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CRITICAL OVERVIEW OF EARLY CHILDHOOD EDUCATION PROGRAMS.

BY- LAVATELLI, C.B.
ILLINOIS UNIV., URBANA, NAT.LAB EARLY CHILDHD.EDUC

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PRESENT PRESCHOOL PROGRAMS FOR DISADVANTAGED CHILDREN ARE OF 3 KINDS--(1) AN INVENTORY TYPE WHICH ATTEMPTS TO IDENTIFY DEFICITS WHICH WILL AFFECT SCHOOL LEARNING AND TO OVERCOME THESE THROUGH EDUCATIONAL ACTIVITIES, (2) A PLAN BASED ON A RECAPITULATION THEORY WHICH ATTEMPTS TO DESCRIBE DEVELOPMENTAL STAGES AND TO COMPENSATE FOR THOSE WHICH A PARTICULAR CHILD HAS MISSED, AND (3) A COMPUTER MODEL IN WHICH THE CURRICULUM DOES NOT TAKE INTO CONSIDERATION SUCH PERSONAL FACTORS AS A CHILD'S ATTITUDE OR PERSONALITY BUT CONCENTRATES ON THE MECHANISTIC FUNCTION OF THE BRAIN TO RECEIVE, PROCESS, AND STORE DATA. PRESCHOOL PROGRAMS FOR THE DISADVANTAGED HAVE CONCENTRATED ON LANGUAGE AND COGNITIVE DEVELOPMENT AS THE CHILDREN HAVE DEMONSTRATED LACKS IN THESE AREAS. SOME OF THE DEVELOPMENTAL PRINCIPLES THAT APPLY TO LANGUAGE TRAINING ALSO APPLY TO INTELLECTIVE PROCESSES. THEREFORE, APPLICATION OF THESE TRAINING PRINCIPLES SHOULD RESULT IN A HIGHER LEVEL OF INTELLECTUAL FUNCTIONING. A FIRST PRINCIPLE OF LANGUAGE TRAINING IS THAT A CHILD SHOULD HEAR GOOD SAMPLES OF LANGUAGE USAGE SO THAT HE CAN LEARN TO DECODE MEANING AND TO CONSTRUCT HIS OWN RESPONSES. A MOTHER OR TEACHER WHO EXPANDS OR EXTENDS THE CHILD'S SENTENCES IMPROVES HIS LANGUAGE ENVIRONMENT. WHEN THE TEACHER IS AWARE OF SENTENCE STRUCTURE SHE CAN RECOGNIZE LANGUAGE AREAS IN WHICH A CHILD IS WEAK. THESE AREAS CAN THEN BE STRENGTHENED BY OFFERING PRESCHOOL ACTIVITIES DESIGNED TO ELICIT DESCRIPTIVE AND COMPARATIVE RESPONSES, THUS STIMULATING VERBAL EXPRESSION. POSITIVE REINFORCEMENT BY THE TEACHER HELPS TO IMPROVE THE CHILD'S MEANINGFUL COMMUNICATION. THIS PAPER WAS PREPARED FOR THE HEAD START CONFERENCE (BERKELEY, APRIL 3, 1968). (MS)

CRITICAL OVERVIEW OF EARLY CHILDHOOD EDUCATION PROGRAMS[1]

C. B. Lavatelli
Associate Director

National Laboratory on Early Childhood Education
University of Illinois
Urbana

One of the significant discoveries of the last decade has been that poverty can have a depressing effect upon the development of intelligence in children, and that consequently children of the poor have learning difficulties. We have always known that school success and social class membership went hand in hand, but many had the sneaking suspicion that children in the lowest social class had inherited an inferior intelligence. It is true that there had been dramatic accounts of changes in IQ that contradicted that sneaking suspicion, but these were too often greeted with disbelief. Perhaps the most dramatic was the research of Skeels and Dye who, in a report published in 1939, described babies they had found in an orphanage in a practically vegetable state of existence--listless, dull, withdrawn, inactive. The psychologists were so concerned about the viability of three of these infants in particular that they took them out of the orphanage and put them in the only other available institution--a home for mentally retarded girls. There the three babies were

