for examining the subcultural values of the child tested has been pointed out by Levinson, 1961. Deutsch and Brown, 1964, found that the influence of race became increasingly manifest and crucial as social level increased. Pasamanick and Knobloch, 1955, noted that awareness of the examiner's skin color caused sufficient inhibition to result in decreased verbal responsiveness and thus poorer performance on language sections of intelligence tests. Intelligence level was described as a function of the amount of material available for learning and the types of learning which take place (McCandless, 1952). Some investigators have characterized the lower class child as weak in conceptual ability (Siller, 1957). In such academic areas as arithmetic concepts (Montague, 1964) and in perceptual ability (Deutsch, 1963), more psychomotor and behavioral disorders and greater reading disability were found in the deprived population than

in more privileged groups by Pasamanick and Knobloch, 1958. The findings by Pasamanick and Knowbloch which are based upon the study of relationships between income levels, health status, and school adjustment, suggest a continuum of reproductive errors. The incidence of reproductive error or developmental defect occurs along a continuum in which the incidence of error is greatest in the population for which medical, nutritional and child care are poorest, and least where such care is best. Now this formulation, when applied to the question of possible social, class or racial difference in intelligence has led to the general feeling that racial IQ differences are a result of environmental deprivation rather than of inherent limited potential. In the definite review of this problem, Klineberg, 1963, found no scientifically acceptable evidence for the view that ethnic groups differ in innate ability.

Hunt, 1961, has advanced and provided considerable support for the position that intelligence is not primarily a genetically determined phenomenon, but rather is a function which develops in and through the process of interaction with the environment. This position is reflected in much of the work on intellectual function in disadvantaged populations. Since many studies show differential function favoring more advantaged groups, much effort has been directed at establishing evidence of social experience determinants of these differences.

Considerable attention has been given to the nature of intelligence tests and the conditions under which such tests are administered. Earlier efforts at the development of culture-free tests of intelligence have been replaced by effort directed at the development of culture-fair tests, that is tests of intelligence which include items drawn from the cultural-experience background of a wider variety of subjects. This concern with culture-fair instruments, however, is best limited to studies in which comparisons between groups of subjects are the principal focus. In studies where concern is focused upon the extent to which individuals or groups approach the criterion measures standard in academic circles in this country, culture-fair tests tend to lose their predictive value. In this context, the standard tests of intelligence are more commonly and appropriately used. Deutsch, Fishman, and others, 1964, have given extensive treatment to these issues in a volume on testing minority groups. Following an examination on some of the implications of our knowledge of the measurement of intelligence, Lesser and Stodolsky, 1967, have concluded: "Intelligence tests must now be thought of as samples of learning based on general experiences.

A child's score may be thought of as an indication of the richness of the milieu in which he functions and the extent to which he has been able to profit from the milieu. In contradistinction, school-achievement tests assume deliberate instruction oriented to the outcomes measured in the test." While we are able to state at any point in the child's career that he has achieved a certain level of intellectual or academic function, we are still unable to say much about the relationship between the two. Even worse, we are forced to ignore the intellective processes and affective mechanisms which have permitted or precluded achievement.

There is then an extensive literature on differences in intelligence test performance between Negroes and whites, between whites and other minority groups, and between social classes. It is sufficient for our purposes simply to remind you that the findings consistently favor higher status groups whether that status is based on income or ethnic origin. However, the economic and class factors greatly contaminate these data making it extremely difficult to treat ethnic origin definitively. Two findings are of particular interest even if they are so far of little use. In minority group-white group comparisons on standard tests, whites consistently come out with higher scores except when compared to orientals who in several studies have earned scores equal to whites and who in a study of preschool functional level equaled whites on verbal material and excelled comparable white children on nonverbal tests. A second group of findings of interest involve comparisons by social class and ethnic group in laboratory learning situations.

In several studies involving laboratory learning or new-learning situations, we find a marked absence of differences in the quality of such learning task mastery between different economic or ethnic groups. The relationship between tested intelligence and performance on these new learning or laboratory learning tasks is high for upper status groups, but negligible for lower status groups. These findings suggest that the tests are reasonably adequate measures of quality of intellectual function in upper status children but poor measures of quality of intellectual potential in less privileged youngsters. When both groups are confronted with learning situations which are not heavily dependent upon richness of previous learning experience differences in achievement on these learning tasks are greatly reduced. Likewise, for youngsters who are exposed to standardized tests, which to a large extent duplicate performance tasks with which they have had some experience, correlations between performance in the two situations by youngsters to whom such experiences have been common are high. When youngsters who have been deprived of those "standard" experiences which tend to be tapped in our standardized tests are subjected to such test situations we see marked differences between their performance in such situations and their performance in new or laboratory-learning tasks.

There are several leads for further study provided in the data of these research findings. All need further study and much more intensive analysis. Nonetheless, they have provided the basis for much of the optimism that may be currently observed in our educational work with disadvantaged populations.