1. Paper prepared for Head Start Conference, Berkeley, April 3, 1968.

cared for by fourteen-year-olds, selected as somewhat brighter than average among the feeble-minded inmates. Several months later, when the psychologists were visiting the same institution, they were struck with the bright, alert, intelligent behavior of three infants whom they found there. They were astounded to discover that these were the three listless babies placed in the care of the mentally retarded girls some time before. What had happened was that the fourteen-year-olds took a motherly interest in the babies and showered them with attention missing in the orphanage where the infants had spent day after day in cribs with little stimulation from people or things. The psychologists decided to test the effects of a more stimulating environment upon 13 additional babies whose initial test scores were equivalent to from 36 to 89 IQ points. Two years later an average gain of 27 points on developmental scales was recorded for the group. A follow-up study twenty-one years later showed that the adults who had grown up in the care of the feeble-minded were self-sustaining adults while those who had remained in the orphanage were still institutionalized.

The original research report was severely criticized. Few people really believed that the effects of a stimulating environment could be so great. Today, however, we accept the notion that intelligence is, in large part, determined by the kind of intellectual stimulation the child receives in early years. We have become convinced that if we take children from the ghetto, from migratory camps, from the hills of Kentucky or its California equivalent, the depressing effects of poverty

will be overcome. Moreover, we are certain that the preschool period is the time to do it.

The first pioneering attempts to use the preschool to overcome the intellectual deficit of disadvantaged children were built upon the premise that the programs ought to provide the same kind of enrichment for the poor that the middle class child enjoyed at his home. Writers talked about the hidden cirriculum of the middle class home, the books, educational toys and materials, trips, good language environment, emphasis upon academic achievement which served to prepare the middle class child very successfully for the school curriculum. Traditional nursery schools attended for the most part by the middle class child provided the same kinds of experiences. The classroom was equipped with building blocks, doll-play equipment, wheel toys, books and educational toys and art supplies with which children could play freely. There was emphasis upon creativity, good work habits, physical and motor development, and upon learning to get along well with others. Early preschool programs for the disadvantaged were based upon the traditional model. It was thought that if the disadvantaged child had the same opportunities as the middle class to carry on play activities with blocks, housekeeping equipment, wagons and trikes, to engage in creative art and rhythm experiences, to list to stories--all under the eye of a teacher trained in a mental hygiene approach, the children would catch up. Unfortunately, while children make some gains in the traditional nursery

school, the gains are too small. The children in the first Deutsch project in New York City, for example, showed only modest gains of three points in IQ in a year's time, hardly enough for the catching up that the children had to do. As a consequence, the need for a special curriculum for disadvantaged children was advocated, a curriculum that would emphasize cognition, the processes by which children acquire knowledge, and that would more adequately prepare children for school.

But what should be the nature of such a curriculum? For at least the past five years, there has been a great ferment in the pre-school field as investigators have attempted to discover the most effective way of overcoming the intellectual deficit of the disadvantaged. And as always true when there is much ferment we began to see a number of strange, bizarre, even "kooky," answers to the question of what kind of curriculum would be most effective to the task. What I have tried to do in preparing this talk is to survey the field and attempt to categorize the programs in terms of the theory upon which each category is based.

The first kind of program is the inventory type. Researchers endeavor to describe accurately deficits of the disadvantaged that will affect school learning and to plan educational activities to overcome the deficit. Among the deficits ascribed to disadvantaged children are that they have meager vocabularies, poorly developed syntax, difficulty in following instructions, and an inability to discriminate sounds. They also are poorly motivated to do well in school and are characterized by

a short attention span, impulsivity rather than reflectiveness, and a poor self image.