I have given very superficial coverage here to the wide literature on intelligence and achievement measures for disadvantaged children. But in-depth analysis is not needed to make the point. Available research in this area permits the description of certain measured levels of function in comparison to some reference group, but it does not permit us to understand the processes involved. Indeed, there is even some evidence to suggest that the descriptions of levels of function are misleading since they may be too narrowly drawn.

However, what is emerging from the careful analysis of this research is the clear impression that static measures of function or status are inadequate in dealing with disadvantaged children. What is needed is appraisal procedures which permit us to get at process-mechanism interactions for it is out of process analysis and interactional studies that we get meaningful leads for intervention. We will return to this point later when we talk about implications for the training of personnel.

It is interesting that although we have less research related to the affective development and behavior of the disadvantaged, the literature seems somewhat clearer. It may be the result of the fact that we have been forced to describe rather than quantify, and in the absence of precision or allegedly accurate measures we have been less prone to make predictions and take recalcitrant positions. Zigler, in discussing the triadic model for getting at the learning problems of the disadvantaged, has suggested that the affective area involving attitudes and motivations may not only be more plastic and amenable to modification than cognitive processes or achievement systems but the affective area may indeed be more crucial. He takes the position that shifts in quality of function may be more a function of attitude toward the task, motivation and task involvement than difference in cognitive function.

The literature on affective development indicates that many of the children with whom we are concerned show a marked lack of involvement with, attention to and concentration on the content of their academic experiences. There are few academic tasks which commit them to deep involvement. Their work habits are frequently insuffi-

ciently developed. Because of the high interest demands of non-academic experiences and the relatively low interest demands of academic experiences, they are limited in their ability to inhibit responses to those stimuli which are extraneous to academic learning and to disinhibit responses which are pertinent to academic learning. Deutsch reported that lower class children tend to ignore difficult problems with a "so what" attitude and that as a result over a period of time their learning is decreased proportionately. Ausubel, 1964, found that lower class children depend more on external as opposed to internal control than do children from the middle class.

Moreover, socially disadvantaged children have been determined by several investigators to be less highly motivated and to have lower aspiration for academic and vocational achievement than do their middle and upper class school peers. The degree of motivation and the direction which it takes among many of these children are often inconsistent with both the demands and the goals of formal education. But although the quality of aspiration is often depressed, it is usually consistent with the child's perceptions of the opportunities and rewards available to him. Symbolic rewards and postponements of gratification appear to have little value as positive motivators of achievement. For these children goals tend to be self-centered, immediate and utilitarian, as are the goals of the dominant culture. However, children growing up under more privileged circumstances have available many sources of immediate satisfaction and immediate feed back as well as many more evidences of the utilitarian value of academic effort. The differences between the privileged and the disadvantaged in this area are not so much differences in values as differences in the circumstances under which the values are called into play. Although the values from which motivation is derived in the disadvantaged child seem to reflect the dominent culture concern with status, material possessions, ingroup morality, Judeo-Christian ethics, competition, etc., there is usually lacking a concern with the aesthetics of knowledge, symbolization as an art form, introspection, and competition with one's self. In other words, dominant societal goals and values are operative but their direction and context may not be complementary to academic achievement.

Rosen, 1956, observing a relationship between high motivation and high grades, postulated that middle class children are more likely to be taught the motives and values which make achievement possible. Similarly, in Gould's study (1941) only sons who internalized their parents' values of aspiration were sufficiently motivated to overcome obstacles which faced them at school. Bernstein, 1960, found achievement strivings arising from parental demands for success to be a more

central motivational factor among middle class than among lower class children.

Closely related to these motivational factors are attitudinal factors, and these too are often a source of problems in educational planning for disadvantaged children. Hieronymus, 1951, found that higher socio-economic status was correlated with a high level of aspiration and positive attitudes toward school while negative attitudes toward school and lower levels of aspirations were more frequently encountered in lower socio-economic status groups. Sewell's (1957) finding that educational aspirations tend to be greatly influenced by class values in a manner favoring the middle and upper classes is consistent with the earlier work. Among other characteristics which have been referred to in this population are utilitarian attitudes toward knowledge and negative attitudes toward the pursuit of knowledge. Many of these children and their parents view education primarily in terms of its job market value and their orientation is toward achieving the minimum level of education commensurate with employability. Carrol, 1945, sees the lower class ideal self as characterized by personal beauty and fame, not the moral and intellectual qualities which characterize the ideal self of middle class children.