Head Start programs have been of the inventory type. In fact, the Caldwell-Soule Inventory used in evaluating children's progress in Head Start is based upon an analysis of areas where disadvantaged children have had trouble--vocabulary, number concepts, following instructions, independence and self-help--areas which Head Start attempts to strengthen. Average gains made in inventory-type programs, however, have been slight. The fault is not with the inventory, but with the remedies. It is true that disadvantaged children have trouble in following directions, and with the other categories I have mentioned, but there has not been an adequate, specific-enough program to overcome the difficulty. If children are to improve in any of the categories, there must be direct instruction planned for the purpose.

The second category of curriculum programs is based upon a recapitulation theory. The experimenter begins by attempting to describe how development takes place. He makes the assumption that the disadvantaged child has missed out on one or more of the stages by not having been provided with experiences to develop that stage. I am sure that all of you are familiar with the Delacato methods. You will recall that Delacato hypothesized that children with learning disabilities that might stem from minimal brain damage could be helped by certain perceptual-motor exercises, such as creeping on all fours so that lateral dominance in the brain might be established.

The method was taken over with great enthusiasm even by teachers of normal children, and in some kindergarten classrooms today children spend part of the day engaging in a number of physical exercises, including creeping, in an attempt to aid learning ability.

Dr. Robbins' careful study done at the University of Illinois raised doubts about the efficacy of the Delacato method even for brain-damaged children. There are other less extreme examples of recapitulation theory, but all might be criticized on the grounds that it is not necessary to take children through stages for every concept which they must acquire. I believe that the four- or five-year-old, even the disadvantaged four- or five-year-old, has a sufficient repetoire of concepts so that many can be taught simply by analogy to what he already knows.

The third category of preschool curriculum is based upon what might be called a computer model. The human brain is often likened to a giant computer; it is constructed to receive data from the senses, process the data, and then store it in a memory bank. There is no quarrel with this analogy. However, I do quarrel with those who would build a curriculum on a mechanistic model. The computer has no personality problems, no attitudes built up toward school success, no self-image and no creativity to be developed. Yet, there are some researchers who argue for such a model to overcome cultural deficit. They believe in programming the mind with the kinds of information they deem essen-

tial to academic success and they attempt to program the input so that it becomes increasingly complex. Some in this school of thought accept the patterned drill as the teaching method for programming children's minds. The Bereiter-Engelmann approach is perhaps the best known example here. These two investigators developed what they call an academic preschool at the University of Illinois. In this preschool children have directed lessons in three subjects each day--the basic language, reading, and arithmetic. The fifteen four-year-old children are divided into three groups of five members each, and each groups moves from one room to another for lessons which last twenty minutes. Language training is carried out as if the children were learning English as a second language; children learn basic statement patterns and how to answer questions about the pattern. The teacher begins by holding up a cup and saying, "This is a cup." The children must then repeat, "This is a cup," which they shout after a time in unison with considerable zest and marked rhythm often clapping hands or stomping feet to mark the rhythm. Then individual children repeat the statement, with the teacher insisting upon correct pronunciation. Next the teacher teaches the statement, "This is a comb." Then she holds up the cup and says, "This is not a comb. Is this a comb?" and the children must reply, "No, this is not a comb." Then the children are taught such statements as "This cup is big," and "If this cup is not big, it is little." Prepositions are taught: "This cup is on the table," as well as under, between, in back of, etc. Next, children are taught class terms or categories such

as vehicles, and learn verbatim, "A car is a vehicle;" "A truck is a vehicle;" "If it takes you places, it's a vehicle."

Approach to the teaching of arithmetic is the same as for teaching language. In fact, arithmetic is treated as a language, and children taught identity statements by rote: "One plus zero equals one, two plus zero equals two," etc. Then again by rote they are taught nonidentity statements: "If 1 + 0 = 1, 1 + 1 can't equal 1." Pictures of objects or shapes might occasionally be drawn on the blackboard, or fingers used in counting, but the use of concrete objects to develop sensorimotor referents for number concepts is deemphasized; emphasis instead is on the learning of abstract concepts and formal meanings.

Parents of children in the Bereiter-Engelmann program like it very much. They like a program where, as they put it, "The children are taught something that will help them when they go to school. It's because the children aren't taught right as they were in preschool," they will say.

Visitors to the program fall into two camps, the wildly enthusiastic and the sharply critical. The enthusiastic are impressed by lessons where the teacher extends the top line of a two-step ladder beyond the vertical, saying, "The top line gets longer; tell me about the bottom line," and the children respond, "The bottom line gets shorter" [sic]. Or they marvel to hear a culturally disadvantaged four-year-old respond clearly to the question, "What comes after one? What comes after two?" in a complete and grammatical sentence: "Two comes after one."

The critical see what they take to be evidence of response learning; they doubt that the patterned drill affects language and thought processes any more effectively than memorizing nursery rhymes and learning to respond, "Dickory comes after Hickory" and, "The mouse ran down the clock; the mouse did not run up the clock."

Measures to date have relied on the Binet, ITPA, and the Wide Range Achievement Test in reading. Three groups of children have had two years in the program. Bereiter and Engelmann report that five-year-old children are reading at the second grade level after two years in the program. Unfortunately this statement is misunderstood by many who take it to mean that the children can read second grade books. Such is not the case. The Wide Range Achievement Test is a test of vocabulary which was orginally developed for use with mentally retarded children. It does not test the child's ability to read a page and comprehend meaning. Bereiter-Engelmann also report 20 point gains in IQ, but impressive gains in IQ must always be taken with a grain of salt, for this preschool program, like many others, includes in its curriculum items which are on the Binet. While it might be a test of a child's intelligence to be able to answer these items correctly by virtue of having picked up the information on his own, it is quite another story for children to give back correct responses on which they have been drilled. The real test, of course, is how well the children do in school. The first group of children is now in the second grade, and their achievement test results are being evaluated. Results will be

confounded, however, because the children are now in integrated schools and exposed to a number of special curriculun programs including the IPI.

My own criticism of the patterned drill is that it is too limited a program. In language, for example, the children are exposed to a very limited number of verbs, mostly in the present tense. Yet, we know that human beings have a natural capacity for language and acquire it often in the face of great difficulties. Given sufficient exposure to a richer vocabulary and more complex syntax, children can process the data and put together utterances which they have never heard themselves. If a mother says to her two-year-old, "Find Daddy and tell him supper is ready," the child does not find his father and say, "Find Daddy and tell him supper is ready." Instead, he says to his father, "Daddy, Mommy says supper is ready." Young children acquire the structure of the language by listening to what is said to them and figuring out the rules. Even a child's mistakes show his ability to process language. When he says, "feets" for "feet" and "menses" for "men," he may be making an error, but his error is one of overgeneralization about how plurals are formed.

You may wonder at this point whether I am going to come up with a panacea program that will be the answer to all our needs. The answer is no; what we're finding in the National Laboratory is that while there are some general principles of development which apply across the board, the needs of the Yaqui Indians in Arizona are quite

different in many ways from the needs of Chicago black children and the rural poor of Tennessee. I want to talk about these general principles as they have emerged from research in the Laboratory, and particularly as they apply to the language domain, for this is the domain I have concentrated on. Furthermore, since language and thought are closely related, some of the same general principles that apply to language training also apply to intellective processes in general, so the result should be a raising of the level of intellectual functioning.

1. The first principle in language training is that the child should hear directed to him a wide variety of well-formed utterances to which he must make a response. We want the child to be able to decode the meaning in a teacher's explanation or question and to compose explanations of his own. Decoding meaning, comprehending what others are saying comes before constructing one's own responses. The ability to construct depends first on hearing a good sample of language, For the child to figure out that we say, "He goes to school every day;" "He went to school yesterday," he's got to hear "He goes" and "He went" or any other verb form a sufficient number of times. Children who always speak in the present tense and with no inflections for third person singular, for example, "He do," "He go," "He git," should be exposed and have to respond to models of well-constructed sentences.