As important as these attitudes toward school and learning may be, it is in the area of attitude toward self and others that the crucial determinants of achievement and upward mobility may lie, and it is in these areas that our data are least clear. It has been observed by some that disadvantaged children show affinity for in-group members and demonstrate a sense of distance from or even hostility toward representatives of out-groups, whether in peer or non-peer relationships. In contrast, other observers have noted the high degree of respect and awe in which these children hold selected out-group status persons or idealized models. Tendencies toward self-depreciation and depressed self-concepts have been noted by several observers (Dreger, 1960; Keller, 1963). Goff, 1954, found that lower class children have more feelings of inadequacy in school than do children from the middle class. On the other hand, some recent findings (Gordon, 1965) suggest that depressed self-concept is not so prevalent a condition, and that even where present it may have little negative bearing on achievement. In fact, it is entirely possible that positive or negative feelings of self-worth may operate respectively to depress or accelerate achievement. Furthermore, it is in this area that the rapidly changing national and world situations involving underdeveloped peoples are likely to be most influential, and it is difficult to predict the ultimate effect of these altered situations on self-perception and behavioral change. Our knowledge and even our researchable

hunches are as yet limited. But it is around these changing situations that the school may yet find a fulcrum on which to lever up motivation, aspiration, and involvement. There is growing empirical evidence to support the view that young people actively associated with the current civil rights struggle draw from their involvement in that effort a new source of motivation and an enhanced view of themselves (Coles, 1963). The impression is gained that such experiences are reflected in greater application of effort to and greater achievement in academic endeavors. The evidence for such improvement is less clear, yet there can be little doubt that attitudes toward self and toward the environment in relation to self are crucial variables in academic as well as in social and emotional learning situations. In fact, one of the strongest findings coming out of the Coleman data indicates that attitudes of environmental control exercise a powerful influence on academic achievement second only to family background.

There are other categories of research information which deserve some attention in this overview but space will not permit me to develop them. I prefer to use the space which remains to discuss the relevance to the teaching-learning process of some of the information which is available.

I have pointed earlier to the fact that our knowledge of the disadvantaged is nonspecific. We have identified some behavior trends or conditions which are frequently encountered in this population, but since we do not know in what combinations they exist in individual children or the nature of the interaction between these several aspects of behavior, it is difficult to translate this knowledge into meaningful planning for educational intervention.

Klopf and Bowman, 1966, report as a salient finding that while the majority of /training program/ directors placed both "understanding the life conditions of disadvantaged groups" and "development of instructional skills, techniques and materials" among their key objectives, they seemed better prepared to teach "understandings" than "skills." This is very interesting since education has been accused of being strong on the techniques end and weak on the understandings and knowledge end. The fact is as we look at the content of many of these programs of teacher preparation we see that we have not only not developed new techniques, skills and materials, we also have not taught much understanding. I submit that there is a difference between learning what these children look like, how they behave, what their home conditions are like, what to anticipate in their behavior or what their group intellectual or social characteristics are, and learning what these conditions and circumstances mean to the individual child

and for his functioning in the teaching-learning situation. I have not seen or read of a program which is preparing teachers to perform on that level, for that quality of understanding requires skill in behavioral observation and behavioral analysis. It requires competence in the qualitative appraisal of the behavior and functioning of the child under a variety of stimulus situations. It is from this kind of understanding that appropriate techniques, materials, and instructional skills will have to be developed. We have probably been unable to teach these techniques and skills because we have not yet developed the appropriate understandings. The available research reflects this failure. Having reviewed that research literature extensively, I cannot tell you what ought to go into the curriculum of disadvantaged children or how that curriculum should be organized or presented. I can only tell you that a great deal more is going on with these children than we understand and the most important thing we can teach our teachers is how to go about finding out.

From the Coleman report, 1966, we learn that school and teacher factors account for little of the difference in academic achievement between children. We are told that family background factors emerge large. Now Pettigrew in the Civil Rights Commission Report has made much of this and has turned this finding to support the equally important struggle for racial desegregation and integration of schools. On reanalysis of the Coleman data, Pettigrew shows that for older students it is not the background of the individual child but the social class and home background of the school population which is important. Children from poor backgrounds do better in schools where most children come from more privileged homes. He argues that since the Negro middle class is small, we will have to integrate the schools in order to provide a proper social class mix for large numbers of children. But let's not lose the point of this reference! Could it be that Coleman found school and teacher variables to be of low level significance because there is not much variation in what schools offer and teachers do along the dimensions that are studied? Maybe differences between classes with 28 and classes with 35 children are not significant. But does that mean that there is no difference between teaching 10 and teaching 50 children? Maybe teaching as a profession has not reached the point where the teacher is skilled enough to develop sufficient understanding of her pupils to plan learning experiences that outweigh home influences. If teachers are not that good and school techniques and materials have not yet been sufficiently developed, Coleman's statistical techniques cannot make teacher and school variables significant. But that does not mean that it cannot be done by those of us who train teachers and design schools' programs.

There was a time when farmers used to spread manure to fertilize their crops. Some crops flourished, others barely survived and still others died before we learned that there is no universal fertilizer. Slowly we learned to do qualitative analyses of soil conditions, of plant requirements, and to develop chemical compounds which were designed to match the specific requirements of specific crops growing under specific conditions. We even learned which chemicals had to be put into the soil at what time before or during the life of the plant. Agricultural research has reached a level of high sophistication and successful farming has become a science.

There may be aspects of education which will forever be artistic, but we teacher educators have the responsibility to begin to make our future teachers artists who are also scientists.

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