Brown and Bellugi, two researchers at Harvard, reported that middle class parents use an expansion technique. A two-year-old says, "See truck, Mommy," which may mean, "See the truck," or

"There's a truck," or "I see a red truck." The mother expands the sentence for the child by saying, "Yes, that's a big, red truck." Cazden tried this technique with children under three years. A tutor interacted for twenty minutes a day with three children at a time, expanding the children's utterances. For "truck" the tutor would say, "It's a big, red truck." In another group, a tutor extended children's utterances by presenting models of well-formed sentences. "Billy, remember the big fire truck we saw the other day?" A third group, the controls, received no training. Cazden found that results favored extension. The child gets a richer exposure to a wide variety of noun phrases, verb phrases, and types of sentence construction when he hears models of such sentences directed at him. Both groups did better than children who remained in the play group. Extension is an interactive method; teacher or mother picks up what the child has said, thus letting him know what she thinks he is talking about and extends the idea by introducing related ideas or by elaboration.

How can this principle be applied in preschool classrooms? Chiefly by making extensive use of assistants. In one evaluation study of Head Start, head teachers ran the group, while assistants helped with discipline. Children heard directions from the teacher but the only two-way conversations carried on were with peers. They heard a limited variety of well-formed utterances.

Every child in programs for the disadvantaged ought to have some time during the day when he can be part of a small group of children physically separated from the rest of the class and under the tutelage either of the head teacher or the assistant who will see that during that period children have a chance to listen, to respond, and to be responded to. The learner must be active.

2. The second principle in language intervention programs is to build into teachers' heads a model of how sentences are put together. Most adults who speak Standard English know how to put sentences together, but often they are not conscious of how they do it. Dr. Marie Hughes at the University of Arizona has developed a program for disadvantaged Mexican-American children in the primary grades in which teacher awareness of language structure is an important component. The program is one in which children engage in a number of activities--field trips, construction, cooking, art. These activities stimulate a great deal of conversation. The children's remarks are recorded in individual books, on wall murals, or underneath a picture the child draws. Remarks are recorded verbatim; no attempt is made to change what the child has said to Standard English or to a higher structural level. Thus if a child says, of watching clay absorb water, "Coming some bubbles out of the clay," the teacher records the utterances as spoken, but notes that this particular child needs help with verb phrases and word order.

Let us see how the program might look in action. The children in a first grade immersed a sponge in water and observed the bubbles of air coming out of the sponge. "Coming bubbles out of the sponge," Bertha said excitedly. Hers and her classmates' remarks were recorded by the teaching assistant. The program assistant and the teacher decided in conference that the next language level for Bertha might be beginning a sentence with the subject and using a participle to describe the bubbles. Accordingly the teacher planned to model this type of construction for Bertha the next day.

Six-by-eight cards were prepared, with each child's remarks printed on an individual card, and with such phrases as, "Bertha said," or "Angie remarked," prefacing what the child had said. The plan was to have the teacher read the cards verbatim and then model the correct structure for Bertha. The teacher might say, "I saw bubbles coming out of the sponge also," and then proceed, by questioning, to elicit the use of the correct structure for the child. The same kind of language mediation is used in all aspects of curriculum work, and classrooms are full of "talking" murals with pictures and accompanying comments, individual books children have made containing pictures and their spontaneous remarks about a particular experience, and collections of stories by the whole class about a common experience. Thus the children are living in a language environment where their products are held in high esteem and form the basis of the work in reading and development of intellectual skills--all of which serves to reinforce for the child the importance of improving his clarity of expression.

The children's experiences are also used to develop categorizing and associating skills. For example, children might be asked to describe the characteristics of objects they are observing in terms of shape, color, and size. There are many opportunities for comparison: "It's bigger than my hand," or "It's smaller than my fingernail." The use of comparatives is deliberately provoked by the teacher's questioning.

Questions about the origin of an object, its relation to other objects, and its sensory characteristics--how it smells, tastes or feels--also provoke language. The teacher keeps in mind these three different kinds of questions as children engage in activities like trips or cooking and then gather together to talk about their experiences. Here is one of the stories:

We tasted clams.

Frank B. said, "We get clams from the ocean."

Sandy said, "Minced means that it's cut in little pieces."

Jose said, "It smells like fish."

Xavier said, "It tastes like meat."

Sally said, "It's salty. It tastes like fish."

Some of these sentences are in direct response to the teacher's questions about where the clams come from and what they were like. The questions direct children's thinking and and help them develop some notions about what it means to communicate meaningfully.

Having children recall experiences develops remembering skills that are often deficient in the disadvantaged. Fostering such recall also provides for language growth so that language development and intellectual

development are both stimulated. For example, certain forms of speech like the past tense are learned very naturally as the teacher reminisces with the child about an earlier experience such as a trip to the park. The teacher can deliberately introduce a variety of sentence transformations so that children hear models of various verb forms. "What did we do next?" "What was the bear eating?" "Had you been there before?" "What might we have done?" Many exposures to such verb forms in a personally meaningful context provide the raw data for children's innate language-processing mechanisms to work on. As children receive positive reinforcement for using the verbal models, their ability to communicate meaningfully improves.

Interesting curriculum experiences, then, provide the stimulus to get children to talk. What they say is reproduced for them by the teacher or a teacher's aide. Their stories are put into class books for the library table, into a card file to which children have access, or into individual reading books. In each case, what the child said is prefaced by his name: "Jose said;" "Xavier remarked;" etc., so the stories have a very personal ring to them.

The grammatical analysis that teachers make in order to model the syntactic structures that children need is a fairly simple one. Most teachers are as scared of the word "grammar" as they are of "mathematics." However, teachers who speak standard English will not find it difficult to analyze how the child is using language and what he needs to hear in order to improve. Does the child use only labels in talking about things, or does he use noun phrases? That is, does he say, "D'ere box," or can he use adjectives to describe the box: "D'ere big, round box." Does he use single-

word verbs, or verb phrases complete with auxiliaries? That is, does he say "He gone" or "He's gone"? Does he use only the present tense or does he use different forms of the past, future, and perfect tenses? Does he use negation properly, or sprinkle his sentences with negatives inserted unnecessarily? (He no got no pencil.) Can he express "Wh" sentences properly: "Where is he going," rather than, "Where he going," and the same with sentences beginning with "Who" or "What." Note that in structuring such sentences, an auxiliary verb is used and the noun or pronoun subject is inserted between the auxiliary verb ("is") and the participle ("going"). The aim of language programs ought to be to make language communicate thought effectively; grammar is the key to that effective communication.

To summarize, the Hughes model may be described as based upon the following premises:

1. Interesting curriculum activities, like trips and experiences with food, can provide the stimulus to get children to talk..
2. Under conditions of positive reinforcement, children will increase their use of the English language.
3. The child's own language output in the form of stories dictated to the teacher or to a tape recorder can serve to stimulate the child to talk, and also serve as a source of feedback to the child on how well he is doing.
4. Teachers can use their knowledge of how language is structured to make diagnoses of individual pupil needs and model specific grammatical structures to give a child a language "lift."

With the tremendous amount of research going on in the language area, new goals and models will continue to emerge. We will have better definitions of what constitutes language competence--that it includes not only the ability to put words together to form sentences, but also the ability to use language to explain things, to give reasons, to talk about events in another time or place. Models for language training will recognize not only the need for repetition of grammatical structures on the child's part, but also the need to expose him to a wealth of structures in meaningful situations, so that his data-processing equipment can be put to use. Language instruction will not exist separately from the rest of the curriculum; each learning experience will be used as a vehicle for developing language competence, with some time provided for the child to practice on needed structures. The development of thought processes and language processes will be considered to go hand-in-hand; as we become increasingly sophisticated about how logical development occurs, we will be able to evolve more effective ways of making language its handmaiden. As Piaget has observed, the more the structures of thought are refined, the more language is necessary for the achievement of this elaboration.